Pediatrics Collection

Question Bank with Answers & Explanations

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DIRECTORY EXPLORER

Click a folder below to open it.

» **01_Neonatology**

» **02_Growth**

» **03_Developmental and Behavioral Disorders**

» **04_Immunization**

» **05_Nutrition and Malnutrition**

» **06_Fluid and Electrolyte Disturbances**

» **07_Genetics and Genetic Disorders**

» **08_Inborn Errors of Metabolism**

» **09_Diseases of Immune System**

» **10_Infectious Diseases**

» **11_Pediatric Respiratory Disorders**

» **12_Pediatric Cardiology**

» **13_Pediatric Gastroenterology**

» **14_Pediatric Nephrology**

» **15_Pediatric Endocrinology**

» **16_Pediatric Neurology**

» **17_Musculoskeletal Disorders in Children**

» **18_Pediatric Hematology and Oncology**

» **19_Normal Development**

» **20_Developmental and Behavioural Disorders**

» **21_Miscellaneous**

» 01_Neonatology

« Back to Parent Directory

Path: 01_Neonatology

• 001 Neonatal Terminology Reflexes	***Questions***	***Answers***
• 002 Neonatology-I	***Questions***	***Answers***
• 003 Neonatology-Ii	***Questions***	***Answers***
• 004 Neonatal Respiratory Disorders Perinatal Asphyxia	***Questions***	***Answers***
• 005 Neonatal Resuscitation	***Questions***	***Answers***
• 006 Previous Year Questions	***Questions***	***Answers***

» 02_Growth

« Back to Parent Directory

Path: 02_Growth

• 007 Growth	***Questions***	***Answers***
• 008 Previous Year Questions	***Questions***	***Answers***

» 03_Developmental and Behavioral Disorders

« Back to Parent Directory

Path: 03_Developmental and Behavioral Disorders

	Questions	*Answers*
• 009 Previous Year Questions		

» 04_Immunization

« Back to Parent Directory

Path: 04_Immunization

• 010 Immunization And Vaccines	***Questions***	***Answers***
• 011 Previous Year Questions	***Questions***	***Answers***

» 05_Nutrition and Malnutrition

« Back to Parent Directory

Path: 05_Nutrition and Malnutrition

• 012 Breastmilk Micronutrients	***Questions***	***Answers***
• 013 Malnutrition	***Questions***	***Answers***
• 014 Previous Year Questions	***Questions***	***Answers***

» 06_Fluid and Electrolyte Disturbances

« Back to Parent Directory

Path: 06_Fluid and Electrolyte Disturbances

• 015 Acid-Base Balance Fluid And Electrolyte Disorders And Ivf	***Questions***	***Answers***
• 016 Previous Year Questions	***Questions***	***Answers***

» 07_Genetics and Genetic Disorders

« Back to Parent Directory

Path: 07_Genetics and Genetic Disorders

• 017 Genetic Disorders And Syndromes	***Questions***	***Answers***
• 018 Previous Year Questions	***Questions***	***Answers***

» 08_Inborn Errors of Metabolism

« Back to Parent Directory

Path: 08_Inborn Errors of Metabolism

• 019 Disorders Of Carbohydrate And Amino Acid Metabolism	***Questions***	***Answers***
• 020 Lysosomal Storage Disorders	***Questions***	***Answers***
• 021 Previous Year Questions	***Questions***	***Answers***

» 09_Diseases of Immune System

« Back to Parent Directory

Path: 09_Diseases of Immune System

• 022 Primary Immunodeficiency And Vasculitis In Children	***Questions***	***Answers***
• 023 Previous Year Questions	***Questions***	***Answers***

» 10_Infectious Diseases

« Back to Parent Directory

Path: 10_Infectious Diseases

• 024 Congenital Infections And Bacterial Diseases In Children	***Questions***	***Answers***
• 025 Viral Diseases Covid-19 In Children	***Questions***	***Answers***
• 026 Previous Year Questions	***Questions***	***Answers***

» 11_Pediatric Respiratory Disorders

« Back to Parent Directory

Path: 11_Pediatric Respiratory Disorders

• 027 Respiratory Disorders In Children - I	***Questions***	***Answers***
• 028 Previous Year Questions	***Questions***	***Answers***

» 12_Pediatric Cardiology

« Back to Parent Directory

Path: 12_Pediatric Cardiology

• 029 Pediatric Cardiology-I	***Questions***	***Answers***
• 030 Pediatric Cardiology-Ii	***Questions***	***Answers***
• 031 Previous Year Questions	***Questions***	***Answers***

» 13_Pediatric Gastroenterology

« Back to Parent Directory

Path: 13_Pediatric Gastroenterology

• 032 Git Disorders In Children	***Questions***	***Answers***
• 033 Liver Disorders In Children	***Questions***	***Answers***
• 034 Previous Year Questions	***Questions***	***Answers***

» 14_Pediatric Nephrology

« Back to Parent Directory

Path: 14_Pediatric Nephrology

• 035 Renal Development And Congenital Disorders	***Questions***	***Answers***
• 036 Renal Disorders	***Questions***	***Answers***
• 037 Previous Year Questions	***Questions***	***Answers***

» 15_Pediatric Endocrinology

« Back to Parent Directory

Path: 15_Pediatric Endocrinology

• 038 Pituitary Thyroid And Adrenal Disorders	***Questions***	***Answers***
• 039 Pediatric Endocrinology And Metabolism	***Questions***	***Answers***
• 040 Previous Year Questions	***Questions***	***Answers***

» 16_Pediatric Neurology

« Back to Parent Directory

Path: 16_Pediatric Neurology

• 041 Cns Malformations Hydrocephalus And Seizures In Children	***Questions***	***Answers***
• 042 Cns Disorders In Children	***Questions***	***Answers***
• 043 Previous Year Questions	***Questions***	***Answers***

» 17_Musculoskeletal Disorders in Children

« Back to Parent Directory

Path: 17_Musculoskeletal Disorders in Children

• 044 Musculoskeletal Disorders In Children	***Questions***	***Answers***
• 045 Previous Year Questions	***Questions***	***Answers***

» 18_Pediatric Hematology and Oncology

« Back to Parent Directory

Path: 18_Pediatric Hematology and Oncology

• 046 Pediatric Hematology	***Questions***	***Answers***
• 047 Previous Year Questions	***Questions***	***Answers***

» 19_Normal Development

« Back to Parent Directory

Path: 19_Normal Development

	Questions	*Answers*
• 048 Previous Year Questions		

» 20_Developmental and Behavioural Disorders

« Back to Parent Directory

Path: 20_Developmental and Behavioural Disorders

	Questions	*Answers*
• 049 Normal Development Developmental Behavioral Disorders		

» 21_Miscellaneous

« Back to Parent Directory

Path: 21_Miscellaneous

	Questions	*Answers*
• 050 Previous Year Questions		

Part A — All Questions

• [01_Neonatology] 001 Neonatal Terminology Reflexes

« Back to Folder Directory

[01_Neonatology] 001 Neonatal Terminology Reflexes — Quick Jump

Q1 (p. 26)	*Q2 (p. 26)*	*Q3 (p. 27)*	*Q4 (p. 29)*	*Q5 (p. 29)*	*Q6 (p. 30)*
Q7 (p. 30)	*Q8 (p. 31)*	*Q9 (p. 31)*	*Q10 (p. 31)*	*Q11 (p. 32)*	*Q12 (p. 32)*
Q13 (p. 33)	*Q14 (p. 33)*	*Q15 (p. 33)*	*Q16 (p. 34)*	*Q17 (p. 34)*	

Q1: A full-term neonate born to a healthy mother presents on the third day of life with a birth weight of 2.9 kg, length of 50 cm, head circumference of 35 cm, heart rate of 130 bpm, respiratory rate of 50 breaths/min, and peripheral cyanosis noted on the extremities. The baby is passing urine but has not passed any stools till now. Which of the following findings in this neonate would be most concerning? (Q849950)

A. Peripheral cyanosis (acrocyanosis) noted on the extremities

B. Passage of the first stool after 48 hours of birth

C. Respiratory rate of 50 breaths/min

D. Head circumference of 35 cm

See Answer in Part B → Q1

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Q2: A 3-month-old infant is brought for a checkup. The pediatrician notices that when the baby's head is rotated to one side, the arm on the same side extends, and the arm on the opposite side flexes. Which of the following best explains these observations? (Q849955)

A. ATNR

B. STNR

C. Parachute reflex

D. Rooting reflex

See Answer in Part B → Q2

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Q3: Match the following images with their distinguishing features 1) a) Benign capillary malformation 2) b) Contains eosinophils 3) c) Contains melanocytes 4) d) Contains keratin (Q849956)

A. 1-b, 2-a, 3-d, 4-c

B. 1-c, 2-d, 3-b, 4-a

C. 1-a, 2-b, 3-c, 4-d

D. 1-d, 2-c, 3-a, 4-b




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See Answer in Part B → Q3

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Q4: You are providing routine postnatal care to a healthy full-term newborn immediately after delivery. What is the recommended prophylactic dose and route of administration of vitamin K in this setting? (Q891186)

A. 1-5 mg IV

B. 5-10 mg IV

C. 0.1-0.5 mg IM

D. 0.5-1 mg IM

See Answer in Part B → Q4

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Q5: A newborn delivered at 37 weeks to a mother with gestational diabetes is noted to be unusually large for gestational age. Which birth-weight percentile defines this category? (Q891183)

A. >97th percentile

B. >90th percentile

C. >95th percentile

D. >75th percentile

See Answer in Part B → Q5

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Q6: During newborn assessment, the infant's weight is recorded and categorized. A baby is labeled very low birth weight (VLBW) when the birth weight is below what value? (Q891180)

A. 2.5 kg

B. 1 kg

C. 1.5 kg

D. 2 kg

See Answer in Part B → Q6

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Q7: When documenting delivery details, a newborn needs to be categorized by gestational age. At what gestational age is an infant considered post-term? (Q891179)

A. 41 completed weeks of gestation

B. 42 completed weeks of gestation

C. 40 weeks and 2 days

D. 40 completed weeks of gestation

See Answer in Part B → Q7

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Q8: A hospital neonatal audit requires application of the WHO definition of the perinatal period. Which of the following time intervals correctly represents this period? (Q891175)

A. From 28 weeks of gestation to 28 days after birth

B. From 22 weeks of gestation to 7 completed days after birth

C. From 37 weeks of gestation to 28 days after birth

D. From 30 weeks of gestation to 7 days after birth

See Answer in Part B → Q8

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Q9: A 12-hour-old infant on routine examination presents with a well-defined, firm mass on the head. The mass is located over the parietal bones and does not cross the suture lines. The parents mention that the mass became noticeable shortly after birth and has been increasing in size for the past few hours. Which of the following is the most likely diagnosis? (Q849959)

A. Caput Succedaneum

B. Cephalohematoma

C. Subgaleal Hemorrhage

D. Craniotabes

See Answer in Part B → Q9

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Q10: Which of the following statements are true regarding the neonatal conditions described? 1. Mastitis neonatorum is seen only in female neonates 2. Vaginal bleeding in neonates usually resolves within 10 days. 3. Hymenal tags are usually symptomatic and often require medical treatment. 4. Term neonates can lose up to 10% of their birth weight in the first week of life. 5. Physiologic phimosis usually resolves on its own and is generally asymptomatic. 6. Preterm infants regain their birth weight within 7-10 days. (Q849958)

A. 1, 3, 4, 5

B. 3, 4, 6

C. 1, 2, 5, 6

D. 2, 4, 5

See Answer in Part B → Q10

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Q11: Which of the following conditions in newborns typically resolves on its own without treatment? (Q849957)

A. Subconjunctival hemorrhage

B. Acne neonatorum

C. Epstein pearls

D. All of the above

See Answer in Part B → Q11

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Q12: A newborn is delivered at 36 weeks of gestation with a birth weight of 1,200 grams. How should this newborn be classified based on gestational age and birth weight? (Q849948)

A. Pre-Term and Low Birth Weight (LBW)

B. Term and Very Low Birth Weight (VLBW)

C. Pre-term and Very Low Birth Weight (VLBW)

D. Post-Term and Low Birth Weight (LBW

See Answer in Part B → Q12

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Q13: A 3-day-old newborn shows no startle response to sudden movement or sound. The pediatrician notes an absent Moro reflex, with no asymmetry. The baby is alert but cries weakly. What is the most likely cause? (Q849954)

A. Erb’s palsy

B. Severe asphyxia during birth

C. Tay Sach disease

D. Clavicle fracture

See Answer in Part B → Q13

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Q14: A 2-month-old infant is brought to the clinic for a developmental check-up. Which reflex should the clinician expect to see at this stage of development? (Q849953)

A. STNR

B. Moro’s Reflex

C. Parachute Reflex

D. Landau Reflex

See Answer in Part B → Q14

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Q15: A newborn is admitted to the NICU with signs of hypoglycemia and respiratory distress. The mother had multiple gestation and gestational diabetes during her pregnancy. Which of the following is not a pregnancy-related complication that contributes to the high-risk status of this infant? (Q849952)

A. Multiple gestations

B. Gestational diabetes

C. Maternal obesity

D. Preeclampsia

See Answer in Part B → Q15

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Q16: A 43-week-old postterm neonate is delivered vaginally. Which of the following is not a characteristic appearance of a post-term neonate? (Q849951)

A. Overgrown Nails

B. Sparse scalp hair

C. Visible creases on palms and soles

D. Dry, loose, peeling skin

See Answer in Part B → Q16

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Q17: A 38-week gestational-age infant is delivered with a birth weight of 3,200 grams. The neonatal team assesses the infant's weight percentile and notes that it falls between the 10th and 90th percentile for their gestational age. How should this newborn be classified according to gestational age and birth weight? (Q849949)

A. Small for Gestational Age (SGA)

B. Appropriate for Gestational Age (AGA)

C. Large for Gestational Age (LGA)

D. Pre-Term and Low Birth Weight (LBW)

See Answer in Part B → Q17

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• [01_Neonatology] 002 Neonatology-I

« Back to Folder Directory

[01_Neonatology] 002 Neonatology-I — Quick Jump

Q1 (p. 36)	*Q2 (p. 36)*	*Q3 (p. 37)*	*Q4 (p. 37)*	*Q5 (p. 38)*	*Q6 (p. 38)*
Q7 (p. 39)	*Q8 (p. 39)*	*Q9 (p. 39)*	*Q10 (p. 40)*	*Q11 (p. 41)*	*Q12 (p. 42)*
Q13 (p. 42)	*Q14 (p. 43)*	*Q15 (p. 43)*	*Q16 (p. 44)*	*Q17 (p. 44)*	*Q18 (p. 45)*
Q19 (p. 45)	*Q20 (p. 45)*	*Q21 (p. 46)*			

Q1: A 2700-g male infant, born at 36 weeks gestation, presents at 6 hours of age with grunting, nasal flaring, and intercostal retractions. He is also experiencing poor feeding. His temperature is 35.8°C, and blood pressure is 42 mm Hg systolic. A CBC shows a WBC count of 2500 cells/mm3 with 80% bands. What is the most likely diagnosis? (Q849939)

A. Neonatal Sepsis

B. Respiratory Distress Syndrome

C. Transient Tachypnea of the Newborn

D. Meconium Aspiration Syndrome

See Answer in Part B → Q1

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Q2: A 3-day-old preterm neonate is brought to the NICU with an axillary temperature of 31.5°C after being found hypothermic in the maternity ward. The baby is placed under a radiant warmer, and rewarming measures are initiated. After 1 hour, the baby's temperature is rechecked. Which of the following indicates that the rewarming process is proceeding at an appropriate rate for neonatal hypothermia? (Q849945)

A. The baby's temperature rises to 34°C within the first hour.

B. The baby's temperature rises to 36.5°C within 2 hours.

C. The baby's temperature rises by 0.5°C within the first hour.

D. The baby's temperature rises by 0.2°C within the first hour.

See Answer in Part B → Q2

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Q3: A newborn is examined after a normal vaginal delivery. A firm, localized swelling is noted over the parietal region of the scalp. Which of the following statements is not characteristic of this condition? (Q891222)

A. Appears several hours after birth

B. Confined to one cranial bone, does not cross suture lines

C. Gradually resorbs over 2 weeks to 3 months

D. Swelling of the soft tissues of the scalp



See Answer in Part B → Q3

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Q4: A term neonate is delivered vaginally after a prolonged second stage of labor. Immediately after birth, there is a soft, diffuse, pitting swelling over the scalp that crosses suture lines. What is the most likely diagnosis? (Q891220)

A. Subgaleal hemorrhage

B. Caput succedaneum

C. Cephalohematoma

D. Epidural hematoma

See Answer in Part B → Q4

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Q5: A 29-year-old multigravida (G2P1L1) delivers a female infant at 42 weeks + 4 days of gestation. The baby shows features of postmaturity syndrome. Which of the following neonatal complications is least likely to be associated in this setting? (Q891218)

A. Meconium aspiration syndrome

B. Persistent pulmonary hypertension of the newborn (PPHN)

C. Polycythemia

D. Anemia

See Answer in Part B → Q5

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Q6: A multigravida with an uncertain last menstrual period is reassessed and found to have a corrected gestational age of 42+5 weeks. Due to non-reassuring fetal heart rate tracing suggestive of uteroplacental insufficiency, she underwent emergency cesarean section. Which of the following findings is least likely to be present in the newborn? (Q891201)

A. Long fingernails

B. Dry, peeling skin

C. Decreased subcutaneous fat

D. Abundant scalp hair

See Answer in Part B → Q6

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Q7: A woman with no prior antenatal care delivers a 2.3 kg male infant by vaginal delivery. Since gestational age is uncertain, a clinical assessment of maturity is performed. Which of the following findings would argue against a diagnosis of prematurity? (Q891199)

A. Absent plantar creases

B. Undescended testes

C. Well-formed ear cartilage with instant recoil

D. Barely palpable breast tissue

See Answer in Part B → Q7

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Q8: A term neonate born by planned cesarean delivery is evaluated soon after birth. Anthropometric measurements reveal a ponderal index of 1.7. Which of the following maternal conditions is least likely to be associated with this finding? (Q891198)

A. Chronic hypertension

B. Diabetes with microvascular complications

C. Sickle cell disease

D. Gestational diabetes without vascular disease

See Answer in Part B → Q8

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Q9: A term neonate born to a mother with pregnancy-induced hypertension undergoes anthropometric assessment immediately after birth. The baby weighs 2.1

kg and measures 50 cm in length. The calculated ponderal index is 1.6. Which of the following organs is least likely to be affected in this neonate? (Q891195)

A. Liver

B. Brain

C. Skeletal muscle

D. Subcutaneous fat

See Answer in Part B → Q9

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Q10: A preterm male neonate is delivered at 35 weeks of gestation via emergency cesarean section. During routine examination of the placenta, histopathological evaluation of the umbilical cord reveals the finding shown in the image below? (Q891189)

A. Gastrointestinal system

B. Cardiovascular system

C. Renal system

D. Musculoskeletal system



See Answer in Part B → Q10

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Q11: You are examining an LGA neonate who presents with the physical finding shown in the image below. Given this finding, you suspect the neonate might have an associated congenital heart anomaly. What is the most common congenital heart anomaly you would suspect in this case? (Q849947)

A. Atrial Septal Defect (ASD)

B. Tetralogy of Fallot (TOF)

C. Ventricular Septal Defect (VSD)

D. Patent Ductus Arteriosus (PDA)



See Answer in Part B → Q11

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Q12: A 1-day-old term neonate born to a mother with gestational diabetes is found to have a blood glucose level of 35 mg/dL during routine screening. The baby is asymptomatic and has been breastfeeding moderately well. What is the most appropriate next step in the management of this neonate? (Q849946)

A. Start intravenous glucose infusion immediately.

B. Administer a bolus of 2 mL/kg of 10% dextrose and then start glucose infusion.

C. Provide a trial of oral feeds and recheck blood glucose in 30-45 minutes.

D. Repeat the blood glucose test after 1 hour without feeding and monitor.

See Answer in Part B → Q12

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Q13: A 32-week pregnant woman presents due to concerns about her baby's growth. Her pregnancy has been complicated by chronic hypertension. The ultrasound reveals that the fetal head size is within the normal range, but the body weight and length are significantly below the 10 th percentile. What is the most likely etiology of the fetal growth restriction in this case? (Q849935)

A. Genetic disorders

B. Chromosomal disorders

C. Intrauterine infection

D. Placental insufficiency

See Answer in Part B → Q13

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Q14: A full-term neonate is born in a resource-limited rural health center. The delivery room temperature is 20°C. Which of the following steps is not part of the warm chain that should be immediately implemented to prevent neonatal hypothermia? (Q849944)

A. Drying the baby immediately after birth.

B. Skin-to-skin contact between the mother and baby.

C. Covering the baby’s head with a warm cap.

D. Bathing the baby in warm water

See Answer in Part B → Q14

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Q15: Which of the following statements is INCORRECT about Kangaroo Mother Care (KMC)? I. KMC is only recommended for preterm infants weighing less than 1500 grams. II. KMC must be performed continuously for at least 24 hours a day to be effective. III. KMC is not necessary once the baby’s weight > 2500 g IV. KMC is as good as incubator care in terms of safety and thermal care. (Q849943)

A. I only

B. II only

C. I and II

D. III and IV

See Answer in Part B → Q15

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Q16: During a routine examination of a newborn weighing 2.5 kg, 15 minutes after birth, you would classify the neonate as having moderate hypothermia if the body temperature is: (Q849942)

A. 36.0–36.4 °C

B. 32.0–35.9 °C

C. 28.0–31.9 °C

D. <28.0 °C

See Answer in Part B → Q16

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Q17: A 3-day-old neonate presents with fever, irritability, and poor feeding. The sepsis screen is equivocal, but a lumbar puncture confirms the diagnosis of bacterial meningitis. Blood culture is pending, but the clinical team decides to initiate treatment immediately. Which of the following is the most appropriate antibiotic regimen and duration of therapy for this neonate? (Q849941)

A. Oral Cefotaxime and Gentamicin for 21 days

B. IV Cefotaxime and Gentamicin for 14 days

C. IV Ampicillin and Gentamicin for 21 days

D. IV Cefotaxime and Gentamicin for 21 days

See Answer in Part B → Q17

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Q18: A 2-day-old, term neonate presents with lethargy, poor feeding, and mild hypothermia. You suspect neonatal sepsis and order a sepsis screen as part of the diagnostic workup. Which of the following findings would be included in the sepsis screen for this neonate? (Q849940)

A. Total leukocyte count > 5000 /mm 3

B. Total leukocyte count < 5000 /mm 3

C. Increased absolute neutrophil count

D. Decreased platelet count

See Answer in Part B → Q18

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Q19: A 14-day-old preterm infant (35 weeks gestation) presents with worsening respiratory distress, irritability, and poor feeding. The mother reports poor cord care and the infant is febrile (38°C). Based on the clinical presentation and age, what is the most likely type and timing of sepsis in this infant? (Q849938)

A. Early-onset sepsis occurring up to 72 hours after birth

B. Early-onset sepsis occurring after 72 hours but before 7 days of life

C. Late-onset sepsis occurring beyond 7 days of life

D. Very late-onset sepsis occurring more than 10 days after birth

See Answer in Part B → Q19

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Q20: A 30-year-old pregnant woman is in her second trimester with a history of mild hypertension. Her obstetrician is concerned about the risk of IUGR due to her history . Which of the following strategies should be recommended to prevent IUGR? (Q849937)

A. Low-dose aspirin

B. Increase caffeine intake

C. High-dose antioxidant supplement

D. Avoid all forms of exercise

See Answer in Part B → Q20

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Q21: Which of the following best describes morphological IUGR? (Q849936)

A. Birth weight below the 10th percentile with malnutrition.

B. Birth weight between the 10th and 25th percentiles with malnutrition.

C. Birth weight above the 25th percentile with malnutrition.

D. Birth weight at the 50th percentile with no malnutrition

See Answer in Part B → Q21

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• [01_Neonatology] 003 Neonatology-Ii

« Back to Folder Directory

[01_Neonatology] 003 Neonatology-Ii — Quick Jump

Q1 (p. 47)	*Q2 (p. 47)*	*Q3 (p. 48)*	*Q4 (p. 48)*	*Q5 (p. 48)*	*Q6 (p. 49)*
Q7 (p. 49)	*Q8 (p. 50)*	*Q9 (p. 50)*	*Q10 (p. 51)*	*Q11 (p. 52)*	*Q12 (p. 52)*
Q13 (p. 53)	*Q14 (p. 54)*	*Q15 (p. 55)*	*Q16 (p. 55)*	*Q17 (p. 56)*	*Q18 (p. 56)*
Q19 (p. 57)	*Q20 (p. 57)*	*Q21 (p. 58)*	*Q22 (p. 58)*	*Q23 (p. 59)*	*Q24 (p. 59)*
Q25 (p. 59)	*Q26 (p. 60)*	*Q27 (p. 60)*	*Q28 (p. 61)*	*Q29 (p. 61)*	

Q1: A baby is born to an HIV-positive mother. The mother has been on antiretroviral therapy (ART) for the past 6 months. What is the appropriate management for this newborn? (Q849974)

A. Daily nevirapine prophylaxis starting at birth for 6 weeks

B. Zidovudine and nevirapine for 6 weeks if the baby is not breastfed

C. Zidovudine and nevirapine for 12 weeks if the baby is breastfed

D. Daily nevirapine prophylaxis starting at birth for 12 weeks

See Answer in Part B → Q1

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Q2: A parent reports that her child can pull to stand and moves sideways while holding onto furniture. Around what age is this developmental milestone usually achieved? (Q891394)

A. 13 months

B. 8 months

C. 10 months

D. 15 months

See Answer in Part B → Q2

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Q3: A term pregnant woman reports absent fetal movements for several hours and undergoes an emergency delivery for fetal distress. The newborn is apneic and cyanotic at birth. What should be the initial oxygen used during resuscitation? (Q891390)

A. 70% oxygen

B. Hyperbaric oxygen

C. Room air

D. 30% oxygen

See Answer in Part B → Q3

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Q4: While performing cardiopulmonary resuscitation on a newborn infant with persistent bradycardia despite adequate ventilation, which compression-to-ventilation ratio should be followed? (Q891361)

A. 5:1

B. 30:2

C. 2:1

D. 3:1

See Answer in Part B → Q4

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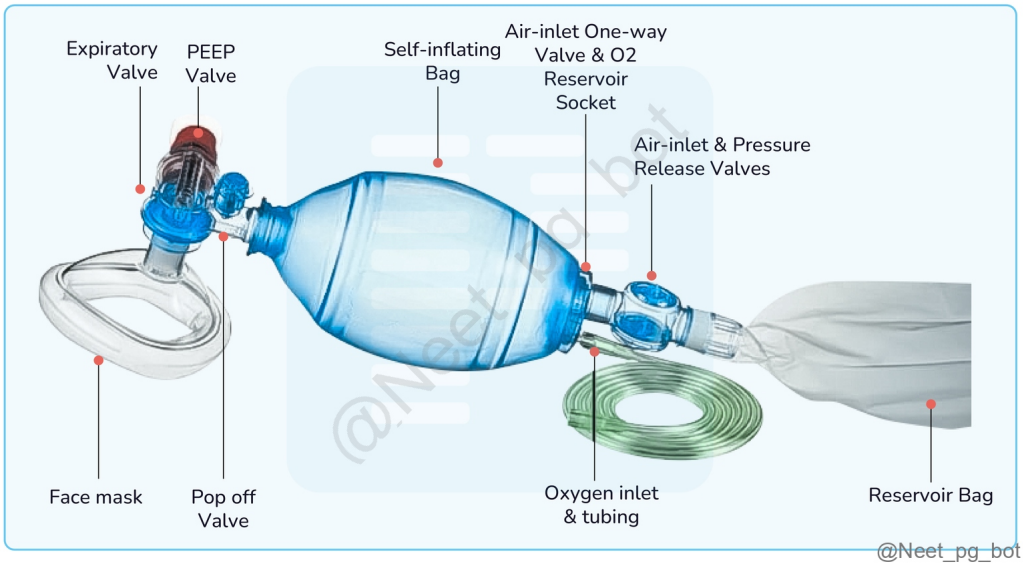
Q5: During newborn resuscitation, a self-inflating bag and mask device is prepared. At which numbered part should the oxygen tubing be connected? (Q891354)

A. 2

B. 4

C. 1

D. 3



See Answer in Part B → Q5

@Neet_pg_bot

Q6: While calculating the APGAR score of a newborn immediately after delivery, which of the following parameters is not included? (Q891350)

A. Muscle tone

B. Respiratory rate

C. Heart rate

D. Skin color

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A preterm neonate admitted in the NICU develops temperature instability and lethargy on day 10 of life. Blood and central venous catheter tip cultures grow Streptococcus species within 24 hours. This represents late-onset neonatal sepsis. Which of the following is the most common clinical manifestation of this type of sepsis? (Q891331)

A. Septic shock

B. Disseminated intravascular coagulation

C. Pneumonia

D. Meningitis

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A full-term newborn delivered to a mother with prolonged rupture of membranes and intrapartum fever develops respiratory distress and poor feeding within 12 hours of birth. Blood culture later confirms early-onset neonatal sepsis. Which of the following statements regarding early-onset neonatal sepsis are true? It usually presents within the first 72 hours of life. Vertical transmission from the maternal genital tract is a common source. Group B Streptococcus is a frequent causative organism. Empirical therapy commonly includes ampicillin with an aminoglycoside. (Q891314)

A. 1, 2, 3

B. 1, 2, 3, and 4

C. 3 and 4 only

D. 2 and 4 only

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 3-day-old term neonate is admitted to the NICU after the parents notice rhythmic, repetitive jerking movements as shown below, occurring intermittently without loss of consciousness. The baby had normal Apgar scores and normal blood glucose levels. What is the most likely diagnosis? (Q891288)

A. Subtle seizure

B. Focal clonic seizure

C. Infantile spasms

D. Focal tonic seizure



See Answer in Part B → Q9

@Neet_pg_bot

Q10: A full-term neonate develops multifocal clonic movements and poor feeding within 12 hours of birth. The baby had a history of delayed cry and required resuscitation at birth. What is the most common cause of seizures in a term neonate? (Q891284)

A. Intraventricular haemorrhage

B. Hypoxic-ischemic encephalopathy

C. Hypoglycemia

D. Neonatal sepsis

See Answer in Part B → Q10

@Neet_pg_bot

Q11: During routine examination of a term 2.8 kg neonate, a large, wide anterior fontanelle is noted. Which of the following conditions is least likely to be associated with this finding? (Q891243)

A. Achondroplasia

B. Osteogenesis imperfecta

C. Trisomy 21

D. Craniosynostosis

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A term neonate is delivered at a primary health center and immediately referred to a tertiary hospital. On examination, there is herniation of bowel loops through a defect in the abdominal wall lateral to the umbilicus, with the bowel lying exposed without a covering sac. What is the most likely diagnosis? (Q891233)

A. Omphalocele

B. Gastroschisis

C. Umbilical hernia

D. Bladder exstrophy

See Answer in Part B → Q12

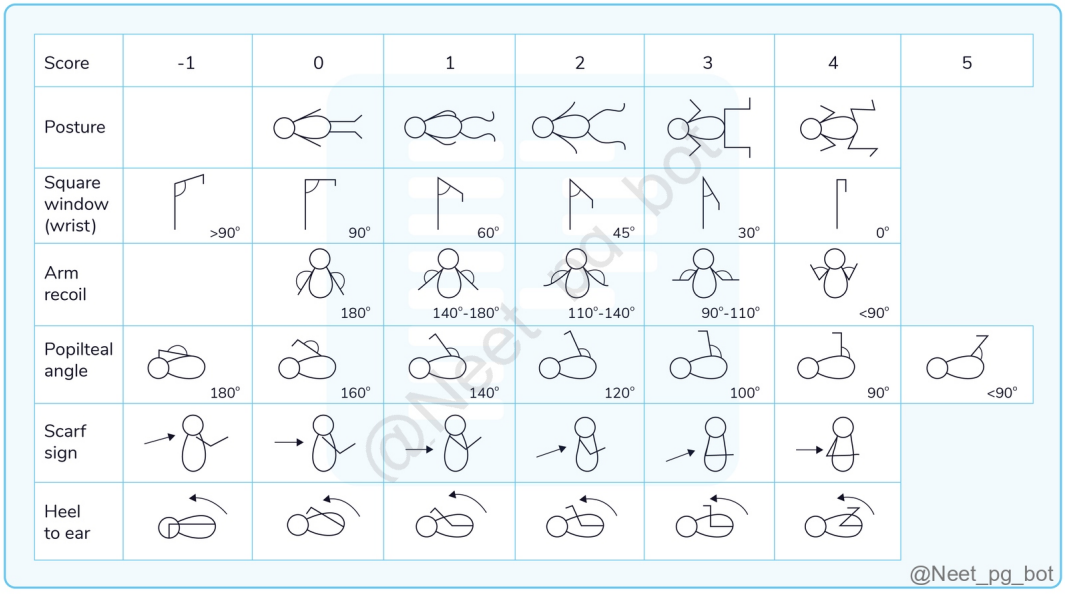
Q13: Which of the following is true about the scoring tool? (Q849977)

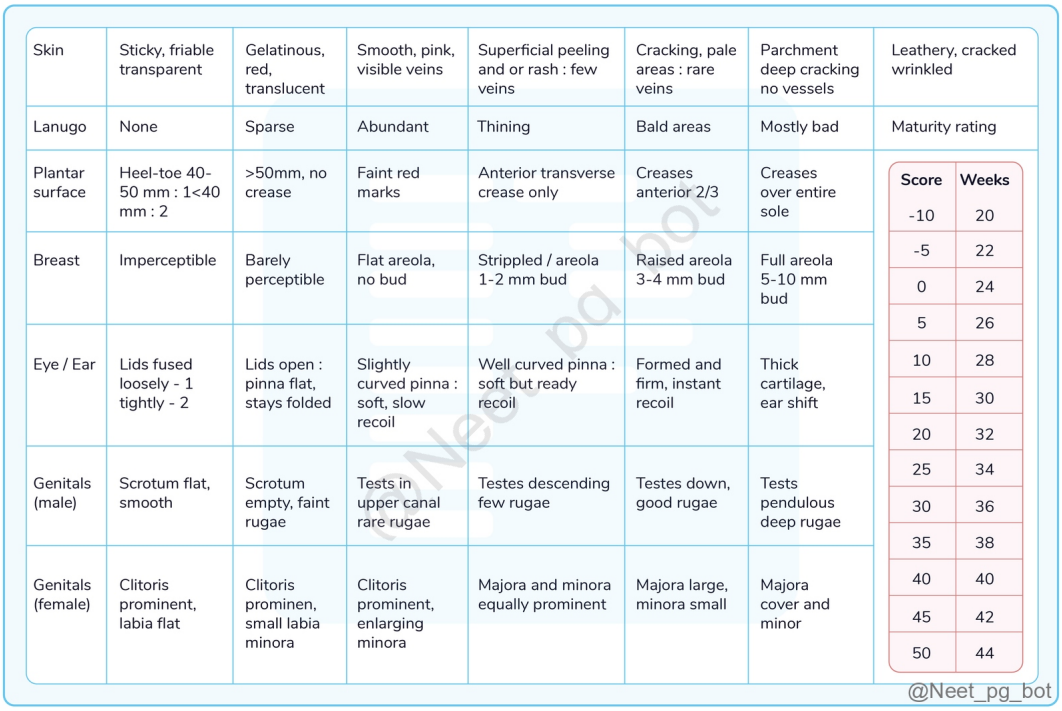
A. Used solely to assess the neuromuscular maturity

B. Used to assess gestational age based on Physical and Neuromuscular maturity

C. Used only to ascess physical maturity

D. Used exclusively to determine the baby's weight





Skin	Sticky, friable transparent	Gelatinous, red, translucent	Smooth, pink, visible veins	Superficial peeling and or rash : few veins	Cracking, pale areas : rare veins	Parchment deep cracking no vessels	Leathery, cracked wrinkled
Lanugo	None	Sparse	Abundant	Thining	Bald areas	Mostly bad	Maturity rating
Plantar surface	Heel-toe 40-50 mm : 1<40 mm : 2	>50mm, no crease	Faint red marks	Anterior transverse crease only	Creases anterior 2/3	Creases over entire sole	
Breast	Imperceptible	Barely perceptible	Flat areola, no bud	Strippled / areola 1-2 mm bud	Raised areola 3-4 mm bud	Full areola 5-10 mm bud	
Eye / Ear	Lids fused loosely - 1 tightly - 2	Lids open : pinna flat, stays folded	Slightly curved pinna : soft, slow recoil	Well curved pinna : soft but ready recoil	Formed and firm, instant recoil	Thick cartilage, ear shift	
Genitals (male)	Scrotum flat, smooth	Scrotum empty, faint rugae	Tests in upper canal rare rugae	Testes descending few rugae	Testes down, good rugae	Tests pendulous deep rugae	
Genitals (female)	Clitoris prominent, labia flat	Clitoris prominen, small labia minora	Clitoris prominent, enlarging minora	Majora and minora equally prominent	Majora large, minora small	Majora cover and minor	

Score	Weeks
-10	20
-5	22
0	24
5	26
10	28
15	30
20	32
25	34
30	36
35	38
40	40
45	42
50	44

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See Answer in Part B → Q13

@Neet_pg_bot

Q14: Refer to the image provided. Which of the following statements is correct regarding the features shown in the image? (Q849976)

A. The system provides an open care environment

B. The system does not include an option for humidification.

C. Method by which neonate is kept warm is Convection

D. The system is known for being low in cost .



See Answer in Part B → Q14

@Neet_pg_bot

Q15: A preterm neonate is admitted to the neonatal intensive care unit and requires invasive BP monitoring. The team decides to place an umbilical artery catheter (UAC) and an umbilical venous catheter (UVC).Which of the following statement is correct? (Q849975)

A. UAC is used for drug administration and is associated with sepsis.

B. UVC is used for blood pressure monitoring and blood sampling

C. UAC can cause limb discoloration, while UVC is used for drug administration.

D. UAC is the vascular access of choice, for neonatal resuscitation

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 3-day-old preterm infant, born at 29 weeks of gestation, presents with feeding intolerance, abdominal distension, and bilious vomiting. On examination, the abdomen is tense, and bowel sounds are diminished. An abdominal X-ray reveals pneumatosis intestinalis and portal venous gas. Which of the following anatomical locations is most commonly involved in this condition? (Q849960)

A. Distal part of the jejunum and proximal ileum.

B. Distal part of the ileum and proximal colon.

C. Proximal part of the duodenum and distal jejunum.

D. Sigmoid colon and rectum.

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 28-week preterm baby is found to have recurrent apneas. Which combined approach reduces the need for mechanical ventilation and decreases the risk of bronchopulmonary dysplasia. (Q849973)

A. CPAP and caffeine therapy

B. Intubation and surfactant

C. Surfactant and CPAP

D. High-Flow Nasal Cannula and Caffeine therapy

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 28-year-old woman at 32 weeks of gestation undergoes a Doppler ultrasound of the middle cerebral artery (MCA). The results show increased diastolic velocity, and decreased pulsatility index (PI). What do these findings most likely indicate? (Q849972)

A. Normal fetal development

B. Brain-sparing effect

C. Cerebral edema

D. Cerebral vessel constriction

See Answer in Part B → Q18

@Neet_pg_bot

Q19: A 32-year-old pregnant woman with blood type: O-negative presents at 28 weeks of gestation. Fetal ultrasound reveals severe generalized edema, ascites, and hydrothorax in the fetus. The maternal indirect Coombs test is positive. The most likely cause of the hydropic changes in this case can be due to? (Q849971)

A. Rh incompatibility

B. Hereditary Spherocytosis

C. G6PD deficiency

D. Thalassemia

See Answer in Part B → Q19

@Neet_pg_bot

Q20: A baby is delivered at 38 weeks gestation to a mother with a history of Rh incompatibility. The delivery was uneventful, but the neonatologist is concerned about the possibility of hemolytic disease due to the mother's sensitization status. The baby appears slightly jaundiced. Which of the following investigations is most appropriate to perform after birth? (Q849970)

A. Direct Coomb's test

B. MCA peak blood flow measurement via USG Dopp

C. Hemoglobin electrophoresis

D. Indirect Coomb's test

See Answer in Part B → Q20

@Neet_pg_bot

Q21: A 29-year-old Rh-negative woman, 30 weeks pregnant, presents for a routine follow-up. She has a history of a previous pregnancy complicated by Rh incompatibility but has been receiving appropriate prenatal care. Recent laboratory tests reveal a positive indirect Coombs test with elevated anti-Rh antibodies. The fetal ultrasound shows normal growth and no significant abnormalities. What is the most likely diagnosis for the fetus? (Q849969)

A. Mild Hemolytic Disease of Newborn

B. Severe Hemolytic Disease of Newborn

C. No Hemolytic Disease of Newborn

D. Severe Hemolytic Disease of Newborn with Normal Growth

See Answer in Part B → Q21

@Neet_pg_bot

Q22: A 29-year-old woman, who is Rh-negative, presents for a routine prenatal visit at 30 weeks of gestation. She has a history of two previous pregnancies, the first was a full-term delivery without complications, and the second ended in a miscarriage at 12 weeks. Her current laboratory tests show a positive indirect Coombs test, and her fetal ultrasound reveals an enlarged liver and spleen. Which of the following mechanisms best explains the pathophysiology of the fetal condition? (Q849968)

A. IgG Antibodies Against Rh Antigen

B. IgM Antibodies Against Rh Antigen

C. IgG Antibodies Against ABO Antigens

D. Fetal Red Blood Cell Destruction Due to Maternal Hyperglycemia

See Answer in Part B → Q22

@Neet_pg_bot

Q23: A newborn infant, diagnosed with jaundice, is undergoing phototherapy in the neonatal intensive care unit. Which of the following factors is most critical for maximizing the effectiveness of the phototherapy for this infant? (Q849967)

A. Increasing the distance between the baby and the phototherapy unit.

B. Using a phototherapy unit with a wavelength of 500-550 nm.

C. Ensuring that the baby's exposed surface area is maximized.

D. Using a phototherapy unit with traditional fluorescent lamps instead of LED lamps.

See Answer in Part B → Q23

@Neet_pg_bot

Q24: A 3-day-old neonate presents with severe jaundice. Despite initial phototherapy, the bilirubin levels remain extremely high. The infant is diagnosed with severe hemolytic disease due to Rh incompatibility. What is the most appropriate next step in management? (Q849966)

A. Continue phototherapy and monitor bilirubin levels.

B. Initiate intravenous immunoglobulin (IVIG) therapy.

C. Perform an exchange transfusion.

D. Prepare for surgical intervention.

See Answer in Part B → Q24

@Neet_pg_bot

Q25: A neonate presents with jaundice and high bilirubin levels. The condition is associated with various neurological complications. Which of the following is a characteristic feature of kernicterus? (Q849965)

A. Developmental delays

B. Sensorineural hearing loss

C. Disordered executive function

D. Attention deficit/hyperactivity disorder (ADHD)

See Answer in Part B → Q25

@Neet_pg_bot

Q26: A 2-day-old neonate is assessed for jaundice using Kramer's rule. The neonate's jaundice is noted to extend to the palms and soles. Based on Kramer's staging, how much is the approximate bilirubin level of this baby? (Q849964)

A. 5-7

B. 7-9

C. 11-13

D. 13-15 or more

See Answer in Part B → Q26

@Neet_pg_bot

Q27: A newborn is brought to the clinic on the 7 th day of life with mild jaundice. The baby is feeding well, and there are no signs of dehydration. The mother is exclusively breastfeeding, and there are no difficulties with latch or milk production. What is the most appropriate next step in management? (Q849963)

A. Continue exclusive breastfeeding without any intervention

B. Switch to formula feeding temporarily

C. Initiate phototherapy immediately

D. Advise stopping breastfeeding due to risk of worsening jaundice

See Answer in Part B → Q27

@Neet_pg_bot

Q28: A newborn presents with yellowing of the skin on the face and sclera at 48 hours of age. The bilirubin levels are elevated but within the range expected for age. The jaundice gradually progresses to the trunk and extremities. Which of the following is the most appropriate management for this patient? (Q849962)

A. Immediate exchange transfusion

B. Administration of intravenous immunoglobulin (IVIG)

C. Initiation of phototherapy

D. Observation and reassurance

See Answer in Part B → Q28

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Q29: A 10-day-old preterm infant, born at 30 weeks of gestation, presents with sudden abdominal distension and a bluish discoloration of the abdominal wall. The infant appears lethargic and is not feeding well. An abdominal X-ray is performed, which is given below. What Bell's stage of necrotizing enterocolitis (NEC) is most consistent with the radiographic finding? (Q849961)

A. Stage II a

B. Stage III a

C. Stage III b

D. Stage IV



See Answer in Part B → Q29

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• [01_Neonatology] 004 Neonatal Respiratory Disorders Perinatal Asphyxia

« Back to Folder Directory

[01_Neonatology] 004 Neonatal Respiratory Disorders Perinatal Asphyxia — Quick Jump

Q1 (p. 63)	*Q2 (p. 63)*	*Q3 (p. 64)*	*Q4 (p. 64)*	*Q5 (p. 64)*	*Q6 (p. 65)*
Q7 (p. 65)	*Q8 (p. 66)*	*Q9 (p. 67)*	*Q10 (p. 67)*	*Q11 (p. 67)*	*Q12 (p. 68)*
Q13 (p. 68)	*Q14 (p. 69)*	*Q15 (p. 69)*	*Q16 (p. 70)*		

Q1: A neonate born after an emergency c-section due to non-reassuring fetal heart tones was noted to have poor muscle tone, a heart rate of 70 bpm, and intermittent gasping respirations. Despite initial tactile stimulation, the infant becomes flaccid and apneic. Which of the following best describes the underlying pathophysiology? (Q850079)

A. Prolonged hypoxia causes progressive neuromuscular depression

B. Severe hypoxia causing pulmonary vasodilation

C. Acute hypoxia leads to metabolic alkalosis

D. Persistent hypocapnia causes central respiratory depression

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A neonate delivered via emergency cesarean section presents with an Apgar score of 2 at 1 minute. Which of the following criteria is most indicative of severe birth asphyxia? (Q850080)

A. Persistent metabolic alkalosis with a high base deficit

B. Apgar score of 5 at 5 minutes and normal blood pH

C. Blood pH <7.0 on umbilical arterial blood gas with a high base deficit

D. Presence of mild hypotonia

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A term newborn is diagnosed with moderate Hypoxic Ischemic Encephalopathy (HIE) after experiencing birth asphyxia. The infant is currently receiving supportive care. Which of the following is the most appropriate next step in the management of this infant? (Q850081)

A. Immediate administration of high-dose corticosteroids

B. Initiation of whole-body cooling therapy

C. Overhydration to prevent hypotension

D. Hyperventilation to reduce intracranial pressure

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 24-hour-old infant shows lethargy, hypotonia, intermittent seizures, and weak sucking reflex following a complicated delivery. According to the Sarnat classification, which stage of hypoxic-ischemic encephalopathy (HIE) does this infant most likely have? (Q850082)

A. Stage 1

B. Stage 2

C. Stage 3

D. Stage 4

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A multigravida G2P1L1 delivers a baby at 37 weeks of gestation by cesarean section. On assessment, the baby was completely cyanosed having slow and irregular breathing with a heart rate of 76 bpm, and he was showing slight flexion on stimulation along with a slight frown when stimulated by an orogastric tube. Calculate the APGAR score for the baby. (Q850083)

A. 10

B. 4

C. 3

D. 7

See Answer in Part B → Q5

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Q6: A primigravida delivered a baby at 34 weeks of gestation. The baby was cyanosed and grunting, with a respiratory rate of 72 bpm. Which of the following scores can be used to assess this condition? (Q850084)

A. Downe's score

B. CRIB score

C. SNAP score

D. Silverman-Andersen score

See Answer in Part B → Q6

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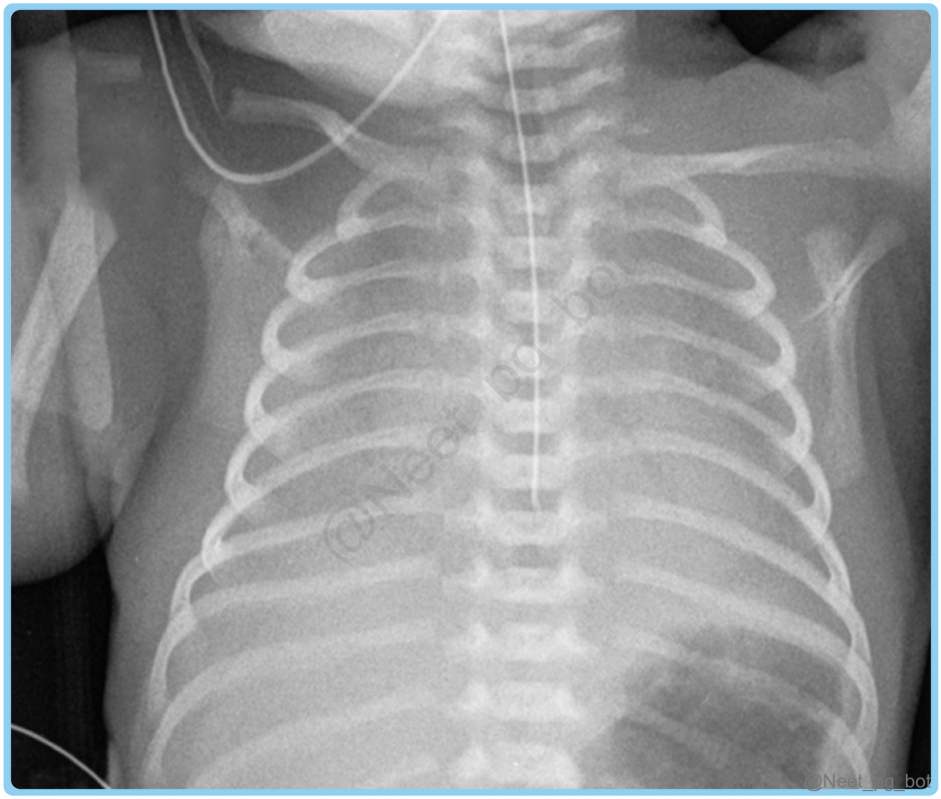
Q7: A primigravida with a complicated pregnancy underwent a cesarean section at 32 weeks of gestation. Soon after birth, the baby developed grunting, cyanosis, and a significantly elevated respiratory rate. A chest X-ray was performed immediately. Which of the following findings would not be seen on the given radiograph? (Q850085)

A. Ground glass haziness of lungs

B. Box-shaped heart

C. Presence of air bronchogram

D. Reticulogranular pattern



See Answer in Part B → Q7

@Neet_pg_bot

Q8: In the lab, amniotic fluid is mixed with 95% ethyl alcohol and then left after shaking it vigorously. After 15 minutes, a complete rim of bubbles is seen. Which of the following tests is described here ? (Q850086)

A. Phosphatidylglycerol test

B. Lamellar body count

C. Shake test

D. Amniotic fluid turbidity test

See Answer in Part B → Q8

@Neet_pg_bot

Q9: Which of the following interventions is NOT typically used in the initial management of neonatal Respiratory Distress Syndrome? (Q850087)

A. Surfactant replacement therapy

B. Continuous positive airway pressure (CPAP)

C. Mechanical ventilation

D. Prophylactic antibiotics

See Answer in Part B → Q9

@Neet_pg_bot

Q10: At what gestational age range is the administration of antenatal corticosteroids typically recommended to reduce the risk of Respiratory Distress Syndrome(RDS) in preterm infants? (Q850088)

A. 20-24 weeks

B. 24-34 weeks

C. 34-37 weeks

D. 37-40 weeks

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 39-week pregnant woman in active labour experiences spontaneous rupture of membranes, revealing thick, green amniotic fluid. After delivery, the newborn has poor respiratory efforts, cyanosis, and visible meconium staining on the skin. Which of the following is the most appropriate immediate management for this newborn? (Q850089)

A. Immediate intubation and tracheal suctioning

B. Stimulation and provision of positive pressure ventilation

C. Administration of prophylactic antibiotics

D. Immediate administration of surfactant

See Answer in Part B → Q11

@Neet_pg_bot

Q12: Which of the following is NOT typically associated with Transient Tachypnea of the Newborn (TTN)? (Q850090)

A. More common in infants delivered by cesarean section

B. Usually resolves within 24-72 hours

C. Persistent hypoxemia requiring prolonged mechanical ventilation

D. Delayed clearance of fetal lung fluid

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 27-week gestational-age preterm infant in the NICU experiences persistent apnea lasting over 20 seconds despite gentle tactile stimulation and supplemental oxygen. Nasal continuous positive airway pressure (nCPAP) has been used but has not resolved the episodes. What is the most appropriate next step? (Q850091)

A. Continue nasal continuous positive airway pressure (nCPAP)

B. Administer intravenous caffeine citrate

C. Initiate doxapram infusion

D. Start low-dose theophylline

See Answer in Part B → Q13

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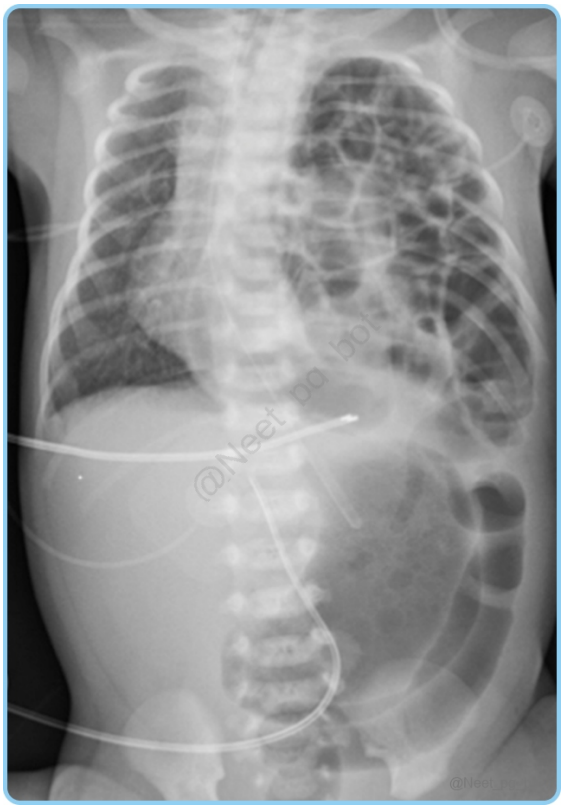
Q14: A day-old preterm infant is admitted with severe respiratory distress. Physical examination shows a scaphoid abdomen and a chest X-ray image is given below. Despite intensive care, the infant's condition deteriorates. Which of the following statements about the suspected condition is correct? (Q850092)

A. Bochdalek typically occurs on the right side.

B. Morgagni involves the posterior diaphragm.

C. Morgagni is associated with poor prognosis.

D. The condition is mostly sporadic.



See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 2-day-old newborn diagnosed with congenital diaphragmatic hernia (CDH) presents with severe respiratory distress and is scheduled for urgent surgical

intervention. Which of the following management strategies is not recommended in this setting? (Q850093)

A. Bag and mask ventilation

B. Placement of Endotracheal tube

C. Administration of extracorporeal membrane oxygenation

D. Nasogastric tube to decompress the stomach

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 3-day-old newborn with congenital diaphragmatic hernia is in NICU showing signs of severe respiratory distress. Despite intensive management, the infant's condition deteriorates and leads to death. What is the most common cause of death in CDH? (Q850094)

A. Perforation of Herniated bowel

B. Pulmonary hypoplasia

C. Pulmonary Embolism

D. All of the above

See Answer in Part B → Q16

@Neet_pg_bot

• [01_Neonatology] 005 Neonatal Resuscitation

« Back to Folder Directory

[01_Neonatology] 005 Neonatal Resuscitation — Quick Jump

Q1 (p. 71) *Q2 (p. 71)* *Q3 (p. 72)* *Q4 (p. 72)* *Q5 (p. 72)* *Q6 (p. 73)*
Q7 (p. 73) *Q8 (p. 74)* *Q9 (p. 74)* *Q10 (p. 75)* *Q11 (p. 75)* *Q12 (p. 76)*
Q13 (p. 76) *Q14 (p. 77)*

Q1: During neonatal resuscitation, If the HR is less than 100/min or apnea or gasping is present what measures would you take? (Q849980)

A. Start PPV by self-inflating the Bag and Mask

B. Check SpO2 and monitor ECG

C. Reassess after 30 seconds, if the HR is not less than 100/min then the baby gets post-resuscitation care

D. All of the above

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 24-year-old primigravida came for a routine antenatal check at 32 weeks of gestation. As the medical officer, which of the following is your responsibility during the antenatal period? A. Antenatal counselling for the mother B. Team briefing and individual responsibility allocation C. Equipment check and preparation D. Proper history taking, i.e. prior history of preterm delivery or abortions (Q849978)

A. Only A & D are correct

B. Only B & C are correct

C. Only A & C are correct

D. All are correct

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 27-year-old mother gave birth to a term male baby through normal vaginal delivery with a birth weight of 3 kg who did not cry immediately after birth. How will you resuscitate the baby? (Q849979)

A. Clear airway if required

B. Position the baby properly to ensure an open airway; the neck should be kept slightly extended and the mouth slightly open.

C. Stimulate the baby i.e. providing physical stimulation by rubbing the back of the baby or flicking the sole of the baby.

D. All of the above

See Answer in Part B → Q3

@Neet_pg_bot

Q4: During neonatal resuscitation, If the HR is less than 100/min despite PPV, the following steps are followed except: (Q849981)

A. Ensure, whether the positive pressure ventilation is given properly or not

B. Take ventilation corrective step

C. Intubation never done

D. If needed endotracheal intubation should be done.

See Answer in Part B → Q4

@Neet_pg_bot

Q5: After delivery and resuscitation, a neonate was found to have HR <60 even after effective positive pressure ventilation and no respiratory efforts. What is the line of action? (Q849982)

A. Oxygen by mask

B. Start chest compression

C. Chest compression+adrenaline

D. Adrenaline injection

See Answer in Part B → Q5

@Neet_pg_bot

Q6: What is the recommended dose of adrenaline for neonatal resuscitation in a preterm baby at NICU with HR persistently below 60/min? (Q849983)

A. 0.002mg/kg/dose

B. 0.02mg/kg/dose

C. 0.2mg/kg/dose

D. 2mg/kg/dose

See Answer in Part B → Q6

@Neet_pg_bot

Q7: Which among the given statements is wrong regarding resuscitation of newborn? a) The recommended pressure of suction is 80 mmHg b) Correct order of suction: mouth followed by nose. c) The recommended pressure should never exceed >80 mmHg d) Correct order of suction: nose followed by mouth (Q849984)

A. a & b are wrong.

B. b & c are wrong

C. c & d are wrong.

D. a & d are wrong.

See Answer in Part B → Q7

@Neet_pg_bot

Q8: Which of the following is the wrong statement about PPV? (Q849985)

A. The reservoir bag and oxygen tubing may or may not be attached to the self-inflating bag

B. The function of the reservoir is to increase FiO2 delivered to the baby

C. The single most important step in neonatal resuscitation is effective positive pressure ventilation.

D. The rate of PPV should be 30-40/min

See Answer in Part B → Q8

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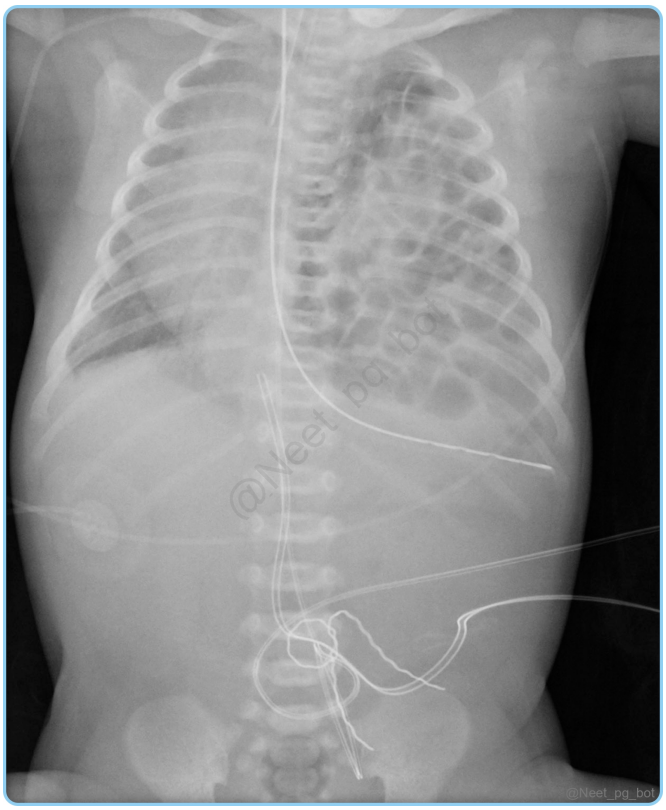
Q9: A 6-hour-old term baby shifted to emergency brought with severe respiratory distress. Chest X-ray is given below. Which of the initial clinical interventions should not be done on this patient? (Q849986)

A. Intubation and insertion of nasogastric tube

B. Bag and mask ventilation

C. Administration of fluids

D. Put the baby in a radiant warmer.



See Answer in Part B → Q9

@Neet_pg_bot

Q10: All of the following are the key corrective actions to optimize ventilation during neonatal resuscitation except: (Q849987)

A. Ensure the mask is of appropriate size

B. The seal between mask and face should be tight

C. The mask should cover the mouth only

D. The head of the baby should be slightly extended and the mouth of the baby is kept slightly open

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Tongue fasciculations are a feature of which among the following? (Q849988)

A. Myasthenia Gravis

B. Spinal Muscular Atrophy

C. Guillain-Barre syndrome

D. Duchenne’s Muscular Dystrophy

See Answer in Part B → Q11

@Neet_pg_bot

Q12: As a part of neonatal resuscitation, you start chest compressions. For maximum effectiveness, what should be the depth of your compressions? (Q849989)

A. ■ of AP diameter of chest

B. ½ of AP diameter of chest

C. ■ of AP diameter of chest

D. ¼ of AP diameter of chest

See Answer in Part B → Q12

@Neet_pg_bot

Q13: Which of the following is one of the primary benefits of delayed umbilical cord clamping in newborns? (Q849990)

A. It reduces the risk of maternal postpartum hemorrhage

B. It decreases the likelihood of neonatal jaundice

C. It prevents the need for neonatal resuscitation

D. It improves the newborn’s iron stores and reduces the risk of anemia

See Answer in Part B → Q13

@Neet_pg_bot

Q14: Under which of the following conditions will neonatal resuscitation not be performed? (Q849991)

A. Anencephaly

B. Confirmed case of trisomy 13

C. Gestational age less than 22 weeks

D. All of the above

See Answer in Part B → Q14

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• [01_Neonatology] 006 Previous Year Questions

« Back to Folder Directory

[01_Neonatology] 006 Previous Year Questions — Quick Jump

Q1 (p. 78)	*Q2 (p. 78)*	*Q3 (p. 79)*	*Q4 (p. 79)*	*Q5 (p. 79)*	*Q6 (p. 80)*
Q7 (p. 80)	*Q8 (p. 81)*	*Q9 (p. 81)*	*Q10 (p. 82)*	*Q11 (p. 82)*	*Q12 (p. 83)*
Q13 (p. 83)	*Q14 (p. 84)*	*Q15 (p. 84)*	*Q16 (p. 85)*	*Q17 (p. 85)*	*Q18 (p. 85)*
Q19 (p. 86)	*Q20 (p. 86)*	*Q21 (p. 87)*	*Q22 (p. 88)*	*Q23 (p. 88)*	*Q24 (p. 89)*
Q25 (p. 91)	*Q26 (p. 91)*	*Q27 (p. 91)*	*Q28 (p. 92)*	*Q29 (p. 92)*	*Q30 (p. 92)*
Q31 (p. 93)	*Q32 (p. 94)*	*Q33 (p. 94)*	*Q34 (p. 94)*	*Q35 (p. 95)*	*Q36 (p. 95)*

Q1: What is a characteristic feature observed in physiological jaundice? (Q856723)

A. Increased indirect bilirubin, increased urobilinogen, absent bilirubin in urine

B. Increased direct bilirubin, increased urobilinogen, absent bilirubin in urine

C. Increased indirect bilirubin, absent urobilinogen, absent bilirubin in urine

D. Increased direct bilirubin, absent urobilinogen, absent bilirubin in urine

See Answer in Part B → Q1

@Neet_pg_bot

Q2: According to the neonatal resuscitation protocol, below what heart rate are chest compressions initiated? (Q858077)

A. 70

B. 60

C. 80

D. 100

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A newborn baby presents with irritability and cyanosis which subsides on crying. On examination, you are unable to pass a nasogastric tube and no mist formation is noted on the laryngeal mirror test. Which of the following is the best next step in management? (Q857180)

A. Endotracheal intubation

B. Oropharyngeal airway

C. Oxygen inhalation

D. Epinephrine nebulization

See Answer in Part B → Q3

@Neet_pg_bot

Q4: Vitamin K supplementation is given to neonates to prevent: (Q857192)

A. Breast milk jaundice

B. Hemorrhagic disease of the newborn

C. Keratomalacia

D. Scurvy

See Answer in Part B → Q4

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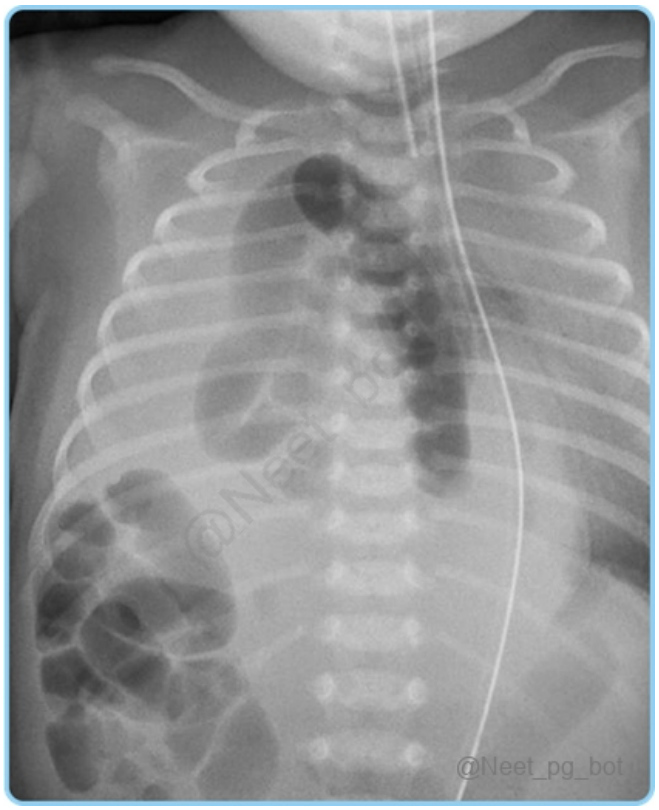
Q5: Identify the condition as shown below in the x-ray radiograph of a neonate? (Q857214)

A. Pneumomediastinum

B. Cystic fibrosis

C. Congenital diaphragmatic hernia

D. Bronchiolitis



See Answer in Part B → Q5

@Neet_pg_bot

Q6: Which is correct about ABO and Rh incompatibility leading to erythroblastosis fetalis? (Q857593)

A. Cytotoxic

B. Cell-mediated hypersensitivity

C. Type III hypersensitivity reaction

D. Immune complex

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 31-year-old lady with diabetes mellitus delivers a term neonate. Which of the following problems may be associated with the baby born to this lady? (Q857598)

A. Hyperglycemia

B. Tetralogy of Fallot

C. Hypercalcemia

D. Hypoglycemia

See Answer in Part B → Q7

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Q8: Which of the following can lead to neonatal seizures? 1. Hypocalcemia 2. Hyponatremia 3. Hypomagnesemia 4. Hypoglycemia (Q855470)

A. 1, 2, 3 only

B. 1, 2, 3, and 4

C. 1, 3, 4 only

D. 2, 4 only

See Answer in Part B → Q8

@Neet_pg_bot

Q9: Which of the following are components of kangaroo mother care? (Q856718)

A. Early discharge, skin-to-skin contact, prevent infection

B. Early discharge, skin-to-skin contact, exclusive breastfeeding

C. Skin-to-skin contact, exclusive breastfeeding, prevent infection

D. Early discharge, exclusive breastfeeding, prevent infection

See Answer in Part B → Q9

@Neet_pg_bot

Q10: What is the amount of milk given to a term baby in the first 24 hours after delivery? (Q858049)

A. 40 ml/kg

B. 50 ml/kg

C. 60 ml/kg

D. 80 ml/kg

See Answer in Part B → Q10

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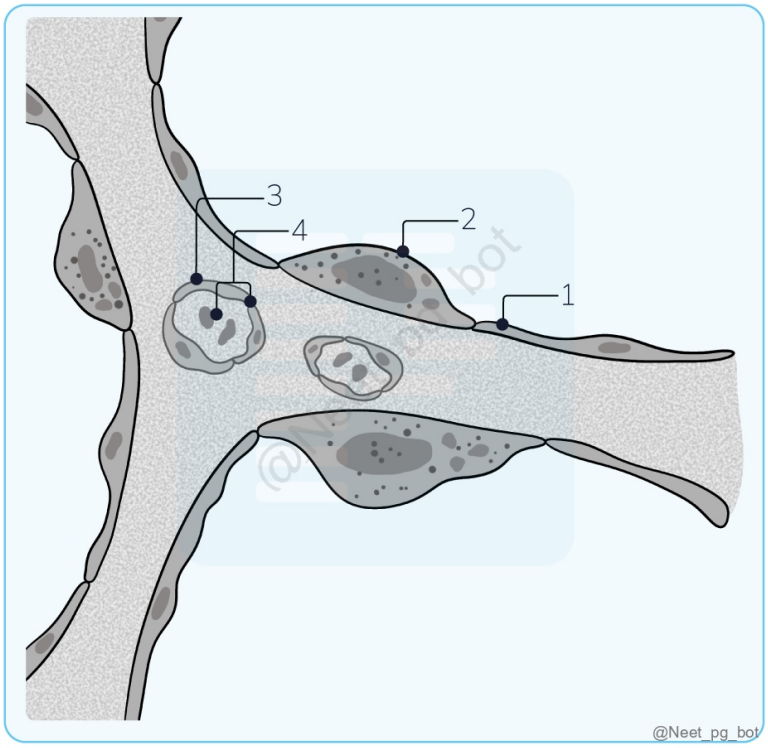
Q11: Which of the following marked structures is damaged in respiratory distress syndrome in newborns? (Q856727)

A. 1

B. 2

C. 3

D. 4



See Answer in Part B → Q11

@Neet_pg_bot

Q12: Phototherapy converts bilirubin to: (Q856448)

A. Stercobilin

B. Lumirubin

C. Biliverdin

D. Urobilin

See Answer in Part B → Q12

@Neet_pg_bot

Q13: What is the cause of the greenish-black color of the initial stool in a newborn? (Q854972)

A. Bilirubin

B. Biliverdin

C. Meconium

D. Gut flora of neonate

See Answer in Part B → Q13

@Neet_pg_bot

Q14: What is the most likely diagnosis for a newborn who presents with protrusion of bowel loops through a defect in the abdominal wall located to the right side of the umbilicus? (Q854977)

A. Omphalocele

B. Umbilical hernia

C. Gastroschisis

D. Ectopia vesicae

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A baby assessed five minutes after birth is found to have a blue, absent pulse, minimal response to stimulation, slightly flexed arms and legs, and slow, irregular respiratory movement. What is the APGAR score for this newborn? (Q859915)

A. 2

B. 3

C. 4

D. 5

See Answer in Part B → Q15

@Neet_pg_bot

Q16: The mother of a premature newborn is concerned because the baby has not yet had a bowel movement containing meconium. How long is it safe to wait for the passage of meconium in this infant? (Q859927)

A. 12 hours

B. 48 hours

C. 24 hours

D. 72 hours

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 1-day-old neonate has not passed urine since birth. What is the next step in management? (Q856060)

A. Continue breast feeding and observe

B. Admit to NICU

C. Start artificial feeding

D. Start intravenous fluids

See Answer in Part B → Q17

@Neet_pg_bot

Q18: Which of the following children are considered at-risk babies? Baby with a birth weight of 2.5 kg Baby on artificial feeding Baby of working mother/single parent Baby with weight <85% of expected weight Birth order of 3 or more (Q856098)

A. 2, 3

B. 1, 2, 3, 4

C. 4, 5

D. 1, 4

See Answer in Part B → Q18

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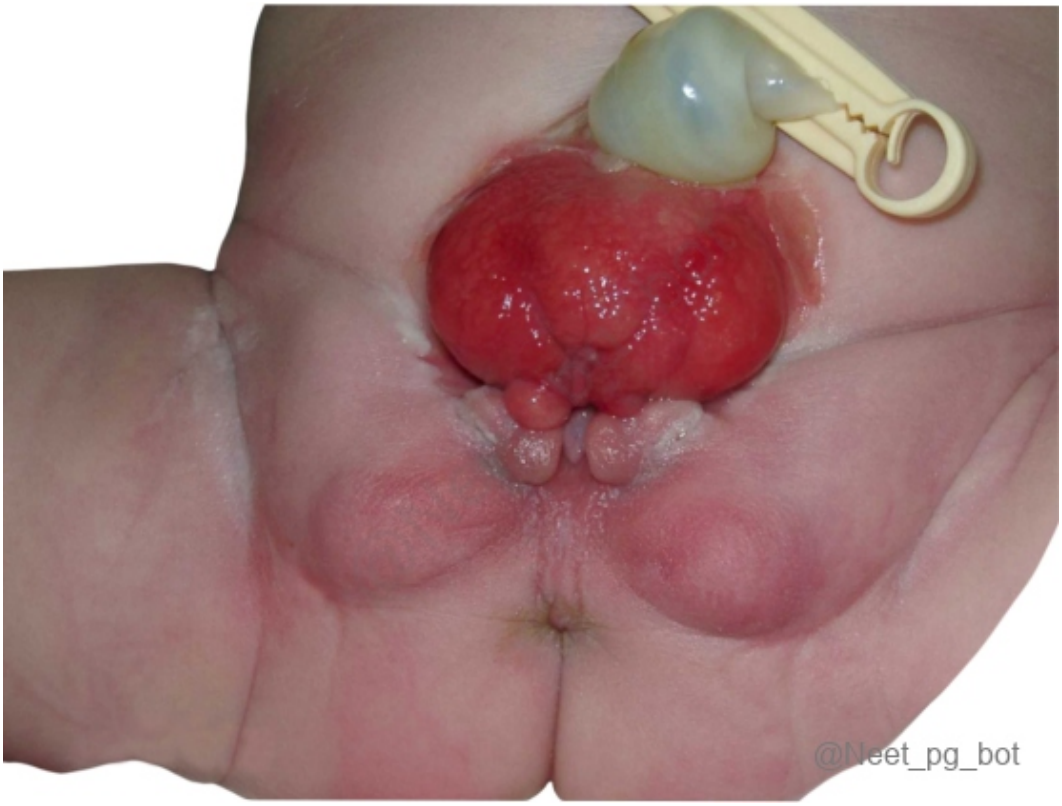
Q19: Which neonatal anomaly is depicted in the image? (Q844171)

A. Omphalocele

B. Gastroschisis

C. Patent vitello intestinal duct

D. Exstrophy bladder



See Answer in Part B → Q19

@Neet_pg_bot

Q20: Which of the following is considered harmful to a newborn baby in the immediate postnatal period? (Q866760)

A. Cleaning the eyes with a wet sterile swab

B. Giving a bath immediately after birth

C. Initiating breastfeeding within 1 hour

D. Placing the baby on the mother's chest

See Answer in Part B → Q20

@Neet_pg_bot

Q21: A newborn baby delivered at 33 weeks of gestation was brought to the OPD with complaints of shortness of breath. The chest x-ray is as shown below. What is the most likely diagnosis? (Q865397)

A. Respiratory distress syndrome

B. Transient tachypnoea of the newborn

C. Meconium Aspiration Syndrome

D. Neonatal pneumonia



See Answer in Part B → Q21

@Neet_pg_bot

Q22: Which of the following best explains the mechanism of breast milk jaundice? (Q865435)

A. Increased bilirubin production due to red blood cell breakdown

B. Inhibition of bilirubin conjugation by substances such as non-esterified fatty acids and beta-glucuronidase, in breast milk

C. Hepatocellular injury caused by maternal hormones

D. Decreased intestinal absorption of bilirubin

See Answer in Part B → Q22

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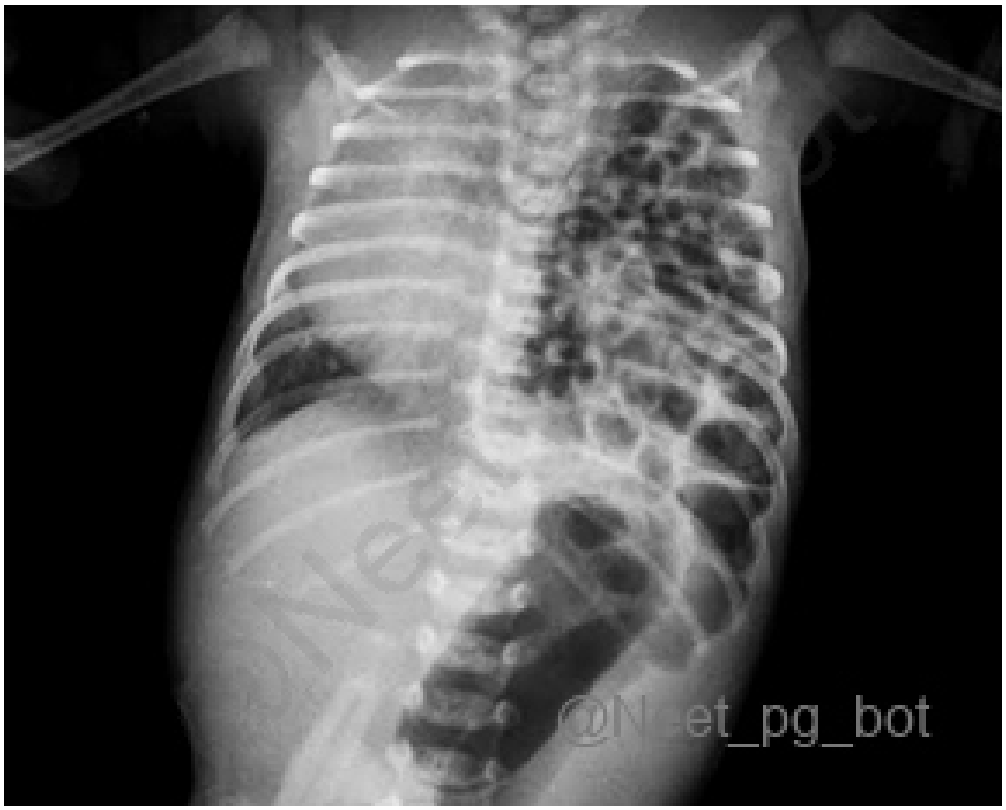
Q23: A 24-hour-old baby with severe respiratory distress was admitted to the ICU. A chest X-ray of the neonate is given. What is the most probable diagnosis? (Q866396)

A. Congenital Pulmonary Airway Malformation (CPAM)

B. Congenital Diaphragmatic Hernia (CDH)

C. Congenital lobar emphysema

D. Neonatal pneumonia



See Answer in Part B → Q23

@Neet_pg_bot

Q24: A newborn is noted to have constriction rings around the fingers and indentations over the superior aspect of the knee at birth. What is the most likely diagnosis? (Q866403)

A. Congenital Constriction Band

B. Amniotic Band Syndrome

C. Congenital Talipes Equinovarus

D. Arthrogryposis Multiplex Congenita





See Answer in Part B → Q24

@Neet_pg_bot

Q25: A 3-year-old child is brought to the emergency department in an unresponsive state and not breathing properly after consuming peanuts. What is the most appropriate immediate management? (Q866408)

A. Abdominal thrusts

B. Back slaps

C. Chest compressions

D. Endotracheal intubation

See Answer in Part B → Q25

@Neet_pg_bot

Q26: A 3-month-old child was brought with watery eyes and photophobia. All of the following conditions can be the cause of these symptoms, except? (Q853242)

A. Congenital glaucoma

B. Congenital nasolacrimal duct obstruction

C. Congenital entropion

D. Herpes simplex keratitis

See Answer in Part B → Q26

@Neet_pg_bot

Q27: Which of the following are the components of Downe’s score? Respiratory rate Feeding Grunting Cyanosis (Q853244)

A. 1,2,3

B. 1,3,4

C. 2,3,4

D. 1,2,4

See Answer in Part B → Q27

@Neet_pg_bot

Q28: A newborn, born to a diabetic mother, presents after 24 hours of life with a blood glucose level of <35 mg/dL. The baby is symptomatic. What is the next best step in management? (Q866746)

A. Administer IV bolus of Hartmann solution

B. Recheck blood glucose after 20 minutes

C. Administer IV glucose and recheck blood glucose after 20 minutes

D. Start oral feeds and observe

See Answer in Part B → Q28

@Neet_pg_bot

Q29: Which of the following is the most common type of congenital diaphragmatic hernia? (Q844222)

A. Hiatal Hernia

B. Morgagni Hernia

C. Bochdalek Hernia

D. Umbilical Hernia

See Answer in Part B → Q29

@Neet_pg_bot

Q30: Identify the condition in a neonate with the swelling of the head shown in the image below at a few weeks of life? (Q860537)

A. Caput succedaneum

B. Cephalhematoma

C. Subgaleal bleed

D. Encephalocele



See Answer in Part B → Q30

@Neet_pg_bot

Q31: Which of the following are the components of Downe's score? Respiratory rate Feeding Grunting Cyanosis (Q840087)

A. 1,2,3

B. 1,3,4

C. 2,3,4

D. 1,2,4

See Answer in Part B → Q31

@Neet_pg_bot

Q32: Which of the following primitive reflexes do not disappear? (Q860290)

A. Rooting reflex

B. Parachute reflex

C. Moro's reflex

D. Palmar grasp reflex

See Answer in Part B → Q32

@Neet_pg_bot

Q33: A 3.5 kg term neonate born to a mother with eclampsia did not cry at birth. Which of the following is the criterion for perinatal asphyxia? (Q857392)

A. APGAR persists at 4-7 for >5 minutes

B. Cord pH <7.2

C. Hypocalcemia

D. Hypotonia

See Answer in Part B → Q33

@Neet_pg_bot

Q34: One-day-old term neonate presented with respiratory distress, tachypnea, SpO2-80%, and scaphoid abdomen. Which of the following cannot be used in resuscitation? (Q857397)

A. Positive pressure ventilation

B. Endotracheal intubation

C. Bag and mask ventilation

D. Oxygen supplementation

See Answer in Part B → Q34

@Neet_pg_bot

Q35: Which of the following is not an indicator of fetal lung maturity? (Q857412)

A. Lecithin-sphingomyelin ratio > 2.5

B. Positive shake test

C. Increased phosphatidylglycerol

D. Nile blue test showing >50% of blue cells

See Answer in Part B → Q35

@Neet_pg_bot

Q36: In a baby born with meconium-stained liquor, which of the following are recommended as per Neonatal Resuscitation guidelines? 1. Intrapartum suction of nose and mouth before delivery of shoulder 2. Intratracheal suction in case of non-vigorous baby 3. Gentle suction of nose and mouth in case of vigorous baby 4. PPV in case of non-vigorous baby after early steps (Q854716)

A. 1, 2, 3, 4

B. 2, 4

C. 3, 4

D. 1, 3, 4

See Answer in Part B → Q36

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• [02_Growth] 007 Growth

« Back to Folder Directory

[02_Growth] 007 Growth — Quick Jump

Q1 (p. 97)	*Q2 (p. 98)*	*Q3 (p. 98)*	*Q4 (p. 99)*	*Q5 (p. 100)*	*Q6 (p. 102)*
Q7 (p. 103)	*Q8 (p. 103)*	*Q9 (p. 104)*	*Q10 (p. 104)*	*Q11 (p. 105)*	*Q12 (p. 105)*
Q13 (p. 106)	*Q14 (p. 106)*	*Q15 (p. 107)*	*Q16 (p. 107)*	*Q17 (p. 107)*	*Q18 (p. 108)*
Q19 (p. 108)	*Q20 (p. 109)*	*Q21 (p. 109)*	*Q22 (p. 109)*	*Q23 (p. 110)*	*Q24 (p. 110)*
Q25 (p. 111)	*Q26 (p. 111)*	*Q27 (p. 112)*	*Q28 (p. 112)*	*Q29 (p. 113)*	

Q1: A 2-year-old child presents for evaluation with an abnormal head shape and a distinctive hand deformity as shown in the image. The child's head exhibits early closure of cranial sutures, leading to an unusually shaped skull. Based on these clinical features, which of the following conditions is the most likely diagnosis? {{caption_text}} (Q849831)

A. Crouzon syndrome

B. Apert syndrome

C. Pfeiffer syndrome

D. Carpenter syndrome



See Answer in Part B → Q1

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Q2: Arrange the following in the correct sequence of eruption for primary and permanent teeth. 1. Primary lateral incisors 2. Primary central incisors 3. Permanent first premolar 4. Primary second molar 5. Permanent first molar 6. Primary canine (Q849819)

A. 2>3>1>4>5>6

B. 1>3>2>4>6>5

C. 2>1>6>4>5>3

D. 1>2>4>6>5>3

See Answer in Part B → Q2

@Neet_pg_bot

Q3: At what age does the anterior fontanelle typically close in infants? (Q849833)

A. 2 months

B. 6 months

C. 12 months

D. 18 months

See Answer in Part B → Q3

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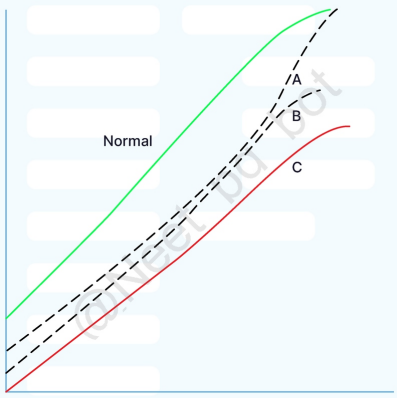
Q4: Match the following graphical representations with their respective cause of short stature. i) Familial short stature ii) Constitutional delay iii) Pre-natal onset pathologic short stature (Q849832)

A. i-A, ii-B, iii-C

B. i-B, ii-A, iii-C

C. i-C, ii-B, iii-A

D. i-A, ii-C, iii-B



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See Answer in Part B → Q4

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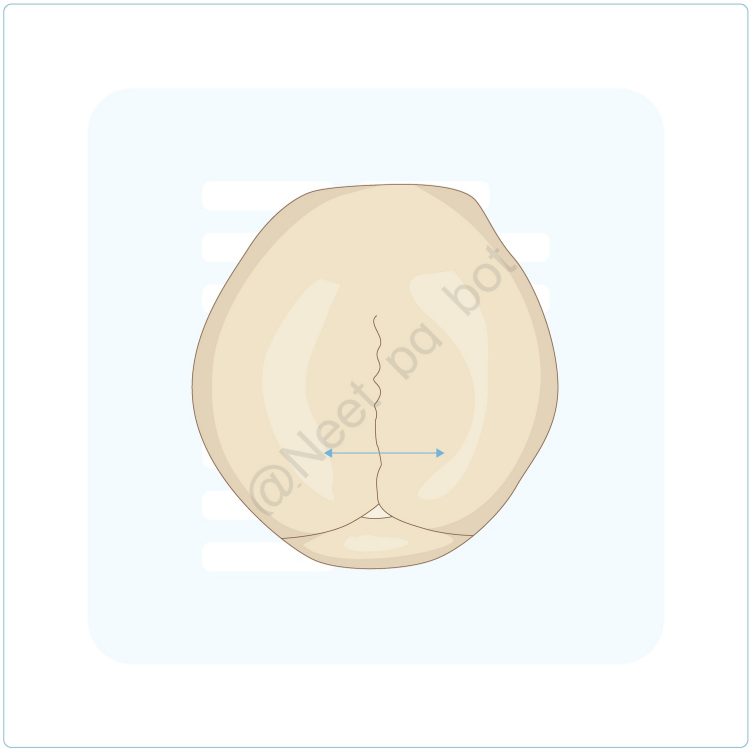
Q5: Match the following. A. 1. Scaphocephaly B. 2. Plagiocephaly C. 3. Brachycephaly D. 4. Trigonocephaly (Q849830)

A. A-3, B-2, C-4, D-1

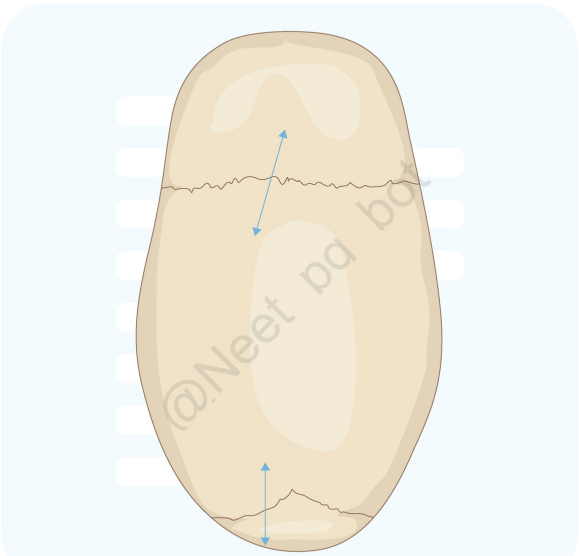
B. A-2, B-3, C-4, D-1

C. A-3, B-1, C-4, D-2

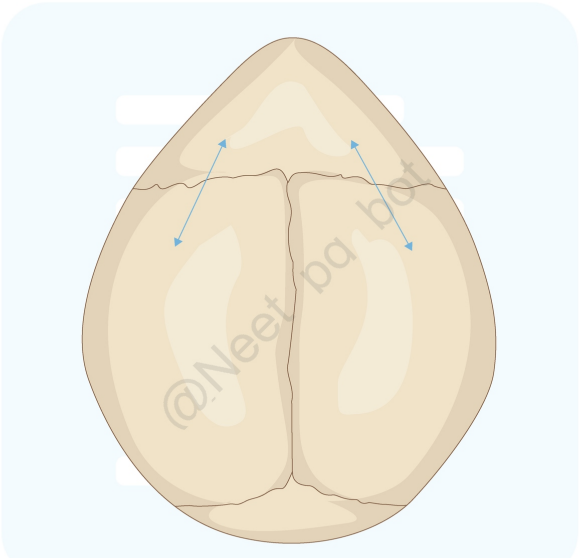
D. A-1, B-4, C-3, D-2



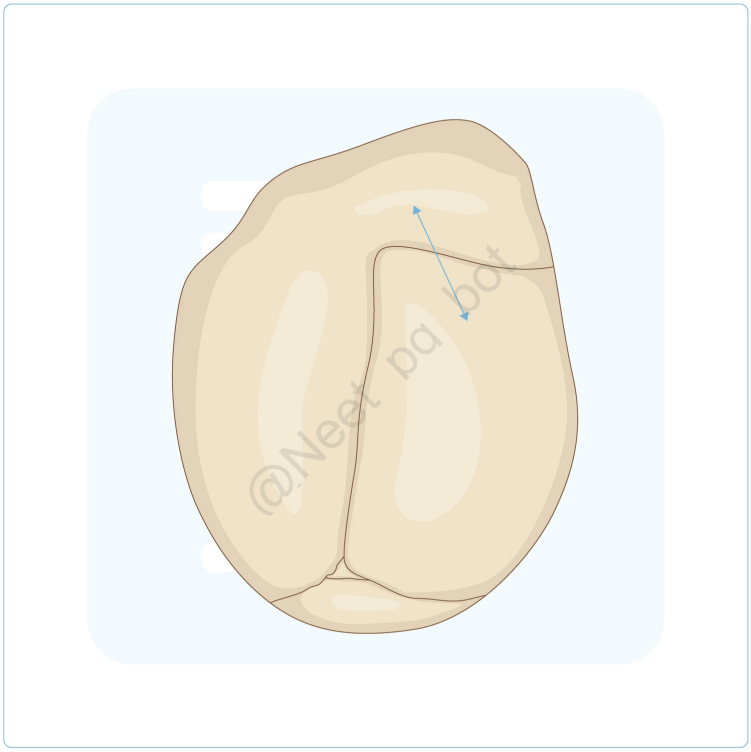
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See Answer in Part B → Q5

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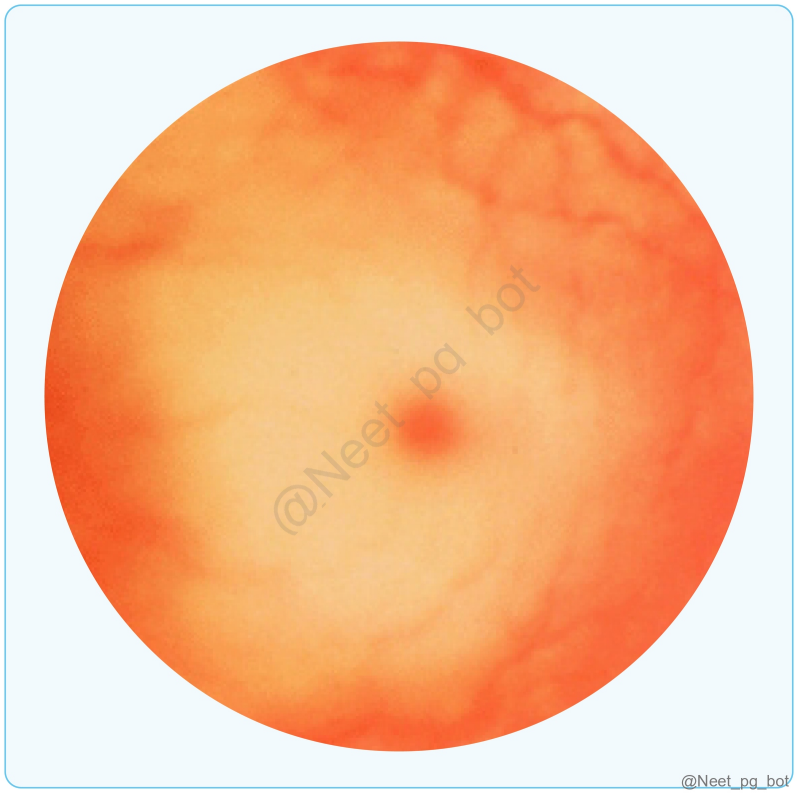
Q6: A one-year-old child presents with macrocephaly, developmental delay, a significant reduction in motor skills, poor muscle tone, and a low IQ. At birth the child was normal. Fundoscopy reveals the following. What is the most likely diagnosis? (Q849829)

A. Tay-Sachs disease

B. Infantile Hydrocephalus

C. Congenital brain malformation

D. Rett syndrome



See Answer in Part B → Q6

@Neet_pg_bot

Q7: Which of the following conditions is not a cause of acquired microcephaly? (Q849828)

A. Seckel Syndrome

B. Down Syndrome

C. Rett Syndrome

D. Angelman Syndrome

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A newborn is evaluated and has a head circumference < -2 SD of the mean for age and sex. The baby's head circumference is consistently below this threshold on repeated measurements, No additional findings of developmental delay or neurological impairment. Which of the following is the most appropriate condition for this baby? (Q849827)

A. Microcephaly is probably due to Seckel syndrome.

B. Microcephaly is probably due to the Zika virus in the antenatal period.

C. Normal variation of head size.

D. Microcephaly due to Down's Syndrome.

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 4-year-old child presents with developmental delays and a recent diagnosis of homocystinuria. Physical examination reveals tall stature, dislocated lens, and a history of recurrent thrombotic events. Genetic testing and biochemical analysis confirm the diagnosis. Which amino acid is most closely linked to the metabolic pathway involved in the development of homocystinuria? (Q849826)

A. Methionine

B. Phenylalanine

C. Tryptophan

D. Valine

See Answer in Part B → Q9

@Neet_pg_bot

Q10: Which of the following statements regarding the causes and characteristics of tall stature in children are correct? Tall stature is defined as a height >2SD above the mean for age and gender. Constitutional acceleration of growth (CAG) is characterized by tall stature, normal growth velocity, and advanced bone age, and

results in a final height within the mid-parental range. Tall stature is defined as a height >3SD above the mean for age and gender. Obesity-related tall stature is associated with advanced bone age and early onset of puberty, which may limit the increase in final height. Klinefelter syndrome presents with disproportionately tall stature, small testes, and behavioral issues. Marfan syndrome, caused by mutations in the FBN1 gene, features tall stature, lens dislocation, and aortic root dilation. (Q849825)

A. 1,2,4,6.

B. 1,2,3,4.

C. 1,2,4,5,6.

D. 1,4,5,6.

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 6-year-old girl is brought to the clinic with a history of frequent bone fractures occurring with minimal trauma. Physical examination reveals a blue sclera, hearing, and dental abnormalities. Which of the following statements best explains the underlying pathophysiology of the patient's condition? (Q849824)

A. Mutation affects collagen type II, leading to bone fractures.

B. Mutation affects collagen type III, resulting in blue sclera.

C. Mutation affects collagen type I, affecting bones and contributing to their fragility.

D. Mutation affects collagen type IV, resulting in dental abnormalities.

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 7-year-old boy presents with short stature and disproportionate body proportions. His parents are concerned about his height, which falls well below the 3rd percentile for his age. The child has a normal-sized trunk but exhibits a

disproportionately large head and short limbs. X-ray findings show shortening of the long bones and normal bone mineralization. Genetic testing reveals a specific FGFR3 mutation. What is the most likely diagnosis for this child's short stature? (Q849823)

A. Achondroplasia

B. Turner Syndrome

C. Growth hormone deficiency

D. Hypothyroidism

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 10-year-old boy presents with short stature and delayed bone age. His growth velocity has been consistently below the 3rd percentile. After thorough evaluation, growth hormone deficiency (GHD) is diagnosed. What is the expected relationship between the Upper and Lower segments of his body? (Q849822)

A. US > LS

B. US = LS

C. US < LS

D. None of the above

See Answer in Part B → Q13

@Neet_pg_bot

Q14: What will the expected adult height of a male child be if the adult height of the mother is 168 cm and the adult height of the father is 182 cm? (Q849821)

A. 175 cm

B. 176.5 cm

C. 181.5 cm

D. 180 cm

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A concerned mother brings her 2-year-old child, worried about the child's short stature. On examination, it is found that the child's bone age matches the chronological age but the height falls more than 2 standard deviations below the average for the child's age. The child has no other developmental anomalies, and both parents are of short stature. What is the most likely cause of the short stature in this child? (Q849820)

A. Familial short stature

B. Growth hormone deficiency

C. Turner syndrome

D. Cushing syndrome

See Answer in Part B → Q15

@Neet_pg_bot

Q16: Which of the following best defines the time limit used to describe the term "embryo" in human development? (Q849805)

A. 0 to 2 weeks

B. 0 to 8 weeks

C. 9 weeks to birth

D. None of the above

See Answer in Part B → Q16

@Neet_pg_bot

Q17: Which of the following conditions are most likely to be associated with delayed dentition? Rickets Cleidocranial dysostosis Pierre Robin sequence Down syndrome (Q849818)

A. 1, 3, 4

B. 3, 4

C. 1, 2, 3

D. 1, 2, 4

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 2-month-old infant is being evaluated for growth parameters. The pediatrician needs to measure the chest circumference accurately. What is the most appropriate position for this measurement? (Q849817)

A. At the end of the expiration

B. Midway between inspiration and expiration

C. At the end of deep inspiration

D. At the level of nipples, irrespective of the inspiratory or expiratory phase

See Answer in Part B → Q18

@Neet_pg_bot

Q19: If the head circumference of a newborn is 35 cm, what would be the expected measurement at 1 year of age? (Q849816)

A. 41 cm

B. 44 cm

C. 47 cm

D. 50 cm

See Answer in Part B → Q19

@Neet_pg_bot

Q20: A 6-year-old child presents after a road traffic accident, and accurate height measurement using a stadiometer is not possible. Which of the following methods is most appropriate for estimating the child's height? (Q849815)

A. Using the child's arm span

B. Estimating height based on parental height

C. Head circumference

D. Mid-upper arm circumference

See Answer in Part B → Q20

@Neet_pg_bot

Q21: At what age is a child's height typically around half of their predicted adult height? (Q849814)

A. 1 Year

B. 2 Years

C. 9 months

D. 4 Years

See Answer in Part B → Q21

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Q22: A 6-year-old girl is brought to the pediatric clinic for a routine check-up. The pediatrician wants to estimate her weight. What will be the estimated weight of this 6-year-old girl? (Q849813)

A. 12 kg

B. 16 kg

C. 20 kg

D. 24 kg

See Answer in Part B → Q22

@Neet_pg_bot

Q23: In the pediatric population, which aspect of growth is most closely correlated with the maturation of the gonads? (Q849812)

A. Skeletal growth

B. Height velocity

C. Weight gain

D. Head circumference

See Answer in Part B → Q23

@Neet_pg_bot

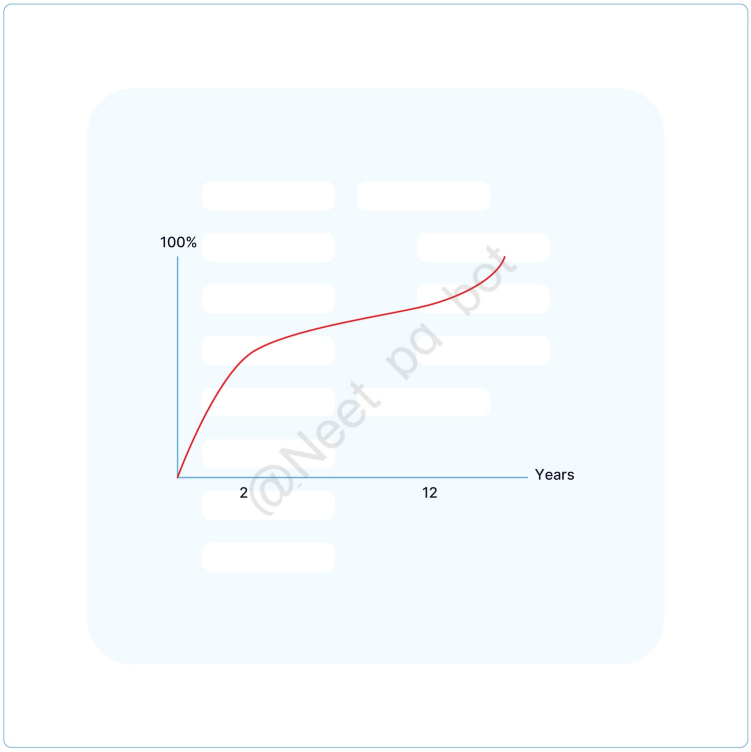
Q24: A 12-year-old child’s growth chart shows a distinctive pattern in the graph depicting their growth over time as shown in the image below. In this clinical scenario, what does the graph primarily indicate about the child’s growth patterns? (Q849811)

A. Gonadal development

B. Somatic growth

C. Brain growth

D. Lymphoid growth



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See Answer in Part B → Q24

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Q25: A 4-year-old child presents for a routine checkup. The pediatrician reviews the child's health and plots the following parameters on the growth chart. Which of the following parameters is not typically represented on the WHO growth chart? (Q849810)

A. Weight for length

B. Skin fold thickness

C. Mid arm circumference

D. None of the above

See Answer in Part B → Q25

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Q26: A 4-year-old boy is brought to the clinic for a routine check-up. The pediatrician uses the Growth Charts to assess growth patterns. Which of the following charts is used in this patient? (Q849809)

A. IAP Growth charts

B. Centers for Disease Control and Prevention (CDC) Growth Charts

C. National Center for Health Statistics (NCHS) Growth Charts

D. WHO Growth Charts

See Answer in Part B → Q26

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Q27: Arrange the following pubertal changes in females in the correct sequence from the first to the last: Pubarche Thelarche Growth Spurt Menarche (Q849808)

A. 1, 2, 3, 4

B. 2, 1, 3, 4

C. 1, 3, 2, 4

D. 2, 3, 1, 4

See Answer in Part B → Q27

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Q28: A 7-year-old child is brought to the pediatric clinic for a routine check-up. Parents are concerned about her weight gain and overall growth. The pediatrician decides to assess nutritional status and body fat distribution by assessing skin fold thickness to determine if any concerns need to be addressed. Which of the following instruments is best used? (Q849807)

A. Harpenden caliper

B. Shakir Tape

C. Salter scale

D. Infantometer

See Answer in Part B → Q28

@Neet_pg_bot

Q29: Which of the following is not assessed by measuring MUAC (Middle upper arm circumference)? (Q849806)

A. Body fat reserves

B. Nutritional status

C. Dehydration

D. Growth monitoring

See Answer in Part B → Q29

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• [02_Growth] 008 Previous Year Questions

« Back to Folder Directory

[02_Growth] 008 Previous Year Questions — Quick Jump

Q1 (p. 114)	*Q2 (p. 114)*	*Q3 (p. 114)*	*Q4 (p. 115)*	*Q5 (p. 115)*	*Q6 (p. 116)*
Q7 (p. 117)	*Q8 (p. 117)*	*Q9 (p. 118)*	*Q10 (p. 118)*	*Q11 (p. 118)*	*Q12 (p. 119)*

Q1: A 10 year old child presented to the clinic with complaints of recurrent infection. Physical examination shows low height for age and Z line score is <-2SD. The parents also have a history of incorrect feeding method. What is the appropriate term for the above mentioned condition? (Q820479)

A. Stunting

B. Wasting

C. Malnutrition

D. Kwashiorkor

See Answer in Part B → Q1

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Q2: At which of the following ages does maximum brain growth occur? (Q844231)

A. 1 year

B. 2 years

C. 3 years

D. 4 years

See Answer in Part B → Q2

@Neet_pg_bot

Q3: While evaluating a 3-year-old with short stature, height is measured at 90cm and the lower segment is 45 cm. What is the likely diagnosis? (Q852540)

A. Achondroplasia

B. Congenital hypothyroidism

C. Rickets

D. Spondyloepiphyseal dysplasia

See Answer in Part B → Q3

@Neet_pg_bot

Q4: Which of the following is the best sign to indicate adequate growth in an infant with a birth weight of 2.8 kg? (Q855497)

A. Increase in length of 25 cm in the first year

B. Weight gain of 300 grams per month till 1 year

C. Anterior fontanelle closure by 6 months of age

D. Weight under the 75th percentile and height under the 25th percentile

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which alternative method can be used for the procedure shown in the image below? (Q855726)

A. Head circumference

B. Arm span

C. Crown-rump length

D. Knee height



See Answer in Part B → Q5

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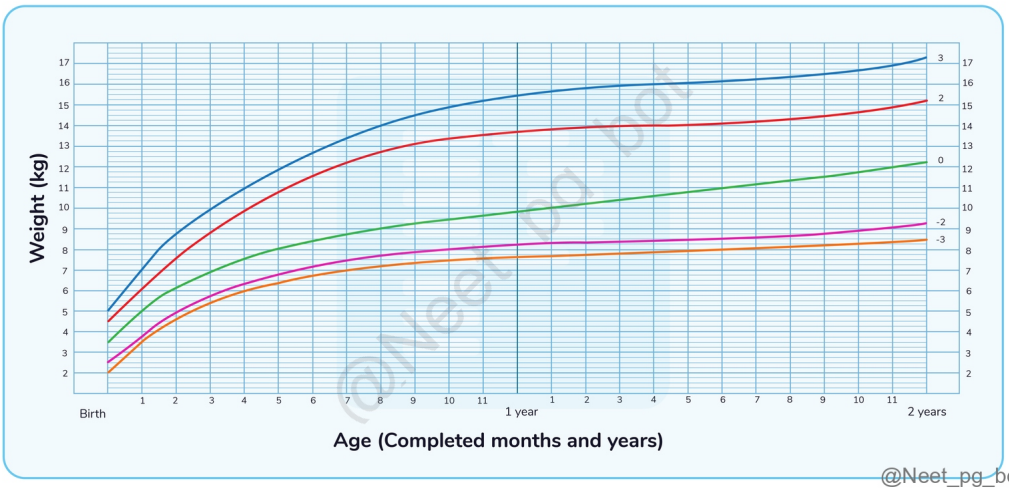
Q6: A 16-month-old boy weighs 8 kg. A WHO growth chart (weight-for-age) is provided below. What is the most appropriate advice for this child? (Q856176)

A. No malnutrition - assure the mother

B. Mild malnutrition - home treatment

C. Severe malnutrition - refer to nutrition rehabilitation centre

D. Moderate malnutrition - teach the mother how to feed



See Answer in Part B → Q6

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Q7: Which is the first primary tooth to erupt? (Q857574)

A. Upper central incisor

B. Lower central incisor

C. Upper canine

D. Lower canine

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A child is brought to the paediatrician with short stature. On evaluation, growth hormone levels are found to be high and insulin-like growth factor (IGF-1) levels are low. Which among the following could be the abnormality here? (Q857601)

A. GH deficiency

B. GHRH deficiency

C. GH receptor anomaly

D. IGF-1 deficiency

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 6-year-old child is brought for evaluation of short stature. His height is comparable with his parent's height and his bone age corresponds to his chronological age. What is the diagnosis? (Q858070)

A. Familial short stature

B. Constitutional delay

C. Undernutrition

D. Growth hormone deficiency

See Answer in Part B → Q9

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Q10: Gonadal growth corresponds with _____. (Q858072)

A. Brain

B. Skeletal system

C. Lymphoid growth

D. Dental growth

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 3-year-old child is brought to the OPD for a regular check-up. His growth chart shows a BMI between the 85th and 95th percentile . Which of the following categories would you place him in? (Q793757)

A. Moderate wasting

B. Severe acute malnutrition

C. Overweight

D. Obese

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A mother expresses concern about her child's unwillingness to eat properly . Her 15-month-old son's length falls 2 standard deviations below the median for his age . What is the most probable medical condition ? (Q793765)

A. Acute malnutrition

B. Severe wasting

C. Moderately underweight

D. Moderate stunting

See Answer in Part B → Q12

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• [03_Developmental and Behavioral Disorders] 009 Previous Year Questions

« Back to Folder Directory

[03_Developmental and Behavioral Disorders] 009 Previous Year Questions — Quick Jump

Q1 (p. 120) *Q2 (p. 120)* *Q3 (p. 121)* *Q4 (p. 121)*

Q1: A 12-year-old child presents with short stature. On evaluation, the bone age is found to be less than the chronological age. There are no dysmorphic features, and the child is otherwise healthy. What is the most likely diagnosis? (Q866745)

A. Constitutional delay of growth and puberty

B. Familial short stature

C. Achondroplasia

D. Chondrodysplasia

See Answer in Part B → Q1

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Q2: An 8-year-old child presents with enuresis (bedwetting). The parents mention the child had a fall from bed once, but has no other significant medical history. There are no signs of urinary tract infection or neurological deficits. What is the best next step in management? (Q866756)

A. Behavioral modification

B. Start anticholinergic drugs

C. Prescribe oxybutynin

D. Start desmopressin therapy

See Answer in Part B → Q2

@Neet_pg_bot

Q3: At what age does a child reach half of their adult height? (Q855475)

A. 12-18 months

B. 20-24 months

C. 32-36 months

D. 40-48 months

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A child with an IQ of 55 comes under: (Q859482)

A. Mild intellectual disability

B. Moderate intellectual disability

C. Severe intellectual disability

D. Profound intellectual disability

See Answer in Part B → Q4

@Neet_pg_bot

• [04_Immunization] 010 Immunization And Vaccines

« Back to Folder Directory

[04_Immunization] 010 Immunization And Vaccines — Quick Jump

Q1 (p. 122)	*Q2 (p. 122)*	*Q3 (p. 123)*	*Q4 (p. 123)*	*Q5 (p. 123)*	*Q6 (p. 126)*
Q7 (p. 126)	*Q8 (p. 127)*	*Q9 (p. 127)*	*Q10 (p. 128)*	*Q11 (p. 128)*	*Q12 (p. 128)*
Q13 (p. 129)	*Q14 (p. 129)*	*Q15 (p. 130)*	*Q16 (p. 130)*	*Q17 (p. 130)*	*Q18 (p. 131)*
Q19 (p. 131)	*Q20 (p. 132)*	*Q21 (p. 132)*	*Q22 (p. 132)*	*Q23 (p. 133)*	

Q1: A 16-month-old child is visiting the clinic for a routine check-up. The child's parents enquire about starting the varicella vaccination series. The child is healthy and has no known allergies or medical conditions. Which of the following vaccination schedules is most appropriate for this child? (Q850036)

A. Administer the varicella vaccine today and schedule the second dose 23 months later.

B. Administer the varicella vaccine today and schedule the second dose 3-6 months later.

C. Administer the varicella vaccine today and schedule the second dose 2 weeks later.

D. Administer the varicella vaccine today and schedule the second dose 1 month later.

See Answer in Part B → Q1

@Neet_pg_bot

Q2: Which of the following statements about the BCG vaccine is FALSE? (Q850028)

A. Provides 0-80% protection against TB

B. Leaves a characteristic scar 6-12 months after injection

C. Can be given until age 5 according to IAP 2021 guidelines

D. Loses potency rapidly once reconstituted and should be discarded after 4 hours

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A nurse at a Primary Health Center (PHC) is preparing vaccines for an outreach program. She needs to prioritize handling the most heat-sensitive vaccines to prevent them from losing potency. Which of the following vaccines is the most sensitive to heat? (Q850039)

A. BCG before reconstitution

B. BCG after reconstitution

C. Hepatitis B

D. Pentavalent (Penta) vaccine

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A nurse is inspecting vaccines in a clinic before administering them to children. She notices that one of the vials of hepatitis B vaccine appears suspicious. To ensure the vaccine's integrity, she performs a shake test. After vigorous shaking, she observes that the vaccine in the vial has a sediment that settles at the bottom, unlike another vial she shakes which remains uniformly cloudy. Based on the results of the shake test, which of the following actions should the nurse take? (Q850038)

A. Administer the vaccine with the sediment as it is still safe to use.

B. Administer the uniformly cloudy vaccine as it is not damaged by freezing.

C. Discard both vials as they show signs of potential damage.

D. Use the vial with the sediment as a control and proceed with the uniformly cloudy vaccine.

See Answer in Part B → Q4

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Q5: Which of the following Vaccine Vial Monitors (VVMs) indicates that the vaccine is safe to use? 1. 2. 3. 4. (Q850037)

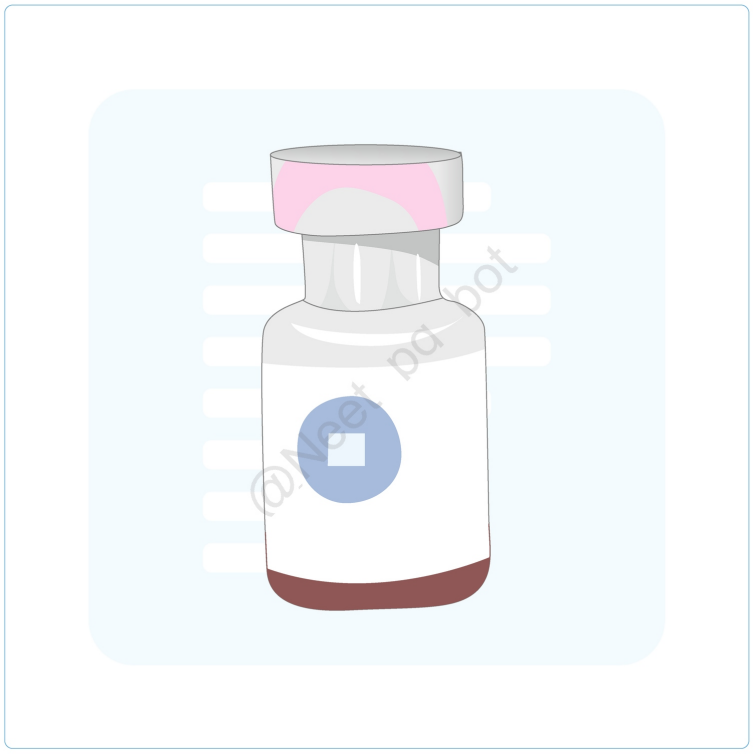
A. Only 4

B. 1 & 2

C. 3 & 4

D. Only 3




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See Answer in Part B → Q5

@Neet_pg_bot

Q6: Which of the following statements about the HPV vaccines is false? (Q850035)

A. Gardasil 9 protects against 9 strains of HPV.

B. The recommended no. of doses for girls under 15 receiving Gardasil 9 is 2.

C. Cervavac (HPV4) is recommended for only girls in the Indian immunization program.

D. Catch-up vaccination for the Gardasil 4 HPV vaccine is available for individuals up to 45 years of age.

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 2 y/o child has received only one dose of PCV13 at 6 months. What is the appropriate course of action to complete the pneumococcal vaccination series?

(Q850034)

A. Administer three additional PCV13 doses: two 4 weeks apart, the third 8 weeks later.

B. Give one dose of PPSV23 now, no more PCV13 is needed.

C. Administer one additional dose of PCV13 at 24-59 months.

D. No further PCV13 doses are needed since the child is over 2 years old.

See Answer in Part B → Q7

@Neet_pg_bot

Q8: Which of the following statements about the Rotavirus and Typhoid vaccines is not accurate? (Q850033)

A. The Rotavirus vaccine should be administered at 6, 10, and 14 weeks of age.

B. The Typhoid conjugate vaccine is administered as a single dose at ≥6 months of age.

C. The Typhoid Vi capsular polysaccharide vaccine is recommended every 5 years.

D. The Rotavirus vaccine vial can be used for up to 4 hours after opening.

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A baby is born to a Hepatitis B-positive mother. What is the most appropriate plan for the baby? (Q850032)

A. Give Hepatitis B vaccine immediately after birth

B. Give both Hepatitis B vaccine and Hepatitis B Immunoglobulin in 2 separate syringes, at 2 separate sites, within 12 hours of birth

C. Delay Hepatitis B vaccine till 6 weeks. Give Hep B Immunoglobulin immediately after birth

D. Mix Hepatitis B vaccine and Immunoglobulin in a single syringe and give, so that two separate injections are not required.

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 6-month-old infant is brought to the clinic due to concerns about a local measles outbreak. The parents are worried about the child contracting measles and inquire about vaccination options. The child has not yet received any measles vaccination. What is the most appropriate recommendation regarding measles vaccination for this child? (Q850031)

A. Delay vaccination until the child reaches 9 months of age.

B. Administer the MMR vaccine now and no further doses are needed.

C. Administer the first dose of the Measles vaccine now and give MR vaccine again at 9 months and 16-18 months

D. Administer the first dose of the Measles vaccine now and schedule the next dose at 4-6 years.

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 18-month-old, previously vaccinated with the Pentavalent series, is due for the 1 st DPT booster. The parents are concerned about side effects. What should the healthcare provider explain about the appropriate vaccine and potential adverse effects? (Q850030)

A. Administer DPT as the booster; local reactions like pain or redness are common.

B. Administer Pentavalent again to maintain immunity; severe side effects are rare.

C. Administer DPT and monitor for severe side effects like encephalopathy.

D. No further vaccines are needed after completing the Pentavalent series.

See Answer in Part B → Q11

@Neet_pg_bot

Q12: In response to the emergence of circulating vaccine-derived polioviruses (cVDPVs), which of the following strategies has been implemented globally to address this issue? (Q850029)

A. Exclusively using trivalent oral polio vaccine (OPV) to enhance herd immunity.

B. Transitioning from trivalent OPV to bivalent OPV (bOPV) and introducing inactivated polio vaccine (IPV) into routine schedules.

C. Replacing all OPV doses with IPV doses in the primary immunization schedule.

D. Discontinuing the use of any polio vaccines and relying on natural immunity.

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 10-week-old infant is brought to the clinic for a routine check-up. The mother reports that the baby received the first dose of Hepatitis B at birth but missed the scheduled vaccinations at 6 weeks. Which of the following should be administered to the infant at this visit to catch up with the National Immunisation Schedule? (Q850017)

A. bOPV, Pentavalent, Rotavirus, fIPV-1, PCV-1

B. MMR, Hepatitis A

C. Vitamin A, Tetanus Toxoid

D. Hepatitis B, HPV

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A preterm infant born at 28 weeks of gestation weighs 1.8 kg at birth. The infant's mother is HBsAg-positive. Which of the following is the correct management for hepatitis B vaccination in this infant? (Q850027)

A. Administer the hepatitis B birth dose within the first 24 hours of life.

B. Defer the hepatitis B birth dose until the infant reaches 1 month of age.

C. Administer hepatitis B immunoglobulin (HBIG) and hepatitis B vaccine within 12 hours of birth.

D. Administer hepatitis B vaccine only after discharge from the hospital.

See Answer in Part B → Q14

@Neet_pg_bot

Q15: According to the World Health Organization (WHO) classification, which of the following is classified as a severe vaccine reaction? (Q850026)

A. Pain, swelling, or redness at the injection site

B. Mild fever

C. Severe allergic reaction requiring emergency treatment

D. Convulsions occurring in clusters

See Answer in Part B → Q15

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Q16: Which of the following is an example of a vaccine-induced adverse event following immunization? (Q850025)

A. Syncope after vaccination

B. Toxic shock syndrome due to a contaminated vaccine

C. Anaphylaxis after the measles vaccine

D. Gastroenteritis after the MMR injection

See Answer in Part B → Q16

@Neet_pg_bot

Q17: Which of the following vaccines is not administered via intramuscular (IM) injection according to the National Immunization Schedule (NIS) of India? (Q850024)

A. Hepatitis B

B. Measles & Rubella (MR)

C. Pentavalent Vaccine

D. Diphtheria, Pertussis & Tetanus (DPT) Booster-1

See Answer in Part B → Q17

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Q18: A 16 y/o girl who missed her HPV vaccination series as a pre-teen is now seeking to catch up. What is the most appropriate action according to the vaccination guidelines? (Q850023)

A. Start the full 3-dose HPV vaccine series immediately.

B. Administer a single dose of HPV vaccine.

C. Delay vaccination until she is 18 years old.

D. Perform serologic testing before initiating the HPV vaccine series.

See Answer in Part B → Q18

@Neet_pg_bot

Q19: Which of the following vaccines should be discarded at the end of an immunization session if partially used? (Q850022)

A. Diphtheria-tetanus-pertussis (DTP) vaccine

B. BCG Vaccine

C. Hepatitis B vaccine (monovalent)

D. Pneumococcal conjugate vaccine (PCV)

See Answer in Part B → Q19

@Neet_pg_bot

Q20: Which of the following correctly describes the purpose of the shake test in vaccine management? (Q850021)

A. To check if the vaccine has been exposed to excessive heat

B. To determine if the vaccine has been frozen and potentially damaged

C. To verify the expiration date of the vaccine

D. To assess the potency of the vaccine by checking its colour

See Answer in Part B → Q20

@Neet_pg_bot

Q21: A 7 y/o foster child presents to the clinic with an undocumented immunization history. The caretakers are unsure if the child received any vaccines. What is the most appropriate next step in managing this child? (Q850020)

A. Delay vaccination until the immunization history is confirmed.

B. Administer all age-appropriate vaccines immediately.

C. Vaccine-preventable diseases are no longer a concern.

D. Administer only the first dose of each vaccine and wait for serologic confirmation.

See Answer in Part B → Q21

@Neet_pg_bot

Q22: A 6-month-old infant arrives at the clinic for their scheduled vaccinations. The mother mentions that the baby has a mild cough and runny nose but no fever. She is also concerned because the baby vomited 15 minutes after receiving the last dose of OPV during the previous visit. Which of the following is the most appropriate action

for the healthcare provider to take today? (Q850019)

A. Administer all scheduled vaccines, including a repeat dose of OPV

B. Withhold all vaccines and reschedule for when the child is symptom-free

C. Restart the entire vaccination series from the beginning

D. Administer all scheduled vaccines except OPV due to the previous vomiting episode

See Answer in Part B → Q22

@Neet_pg_bot

Q23: A 1 y/o child is assessed for vaccination status. The records show the child has received all vaccines recommended for the first year. Which of the following vaccines has the child not received as part of being fully immunized according to the National Immunisation Schedule? (Q850018)

A. 3 doses of OPV

B. 1 dose of Measles/MR

C. DPT Booster

D. 2 doses of IPV

See Answer in Part B → Q23

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• [04_Immunization] 011 Previous Year Questions

« Back to Folder Directory

[04_Immunization] 011 Previous Year Questions — Quick Jump

Q1 (p. 134) *Q2 (p. 134)* *Q3 (p. 134)*

Q1: Which of the following vaccines is contraindicated in a patient diagnosed with Severe Combined Immunodeficiency (SCID)? (Q865439)

A. Hepatitis B

B. Tetanus, Diphtheria, and Pertussis (Tdap)

C. Inactivated Poliovirus (IPV)

D. Measles, Mumps, and Rubella (MMR)

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 5-year-old unimmunized child presents to the OPD with a fully immunized 2-year-old sibling. Upon inspection, a white membranous layer is observed in the throat of the 5-year-old. What is the next step in management for the contact? (Q844161)

A. Diphtheria toxoid vaccine booster

B. Diphtheria toxin

C. Penicillin

D. No treatment is needed

See Answer in Part B → Q2

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Q3: In which of the following conditions is live vaccination not contraindicated? DiGeorge syndrome Wiskott Aldrich Syndrome Ataxia telangiectasia Complement deficiency (Q854736)

A. 4 only

B. 1 only

C. 1 and 3

D. 2 and 3

See Answer in Part B → Q3

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• [05_Nutrition and Malnutrition] 012 Breastmilk Micronutrients

« Back to Folder Directory

[05_Nutrition and Malnutrition] 012 Breastmilk Micronutrients — Quick Jump

Q1 (p. 136)	*Q2 (p. 136)*	*Q3 (p. 137)*	*Q4 (p. 137)*	*Q5 (p. 137)*	*Q6 (p. 138)*
Q7 (p. 138)	*Q8 (p. 139)*	*Q9 (p. 139)*	*Q10 (p. 140)*	*Q11 (p. 140)*	*Q12 (p. 140)*
Q13 (p. 141)	*Q14 (p. 141)*	*Q15 (p. 142)*	*Q16 (p. 142)*	*Q17 (p. 143)*	*Q18 (p. 143)*
Q19 (p. 143)	*Q20 (p. 144)*				

Q1: A 10-month-old, exclusively breastfed infant presents with lethargy, poor feeding, restlessness, developmental delay, and abdominal distention. The mother’s diet is high in polished rice. Which vitamin deficiency is most likely responsible? (Q849905)

A. Vitamin B12 (Cobalamin)

B. Vitamin B1 (Thiamine)

C. Vitamin B9 (Folate)

D. Vitamin A

See Answer in Part B → Q1

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Q2: A 10 y/o child from a rural area with a history of inadequate dietary intake is brought to the clinic for a routine check-up. The child's growth is within normal limits, but the caregiver expresses concerns about ensuring proper nutrition, especially concerning iodine intake. What is the recommended daily intake (RDA) of iodine for a child aged 10 years? (Q849914)

A. 90 µg/day

B. 120 µg/day

C. 150 µg/day

D. 200 µg/day

See Answer in Part B → Q2

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Q3: A 4 y/o child is diagnosed with zinc deficiency and is experiencing growth delays, delayed sexual maturation, and poor wound healing. The child's diet consists mostly of cereals and plant-based foods with minimal animal protein. What is the recommended treatment for this child's zinc deficiency? (Q849913)

A. 0.5-1.0 mg elemental zinc/kg/day for several weeks

B. 2-4 mg elemental zinc/kg/day for several weeks

C. 3.5-5.0 mg elemental zinc/day

D. 20-30 mg/kg/day oral zinc therapy

See Answer in Part B → Q3

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Q4: A 3-month-old infant is brought to the emergency room with symptoms of irritability, poor feeding, and muscle twitching. An ECG shows a prolonged QTc interval, and the infant exhibits Chvostek and Trousseau signs. What is the most appropriate immediate treatment for this infant's symptoms? (Q849912)

A. Oral calcium supplementation at 40-80 mg/kg/day

B. 2 mL/kg of 10% calcium gluconate IV, administered slowly

C. Calcium chloride 10% IV solution

D. Reassurance and observation.

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 6 y/o child presents with irritability, pallor of nail beds, and fatigue. Laboratory tests reveal microcytic, hypochromic red cells, and reduced serum iron levels. What is the most appropriate initial treatment for this child's iron deficiency anemia? (Q849911)

A. Iron-rich dietary counseling.

B. Oral iron supplementation at 3-6 mg/kg/day.

C. Intravenous iron administration.

D. Treatment for intercurrent infections

See Answer in Part B → Q5

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Q6: A 5 y/o child with chronic gastrointestinal malabsorption presents with easy bruising and bleeding. Laboratory tests show a prolonged prothrombin time (PT) and elevated levels of PIVKA (protein induced by vitamin K absence). What is the most appropriate long-term treatment for this child with vitamin K deficiency due to malabsorption? (Q849910)

A. Administer 1 mg of parenteral vitamin K.

B. Administer 2.5-10 mg of parenteral vitamin K.

C. Initiate chronic high-dose oral vitamin K therapy.

D. Administer fresh-frozen plasma (FFP).

See Answer in Part B → Q6

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Q7: A 6-month-old premature infant presents with irritability, poor feeding, and unexplained hemolytic anemia. You suspect a vitamin deficiency. Which of the following is the most likely cause of these symptoms? (Q849909)

A. Vitamin A deficiency

B. Vitamin B12 deficiency

C. Vitamin E deficiency

D. Vitamin K deficiency

See Answer in Part B → Q7

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Q8: A 3 y/o child is brought with symptoms of nausea, vomiting, and abdominal pain. The child's mother mentions that they recently started a new multivitamin supplement. Laboratory tests reveal elevated serum calcium and 25-hydroxyvitamin D levels. What is the most appropriate management strategy for this child? (Q849908)

A. Immediate hemodialysis.

B. High-dose vitamin D supplementation.

C. Aggressive rehydration with normal saline and discontinuation of vitamin D sources.

D. Administration of glucocorticoids and calcitonin.

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 3 y/o child with a diet primarily consisting of cow milk presents with a history of irritability, painful leg swelling, and gum bleeding. Laboratory findings show anemia and normal prothrombin time. Despite initial treatment with iron supplements, the child's symptoms persist. Which of the following is the most likely underlying cause and the appropriate intervention? (Q849907)

A. Chronic iron deficiency; continue iron therapy and consider a different iron formulation

B. Scurvy due to Vitamin C deficiency; initiate high-dose Vitamin C therapy

C. Vitamin K deficiency due to malabsorption; administer Vitamin K supplementation

D. Excessive calcium intake from fortified milk; reduce calcium and monitor levels

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 4-month-old infant is brought with c/o irritability, vomiting, and frequent seizures. The mother reports that the infant's diet consists primarily of formula milk, with minimal introduction of solid foods. O/E, the infant appears listless and has an abnormal EEG pattern. Considering these clinical findings, which of the following deficiencies is most likely responsible for the symptoms described? (Q849906)

A. Riboflavin (Vitamin B2)

B. Vitamin B6 (pyridoxine)

C. Vitamin B12 (cobalamin)

D. Vitamin D

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 6-month-old infant is brought in for a routine check-up. The mother has been exclusively breastfeeding and is now concerned about the appropriate time to introduce solid foods. What is the recommended action? (Q849895)

A. Continue exclusive breastfeeding until the baby is 9 months old.

B. Introduce complementary foods along with breastfeeding.

C. Switch entirely to solid foods and stop breastfeeding.

D. Start formula feeding and delay introducing solid foods until 7 months.

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 4-year-old child presents to the pediatric clinic with complaints of poor vision during nighttime and dryness of the eyes. On physical examination, you observe Bitot's spots on the conjunctiva. There is concern about vitamin A deficiency. What is the most appropriate WHO grading of vitamin A deficiency and treatment plan for this child? (Q849904)

A. X1B ; 300,000 IU once daily on D1, D2, and D7

B. X3B ; 100,000 IU once daily on D1, D2, and D21

C. X1B ; 200,000 IU once daily on D1, D2, and D28

D. X3B ; 400,000 IU once daily on D1, D2, and D14

See Answer in Part B → Q12

@Neet_pg_bot

Q13: During a visit, the paediatrician discusses vitamin A prophylaxis and dietary sources with the parents of a 2-year-old child. Which of the following statements is correct according to the National Vitamin A Prophylaxis Programme (India) ? (Q849903)

A. The first dose is 200,000 IU at 9 months, followed by 100,000 IU every 6 months up to age 5.

B. The first dose is 100,000 IU at 9 months, followed by 200,000 IU at 16–18 months, and then every 6 months up to age 5.

C. The first dose is 100,000 IU at 6 months, followed by 200,000 IU every year until 5 years of age.

D. The RDA of vitamin A for a 2-year-old child is 800–1000 µg/day, and fortified oils are the only acceptable dietary source.

See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following statements is false based on the provided information? (Q849902)

A. Fore milk satisfies the thirst of the baby.

B. Hind milk satisfies the hunger of the baby.

C. Preterm breast milk has a higher lactose content than full-term breast milk.

D. Preterm breast milk has higher immunoglobulins and protein content.

See Answer in Part B → Q14

@Neet_pg_bot

Q15: Match the following: 1. Colostrum a. Higher in fat and sugar content 2. Transitional Milk b. Higher lactose 3. Mature Milk c. High in antibodies, low in lactose (Q849901)

A. 1-c, 2-b, 3-a

B. 1-b, 2-c, 3-a

C. 1-b, 2-a, 3-c

D. 1-c, 2-a, 3-b

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A new mother asks her pediatrician how breast milk's components benefit her baby’s health. Which of the following pairs best describes a protective substance in breast milk and a disease it helps prevent? (Q849900)

A. PABA; Galactosemia

B. Lysozyme; Phenylketonuria

C. Lactoferrin; Maple syrup urine disease

D. Bifidus factor; NEC

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A preterm infant is being fed breast milk. Which of the following components is likely to be higher in the breast milk of a mother who delivered prematurely? (Q849899)

A. Lactose

B. Fat

C. Protein

D. Vitamin D

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A healthcare provider is educating a group of expectant mothers about situations where breastfeeding might not be recommended. Which of the following maternal conditions would most likely contraindicate breastfeeding? (Q849898)

A. History of mastitis with successful treatment during pregnancy.

B. Active varicella-zoster infection with lesions on the breast.

C. Use of a low-dose, progestin-only contraceptive pill.

D. Mildly elevated blood pressure controlled with medication.

See Answer in Part B → Q18

@Neet_pg_bot

Q19: A new mother visits the clinic concerned that her baby might not be latching on correctly during breastfeeding. She describes that feeding sessions are painful, and her baby seems unsettled afterward. Which of the following observations indicates a poor attachment? (Q849897)

A. The baby's mouth is wide open, covering most of the areola.

B. The baby's chin is deeply pressing against the breast, with the lower lip flanged outward.

C. The mother is leaning towards the baby to help them latch onto the breast.

D. The baby’s cheeks are rounded, and swallowing sounds are audible

See Answer in Part B → Q19

@Neet_pg_bot

Q20: A new mother is struggling with milk production and asks what she can do to increase her breast milk supply. Which of the following strategies would be most effective? (Q849896)

A. Use a pacifier to soothe the baby between feeds.

B. Encourage early and frequent breastfeeding, including night feeds.

C. Skip night feeds to ensure the mother gets more rest.

D. Offer formula supplements to ensure the baby is getting enough nutrition.

See Answer in Part B → Q20

@Neet_pg_bot

• [05_Nutrition and Malnutrition] 013 Malnutrition

« Back to Folder Directory

[05_Nutrition and Malnutrition] 013 Malnutrition — Quick Jump

Q1 (p. 145) *Q2 (p. 145)* *Q3 (p. 146)* *Q4 (p. 146)* *Q5 (p. 147)* *Q6 (p. 147)*
Q7 (p. 148) *Q8 (p. 148)* *Q9 (p. 149)* *Q10 (p. 150)* *Q11 (p. 150)* *Q12 (p. 151)*
Q13 (p. 151) *Q14 (p. 152)* *Q15 (p. 152)* *Q16 (p. 153)* *Q17 (p. 153)*

Q1: A 2-year-old child is brought to the clinic with a puffy face, edema of the feet, and an enlarged abdomen. The child has been fed mostly starchy foods like rice and porridge with very little protein. Laboratory tests reveal low serum albumin. What is the most likely diagnosis? (Q885133)

A. Marasmus

B. Kwashiorkor

C. Indian childhood cirrhosis

D. Congenital hypothyroidism

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 3-year-old child is brought for a routine check-up. The physician measures triceps skinfold thickness using a Harpenden caliper as shown below. What is the cut-off value to classify the child as malnourished? (Q885132)

A. 10 mm

B. 6 mm

C. 4 mm

D. 8 mm



See Answer in Part B → Q2

@Neet_pg_bot

Q3: Which of the following anthropometric indices can be considered age-independent in assessing nutritional status? (Q885131)

A. Jelliffe ratio

B. Rao and Singh index

C. Kanawati and McLaren index

D. All of the above

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 10-month-old infant is brought to the pediatric clinic for routine growth monitoring. On examination, the child's weight-for-height Z score is between -2 SD and -3 SD according to WHO growth charts. Which anthropometric indicator correctly identifies moderate acute malnutrition? (Q885130)

A. Weight-for-height < -2 SD

B. Weight-for-height < -3 SD

C. Weight-for-age < -2 SD

D. Height-for-age < -2 SD

See Answer in Part B → Q4

@Neet_pg_bot

Q5: An 11-month-old infant is brought to the pediatric outpatient department for growth monitoring. On examination, his weight-for-height Z score is –2.5 SD according to WHO growth standards. His height-for-age is within normal limits. What is the most appropriate diagnosis? (Q885129)

A. Stunting

B. Chronic undernutrition

C. Wasting

D. Underweight due to long-standing malnutrition

See Answer in Part B → Q5

@Neet_pg_bot

Q6: Based on the image provided, which of the following statements is TRUE? (Q849873)

A. Measure from the acromion to the olecranon and mark the midpoint.

B. MUAC assesses the nutritional status of children aged three months to five years.

C. In Shakir’s tape, the Yellow zone indicates 11.5 to 13.5 cm.

D. In Shakir’s tape, the Green zone indicates >11.5 cm.



See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 5 y/o male presents with fatigue, glossitis, and tingling in his hands and feet. On examination, the physician notices swollen gums and pinpoint haemorrhages on his legs. All of the following are features of Vitamin B deficiency EXCEPT? (Q849876)

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 2 y/o child is brought to the clinic for evaluation due to concerns about poor growth and changes in hair appearance. The child's hair is sparse, and dull, and shows alternating light and dark bands. Which of the following is NOT a characteristic hair sign in a severely malnourished child? (Q849875)

A. Dyspigmentation

B. Sparse hair

C. Tightening of natural curls

D. Flag sign

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 4-month-old infant presents with a 5-week history of scaly lesions on the face, trunk, and limbs as given in the image, along with irritability, dehydration, and generalized oedema. Laboratory tests reveal hypoalbuminemia and hypokalemia. Based on these findings, what is the most likely diagnosis? (Q849874)

A. Marasmus

B. Flaky paint dermatosis

C. Flag sign

D. Acrodermatitis Enteropathica



See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 2 y/o from a low-income community presents with poor growth. The child's height for age is below -2 SDS on WHO standards, but weight-for-height is normal. What is the most likely diagnosis? (Q849865)

A. Severe Acute Malnutrition (SAM)

B. Moderate Stunting

C. Moderate Wasting

D. Severe Underweight

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following features correctly describes the conditions depicted in images 1 and 2? a) Severe wasting b) Flaky paint dermatitis c) Baggy pants d) Skin and bone appearance e) Nutritional anaemia f) Sugar baby g) Flag sign h) Monkey facies (Q849872)

A. 1- a,d,e,f; 2- b,c,g,h

B. 1- b,d,g,h; 2- a,c,e,f

C. 1- a,b,c,e; 2- d,f,g,h

D. 1- a,c,d,h; 2- b,e,f,g



See Answer in Part B → Q11

@Neet_pg_bot

Q12: Which of the following is a target of POSHAN Abhiyaan? (Q849871)

A. Increase the average weight of children by 5 kg per year.

B. Achieve a 2% annual reduction in under-nutrition.

C. Eliminate all forms of malnutrition by 2022.

D. Provide free school meals to all children.

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 10-month-old with SAM was treated with F75 and transitioned to F100 and RUTF after the oedema resolved and appetite returned. The child has gained 6 grams/kg/day. Which of the following is NOT an appropriate discharge criterion? (Q849870)

A. The child has shown consistent weight gain of more than 5 grams/kg/day for at least 3 consecutive days.

B. The child's oedema has resolved.

C. The child has been switched from F75 to F100.

D. The child has received all necessary vaccinations.

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 2 y/o child is diagnosed with severe acute malnutrition (SAM) and is admitted to the hospital. On admission, the child is found to have hypoglycemia and starts showing signs of hypothermia. Which of the following is the most likely complication of SAM that the child is experiencing? (Q849869)

A. Refeeding Syndrome

B. Electrolyte Imbalance

C. Dehydration

D. Metabolic Disturbances

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 14-month-old child is brought to the clinic with concerns about poor growth. The child is significantly underweight, and O/E, the mid-upper arm circumference (MUAC) measures 11 cm. There is also noticeable swelling in both feet. What is the most likely diagnosis? (Q849868)

A. Mild Acute Malnutrition

B. Severe Acute Malnutrition

C. Moderate Acute Malnutrition

D. Chronic Malnutrition

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 2 y/o child from a rural area presents to the clinic with severe wasting, prominent ribcage, and a "baggy pants" appearance due to loose skin on the buttocks. Despite the child's emaciated state, they remain mentally alert. What is the most likely diagnosis? (Q849867)

A. Kwashiorkor

B. Marasmus

C. Mild Malnutrition

D. Obesity

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 2 year old malnourished child is assessed using mid-upper arm circumference (MUAC), and the measurement is 10 cm. What does this indicate? (Q849866)

A. Moderate Stunting

B. Severe Wasting

C. Chronic Malnutrition

D. Obesity

See Answer in Part B → Q17

@Neet_pg_bot

• [05_Nutrition and Malnutrition] 014 Previous Year Questions

« Back to Folder Directory

[05_Nutrition and Malnutrition] 014 Previous Year Questions — Quick Jump

Q1 (p. 154)	*Q2 (p. 154)*	*Q3 (p. 155)*	*Q4 (p. 155)*	*Q5 (p. 156)*	*Q6 (p. 156)*
Q7 (p. 157)	*Q8 (p. 158)*	*Q9 (p. 158)*	*Q10 (p. 159)*	*Q11 (p. 159)*	*Q12 (p. 160)*
Q13 (p. 160)	*Q14 (p. 160)*	*Q15 (p. 161)*	*Q16 (p. 161)*	*Q17 (p. 161)*	*Q18 (p. 162)*
Q19 (p. 162)	*Q20 (p. 162)*	*Q21 (p. 163)*	*Q22 (p. 163)*	*Q23 (p. 164)*	*Q24 (p. 164)*
Q25 (p. 165)	*Q26 (p. 165)*	*Q27 (p. 166)*	*Q28 (p. 166)*	*Q29 (p. 167)*	*Q30 (p. 167)*
Q31 (p. 168)	*Q32 (p. 168)*	*Q33 (p. 168)*	*Q34 (p. 169)*	*Q35 (p. 169)*	

Q1: During the anthropometric evaluation of the child, the height for the age is < -2 SD according to WHO growth charts. This is most likely due to: (Q856164)

A. Chronic malnutrition

B. Acute malnutrition

C. Recent infection

D. No malnutrition

See Answer in Part B → Q1

@Neet_pg_bot

Q2: Which of the following statements regarding breastfeeding technique is/are incorrect? A) The infant's lower lip should be inverted during latching B) The infant's cheeks should appear full during effective suckling C) A greater portion of areola should be covered above the breast than below D) The infant's chin should make contact with the breast during feeding (Q865415)

A. A and C only

B. B and D only

C. B, C, and D only

D. All of the above

See Answer in Part B → Q2

@Neet_pg_bot

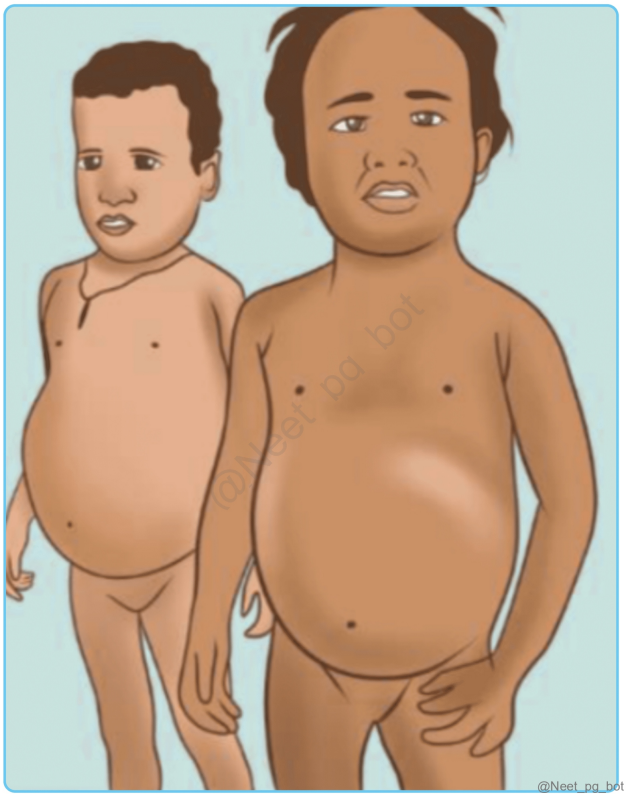
Q3: A child with lethargy and poor appetite with weight for age 70% of expected, presents with the findings shown in the image below. What is the true statement regarding this condition? (Q858064)

A. Kwashiorkor due to protein malnutrition

B. Kwashiorkor due to calorie malnutrition

C. Marasmus due to protein malnutrition

D. Marasmus due to calorie malnutrition



See Answer in Part B → Q3

@Neet_pg_bot

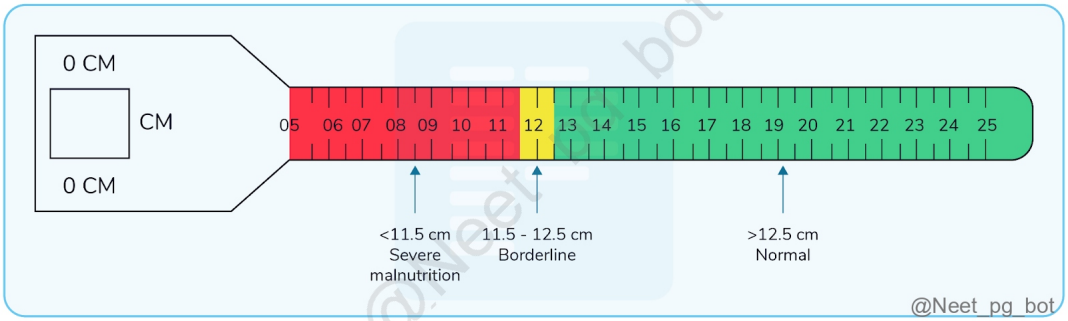
Q4: Which of the following statements is true regarding the tape shown in the image? It is called Shelter's tape. It is used to assess severe acute malnutrition. Reading of 13.5 to 14.5 cm is considered undernourished. It is useful mainly for frontline field workers. (Q855732)

A. 1, 3

B. 2, 4

C. 2, 3

D. 1, 4



See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which can be used as an alternative to mother's milk in a low birth weight (LBW) baby? (Q855021)

A. Cow's milk

B. Preterm formula

C. Term formula

D. Human donor milk

See Answer in Part B → Q5

@Neet_pg_bot

Q6: Which of the following is an absolute contraindication for breastfeeding? (Q857193)

A. Alcoholic mother

B. Classic galactosemia in the infant

C. A mother with HIV infection

D. Infants born to an HbsAg-positive mother

See Answer in Part B → Q6

@Neet_pg_bot

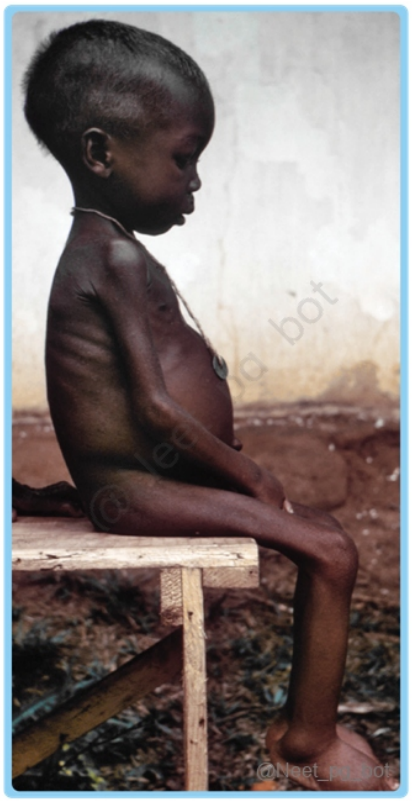
Q7: A child presents to your outpatient department with the findings shown in the image below. What is the likely diagnosis? (Q857219)

A. Kwashiorkor

B. Marasmus

C. Nephrotic syndrome

D. Nephritic syndrome



See Answer in Part B → Q7

@Neet_pg_bot

Q8: A child who is exclusively fed rice water presents with a swollen abdomen and a pale, unenergetic expression, and shows signs of malnourishment with decreased serum protein and albumin levels. What is the probable diagnosis? (Q857576)

A. Kwashiorkor

B. Marasmus

C. Indian childhood cirrhosis

D. Kawasaki disease

See Answer in Part B → Q8

@Neet_pg_bot

Q9: Which of the following statements is incorrect about colostrum? (Q857596)

A. It is the breastmilk that is seen in the initial 3-4 days

B. It is yellow

C. It contains a large number of antibodies

D. It contains a high amount of lactose and low amounts of protein

See Answer in Part B → Q9

@Neet_pg_bot

Q10: What is the fluid of choice for shock in a child with severe acute malnutrition? (Q858054)

A. Normal saline

B. Ringer lactate

C. 10% dextrose

D. Ringer's lactate with 5% dextrose

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following is not a criterion for severe acute malnutrition? (Q856770)

A. Weight for height less than -3 SD

B. MUAC < 115 mm

C. Bilateral pedal edema

D. Weight for age less than -3 SD

See Answer in Part B → Q11

@Neet_pg_bot

Q12: Which of the following symptoms does not indicate severe dehydration? (Q856440)

A. Drowsy child

B. Skin pinch retracts slowly

C. Thirsty child

D. Sunken fontanelle

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A labourer's second child is brought to the outpatient department (OPD) with a swollen belly and dull face appearance. He has been fed rice water in his diet mostly. Further investigations revealed low levels of serum protein and albumin. What could be the probable diagnosis? (Q854943)

A. Kwashiorkor

B. Marasmus

C. Indian childhood cirrhosis

D. Kawasaki disease

See Answer in Part B → Q13

@Neet_pg_bot

Q14: According to current recommended dietary guidelines for children, energy from saturated fats should be what percentage of total energy intake? (Q854974)

A. < 10%

B. < 5%

C. < 15%

D. < 30%

See Answer in Part B → Q14

@Neet_pg_bot

Q15: At what age is it recommended to introduce solid foods to an infant while continuing breastfeeding? (Q859918)

A. 2 months

B. 6 months

C. 12 months

D. 18 months

See Answer in Part B → Q15

@Neet_pg_bot

Q16: Specific sign of kwashiorkor is: (Q859922)

A. Pitting edema

B. Weight loss

C. Flag sign

D. Muscle wasting

See Answer in Part B → Q16

@Neet_pg_bot

Q17: Exclusive breastfeeding should be continued for a minimum of how many months? (Q859962)

A. 6 months

B. 2 months

C. 12 months

D. 5 months

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A child with diarrhea was eager to drink, and the skin pinch went back slowly. Which of the following categories is the child classified into as per IMNCI? (Q860523)

A. Pink

B. Yellow

C. Green

D. None

See Answer in Part B → Q18

@Neet_pg_bot

Q19: Complementary feeding is initiated for a 7-month-old infant using the “katori method”. What is the recommended amount and frequency of food to be given in the first 24 hours? (Q866376)

A. ½–1 katori, 4 times a day

B. ½–1 katori, 5 times a day

C. ½–1 katori, 6 times a day

D. ½–1 katori, 8 times a day

See Answer in Part B → Q19

@Neet_pg_bot

Q20: All of the following are included under diagnostic criteria of severe acute malnutrition except? (Q853378)

A. Height for age

B. Weight for height

C. Pedal edema

D. MUAC < 11.5 cm

See Answer in Part B → Q20

@Neet_pg_bot

Q21: Which of the following is true about breastmilk jaundice? (Q853384)

A. Breastfeeding should not be continued

B. Most of the children require phototherapy

C. Exclusive breastfeeding with total bilirubin >10mg/dl after 3-4 weeks of birth

D. Conjugated hyperbilirubinemia

See Answer in Part B → Q21

@Neet_pg_bot

Q22: Which of the following indicates the primary failure of recovery in an admitted patient with severe acute malnutrition? A. Failure to regain appetite by day 4 B. Failure to start to lose edema by day 4 C. Presence of edema by day 10 D. Weight gain of less than 5gm/kg/day from day 20 (Q853387)

A. A, B, C

B. A, B, D

C. A, C, D

D. B, C, D

See Answer in Part B → Q22

@Neet_pg_bot

Q23: In a child presenting with diarrhoea, the following finding is noted. What is the likely micronutrient deficiency? (Q852537)

A. Zinc

B. Copper

C. Vitamin A

D. Vitamin C



See Answer in Part B → Q23

@Neet_pg_bot

Q24: Chronic malnutrition is best measured by? (Q852454)

A. Height for age

B. Weight for age

C. Weight for height

D. Body mass index

See Answer in Part B → Q24

@Neet_pg_bot

Q25: A 4-year-old child with mid-arm circumference of 105mm, upon providing therapeutic food, eagerly completed all of it. This patient is considered under? (Q852530)

A. Uncomplicated SAM

B. Complicated SAM

C. Acute malnutrition

D. Normal nutrition

See Answer in Part B → Q25

@Neet_pg_bot

Q26: A child presents with generalized body aches, poor wound healing, and corkscrew hairs on her arms, and white lines of Frenkel on X-ray as shown below. This clinical presentation is most consistent with which of the following deficiencies? (Q844259)

A. Zinc deficiency

B. Vitamin C deficiency

C. Copper deficiency

D. Iron deficiency



See Answer in Part B → Q26

@Neet_pg_bot

Q27: A child presented to the clinic with complaints of malnutrition and severe dehydration. What would be the choice of IV fluid for this patient? (Q820477)

A. ORS

B. NS

C. RL in 5% Dextrose

D. DNS

See Answer in Part B → Q27

@Neet_pg_bot

Q28: Conjunctival xerosis is caused by which vitamin deficiency? (Q860553)

A. Vitamin A

B. Vitamin K

C. Vitamin C

D. Vitamin D

See Answer in Part B → Q28

@Neet_pg_bot

Q29: Feature of angular cheilitis, stomatitis, and glossitis is seen in which vitamin deficiency? (Q860556)

A. Niacin

B. Riboflavin

C. Cobalamin

D. Vitamin C

See Answer in Part B → Q29

@Neet_pg_bot

Q30: A child presents to the OPD with fatigue, bone pains, and swollen and bleeding gums. Physical examination reveals petechiae on her skin. Which of the following can be given to treat her condition? (Q860605)

A. Vitamin A

B. Vitamin D

C. Vitamin E

D. Vitamin C

See Answer in Part B → Q30

@Neet_pg_bot

Q31: Which of the following is a reliable sign of some dehydration in severe acute malnutrition? (Q840098)

A. Increased thirst

B. Sunken eyes

C. Skin pinch that goes back slowly

D. Altered sensorium

See Answer in Part B → Q31

@Neet_pg_bot

Q32: Which of the following is not seen in nutritional rickets? (Q840108)

A. Low phosphate

B. Normal calcium

C. Urine Calcium: creatinine > 15mg/kg

D. High PTH

See Answer in Part B → Q32

@Neet_pg_bot

Q33: Which of the following vitamins is deficient in breast milk? (Q793773)

A. Vitamin A

B. Vitamin C

C. Vitamin E

D. Vitamin K

See Answer in Part B → Q33

@Neet_pg_bot

Q34: A labourer’s younger child is brought to the OPD with a swollen belly and dull face. He has mostly fed rice water in his diet. On investigations, the child was found to have low serum protein, low serum protein, and low albumin. What is the probable diagnosis? (Q793754)

A. Kwashiorkor

B. Marasmus

C. Indian childhood cirrhosis

D. Kawasaki disease

See Answer in Part B → Q34

@Neet_pg_bot

Q35: What is the amount of milk given to a term baby in first 24 hours after delivery? (Q820471)

A. 40ml/kg

B. 50ml/kg

C. 60ml/kg

D. 80ml/kg

See Answer in Part B → Q35

@Neet_pg_bot

• [06_Fluid and Electrolyte Disturbances] 015 Acid-Base Balance Fluid And Electrolyte Disorders And Ivf

« Back to Folder Directory

[06_Fluid and Electrolyte Disturbances] 015 Acid-Base Balance Fluid And Electrolyte Disorders And Ivf — Quick Jump

Q1 (p. 170) *Q2 (p. 170)* *Q3 (p. 171)* *Q4 (p. 171)* *Q5 (p. 171)* *Q6 (p. 172)*
Q7 (p. 172) *Q8 (p. 173)* *Q9 (p. 173)* *Q10 (p. 173)* *Q11 (p. 174)* *Q12 (p. 174)*
Q13 (p. 175) *Q14 (p. 175)* *Q15 (p. 176)* *Q16 (p. 176)* *Q17 (p. 176)* *Q18 (p. 177)*
Q19 (p. 177)

Q1: A 5-year-old boy is brought to the emergency department with a history of profuse watery diarrhea and multiple episodes of vomiting for the past 3 days. On examination, he appears lethargic, has poor oral acceptance, and has dry mucous membranes. Laboratory tests reveal serum potassium of 2.1 mEq/L. Which of the following is the most appropriate initial treatment for this patient? (Q850050)

A. Oral potassium chloride solution

B. Intravenous potassium chloride at 0.5 mEq/kg/hour

C. Intravenous potassium chloride at 1.5 mEq/kg/hour

D. Potassium-sparing diuretic

See Answer in Part B → Q1

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Q2: A 10-kg child with severe dehydration requires rapid fluid resuscitation. Which of the following IV fluids is most appropriate for initial management? (Q850059)

A. 5% Dextrose in 0.45% Normal Saline

B. Normal Saline (0.9% NaCl)

C. 10% Dextrose

D. Isolyte P Solution

See Answer in Part B → Q2

@Neet_pg_bot

Q3: Which of the following is the most appropriate cannula size for peripheral IV access in a 38-week gestational age neonate on day-3 of life? (Q850058)

A. 22 gauge

B. 24 gauge

C. 20 gauge

D. 18 gauge

See Answer in Part B → Q3

@Neet_pg_bot

Q4: Before performing radial artery cannulation on a 7-year-old child for continuous blood pressure monitoring during major surgery, the anesthesiologist compresses both the radial and ulnar arteries, asks the child to make a fist, then releases the ulnar artery while keeping the radial artery compressed. What is the primary purpose of this maneuver? (Q850057)

A. To assess the elasticity of the arterial walls

B. To evaluate collateral circulation in the hand

C. To determine the size of the radial artery

D. To check for arteriovenous malformations

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A child presents with petechiae, purpura, and a platelet count of 10,000/µL. Bone marrow examination reveals increased megakaryocytes. Which of the following is the drug of choice (DOC) for this condition? (Q850056)

A. Bone marrow transplant

B. Methotrexate

C. Intravenous immunoglobulin (IVIG)

D. Aspirin

See Answer in Part B → Q5

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Q6: A 3-year-old boy is brought to the emergency department with lethargy, tachycardia, and cool extremities. His blood pressure is 70/40 mmHg, heart rate is 160 bpm, and capillary refill time is 4 seconds. Which of the following is the most appropriate initial management? (Q850055)

A. Administer 20 mL/kg of normal saline over 1 hour

B. Start dopamine infusion at 5 mcg/kg/min

C. Give 20 mL/kg of normal saline as a rapid bolus

D. Administer 1 mg/kg of hydrocortisone IV

See Answer in Part B → Q6

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Q7: A preterm newborn weighing 1200 g is admitted to the neonatal intensive care unit. What is the recommended fluid requirement for this infant on day 2 of life? (Q850054)

A. 80 mL/kg/day

B. 95 mL/kg/day

C. 110 mL/kg/day

D. 120 mL/kg/day

See Answer in Part B → Q7

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Q8: A 4-year-old boy weighing 18 kg is admitted for minor elective surgery. According to the Holliday-Segar method, what is his estimated daily fluid requirement? (Q850053)

A. 1300 mL

B. 1400 mL

C. 1600 mL

D. 1900 mL

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 10-year-old boy is brought to the emergency department with severe vomiting. His serum potassium level is 2.7 mEq/L. Which of the following ECG changes is most likely to be seen in this patient? (Q850052)

A. Peaked T waves

B. Prolonged PR interval

C. Prominent U waves

D. ST segment elevation

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 3-year-old girl with a history of recurrent urinary tract infections presents with lethargy and muscle weakness. Laboratory tests reveal a serum potassium level of 6.8 mEq/L. Which of the following is the most likely etiology of her condition? (Q850051)

A. Congenital adrenal hyperplasia

B. Obstructive uropathy

C. Excessive potassium intake

D. Rhabdomyolysis

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following statements is false? (Q850041)

A. TBW constitutes 75% of body weight at the time of birth

B. Preterm neonates have lower TBW than the term neonates

C. After birth, ECF decreases and ICF increases

D. After puberty, males have slightly more total body water than females.

See Answer in Part B → Q11

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Q12: A 6-year-old boy is brought to the emergency department with a 2-day history of headache, nausea, and confusion. He was recently treated for bacterial meningitis. Physical examination reveals no signs of dehydration or edema. Laboratory studies show: Serum sodium: 128 mEq/L Serum osmolality: 265 mOsm/kg Urine sodium: 55 mEq/L Urine osmolality: 450 mOsm/kg Blood pressure: 100/60 mmHg According to the Schwartz and Bartter Clinical Criterion, which of the following is NOT a diagnostic criterion for Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)? (Q850049)

A. Serum sodium less than 135 mEq/L

B. Urine osmolality greater than 100 mOsm/kg

C. Urine sodium more than 40 mEq/L

D. Low blood pressure

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 7-year-old boy presents to the emergency department with confusion and lethargy. His medical history includes cirrhosis. Physical examination reveals peripheral edema and ascites. Laboratory tests show: Serum sodium: 128 mEq/L Serum creatinine: 1.4 mg/dL Total protein: 5.5 g/dL (low) Albumin: 2.8 g/dL (low) Which of the following best describes the type of this patient's condition? (Q850048)

A. Hypovolemic hyponatremia

B. Euvolemic hyponatremia

C. Hypervolemic hyponatremia

D. None of the above

See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following is not likely the cause of hypernatremia in the pediatric age group? (Q850047)

A. Nephrogenic diabetes insipidus

B. Acute tubular necrosis

C. Inadequate breastfeeding

D. Hypothyroidism

See Answer in Part B → Q14

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Q15: A 4-year-old boy has been brought to the emergency department with severe vomiting for the past 2 days. He appears dehydrated and lethargic. Laboratory studies reveal: pH: 7.52 pCO2: 38 mmHg HCO3-: 32 mEq/L Na+: 138 mEq/L Which of the following is the most appropriate initial treatment for this patient's acid-base disorder? (Q850046)

A. Administer sodium bicarbonate

B. Provide oxygen therapy

C. Initiate normal saline infusion

D. Initiate hyperventilation

See Answer in Part B → Q15

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Q16: A 5-year-old patient presents with resistant hypertension that has not improved despite various antihypertensive treatments. Laboratory tests reveal normal levels of potassium and no significant kidney damage. The patient's family history shows a pattern of early-onset hypertension in multiple relatives. Which of the following is most likely to be the underlying cause of the patient’s hypertension? (Q850045)

A. An activating mutation of sodium channels in the distal nephron

B. Hyperaldosteronism due to adrenal hyperplasia

C. A loss-of-function mutation in the renin-angiotensin-aldosterone system

D. An activating mutation of sodium channels in the loop

See Answer in Part B → Q16

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Q17: Which of the following is not a feature of Chloride Responsive Metabolic Alkalosis in children? (Q850044)

A. It responds to fluid replacement with normal saline

B. Urinary chloride >20 meq/L

C. Decrease in ECF volume

D. Can occur in cystic fibrosis.

See Answer in Part B → Q17

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Q18: Match the following: Etiology Diagnosis a) Tissue hypoxia (Shock) i) Respiratory alkalosis b) Renal tubular acidosis ii) Metabolic Alkalosis c) Paralysis of respiratory muscles iii) Respiratory Acidosis d) Excessive use of loop diuretics iv) High anion gap metabolic acidosis e) Over Ventilation of intubated child v) Normal anion gap metabolic acidosis (Q850043)

A. a-i, b-iii, c-ii, d-iv, e-v

B. a-v, b-iii, c-iv, d-ii, e-i

C. a-iv, b-v, c-ii, d-iii, e-i

D. a-iv, b-v, c-iii, d-ii, e-i

See Answer in Part B → Q18

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Q19: Match the following: Plasma Osmolality Urine Osmolality Diagnosis 1) Increased a) Increased i) Dehydration/water deprivation 2) Decreased b) Decrease ii) Diabetic insipidus iii) Syndrome of inappropriate antidiuretic hormone secretion (SIADH) (Q850042)

A. 1-a-iii

B. 2-a-ii

C. 2-b-i

D. 2-a-iii

See Answer in Part B → Q19

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• [06_Fluid and Electrolyte Disturbances] 016 Previous Year Questions

« Back to Folder Directory

[06_Fluid and Electrolyte Disturbances] 016 Previous Year Questions — Quick Jump

Q1 (p. 179) *Q2 (p. 179)* *Q3 (p. 180)* *Q4 (p. 180)* *Q5 (p. 180)* *Q6 (p. 181)*
Q7 (p. 181) *Q8 (p. 182)* *Q9 (p. 182)* *Q10 (p. 182)* *Q11 (p. 183)* *Q12 (p. 183)*
Q13 (p. 184) *Q14 (p. 184)*

Q1: A 4-year-old child is brought in with suspected dehydration. To assess moderate dehydration, which of the following signs would you expect? Dry mucous membranes Delayed capillary refill Coma Sunken anterior fontanelle (Q853240)

A. 1, 2 and 3

B. 2, 3 and 4

C. 1, 3 and 4

D. 1, 2 and 4

See Answer in Part B → Q1

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Q2: Which of the following is the ideal maintenance fluid for pediatric patients? (Q853241)

A. 5% dextrose and N/2 saline

B. 5% dextrose and N saline

C. 10% dextrose and N/2 saline

D. 5% dextrose and N/4 saline

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A child was brought to the casualty with complaints of vomiting and loose stools with a history of laxative use. On examination, arrhythmia is present. What will be the abnormality present? (Q852479)

A. Hyponatremia

B. Hypocalcemia

C. Hypokalemia

D. Hyperkalemia

See Answer in Part B → Q3

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Q4: A 4-year-old child is got to the OPD with complaints of Loose stools for 2 days. Upon further clinical examination, excessive thirst, irritability and dry mucous membranes are noted. What is the glucose content of the rehydration solution used to treat this condition? (Q860520)

A. 50 mmol/L

B. 75 mmol/L

C. 100 mmol/L

D. 150 mmol/L

See Answer in Part B → Q4

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Q5: A 5-year-old child presents with symptoms of mild to moderate dehydration. You are evaluating the clinical signs to confirm the diagnosis. Which of the following clinical signs are consistent with some dehydration in a child? Decreased urine output Lethargy Delayed skin pinch Sunken eyeballs Which of the following combinations is true for dehydration in this child? (Q840074)

A. 1, 2 and 3

B. 4,3 and 2

C. 1,3 and 4

D. 1,2 and 4

See Answer in Part B → Q5

@Neet_pg_bot

Q6: Which of the following fluid solutions is preferred as the maintenance fluid for pediatric patients? (Q840078)

A. 0.2% Normal Saline in 5% Dextrose (N/5 5% D)

B. 0.9% Normal Saline in 5% Dextrose (N 5% D)

C. 0.45% Normal Saline in 10% Dextrose (N/2 10% D)

D. 0.225% Normal Saline in 5% Dextrose (N/4 5% D)

See Answer in Part B → Q6

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Q7: What is the daily fluid requirement for a 3-day-old baby with a birth weight of 1500 grams? (Q860224)

A. 100-110 ml/kg/day

B. 80-90 ml/kg/day

C. 120-130 ml/kg/day

D. 130-150 ml/kg/day

See Answer in Part B → Q7

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Q8: An 18-month-old child with a 3-day history of watery diarrhea and vomiting presented with altered sensorium. Which of the following are differential diagnoses? Severe dehydration Hemolytic Uremic Syndrome (HUS) Cerebral Venous Thrombosis Hyponatremia (Q854744)

A. 1, 2, 3, 4

B. 1, 2, 3

C. 1, 3, 4

D. 2, 3, 4

See Answer in Part B → Q8

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Q9: A 10-year-old child weighing 30 kg presents with a history of loose stools for 2 days. On examination, there is severe dehydration. Laboratory investigations are as follows. What is the initial management as per ISPAD guidelines? RBS 550 mg/dL pH 7.01 Na+ 158 mEq/L Urine glucose 3+ (Q855493)

A. Manage ABC, NS 20 mL/kg and start insulin after 1 hour

B. Manage ABC, NS 20 mL/kg along with insulin 0.1 IU/kg/hr

C. Manage ABC, NS 10 mL/kg along with insulin 0.1 IU/kg/hr

D. Manage ABC, NS 10 mL/kg and start insulin after 1 hour

See Answer in Part B → Q9

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Q10: A 10-month-old child undergoes treatment for diarrhoea with hypokalemia but the child does not respond to the treatment appropriately and on examination muscular weakness is noted, what is the most likely cause of treatment failure? (Q857603)

A. Hypomagnesemia

B. Hyponatremia

C. Hypermagnesemia

D. Hypernatremia

See Answer in Part B → Q10

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Q11: A 7-year-old boy weighing 30 kg has been posted for surgical resection of a tumor. What is the daily maintenance fluid required for this child while he's NPO? (Q859481)

A. 1000 mL

B. 1700 mL

C. 2500 mL

D. 3000 mL

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 5-year-old child is brought to the hospital with a history of profuse watery diarrhea. The mother reports that he is lethargic and barely responds when called. On examination, his eyes are very deeply sunken, the skin pinch returns very slowly, and his pulse is weak and rapid. What is the most appropriate management for this child? (Q859497)

A. Administer the first dose of IV antibiotic and immediately refer to a higher center

B. Give oral fluids and ask the mother to continue the same and visit again the next day

C. Give zinc supplementation and oral rehydration solution only and ask mother to come back if some danger signs develop

D. Consider severe dehydration, start intravenous (IV) fluids, IV antibiotics, and refer to a higher centre

See Answer in Part B → Q12

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Q13: A 2-year-old boy is presented by his parents at a nearby village hospital, reporting loose stools over the past 3 days. The child's mother observes that he has become lethargic and refuses to eat. Upon examination, the child displays lethargy, dry mouth, sunken eyes, and delayed skin pinch recovery. How much fluid should be administered within the initial three hours if the child weighs 10 kg? (Q859921)

A. 1000 ml

B. 100 ml

C. 200 ml

D. 500 ml

See Answer in Part B → Q13

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Q14: A 7-year-old boy presented with abdominal pain, vomiting, oliguria, and periorbital puffiness following chemotherapy. Investigations reveal hyperuricemia, raised creatinine levels, and hyperkalemia. What is the next best step in the management of this condition? (Q856065)

A. Hydration

B. Probenecid

C. Allopurinol

D. Rasburicase

See Answer in Part B → Q14

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• [07_Genetics and Genetic Disorders] 017 Genetic Disorders And Syndromes

« Back to Folder Directory

[07_Genetics and Genetic Disorders] 017 Genetic Disorders And Syndromes — Quick Jump

Q1 (p. 185)	*Q2 (p. 185)*	*Q3 (p. 186)*	*Q4 (p. 186)*	*Q5 (p. 187)*	*Q6 (p. 188)*
Q7 (p. 188)	*Q8 (p. 188)*	*Q9 (p. 189)*	*Q10 (p. 189)*	*Q11 (p. 190)*	*Q12 (p. 190)*
Q13 (p. 191)	*Q14 (p. 191)*	*Q15 (p. 192)*	*Q16 (p. 195)*	*Q17 (p. 195)*	*Q18 (p. 196)*
Q19 (p. 196)					

Q1: A newborn presents with microcephaly, scalp defect, cleft lip and palate, and polydactyly. Cardiac evaluation reveals a ventricular septal defect. Which of the following is most likely to be associated with this clinical presentation? (Q850074)

A. Trisomy 21 (Down syndrome)

B. Trisomy 18 (Edwards syndrome)

C. Trisomy 13 (Patau syndrome)

D. Turner syndrome (45, XO)

See Answer in Part B → Q1

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Q2: A 10-year-old boy presents with recurrent weakness and confusion resembling stroke-like symptoms. His mother reports episodes of fatigue and lactic acidosis. Family history shows that his maternal grandmother had similar symptoms, while his grandfather was unaffected. Which of the following statements is TRUE about the inheritance pattern of this condition? (Q850069)

A. The patient's siblings have a risk of inheriting the disease from their mother.

B. Mitochondrial disorders can only exhibit homoplasmy.

C. The threshold effect is related to disorders associated with homoplasmy.

D. Kearns-Sayre syndrome and Pearson syndrome do not follow this type of inheritance.

See Answer in Part B → Q2

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Q3: The image shows a child with distinctive facial features. Which of the following are the features associated with this syndrome? {{caption_text}} (Q850078)

A. Short stature and triangular face

B. Hypoplastic mandible cheek and ear abnormalities

C. Facial asymmetry and triangular face

D. Retracted mandible



See Answer in Part B → Q3

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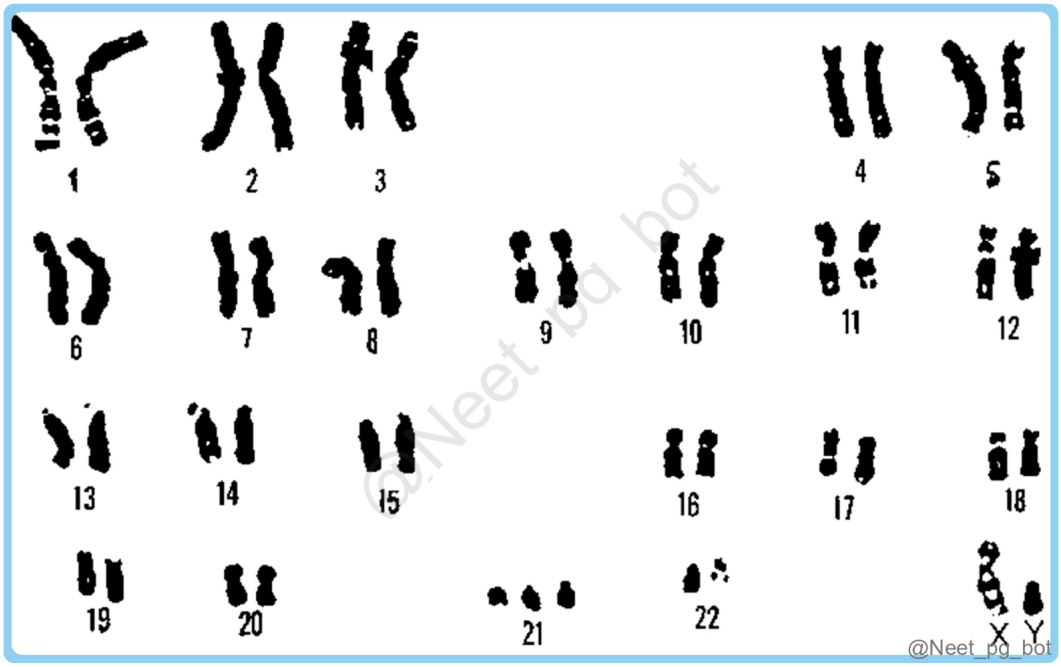
Q4: A 33-year-old pregnant woman was found to have an abnormal NT scan. An amniocentesis revealed a chromosomal karyotype given below. This result most commonly occurs due to which of the following? (Q850077)

A. Non-disjunction in maternal meiosis

B. Non-disjunction in paternal meiosis

C. Robertsonian translocation

D. Mosaic pattern



See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 15-year-old male presents with tall stature, long limbs, and a history of frequent joint dislocation. O/E he has a high-arched palate and aortic regurgitation is noted on auscultation. Which of the following is the common genetic abnormality associated with this condition? (Q850076)

A. Mutation in BRCA1 gene

B. Mutation in the FBN1 gene

C. Mutation in the PTEN gene

D. Deletion of chromosome 22

See Answer in Part B → Q5

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Q6: A 12-year-old boy presents with short stature, webbed neck, broad chest, and undescended testis. What is the likely diagnosis? (Q850075)

A. Turner syndrome

B. Noonan syndrome

C. Klinefelters syndrome

D. Edward syndrome

See Answer in Part B → Q6

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Q7: A 14-year-old girl presents with short stature and delayed puberty. On physical examination, she has a webbed neck, wide-set nipples, and cubitus valgus. Which of the following is not typically associated with this patient's likely diagnosis? (Q850073)

A. Coarctation of the aorta

B. Streak gonads

C. Intellectual disability

D. Horseshoe kidney

See Answer in Part B → Q7

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Q8: A 32-year-old primigravida at 12 weeks of gestation undergoes first-trimester screening for Down syndrome. Which of the following is not typically included in this

screening? (Q850072)

A. Maternal serum β-hCG level

B. Nuchal translucency measurement

C. Maternal serum PAPP-A level

D. Maternal serum alpha-fetoprotein (AFP) level

See Answer in Part B → Q8

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Q9: A 4-year-old child presents with global developmental delay, hypotonia, and characteristic dysmorphic facial features. Karyotype analysis confirms trisomy 21. Given the genetic basis of the condition, which of the following additional findings is least likely to be directly associated with this disorder? (Q850071)

A. Increased risk of early-onset Alzheimer's disease

B. Increased risk of acute lymphoblastic leukemia (ALL)

C. Increased risk of ataxia-telangiectasia

D. Increased risk of congenital heart defects

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 3-year-old girl presents with developmental delay, ataxic gait, and frequent inappropriate laughter. Genetic testing reveals a deletion in the 15q11-q13 region of the maternal chromosome. Which of the following conditions is most likely? (Q850070)

A. Disorder with maternal uniparental disomy

B. Disorder with paternal uniparental disomy

C. Beckwith-Wiedemann syndrome

D. Silver-Russell syndrome

See Answer in Part B → Q10

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Q11: Which of the following disorders manifest when only one allele on a somatic chromosome is affected? (Q850060)

A. Achondroplasia

B. Galactosemia

C. Mucopolysaccharidosis type II

D. Duchenne muscular dystrophy

See Answer in Part B → Q11

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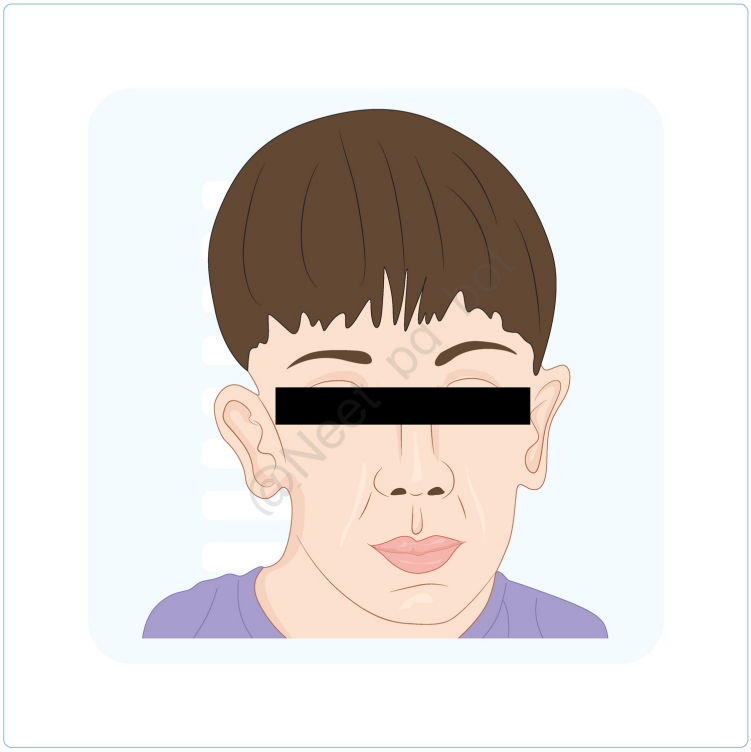
Q12: A 13-year-old adolescent boy presents with intellectual disability, a long face, large ears, and macroorchidism. Genetic testing reveals more than 200 CGG repeats in the X-chromosome. Which of the following statements about this condition is incorrect? (Q850068)

A. The gene involved is the FMR-1 gene on the X-chromosome

B. Normal population carries 55-200 CGG repeats

C. Carriers may experience premature ovarian failure

D. Hyperextensible joints and mitral valve prolapse are associated features



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See Answer in Part B → Q12

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Q13: A geneticist is reviewing various trinucleotide repeat disorders. Match the disorders with their correct trinucleotide repeats a. Huntington's disease 1. GAA b. Fragile X syndrome 2. CTG c. Friedreich's ataxia 3. CAG d. Myotonic dystrophy type 1 4. CGG (Q850067)

A. a-1, b-4, c-3, d-2

B. a-1, b-2, c-3, d-4

C. a-3, b-4, c-1, d-2

D. a-3, b-2, c-1, d-4

See Answer in Part B → Q13

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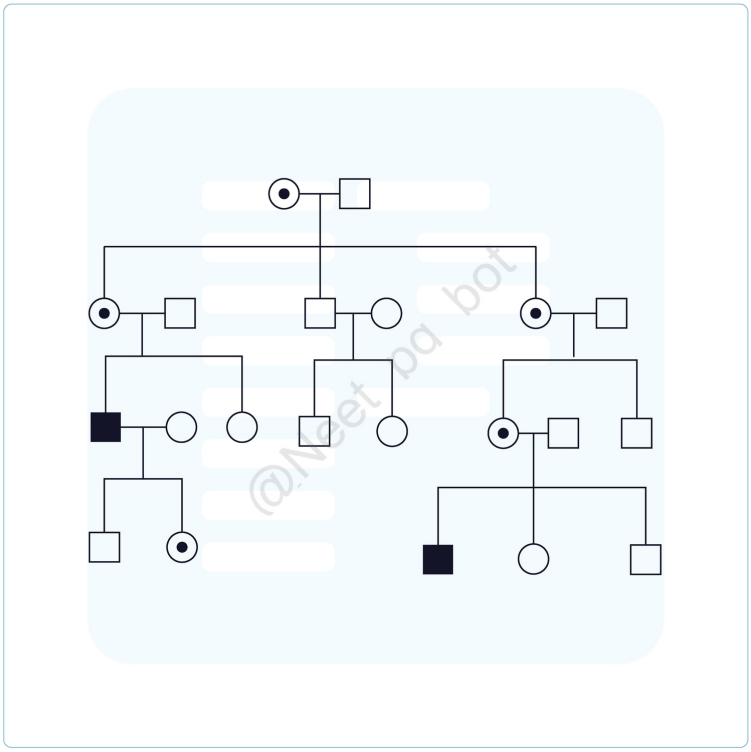
Q14: A genetic counselor is analyzing a family pedigree for a rare condition. The pedigree shows the following characteristics: Which of the following best describes the most likely mode of inheritance for this condition? (Q850066)

A. Autosomal recessive

B. X-linked dominant

C. X-linked recessive

D. Mitochondrial inheritance



See Answer in Part B → Q14

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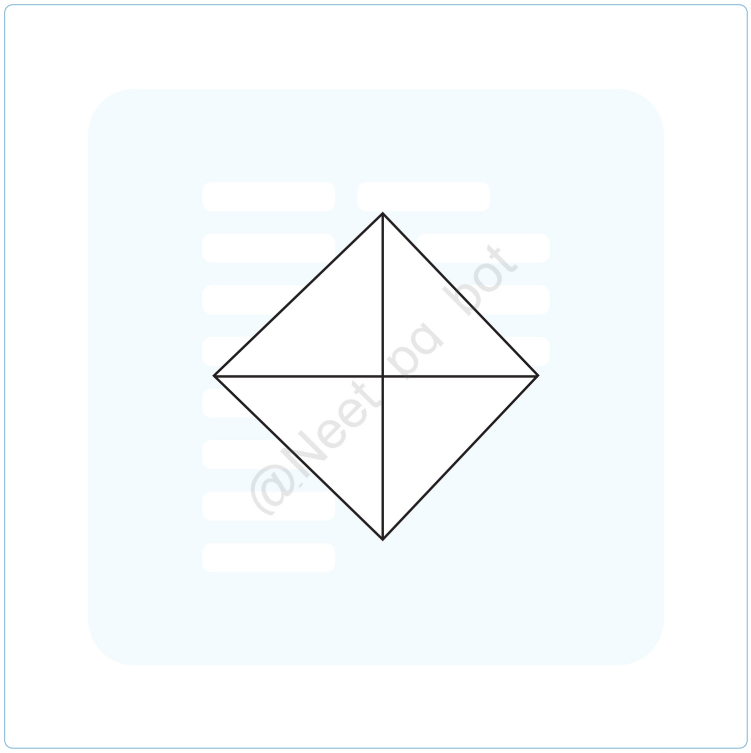
Q15: Match the symbols with their correct representation a. Proband (male) 1. b. Consultand (male) 2. c. Pregnancy (male) 3. d. Miscarriage 4. e. Stillbirth 5. (Q850065)

A. a-2, b-3, c-4, d-1, e-5

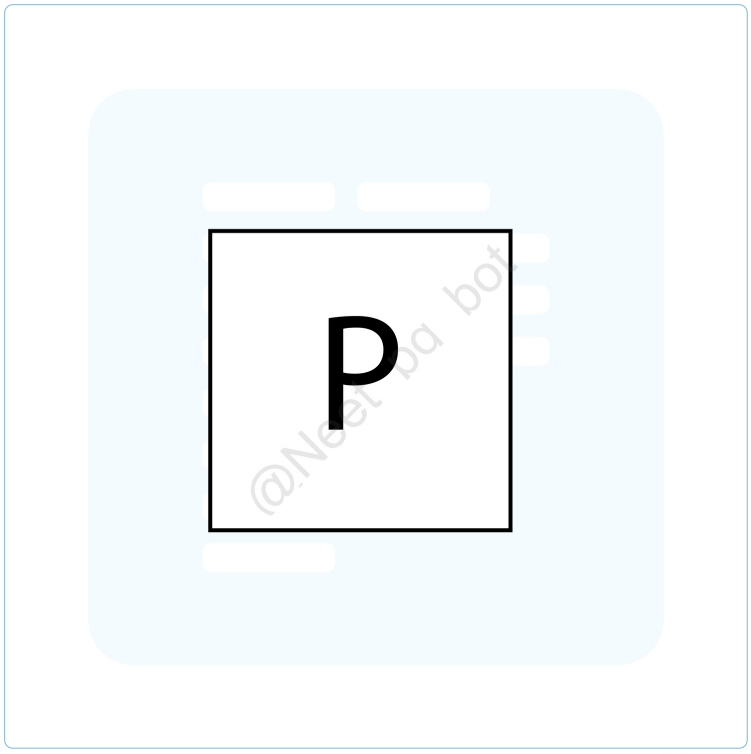
B. a-4, b-3, c-2, d-5, e-1

C. a-2, b-3, c-4, d-5, e-1

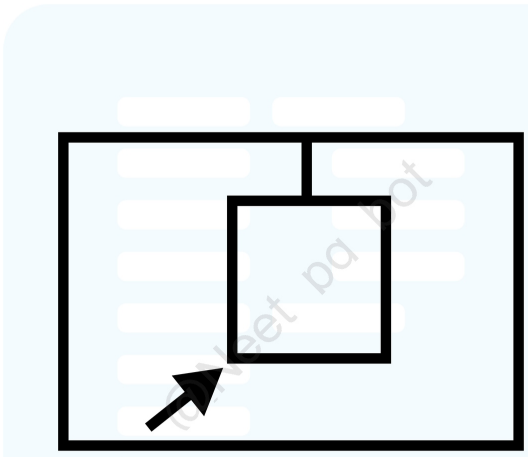
D. a-4, b-3, c-2, d-1, e-5



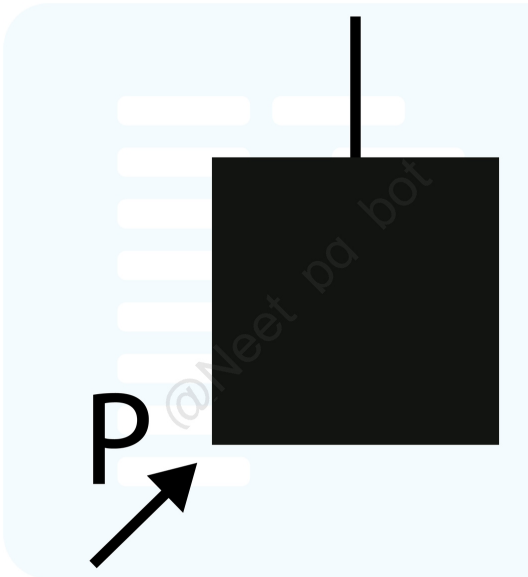
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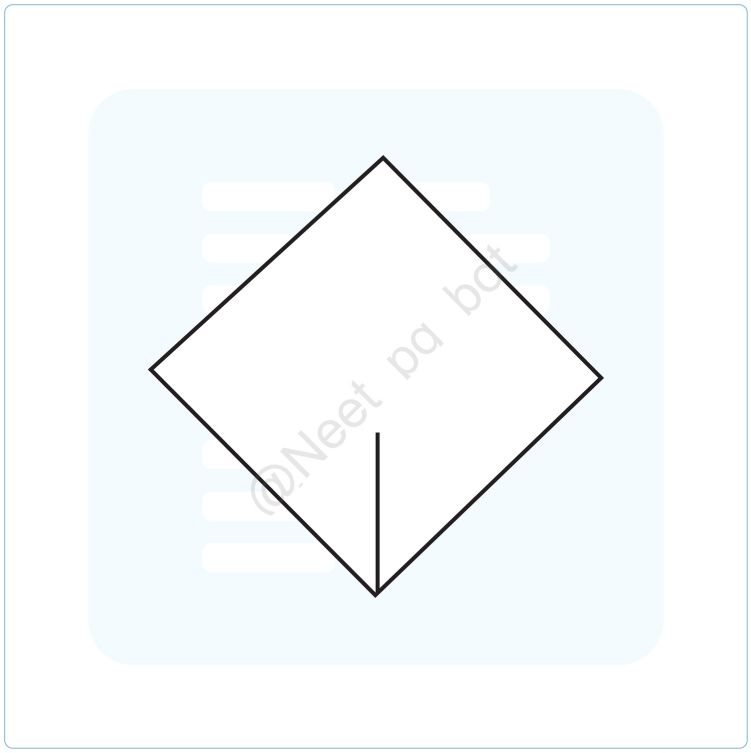
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See Answer in Part B → Q15

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Q16: Which of the following disorders are manifested when one allele on the X chromosome is affected? (Q850064)

A. Hypophosphatemic vitamin D-resistant rickets

B. Rett syndrome

C. Incontinentia pigmenti

D. All of the above

See Answer in Part B → Q16

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Q17: Which of the following statements is true? (Q850063)

A. All sons of affected males are affected by X-linked dominant disorders

B. Lyonization can cause the expression of X-linked recessive disorder in females

C. All offspring of an affected female are affected in an autosomal dominant disorder

D. None of the above

See Answer in Part B → Q17

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Q18: Which of the following disorders are manifested when both alleles on the X chromosome are affected? (Q850062)

A. Hemophilia

B. Leigh disease

C. Incontinentia pigmenti

D. MELAS syndrome

See Answer in Part B → Q18

@Neet_pg_bot

Q19: Which of the following disorders are manifested when both alleles on a somatic chromosome are affected? (Q850061)

A. Spinal muscular atrophy

B. Marfan syndrome

C. Neurofibromatosis

D. Colour blindness

See Answer in Part B → Q19

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• [07_Genetics and Genetic Disorders] 018 Previous Year Questions

« Back to Folder Directory

[07_Genetics and Genetic Disorders] 018 Previous Year Questions — Quick Jump

Q1 (p. 197)	*Q2 (p. 197)*	*Q3 (p. 198)*	*Q4 (p. 198)*	*Q5 (p. 198)*	*Q6 (p. 199)*
Q7 (p. 199)	*Q8 (p. 200)*	*Q9 (p. 201)*	*Q10 (p. 201)*	*Q11 (p. 201)*	*Q12 (p. 202)*
Q13 (p. 202)	*Q14 (p. 203)*	*Q15 (p. 203)*			

Q1: Which genetic syndrome is caused by a deletion of the short arm of chromosome 5 (5p deletion)? (Q866747)

A. Edward syndrome

B. Patau syndrome

C. Cri-du-chat syndrome

D. Turner syndrome

See Answer in Part B → Q1

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Q2: A young boy is brought to the clinic for developmental assessment. On examination, he has a prominent epicanthal fold, a single transverse palmar crease, hypotonia, and intellectual disability. Facial features appear flat with upslanting palpebral fissures. What is the most likely diagnosis? (Q866748)

A. Down syndrome

B. Patau syndrome

C. Edward syndrome

D. Fragile X syndrome

See Answer in Part B → Q2

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Q3: A teenage boy, who was previously raised as a girl, presents with primary amenorrhea and lack of secondary sexual characteristics. On examination, he has tall stature, small testes, and gynecomastia. Testosterone level was normal. Which of the following is the most likely genotype? (Q866767)

A. 45,X

B. 46,XX

C. 47,XXY

D. 47,XYY

See Answer in Part B → Q3

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Q4: A 3 year old child with short stature comes to your clinic. He has motor developmental delay, fingers oblique to each other. His Upper segment : Lower segment ratio is 1.5:1. What is the gene associated with this syndrome? (Q852527)

A. FGFR3

B. MECP2

C. PHEX

D. ATP7B

See Answer in Part B → Q4

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Q5: At what age is surgery typically performed for cleft lip? (Q844218)

A. 3 months

B. 6 months

C. 1 year

D. 18 months

See Answer in Part B → Q5

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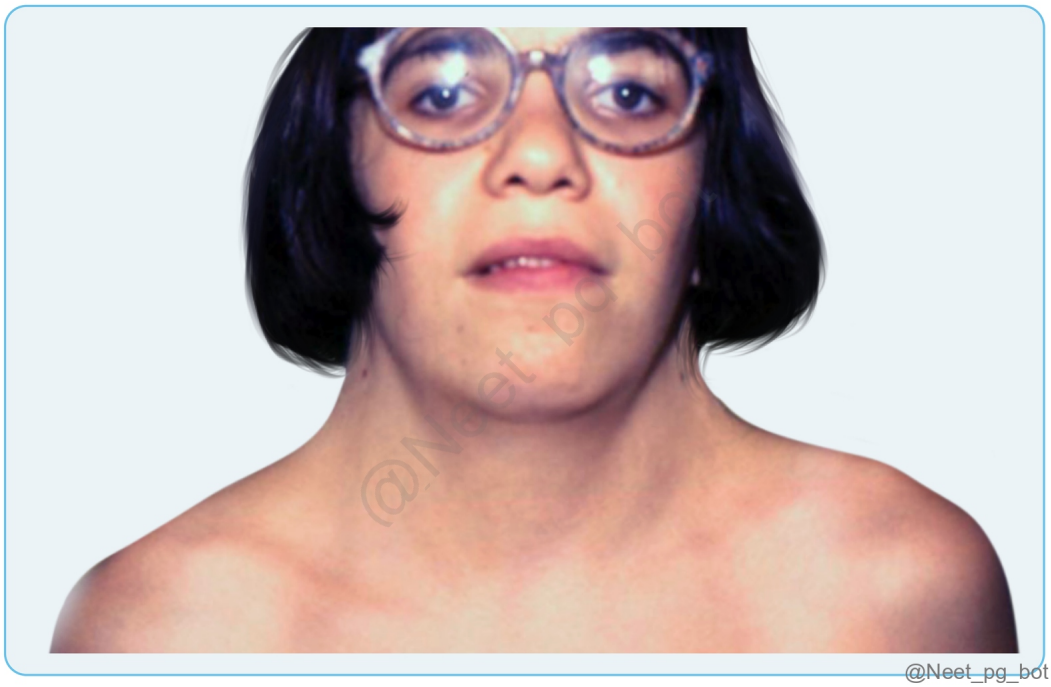
Q6: A child was diagnosed with Turner syndrome. Which of the following are features of Turner syndrome? (Q860604)

A. Webbed neck

B. Normal height

C. Decreased carrying angle

D. Gynecomastia



See Answer in Part B → Q6

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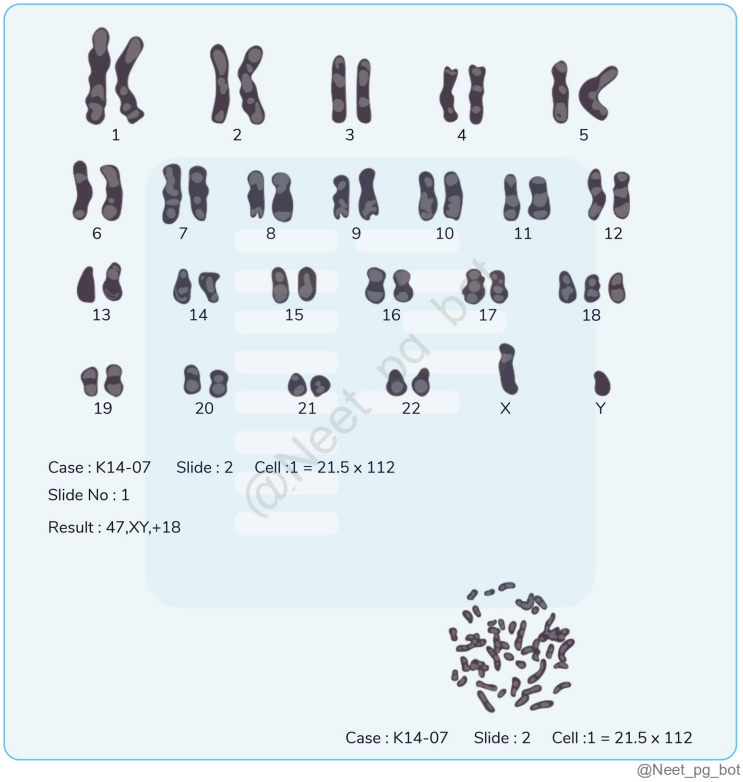
Q7: Which chromosomal defect is suggested by the karyotyping results given below? (Q860274)

A. Trisomy 18

B. Trisomy 13

C. Trisomy 21

D. Trisomy 11



See Answer in Part B → Q7

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Q8: Which of the following is a new drug approved by the FDA for the treatment of Rett syndrome? (Q854729)

A. Olcegepant

B. Lasmiditan

C. Trofinetide

D. Erenumab

See Answer in Part B → Q8

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Q9: Which of the following is not associated with Down's syndrome? (Q854749)

A. Conductive hearing loss

B. Short stature

C. Hypothyroidism

D. Caudal regression

See Answer in Part B → Q9

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Q10: What is the inheritance pattern observed in neural tube defects? (Q793669)

A. a.Autosomal dominant

B. X-linked dominant

C. c.Autosomal recessive

D. d.Multifactorial inheritance

See Answer in Part B → Q10

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Q11: A 9-month-old boy presents with progressive pallor and abdominal distension. The Mentzer index was found to be less than 13. What are the investigations to be done in this patient? High-performance liquid chromatography (HPLC) PT and APTT Bone marrow Peripheral blood smear (Q855735)

A. 1 and 2

B. 1, 3 and 4

C. 1 and 4

D. 1, 2, 3 and 4

See Answer in Part B → Q11

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Q12: A child with thalassemia is undergoing multiple blood transfusions. What is the best method to detect iron overload? (Q855059)

A. Liver iron concentration

B. MRI T2 myocardium

C. Serum ferritin

D. NTBI

See Answer in Part B → Q12

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Q13: What is the diagnosis of a 10-year-old boy who was brought for psychiatric evaluation due to intellectual disability and exhibits an IQ of 45? The boy also presents with physical characteristics such as a long face, large ears, and large testes, along with a cardiac murmur. Additionally, there is a history of poor intellectual function in the paternal family. (Q859511)

A. Cushing's syndrome

B. Rett syndrome

C. Fragile X syndrome

D. William syndrome

See Answer in Part B → Q13

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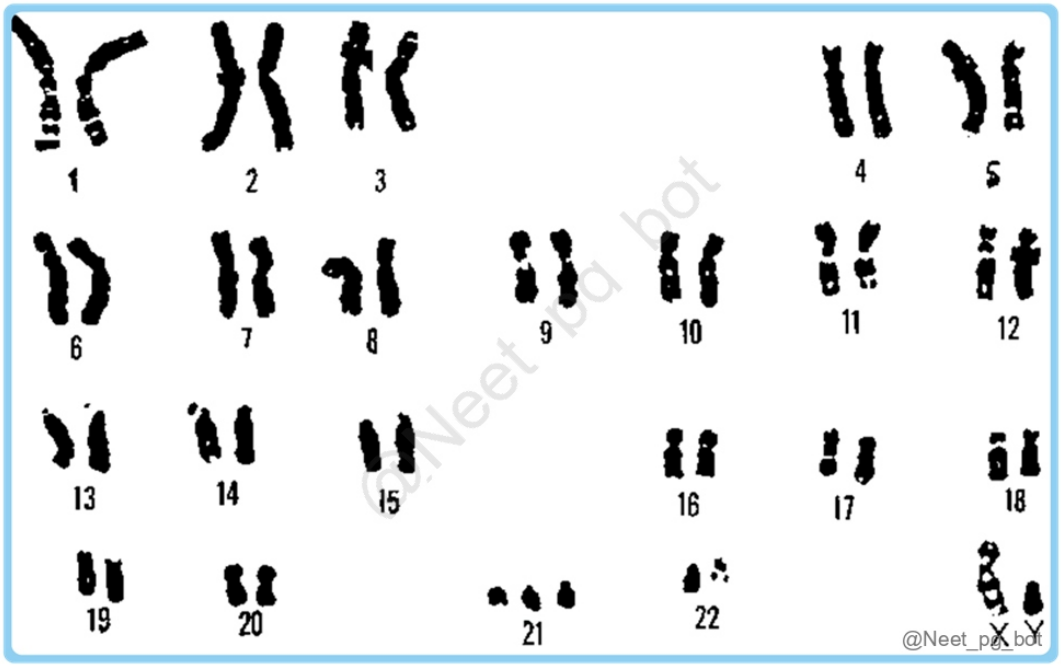
Q14: What is the diagnosis of the patient having the following type of karyotype, as shown in the image? (Q859762)

A. Turner Syndrome

B. Down Syndrome

C. Klinefelter syndrome

D. Edward syndrome



See Answer in Part B → Q14

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Q15: In which trimester is a quadruple test done for antenatal screening of Down syndrome? (Q820481)

A. 1st trimester

B. 3rd trimester

C. 2nd trimester

D. 4th trimester

See Answer in Part B → Q15

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• [08_Inborn Errors of Metabolism] 019 Disorders Of Carbohydrate And Amino Acid Metabolism

« Back to Folder Directory

[08_Inborn Errors of Metabolism] 019 Disorders Of Carbohydrate And Amino Acid Metabolism — Quick Jump

Q1 (p. 205)	*Q2 (p. 205)*	*Q3 (p. 206)*	*Q4 (p. 206)*	*Q5 (p. 207)*	*Q6 (p. 208)*
Q7 (p. 209)	*Q8 (p. 210)*	*Q9 (p. 210)*	*Q10 (p. 210)*	*Q11 (p. 211)*	*Q12 (p. 211)*
Q13 (p. 212)	*Q14 (p. 212)*	*Q15 (p. 213)*	*Q16 (p. 213)*	*Q17 (p. 213)*	*Q18 (p. 214)*
Q19 (p. 214)	*Q20 (p. 215)*	*Q21 (p. 215)*	*Q22 (p. 216)*	*Q23 (p. 216)*	*Q24 (p. 216)*
Q25 (p. 217)	*Q26 (p. 217)*	*Q27 (p. 218)*	*Q28 (p. 218)*	*Q29 (p. 219)*	*Q30 (p. 219)*

Q1: A 4-month-old infant presents with hepatomegaly, hypoglycemic seizures, and a doll-like face with fat cheeks. Laboratory tests reveal hypoglycemia, lactic acidosis, hyperuricemia, and hyperlipidemia. The CPK levels are normal. Which of the following is not a correct statement about this condition? (Q850096)

A. It is caused by a deficiency in glucose-6-phosphatase or its translocase

B. The condition is inherited in an autosomal recessive pattern

C. Glucagon administration typically leads to a significant increase in blood glucose levels

D. Treatment involves maintaining normal blood glucose levels through multiple feeds at regular intervals.

See Answer in Part B → Q1

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Q2: A 5-day-old newborn presents with poor feeding, vomiting, and jaundice. Physical examination reveals hepatomegaly and cataracts. Laboratory tests show elevated liver enzymes, hypoglycemia, and a positive reducing substance in the urine. Which of the following is the most appropriate initial management step? (Q850099)

A. Start phototherapy for jaundice

B. Administer intravenous glucose

C. Discontinue all lactose-containing foods

D. Begin enzyme replacement therapy

See Answer in Part B → Q2

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Q3: An 11-year-old child presents with sudden onset left-sided weakness and facial deviation. MRI brain shows an acute infarct in the right middle cerebral artery territory. On further evaluation, he is noted to have tall stature, long fingers, and mild intellectual disability. A metabolic disorder is suspected. Which of the following defects can lead to this condition? Cystathionine β-synthase deficiency Methionine synthase deficiency Defective MTHFR (methylenetetrahydrofolate reductase) Vitamin B12 deficiency (Q885149)

A. 1 and 3 only

B. 1, 2 and 3 only

C. 1, 2, 3 and 4

D. 2 and 4 only

See Answer in Part B → Q3

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Q4: Match the following types of Glycogen storage disorders and their respective enzyme deficiencies: a. McArdle disease 1. Glucose 6 Phosphatase b. Her's disease 2. Muscle phosphorylase c. Von Gierke disease 3. Branching enzyme d. Anderson disease 4. Hepatic phosphorylase (Q850095)

A. a-3, b-1, c-4, d-2

B. a-3, b-4, c-1, d-2

C. a-2, b-3, c-1, d-4

D. a-2, b-4, c-1, d-3

See Answer in Part B → Q4

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Q5: A 13-year-old girl presents with progressive low back pain and stiffness. Characteristic findings are shown in the image below. She also reports that her urine darkens when left standing for several hours. Spine radiographs reveal calcification of the intervertebral discs. (Q885148)

A. Pyridoxine

B. Nitisinone

C. Thiamine

D. Folic acid





See Answer in Part B → Q5

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Q6: Which enzyme deficiency is responsible for the following findings in an 18-year-old male presenting with chronic low back pain? (Q885145)

A. L-ascorbic acid

B. Homogentisic acid oxidase

C. Tyrosine aminotransferase

D. Beta-carotene



See Answer in Part B → Q6

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Q7: A 5-month-old infant develops persistent vomiting, metabolic acidosis, and poor weight gain after introduction of a protein-rich complementary diet. Parents report a peculiar “chlorine-like” odor in the urine. There is a family history of similar episodes in multiple generations. On examination, mild hepatomegaly is present. What is the most likely diagnosis? (Q885144)

A. Isovaleric acidemia

B. Phenylketonuria

C. Hawkinsinuria

D. Maple syrup urine disease

See Answer in Part B → Q7

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Q8: An 18-month-old child is evaluated for recurrent seizures and developmental delay. Laboratory testing reveals elevated plasma tyrosine levels. Urine organic acid analysis shows increased 4-hydroxyphenylpyruvate along with its metabolites 4-hydroxyphenyllactate and 4-hydroxyphenylacetate. Liver function tests are normal. Which of the following inborn errors of metabolism is the most likely diagnosis? (Q885143)

A. Hereditary tyrosinemia type I

B. Hawkinsinuria

C. Hereditary tyrosinemia type III

D. Hereditary tyrosinemia type II

See Answer in Part B → Q8

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Q9: A 4-year-old child presents with recurrent photophobia and painful palmoplantar hyperkeratotic lesions. Laboratory evaluation shows markedly elevated plasma tyrosine levels. A diagnosis of Richner-Hanhart syndrome is made. Which enzyme deficiency is responsible for this condition? (Q885141)

A. 4-Hydroxyphenylpyruvate dioxygenase

B. Tyrosine aminotransferase

C. Fumarylacetoacetate hydrolase

D. Tyrosine hydroxylase

See Answer in Part B → Q9

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Q10: A 3-year-old boy is brought with complaints of eye pain, photophobia, and delayed speech. On examination, he has bilateral herpetiform corneal ulcers and hyperkeratotic, painful plaques on the palms and soles. What is the most likely

diagnosis? (Q885140)

A. Hereditary Tyrosinemia Type II

B. Herpes simplex virus infection

C. Hereditary Tyrosinemia Type I

D. Epstein-Barr virus infection

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 6-month-old infant is diagnosed with Tyrosinemia Type I after parents notice a strong cabbage-like odor in the urine. The child is started on treatment, but you explain the potential long-term complications. Which of the following is least likely to occur in this condition? (Q885139)

A. Fanconi-like renal tubular dysfunction

B. Paralytic ileus

C. Hepatocellular carcinoma

D. Corneal ulceration

See Answer in Part B → Q11

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Q12: A 5-month-old infant born to consanguineous parents presents with jaundice, vomiting, and irritability. On examination, hepatomegaly and petechiae are noted, along with extensor hypertonia of neck and trunk. Laboratory investigations show elevated liver enzymes, low phosphate, and high levels of succinylacetone in serum and urine. Which enzyme deficiency is responsible for this condition? (Q885138)

A. Tyrosine aminotransferase

B. Fumarylacetoacetate hydrolase

C. Tyrosine hydroxylase

D. 4-Hydroxyphenylpyruvate dioxygenase (4-HPPD)

See Answer in Part B → Q12

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Q13: A 3-month-old infant is diagnosed with classic phenylketonuria (PKU) on newborn screening. Blood phenylalanine levels are elevated. What is the mainstay of treatment for this infant? (Q885137)

A. Tyrosine supplementation

B. Low-phenylalanine diet

C. Phenylalanine-free diet

D. High-phenylalanine diet

See Answer in Part B → Q13

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Q14: A 3-month-old infant presents with recurrent vomiting and developmental delay. Metabolic screening shows elevated serum phenylalanine levels. The clinician plans further evaluation to identify enzymatic defects responsible for hyperphenylalaninemia. Which of the following enzymes is not involved in the metabolism of phenylalanine? (Q885136)

A. GTP cyclohydrolase I

B. Phenylalanine hydroxylase

C. Dihydropteroate synthase

D. Dihydropteridine reductase

See Answer in Part B → Q14

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Q15: A 6-year-old boy is brought with complaints of delayed milestones and poor academic performance. Teachers report repetitive body movements and hyperactivity. He has a history of seizures. On examination, he has fair complexion compared to his siblings, light-colored hair, microcephaly, and growth retardation. A urine test shows a transient green color after addition of ferric chloride. What is the primary cause of the neurological manifestations in this child? (Q885134)

A. Accumulation of phenylpyruvate

B. Decreased tyrosine synthesis

C. Excess phenylalanine in blood

D. Increased phenylacetate levels

See Answer in Part B → Q15

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Q16: A 2-year-old child was brought to the hospital with complaints of developmental delay associated with intellectual disability and on further examination revealed the presence of self-mutilating behavior. Laboratory investigations revealed hyperuricemia. Deficiency of which of the following enzymes is responsible for the condition of this patient? (Q882163)

A. Adenosine deaminase

B. Ornithine transcarbamylase

C. Xanthine oxidase

D. Hypoxanthine guanine ribosyl transferase

See Answer in Part B → Q16

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Q17: A 4-year-old boy is brought to the clinic due to developmental delay and vision problems. Physical examination reveals a tall, slender child with elongated limbs,

pectus excavatum, and blue eyes. Ophthalmologic evaluation shows bilateral lens dislocation. Laboratory tests reveal elevated levels of homocystine and methionine in the blood and urine. Which of the following is the most likely underlying enzyme deficiency? (Q850115)

A. Phenylalanine hydroxylase

B. Cystathionine β-synthase

C. Methylenetetrahydrofolate reductase

D. Methionine synthase

See Answer in Part B → Q17

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Q18: A 6-year-old boy is brought to the clinic. His parents mention occasional episodes of unsteady gait and irritability. Physical examination reveals a pellagra-like rash on sun-exposed areas. Laboratory tests show increased urinary excretion of neutral amino acids. Which of the following best describes the underlying pathophysiology of this condition? (Q850113)

A. Defective metabolism of tryptophan

B. Impaired transport of monoamine monocarboxylic amino acids (neutral amino acids)

C. Deficiency of enzyme tyrosine hydroxylase

D. Deficiency of biotinidase enzyme

See Answer in Part B → Q18

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Q19: A 2-day-old male neonate, born to consanguineous parents, presents with poor feeding, vomiting, and lethargy. Laboratory investigations reveal severe hyperammonemia (plasma ammonia 800 µmol/L) and respiratory alkalosis. Which of the following is the most appropriate immediate management step? (Q850110)

A. Start a protein-based diet

B. Administer intravenous sodium ammonium benzoate and arginine

C. Perform exchange transfusion

D. Initiate valproate for seizure prophylaxis

See Answer in Part B → Q19

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Q20: A 3-day-old neonate presents with lethargy, poor feeding, and hyperammonemia. Plasma amino acid analysis shows elevated citrulline levels. Which of the following enzyme deficiencies is most likely responsible for this presentation? (Q850109)

A. Ornithine transcarbamylase

B. Argininosuccinate synthetase

C. Carbamoyl phosphate synthetase I

D. Arginase

See Answer in Part B → Q20

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Q21: A 5-day-old neonate presents with poor feeding, lethargy, and a sweet, maple syrup-like odor in the urine. Initial laboratory tests show metabolic acidosis and ketonuria. Which of the following is the most appropriate next step in management? (Q850108)

A. Initiate a keto diet

B. Administer phenobarbital for seizure prophylaxis

C. Begin immediate hemodialysis

D. Start a leucine-restricted diet and provide thiamine supplementation

See Answer in Part B → Q21

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Q22: Match the following Inborn Errors of Metabolism (IEMs) with their characteristic odors: Column A (IEMs) Column B (Odors) a. Maple Syrup Urine Disease 1. Tom cat urine b. Phenylketonuria 2. Cabbage-like c. Multiple Carboxylase Deficiency 3. Mousy or musty d. Tyrosinemia 4. Burnt sugar (Q850107)

A. a-4, b-3, c-1, d-2

B. a-3, b-4, c-2, d-1

C. a-1, b-2, c-3, d-4

D. a-2, b-1, c-4, d-3

See Answer in Part B → Q22

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Q23: Which of the following is not a common clinical feature of organic acidemias in neonates? (Q850106)

A. Lethargy

B. Vomiting

C. Respiratory acidosis

D. Seizures

See Answer in Part B → Q23

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Q24: A 2-week-old infant presents with prolonged jaundice, vomiting, and failure to thrive with a history of hepatorenal failure. Preliminary blood tests show elevated liver enzymes and a low platelet count. The infant's urine has a distinctive

"cabbage-like" odour. Which of the following investigations helps in the diagnosis? (Q850105)

A. Urine culture and sensitivity

B. Serum ammonia levels

C. Urine succinylacetone test

D. Urine glucose levels

See Answer in Part B → Q24

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Q25: A 10-year-old boy is brought to the pediatrician with complaints of chronic back pain and stiffness that have worsened over the past year. On examination, the physician notes bluish-black discoloration in the sclerae and dark pigmentation in the cartilage of the ears. The mother mentions that the child's urine turns dark when left standing for a few hours. Based on these findings, what is the most likely diagnosis? (Q850104)

A. Ehlers-Danlos Syndrome

B. Alkaptonuria

C. Marfan Syndrome

D. Osteogenesis Imperfecta

See Answer in Part B → Q25

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Q26: A 6-month-old infant is brought to the clinic by their parents reporting that their infant is not meeting developmental milestones, such as rolling over or sitting up. On examination, the infant has a noticeable mousy or musty odor. Hair and skin pigmentation appear lighter. Which of the following enzymes is deficient in this infant? (Q850103)

A. Phenylalanine hydroxylase

B. Homogentisic acid oxidase

C. Sphingomyelinase

D. Glucocerebrosidase

See Answer in Part B → Q26

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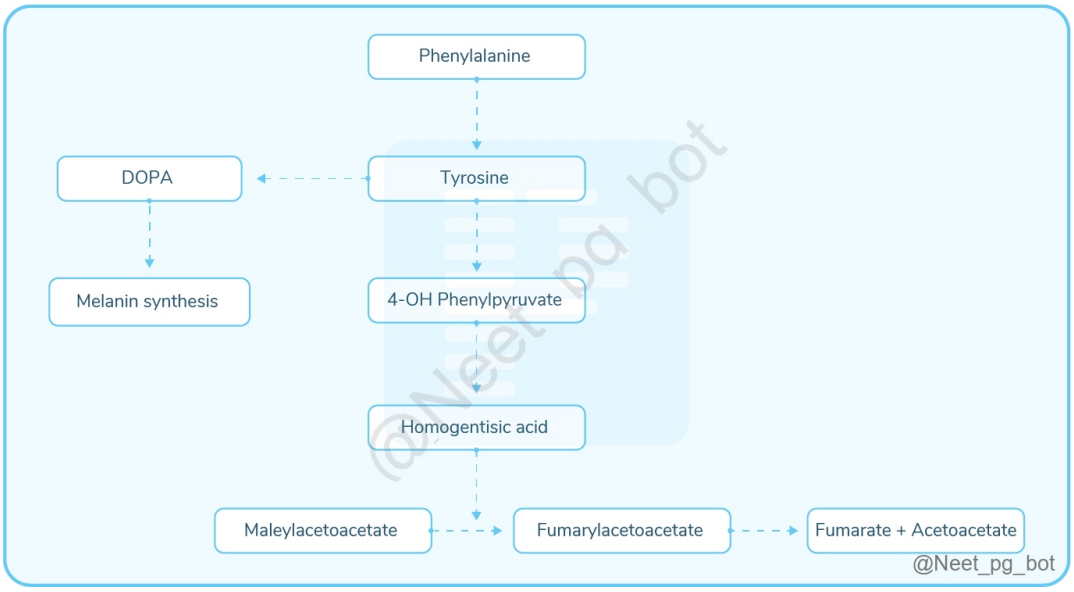
Q27: Which enzyme converts tyrosine to 4-OH Phenylpyruvate? (Q850102)

A. Tyrosinase

B. Tyrosine aminotransferase

C. 4 HPPD (Hydroxy Phenyl pyruvate dioxygenase)

D. None of the above



See Answer in Part B → Q27

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Q28: A 7-month-old infant is brought to the clinic for evaluation of vomiting and poor weight gain. The infant started having these symptoms after adding sugar to the diet. The physical exam is notable for hepatomegaly (enlarged liver). Which of the following is the most likely diagnosis? (Q850101)

A. Phenylketonuria

B. Hereditary fructose intolerance

C. Galactosemia

D. Glycogen storage disease type I

See Answer in Part B → Q28

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Q29: A 3-month-old infant presents with hypotonia, feeding difficulties, and heart failure. Laboratory tests reveal elevated serum creatine kinase and liver enzymes. Which of the following is not a characteristic of this condition? (Q850098)

A. It is caused by a deficiency of acid α-1,4-glucosidase

B. Glycogen accumulates primarily in the cytoplasm of affected cells

C. Enzyme replacement therapy with alglucosidase alfa is available

D. Cardiac involvement can include cardiomyopathy

See Answer in Part B → Q29

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Q30: Which of the following statements is incorrect with respect to Type 1 (Von Gierke Disease) and Type 3 (Cori Disease) Glycogen Storage Disease? (Q850097)

A. Type 1 GSD is characterized by enlarged kidneys, while Type 3 GSD typically has normal kidney size

B. Muscle involvement is seen in Type 3 GSD but not in Type 1 GSD

C. Lactate levels are typically normal in Type 3 GSD but elevated in Type 1 GSD

D. Liver biopsy in Type 1 GSD shows fibrosis, while in Type 3 GSD it shows distension of hepatocytes by glycogen and fat deposition

See Answer in Part B → Q30

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• [08_Inborn Errors of Metabolism] 020 Lysosomal Storage Disorders

« Back to Folder Directory

[08_Inborn Errors of Metabolism] 020 Lysosomal Storage Disorders — Quick Jump

Q1 (p. 221) *Q2 (p. 221)* *Q3 (p. 222)* *Q4 (p. 222)* *Q5 (p. 223)* *Q6 (p. 223)*
Q7 (p. 224) *Q8 (p. 224)* *Q9 (p. 225)* *Q10 (p. 225)*

Q1: A 4-year-old boy presents with recurrent epistaxis, abdominal distension, and splenomegaly. Laboratory investigations reveal anaemia, thrombocytopenia, and reduced glucocerebrosidase enzyme activity. What is the most likely diagnosis? (Q850119)

A. Krabbe disease

B. Gaucher disease

C. Fabry disease

D. Neiman pick disease

See Answer in Part B → Q1

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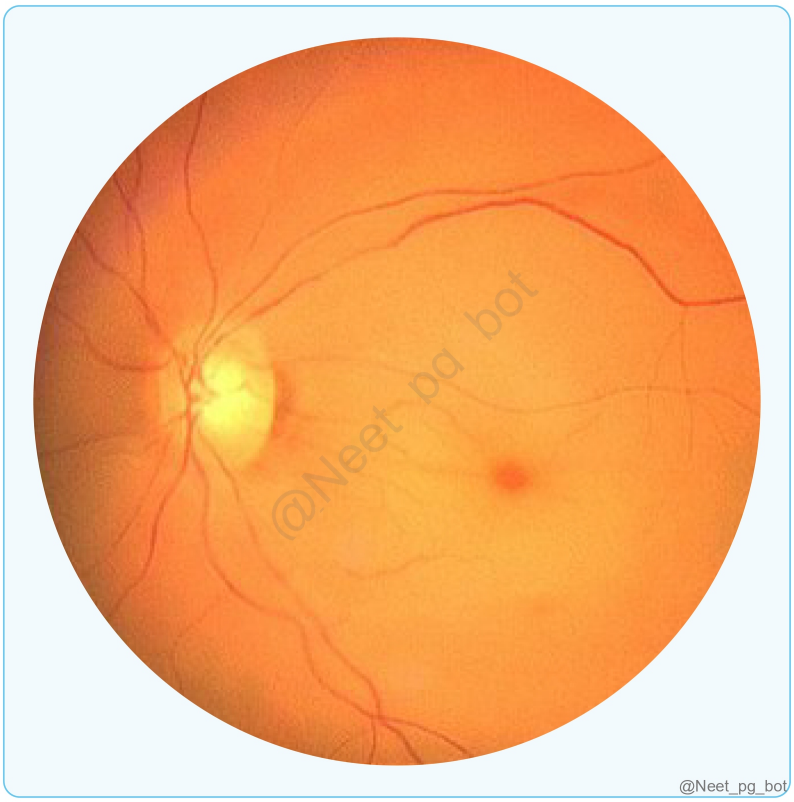
Q2: A 6-month-old infant presents with developmental delay, coarse facial features, and hepatosplenomegaly. Ophthalmological examination reveals a cherry-red spot on the macula. X-rays show skeletal dysplasia with vertebral abnormalities. What is the most likely diagnosis? {{caption_text}} (Q850121)

A. GM1 gangliosidosis

B. Niemann-Pick disease

C. Tay-Sachs disease

D. Krabbe disease



See Answer in Part B → Q2

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Q3: A 2-year-old child presents with hepatosplenomegaly, progressive neurological deterioration, and lung involvement. Foam cells are found in the bone marrow, and genetic testing reveals a mutation in the SMPD1 gene. What disease is the child suffering from? (Q850122)

A. Niemann-Pick Disease

B. Gaucher Disease

C. Hunter Disease

D. GM1 Gangliosidosis

See Answer in Part B → Q3

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Q4: A 7-month-old infant presents with developmental regression, loss of head control, spasticity, and an exaggerated startle response. The infant is diagnosed with Tay-Sachs disease. Which of the following regarding this condition is not correct? (Q850124)

A. Inherited in an autosomal recessive pattern

B. Caused by hexosaminidase A deficiency

C. Cherry-red spot on fundus

D. Associated with splenomegaly

See Answer in Part B → Q4

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Q5: Match the following types of mucopolysaccharidosis (MPS) with their corresponding enzyme deficiencies: Types of MPS Enzyme deficiencies 1.MPS I a. N-acetylgalactosamine-6-sulfatase 2.MPS II b. Iduronate-2-sulfatase 3.MPS IV c. Alpha-L-iduronidase 4.MPS VI d. Arylsulfatase B (Q850127)

A. 1-c, 2-b, 3-a, 4-d

B. 1-b, 2-c, 3-d, 4-a

C. 1-a, 2-d, 3-b, 4-c

D. 1-d, 2-a, 3-c, 4-b

See Answer in Part B → Q5

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Q6: Which of the following is not a clinical feature of Hunter Syndrome (MPS-II)? (Q850128)

A. Coarse facial features

B. Short stature

C. Dysostosis multiplex

D. Corneal clouding

See Answer in Part B → Q6

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Q7: A 10-year-old boy presents with recurrent burning pain in his hands and feet, exacerbated by exercise. He has dark red spots on his skin, particularly on his lower back and thighs, and experiences visual disturbances. Laboratory evaluation revealed uremia. Which of the following enzyme deficiency is associated with this condition? (Q850129)

A. Alpha-galactosidase A

B. Iduronate sulfatase

C. Beta-galactosidase

D. N-acetylgalactosamine-4-sulfatase

See Answer in Part B → Q7

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Q8: A 3-year-old boy is diagnosed with a deficiency of hypoxanthine-guanine phosphoribosyltransferase (HGPRT) based on genetic testing. Which of the following findings is not typically associated with this condition? (Q850130)

A. Self-mutilation

B. Hyperuricemia

C. Intellectual disability

D. Hepatomegaly

See Answer in Part B → Q8

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Q9: A 6-month-old male infant presents with developmental delay, hypotonia, and recurrent myoclonic seizures. On examination, he is found to have hypopigmented skin, kinky hair and a distinctive facial appearance with a depressed nasal bridge. Which of the following is true regarding this condition? (Q850131)

A. Deficiency of the enzyme lysyl oxidase

B. Mutations involving the ATP7B gene

C. Treatment with copper-histidine

D. Primarily affects females

See Answer in Part B → Q9

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Q10: A 2 year old child presents with hemolytic facies and splenomegaly. What all investigations will you do? 1. Peripheral Smear 2. Hb HPLC 3. Bone marrow aspiration 4. PT, apTT (Q850132)

A. 1, 2

B. 1, 2, 3

C. 1, 3, 4

D. 3, 4

See Answer in Part B → Q10

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• [08_Inborn Errors of Metabolism] 021 Previous Year Questions

« Back to Folder Directory

[08_Inborn Errors of Metabolism] 021 Previous Year Questions — Quick Jump

Q1 (p. 226) *Q2 (p. 226)* *Q3 (p. 227)* *Q4 (p. 227)* *Q5 (p. 227)* *Q6 (p. 228)* *Q7 (p. 228)*

Q1: A 5-year-old child presents with hepatosplenomegaly and cherry-red spots on the retina. The child exhibits a normal startle reflex but shows developmental regression. Based on these clinical features, which of the following enzymes is deficient in this patient? (Q865440)

A. Hexosaminidase A

B. Sphingomyelinase

C. Glucocerebrosidase

D. Arylsulfatase A

See Answer in Part B → Q1

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Q2: A child presents with progressive developmental delay, hepatosplenomegaly, and coarse facial features. On examination, corneal clouding is present. An enzyme assay reveals a deficiency of α-L-iduronidase. Which of the following substances is most likely to accumulate in the lysosomes of this patient? A child presents with developmental delay and coarse facial features. Enzyme assay reveals a deficiency of . Which of the following substances is most likely to accumulate in this condition? (Q866372)

A. Dermatan sulfate + Chondroitin sulfate

B. Only Dermatan sulfate

C. Dermatan sulfate + Heparan sulfate

D. Heparan sulfate + Chondroitin sulfate

See Answer in Part B → Q2

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Q3: An infant presents with vomiting after feeding. A Benedict's test was performed and returned positive for a non-glucose substance. Which of the following is the most likely diagnosis? (Q844217)

A. Galactosemia due to GAL-1-P uridyl transferase enzyme deficiency

B. Hereditary fructose intolerance due to aldolase B deficiency

C. Glucose-6-Phosphate dehydrogenase (G6PD) deficiency

D. Galactosemia due to galactokinase enzyme deficiency

See Answer in Part B → Q3

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Q4: A floppy infant presents with hypotonia, hepatomegaly, and an X-ray showing cardiomegaly. Which of the following is the most likely diagnosis? (Q844240)

A. Pompe disease

B. Transposition of the Great Arteries (TGA)

C. Tetralogy of Fallot (TOF)

D. Ebstein's anomaly

See Answer in Part B → Q4

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Q5: A 10-year-old boy is brought to the OPD with pain, redness, and swelling around his great toe. His serum uric acid level is 9.4 mg/dL. His mother also mentions that he frequently bites his lips and has symptoms of spasticity and dystonia. Which enzyme is

most likely deficient in this condition? (Q860280)

A. Cystathionine beta-synthase

B. Dihydrothymidine oxidase

C. Hypoxanthine-guanine phosphoribosyltransferase

D. Xanthine oxidase

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 3-year-old child immediately cries after breastfeeding, followed by vomiting and diarrhea. Which enzyme deficiency might be responsible? (Q860285)

A. Aldolase B

B. Phenylalanine Hydroxylase

C. Galactose-1-Phosphate Uridyl Transferase

D. Glucocerebrosidase

See Answer in Part B → Q6

@Neet_pg_bot

Q7: Which vitamin deficiency can result in seizures in newborns? (Q856771)

A. Pyridoxine

B. Thiamine

C. Riboflavin

D. Pantothenic acid

See Answer in Part B → Q7

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• [09_Diseases of Immune System] 022 Primary Immunodeficiency And Vasculitis In Children

« Back to Folder Directory

[09_Diseases of Immune System] 022 Primary Immunodeficiency And Vasculitis In Children — Quick Jump

Q1 (p. 229)	*Q2 (p. 229)*	*Q3 (p. 230)*	*Q4 (p. 230)*	*Q5 (p. 230)*	*Q6 (p. 231)*
Q7 (p. 231)	*Q8 (p. 232)*	*Q9 (p. 232)*	*Q10 (p. 233)*	*Q11 (p. 233)*	*Q12 (p. 233)*
Q13 (p. 234)	*Q14 (p. 234)*	*Q15 (p. 235)*	*Q16 (p. 235)*		

Q1: A 6-month-old male infant presents with recurrent bacterial infections, including otitis media and pneumonia. Laboratory tests reveal very low levels of immunoglobulins (IgG, IgA, and IgM) and an absence of B cells (CD19+ cells) in the peripheral blood. What is the most likely diagnosis? (Q849849)

A. Severe Combined Immunodeficiency (SCID)

B. DiGeorge Syndrome

C. Common Variable Immunodeficiency (CVID)

D. Bruton's Disease

See Answer in Part B → Q1

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Q2: A 5 year old girl presents with a history of recurrent sinopulmonary infections, over the past several years. She also reports chronic diarrhea and has had several episodes of unexplained weight loss. On examination her lymph nodes are palpable and sarcoid like granuloma seen. Laboratory tests reveal low serum immunoglobulin levels (IgG, IgA, and IgM). Which of the following is the most likely diagnosis? (Q849850)

A. Severe Combined Immunodeficiency

B. Common Variable Immunodeficiency

C. IgA Deficiency

D. Hyper IgM Syndrome

See Answer in Part B → Q2

@Neet_pg_bot

Q3: Which of the following values of serum IgA is typically indicative of selective IgA deficiency? (Q849851)

A. < 5 mg/dL

B. < 10 mg/dL

C. < 15 mg/dL

D. < 20 mg/dL

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 6-year-old boy presents with recurrent infections, including pneumocystis pneumonia, and has a history of chronic diarrhea. Laboratory tests reveal elevated serum IgM levels and low levels of IgG and IgA. Which of the following genetic mutations is most commonly associated with this condition? (Q849852)

A. RAG1

B. CD40L

C. IL-12Rβ1

D. ADA

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A child presents with recurrent respiratory infections, but his total IgG level is normal. Testing reveals a low IgG2 subclass level. What is the most appropriate management strategy? (Q849853)

A. Immediate initiation of intravenous immunoglobulin (IVIG) therapy

B. Administration of live vaccines

C. Prophylactic antibiotics and tailored vaccination schedule

D. Initiation of corticosteroid therapy

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 6-month-old male infant presents with recurrent ear infections, eczema, and petechiae. He has a history of prolonged bleeding from the umbilical stump. His complete blood count reveals thrombocytopenia with small platelets. Immunoglobulin levels show low IgM and elevated IgA and IgE. What is the most likely diagnosis? (Q849854)

A. Severe Combined Immunodeficiency (SCID)

B. Henoch schonlein purpura

C. Wiskott-Aldrich Syndrome

D. Ataxia-Telangiectasia

See Answer in Part B → Q6

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Q7: A 10-year-old child presents with unsteady gait, poor coordination, and visible dilated blood vessels on the sclera. The child's history includes recurrent respiratory infections and a family history of a similar condition. What is the most likely diagnosis? (Q849855)

A. Friedreich's Ataxia

B. Ataxia-Telangiectasia

C. Wiskott-Aldrich Syndrome

D. None of the above

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 2-year child accidentally aspirates a peanut and suddenly starts coughing. He has been brought to the Pediatric Emergency in an unconscious state. What is the appropriate immediate management? (Q849856)

A. Abdominal thrusts (Heimlich maneuver)

B. Back slaps

C. Chest compressions

D. Endotracheal intubation

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 5-year-old has a history of chronic eczema and frequent infections. On investigation, he was found to have STAT3 gene mutation. Which of the following is the most likely mode of inheritance? (Q849857)

A. Autosomal dominant

B. Autosomal recessive

C. X linked dominant

D. X linked recessive

See Answer in Part B → Q9

@Neet_pg_bot

Q10: An infant is being investigated for DiGeorge syndrome. Which of the following is a feature that is not likely to be seen in DiGeorge syndrome? (Q849858)

A. Thymic aplasia

B. Cleft palate

C. Antimongoloid slant

D. Long philtrum

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 5-year-old male has been suffering from pneumonia and lymphadenitis since early infancy. He has been recently diagnosed with chronic granulomatous disease. Which of the following is the enzyme defect seen in the disease? (Q849859)

A. NADPH oxidase

B. Lactate dehydrogenase

C. Pyruvate dehydrogenase

D. Glucose-6-phosphate dehydrogenase

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 6-month-old infant with recurrent skin infections and pneumonia is diagnosed with Leukocyte Adhesion Deficiency (LAD) due to a defect in selectins. Which type of LAD does the infant have? (Q849860)

A. LAD I

B. LAD II

C. LAD III

D. LAD IV

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 9-year-old boy is evaluated for recurrent severe infections, partial albinism, and progressive neurological decline. Family history reveals consanguinity. Genetic testing identifies a mutation in the LYST gene. Which of the following findings is most consistent with the diagnosis? (Q849861)

A. Elevated serum IgE levels and eczema

B. Presence of large peroxisomes in the blood smear

C. Detection of large granules in neutrophils on Wright-stained blood films

D. Low NADPH oxidase levels with hepatosplenomegaly

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 9-year-old child presents with a finding, as in the image. He has joint pain, abdominal pain, and blood in the urine. Laboratory tests reveal normal platelet counts. Which of the following statements about condition is true? (Q849862)

A. Females are most commonly affected

B. Palpable purpura predominantly on the trunk and arms

C. Palpable purpura predominantly on lower limbs

D. Acute liver failure is a complication.



See Answer in Part B → Q14

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Q15: A 4-year-old child presents with a high fever, unresponsive to antipyretics for 6 days. The child also has a polymorphous rash, swelling of the hands and feet, bilateral conjunctivitis without purulent discharge, and strawberry tongue. Laboratory tests show elevated CRP. What is the most appropriate next step in the management of this child? (Q849863)

A. Initiate Ceftriaxone for a suspected bacterial infection.

B. Perform an echocardiogram to assess for coronary artery involvement.

C. Start high-dose intravenous immunoglobulin (IVIG) and high-dose aspirin.

D. Start corticosteroids

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 9-year-old boy presents with progressive proximal muscle weakness, difficulty in climbing stairs, Physical findings as below in the image. Which of the following tests is crucial for a definitive diagnosis for the condition? (Q849864)

A. Skin biopsy

B. Muscle Biopsy

C. Antinuclear Antibody (ANA) Test

D. Electromyography (EMG)



See Answer in Part B → Q16

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• [09_Diseases of Immune System] 023 Previous Year Questions

« Back to Folder Directory

[09_Diseases of Immune System] 023 Previous Year Questions — Quick Jump

Q1 (p. 237) *Q2 (p. 237)* *Q3 (p. 237)* *Q4 (p. 239)* *Q5 (p. 239)* *Q6 (p. 240)*

Q1: A 6-month-old infant presents with recurrent infections and failure to thrive. Laboratory investigations reveal a deficiency of adenosine deaminase (ADA). Which of the following immunodeficiency disorders is most likely associated? (Q866373)

A. Severe Combined Immunodeficiency (SCID)

B. Hypogammaglobulinemia

C. DiGeorge Syndrome

D. Wiskott-Aldrich Syndrome

See Answer in Part B → Q1

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Q2: A 9-month-old child was admitted to ICU with a history of recurrent sinusitis and otitis media by Staphylococcus aureus. Blood test shows decreased serum IgA, IgG, IgM, IgE, and plasma B cells. What is the diagnosis? (Q852445)

A. Ataxia telangiectasia

B. Chronic granulomatosis disease

C. Bruton syndrome

D. DiGeorge syndrome

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 4-year-old boy presents with a history of fever, conjunctival congestion, and erythematous desquamation of the skin. A 2D echocardiogram shows coronary aneurysms. What is the first-line treatment for this condition? (Q854746)

A. Aspirin

B. IVIG

C. Clopidogrel

D. LMWH





See Answer in Part B → Q3

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Q4: A 7-year-old boy has non-blanching rashes on the legs and buttocks. He also complains of joint pains, abdominal pain, vomiting, and blood in the stool. Lab investigations revealed normal platelet count and urine analysis shows haematuria +++ and proteinuria +. What is the diagnosis? (Q857585)

A. Systemic lupus erythematosus (SLE)

B. Henoch Schonlein purpura (HSP)

C. Immune thrombocytopenic purpura (ITP)

D. Polyarteritis nodosa (PAN)

See Answer in Part B → Q4

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Q5: A child was brought to OPD with palpable blanching purpura, abdominal pain, and pain in the knee joint. Urine examination showed hematuria and proteinuria. Whereas laboratory tests revealed normal platelet counts. What will be the most probable diagnosis? (Q856151)

A. Immune thrombocytopenic purpura

B. Dengue

C. Churg-Strauss syndrome

D. Henoch-Schonlein purpura

See Answer in Part B → Q5

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Q6: A male child presented with arthralgia and abdominal pain. On examination, there was palpable purpura over the lower limb. There is a past history of upper respiratory tract infection prior to the onset of presenting symptoms. Which of the following is the treatment for this condition? (Q856111)

A. Azathioprine

B. Methotrexate

C. Cyclosporine

D. Glucocorticoids

See Answer in Part B → Q6

@Neet_pg_bot

• [10_Infectious Diseases] 024 Congenital Infections And Bacterial Diseases In Children

« Back to Folder Directory

[10_Infectious Diseases] 024 Congenital Infections And Bacterial Diseases In Children — Quick Jump

Q1 (p. 241)	*Q2 (p. 241)*	*Q3 (p. 242)*	*Q4 (p. 242)*	*Q5 (p. 243)*	*Q6 (p. 243)*
Q7 (p. 244)	*Q8 (p. 245)*	*Q9 (p. 246)*	*Q10 (p. 246)*	*Q11 (p. 246)*	*Q12 (p. 247)*
Q13 (p. 248)	*Q14 (p. 249)*	*Q15 (p. 249)*	*Q16 (p. 250)*	*Q17 (p. 251)*	*Q18 (p. 252)*
Q19 (p. 252)	*Q20 (p. 253)*				

Q1: A 3-month-old unimmunized infant presents with a history of severe paroxysms of coughing, which are often followed by a high-pitched inspiratory sound and occasional vomiting. The parents report these symptoms have persisted for 2 weeks. Based on these symptoms, which drug is recommended for management? (Q850185)

A. Azithromycin

B. Erythromycin

C. TMP-SMX

D. Penicillin

See Answer in Part B → Q1

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Q2: A 6-day-old newborn presents with difficulty feeding, excessive crying and muscle stiffness. The mother reports that the umbilical cord was cut with an unsterilized blade at home. The baby has spasms triggered by touch. Which of the following is the most appropriate initial management step? (Q850187)

A. Immediate administration of tetanus toxoid (TT)

B. Administration of human tetanus immunoglobulin (TIG)

C. Intravenous administration of broad-spectrum antibiotics

D. Surgical debridement of the wound

See Answer in Part B → Q2

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Q3: A 28-year-old pregnant woman at 16 weeks of gestation is diagnosed with varicella. She is concerned about the risk of congenital varicella syndrome (CVS) in her fetus. Which statement regarding CVS in this scenario is most accurate? (Q850196)

A. Risk is 0.4% if varicella is before 16 weeks of gestation.

B. Causes skin scarring and limb hypoplasia.

C. Antiviral treatment prevents further damage in infants.

D. VZV IgG antibodies are highly reliable for diagnosing CVS.

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A baby is brought to the pediatric department after his mother noticed a yellowish discoloration of his skin and small petechial rashes were noted on examination. Which of the following investigations would be the most reliable and sensitive to diagnose congenital CMV infection? (Q850195)

A. Blood PCR

B. IgM detection

C. Viral culture

D. Urine PCR



See Answer in Part B → Q4

@Neet_pg_bot

Q5: A neonate presents with congenital CMV infection. Which of the following clinical features is least commonly associated with this scenario? (Q850194)

A. Hepatosplenomegaly

B. Purpura

C. Jaundice

D. Petechiae

See Answer in Part B → Q5

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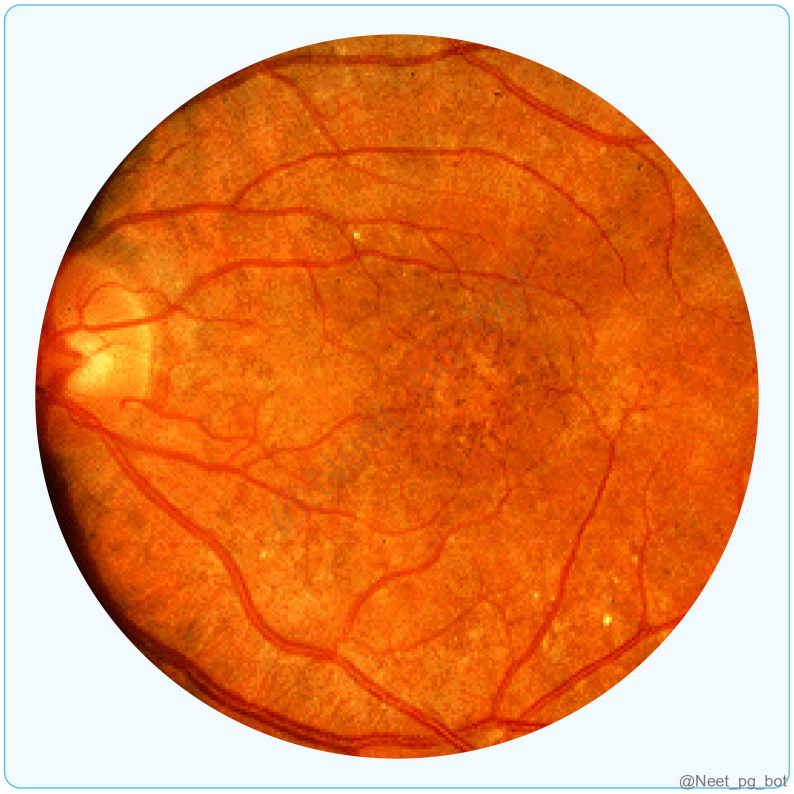
Q6: A neonate on examination has bilateral cataracts and, after investigations, is found to have a patent ductus arteriosus. The baby had a low birth weight and is diagnosed with congenital rubella syndrome. On examination, the retina appears as follows. Which of the following retinal changes is seen here? (Q850193)

A. Macular star

B. Retinal tear

C. Salt and pepper retinopathy

D. Macular edema



See Answer in Part B → Q6

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Q7: A 10-year-old child presents with bilateral hearing loss of high tones and has episodes of vertigo. On examination, he has a prominent forehead and linear scars in a spoke-like pattern around his mouth. Which of the following signs is not seen in this stage of the disease? (Q850192)

See Answer in Part B → Q7

@Neet_pg_bot

Q8: An 8-month-old baby is brought to the hospital after her mother noticed rashes all over the baby's body, as shown in the image. The mother gives a history of syphilis during pregnancy. Which of the following is NOT an early onset sign of syphilis? (Q850191)

A. Mucocutaneous rashes

B. Osteochondritis

C. Hepatosplenomegaly

D. Saddle nose



See Answer in Part B → Q8

@Neet_pg_bot

Q9: Which of the following maternal treatments for syphilis is most likely to effectively prevent the transmission to the baby? (Q850190)

A. Doxycycline for 2 weeks before delivery

B. Doxycycline for 30 days before delivery

C. Penicillin for 2 weeks before delivery

D. Penicillin for 30 days before delivery

See Answer in Part B → Q9

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Q10: A newborn presents with hydrocephalus, chorioretinitis, and intracranial calcifications. Given these findings and a positive Toxoplasma-specific IgM in the CSF, what is the most appropriate treatment regimen for this condition? (Q850189)

A. Pyrimethamine and sulfadiazine with folinic acid

B. Intravenous acyclovir

C. Ganciclovir and valganciclovir

D. Spiramycin

See Answer in Part B → Q10

@Neet_pg_bot

Q11: An infant presents with the following clinical findings: poor feeding, lethargy, and hydrocephalus. A CT Brain is performed, and the image below shows characteristic intracranial calcifications. Given these findings, which of the following conditions is most likely? (Q850188)

A. Cytomegalovirus (CMV) infection

B. Congenital rubella syndrome

C. Congenital toxoplasmosis

D. Neonatal herpes simplex virus (HSV) infection



See Answer in Part B → Q11

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Q12: A 4-year-old child has a history of night sweats, mild fever, and recent weight loss. The child also has a nonproductive cough and mild dyspnea. Chest X-ray is taken and shown below. What is the most likely diagnosis? (Q850177)

A. Primary Tuberculosis

B. Miliary Tuberculosis

C. Bacterial Pneumonia

D. Bronchiectasis



See Answer in Part B → Q12

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Q13: A 10-day-old male is brought to the emergency department by his parents, who report that he has been feeding poorly and has had episodes of rigidity. The mother says that she did not receive any antenatal care and delivered the baby at home. On examination, the infant is irritable, has a clenched jaw, and is experiencing frequent, painful muscle spasms. What is the most likely diagnosis? (Q850186)

A. Generalized tetanus

B. Cephalic tetanus

C. Neonatal tetanus

D. Localized tetanus



See Answer in Part B → Q13

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Q14: A 6-year-old child, fully vaccinated against diphtheria but not having received a booster dose in the past 5 years, is identified as an asymptomatic contact of a confirmed diphtheria case. What is the most appropriate management for this child? (Q850184)

A. Administer a single dose of diphtheria antitoxin

B. Administer benzathine penicillin G

C. Administer a booster dose of diphtheria toxoid vaccine

D. No treatment or vaccination needed as the child is asymptomatic

See Answer in Part B → Q14

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Q15: An unimmunized 7-year-old child presents to the emergency department with a sore throat, fever, and a thick grayish membrane covering the tonsils. The physician suspects diphtheria and begins treatment. What is the most appropriate initial step in management? (Q850183)

A. Administer erythromycin

B. Perform throat culture and wait for results

C. Administer diphtheria antitoxin immediately

D. Administer DPT vaccine

See Answer in Part B → Q15

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Q16: A 13 y/o girl presents with a sore throat, fever, and dysphagia. On examination, her oropharynx appears as shown below. The patient also exhibits symptoms of airway obstruction and has a "bull-neck" appearance. Which of the following is the most likely etiology of these symptoms? (Q850182)

A. Streptococcus pneumoniae

B. Corynebacterium diphtheriae

C. Haemophilus influenzae

D. Adenovirus



See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 5-year-old girl presents with fever, sore throat, and a red, finely papular rash that started on her neck and spread to her body. The rash is more pronounced in the skin creases, and her examination reveals the findings in the image. What is the most likely diagnosis? (Q850181)

A. Measles

B. Kawasaki disease

C. Scarlet fever

D. Hand, foot and mouth disease





See Answer in Part B → Q17

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Q18: A 3-year-old child is a household contact of a relative with active tuberculosis (TB). The child is asymptomatic and has been evaluated, confirming no active TB disease. The child is also HIV-negative. What is the most appropriate management for this child according to current recommendations? (Q850180)

A. Pyrazinamide daily for 6 months.

B. Isoniazid daily for 6 months.

C. BCG vaccine.

D. Ethambutol daily for 3 months.

See Answer in Part B → Q18

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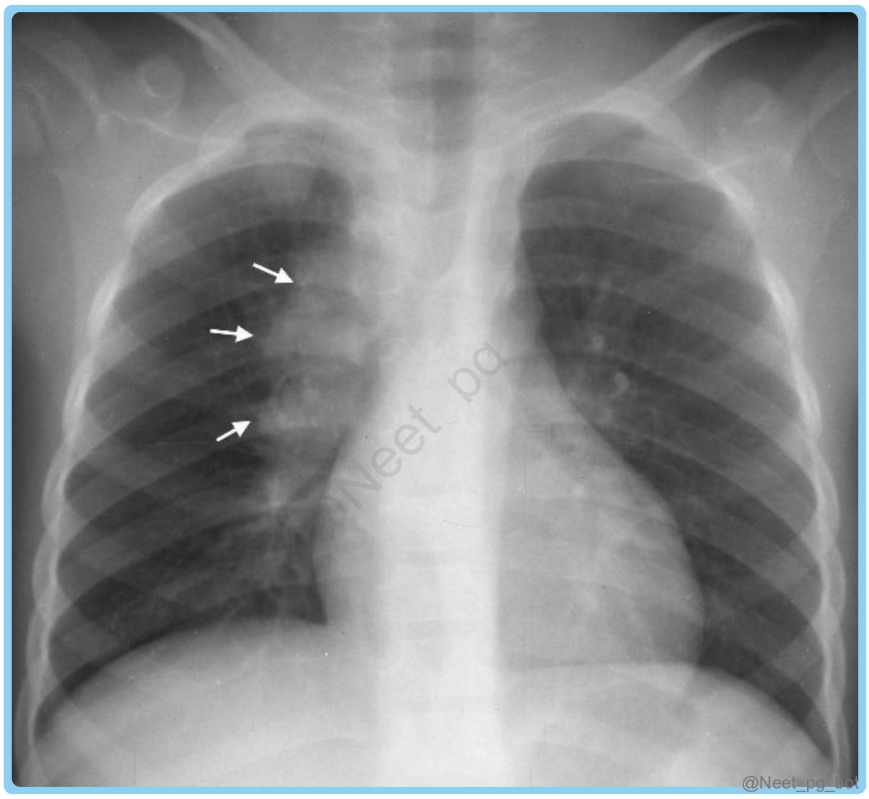
Q19: A 4-year-old child presents with a persistent cough and low-grade fever for 2 weeks. Chest X-ray was taken, and the image is shown below. Based on the X-ray findings, the child was started on a treatment regimen but later developed optic neuritis as a side effect. Which drug from the treatment regimen is most likely responsible for this adverse effect? (Q850179)

A. Isoniazid

B. Rifampin

C. Ethambutol

D. Pyrazinamide



See Answer in Part B → Q19

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Q20: A study was conducted on the tuberculin skin test (TST) in a population of children. The researchers aimed to identify groups of children at increased risk of developing tuberculosis. Which of the following groups of children is at an increased risk even with TST induration ≥5 mm? (Q850178)

A. Children in close contact with tuberculosis patient

B. Children born in high tuberculosis prevalence areas

C. Children who travel to high tuberculosis prevalence areas

D. Children ≥ 4 years old without any risk factors

See Answer in Part B → Q20

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• [10_Infectious Diseases] 025 Viral Diseases Covid-19 In Children

« Back to Folder Directory

[10_Infectious Diseases] 025 Viral Diseases Covid-19 In Children — Quick Jump

Q1 (p. 254)	*Q2 (p. 254)*	*Q3 (p. 255)*	*Q4 (p. 255)*	*Q5 (p. 255)*	*Q6 (p. 256)*
Q7 (p. 256)	*Q8 (p. 257)*	*Q9 (p. 257)*	*Q10 (p. 257)*	*Q11 (p. 258)*	*Q12 (p. 259)*
Q13 (p. 260)	*Q14 (p. 260)*	*Q15 (p. 260)*	*Q16 (p. 261)*	*Q17 (p. 261)*	*Q18 (p. 263)*
Q19 (p. 263)	*Q20 (p. 264)*	*Q21 (p. 264)*	*Q22 (p. 265)*		

Q1: A 5-year-old girl is brought to the outpatient department with complaints of fever, cough, and redness of both eyes for 2 days. The patient did not complete the vaccination according to the EPI schedule. Bluish-white spots are present on the buccal mucosa of the child. The patient is given appropriate medications for measles. Which of the following statements is correct about measles? (Q882192)

A. Koplik spots appear after the prodromal stage

B. Fever stops before the onset of rash

C. Vaccine is given at 9 weeks

D. It is infectious before the rash appears

See Answer in Part B → Q1

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Q2: A 5-year-old girl is brought to the outpatient department with complaints of fever, cough, and redness of both eyes for 2 days. The patient did not complete the vaccination according to the EPI schedule. Bluish-white spots are present on the buccal mucosa of the child. The patient is given appropriate medications for measles. Which of the following statements is correct about measles? (Q882108)

A. Koplik spots appear after the prodromal stage

B. Fever stops before the onset of rash

C. Vaccine is given at 9 weeks

D. It is infectious before the rash appears

See Answer in Part B → Q2

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Q3: An HIV-positive lady presented in Labour. She was not on any Antiretroviral therapy. What is the first-line treatment regimen for her child? (Q850168)

A. Nevirapine for 12 weeks

B. Zidovudine only for 6 weeks

C. Zidovudine + Nevirapine for 12 weeks

D. Nevirapine for 6 weeks

See Answer in Part B → Q3

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Q4: A 10-year-old child with a history of COVID-19 with significant symptoms is diagnosed with Multisystem Inflammatory System in Children (MIS-C). What is the recommended management to improve outcomes? (Q850176)

A. Intravenous immunoglobulin (IVIG) alone

B. IVIG plus Methylprednisolone

C. Corticosteroids alone for suspected toxic shock phenotype

D. Low-dose aspirin therapy

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 7-year-old child presents with a 4-day history of fever, abdominal pain, and rash following a COVID-19 infection three weeks ago. Laboratory tests show elevated ESR, C-reactive protein, and d-dimers. Which of the following is NOT included in the

WHO diagnostic criteria for Multisystem Inflammatory Syndrome in Children (MIS-C)? (Q850175)

A. Persistent fever >3 days

B. Elevated D-dimers

C. Evidence of staphylococcal shock syndrome

D. Recent COVID-19 infection

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 5-year-old child with COVID-19 presents with mild symptoms, including fever and cough. As the child progresses through the illness, which of the following complications is most commonly associated with COVID-19 in children? (Q850174)

A. Acute respiratory distress syndrome

B. Myocarditis

C. Multisystem inflammatory syndrome in children

D. Chronic kidney disease

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 7-year-old child with COVID-19 presents to the hospital with 92% oxygen saturation without any danger signs and experiencing persistent fever and cough. What is the most appropriate management for this patient? (Q850173)

A. Home management with paracetamol and hydration

B. Admit and administer O2, Remdesivir

C. Immediate ICU admission and invasive ventilation

D. Use of antibiotics and convalescent plasma.

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 10-year-old boy with COVID-19 presents with fever, cough, and difficulty breathing. His oxygen saturation is 88%, and he exhibits intercostal retractions. How would you classify his COVID-19 severity based on ICMR criteria? (Q850172)

A. Mild

B. Moderate

C. Severe

D. Critical

See Answer in Part B → Q8

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Q9: A toddler presents to the emergency department with a 2-day history of cough, high fever, and difficulty breathing. She is irritable, has reduced appetite and fluid intake, and appears lethargic and unconscious. Her respiratory rate is 60 breaths per minute. What is the next step in management? (Q850171)

A. IV antibiotic + Hospital admission

B. Oral antibiotic and 48 hours observation

C. Supportive care at home

D. Reassurance and sending home

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A female brought her infant to the clinic with a low-grade fever and a rash as depicted in the image below. What is the causative organism of this condition?

(Q850170)

A. Parvovirus B19

B. Coxsackie A16 virus

C. Rickettsia prowazekii

D. Paramyxovirus



See Answer in Part B → Q10

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Q11: A child presented with decreased pulse in lower limb and delay as compared to pulse felt in upper limb. What can be the underlying condition? (Q850169)

A. Transposition of great arteries

B. Ventricular septal defect

C. Tetralogy of Fallot

D. Coarctation of Aorta

See Answer in Part B → Q11

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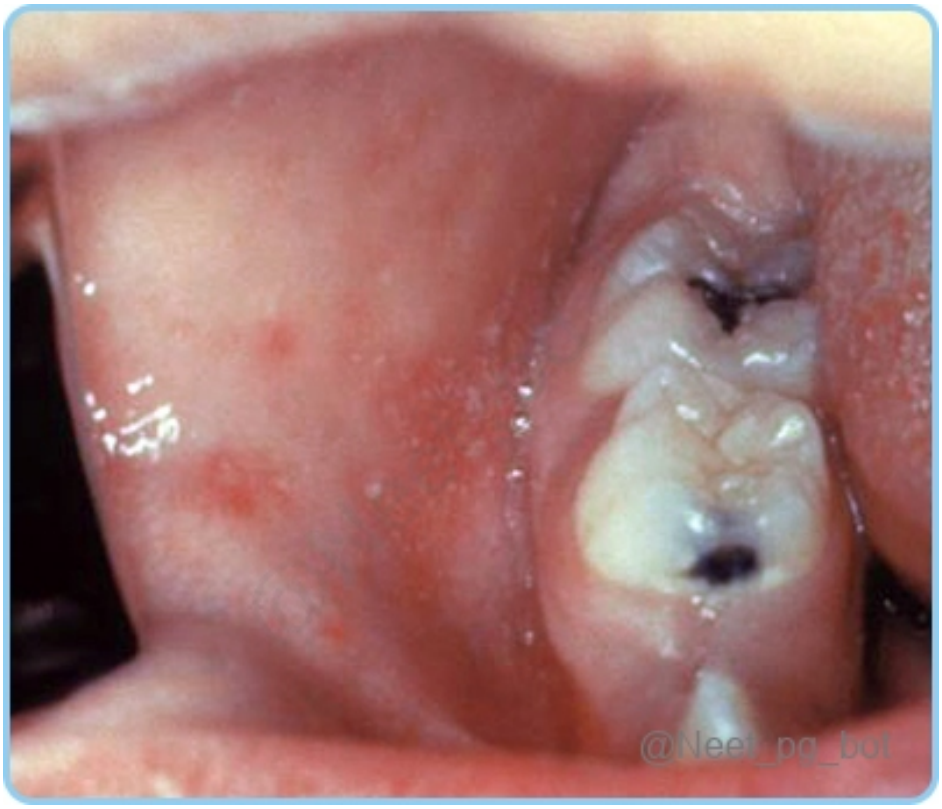
Q12: A mother brings her unimmunized toddler to the doctor with a 5-day history of fever, cough, and conjunctivitis, along with a rash that first appeared behind the ears and then spread to the face and chest over the past two days. Based on the observed lesion (as shown in the image), which of the following should be administered to the baby? (Q850157)

A. Vitamin C

B. Zinc

C. Vitamin A

D. Calcium



See Answer in Part B → Q12

@Neet_pg_bot

Q13: An HIV-positive primigravida delivered a baby at 37 weeks of gestation. The baby cried immediately after birth, and samples for HIV testing were collected. The mother has been advised to exclusively breastfeed the baby. What is the recommended prophylactic regimen in this situation? (Q850167)

A. Nevirapine +/- Zidovudine

B. Zidovudine + Lamivudine + Nevirapine

C. Tenofovir + Lamivudine + Efavirenz

D. No prophylaxis needed

See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following are Nada's minor criteria for congenital heart disease? i. Low BP ii. Systolic murmur grade < III iii. Abnormal ECG iv. Abnormal 2nd heart sound (Q850166)

A. i, ii, iii

B. ii, iii, iv

C. i, iii

D. i, ii, iii, iv

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 6-year-old child comes in with sudden weakness in the legs, a recent fever, and muscle pain. Poliomyelitis is suspected. What type of paralysis is this child most likely experiencing? (Q850165)

A. Spastic paralysis with hyperreflexia

B. Flaccid paralysis with absent reflexes

C. Rigid paralysis with limited movement

D. Ataxic paralysis with coordination issues

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 7-year-old boy presents with a high-grade fever, headache, and progressively enlarged swelling near the right ear. Physical examination shows tender parotid gland swelling, raising suspicion of mumps. What is the most common neurological complication of mumps? (Q850164)

A. Encephalitis

B. Meningitis

C. Transverse myelitis

D. Facial palsy

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 10-month-old child is brought to the pediatric clinic with a 3-day history of high fever. On the fourth day, the fever abruptly subsided, and the child developed a rash as given in the image. Oral examination revealed ulcers and small red papules at uvulopalatoglossal junction as shown. What are these called? (Q850163)

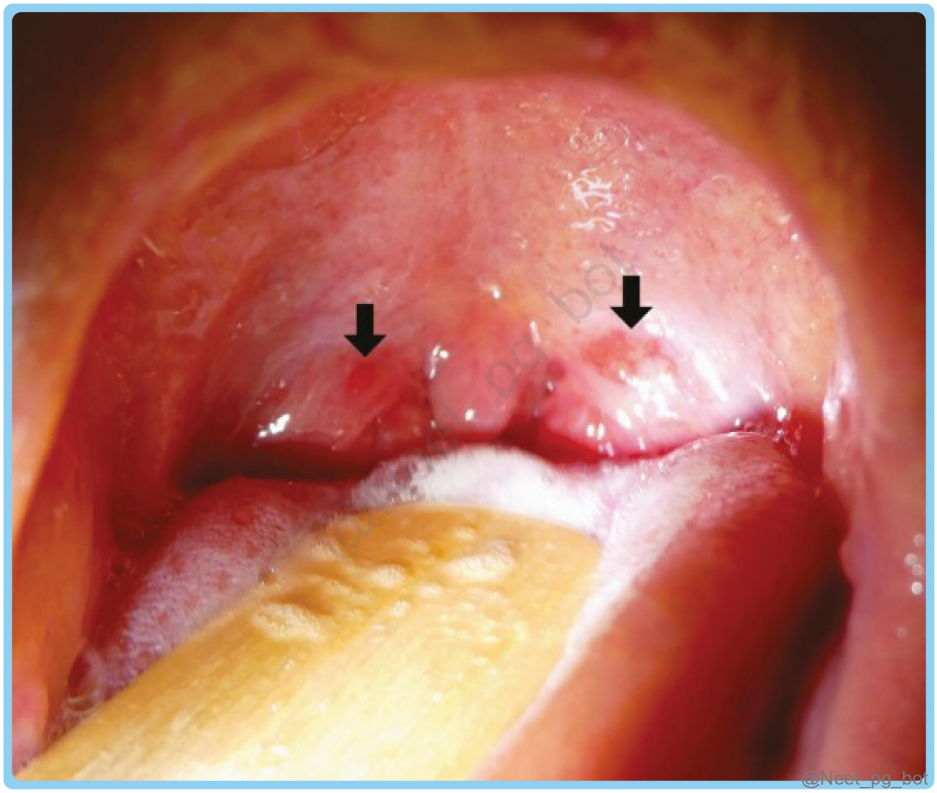
A. Koplik spots

B. Nagayama spots

C. Forchheimer spots

D. Café au Lait spots





See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 5-year-old child with sickle cell disease presents with sudden onset of pallor, fatigue, mild fever, and a rash. Investigations reveal a significant drop in haemoglobin levels. What is the most likely causative agent of this condition? (Q850162)

A. Parvovirus B19

B. Epstein-Barr virus

C. Cytomegalovirus

D. Human Herpesvirus 6

See Answer in Part B → Q18

@Neet_pg_bot

Q19: A 6-year-old child presents with a history of mild fever and a rash. The rash began with red, flushed cheeks, as shown in the image below and has now developed into a lacy, reticular pattern on the arms and legs. The child has no significant respiratory symptoms or joint pain. What is the most likely diagnosis? (Q850161)

A. First disease

B. Second disease

C. Fifth disease

D. Sixth disease



See Answer in Part B → Q19

@Neet_pg_bot

Q20: A 6-year-old child presents with a 3-day history of fever and a rash that started on the trunk and spread to the face and extremities, progressing to fluid-filled vesicles with crusting. The parent reports that the child's rash has become increasingly painful, with signs of severe swelling and redness spreading rapidly from the initial rash sites. Which of the following complication is most likely? (Q850160)

A. Reye syndrome

B. Necrotising fasciitis

C. Purpura fulminans

D. Impetigo

See Answer in Part B → Q20

@Neet_pg_bot

Q21: A 32-year-old woman who contracted rubella during her first trimester is worried about the potential effects on her baby. Which of the following findings is not typically associated with congenital rubella syndrome? (Q850159)

A. Patent ductus arteriosus

B. Cataract

C. Pleomorphic rash

D. Deafness

See Answer in Part B → Q21

@Neet_pg_bot

Q22: A 4-year-old child is diagnosed with measles and presents with persistent fever and cough. The child is at risk for complications associated with measles. Which of the following is the most common complication of measles? (Q850158)

A. Pneumonia

B. Otitis media

C. Subacute Sclerosing Panencephalitis

D. Reye syndrome

See Answer in Part B → Q22

@Neet_pg_bot

• [10_Infectious Diseases] 026 Previous Year Questions

« Back to Folder Directory

[10_Infectious Diseases] 026 Previous Year Questions — Quick Jump

Q1 (p. 266)	*Q2 (p. 266)*	*Q3 (p. 267)*	*Q4 (p. 267)*	*Q5 (p. 267)*	*Q6 (p. 268)*
Q7 (p. 269)	*Q8 (p. 269)*	*Q9 (p. 270)*	*Q10 (p. 270)*	*Q11 (p. 271)*	*Q12 (p. 271)*
Q13 (p. 272)	*Q14 (p. 272)*	*Q15 (p. 273)*	*Q16 (p. 273)*	*Q17 (p. 274)*	*Q18 (p. 274)*
Q19 (p. 275)	*Q20 (p. 275)*	*Q21 (p. 276)*	*Q22 (p. 276)*	*Q23 (p. 277)*	*Q24 (p. 277)*
Q25 (p. 278)	*Q26 (p. 278)*	*Q27 (p. 279)*	*Q28 (p. 279)*	*Q29 (p. 280)*	*Q30 (p. 280)*
Q31 (p. 281)					

Q1: A child presents with complaints of fever, rash, body ache, and throat ache. He has a history of thorn prick injury a week back. What antibiotics would you give empirically to this child? (Q855727)

A. Ceftriaxone

B. Amoxicillin + clavulanate

C. Vancomycin

D. Meropenem

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A child with fever and abdominal pain tested positive for Dengue on day 5 f fever. His BP was 110/70 mm Hg, platelet counts were 20000/ mm3 but there were no bleeding manifestations. The chid has dengue with warning signs. What is the next step? (Q879277)

A. Platelet transfusion

B. 10 ml/kg/hr RL

C. 7 ml/kg/hr RL

D. 20 ml/kg RL

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 2-month-old infant born to an HIV-positive mother presents with recurrent diarrhea. What is the next best step? (Q856084)

A. Test stool for giardia and give antibiotics

B. Dried spot sample for HIV DNA PCR

C. Antibody test for HIV

D. Aerobic culture

See Answer in Part B → Q3

@Neet_pg_bot

Q4: What is the rare and hazardous complication associated with Subacute Sclerosing Panencephalitis? (Q859956)

A. Measles

B. Mumps

C. Rubella

D. Varicella

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 5-year-old boy, as shown in the image, presents with fever and painful sores in the mouth, along with a rash on his hand. Which of the following is the causative agent? (Q859508)

A. Pox virus

B. Coxsackie virus

C. HHV 7 virus

D. HIV virus



See Answer in Part B → Q5

@Neet_pg_bot

Q6: What would be the most appropriate course of action for the care of child Ajay, the 3-year-old brother of Anuj, who resides in the same household and received diphtheria vaccination approximately 16 months ago, while Anuj is currently undergoing treatment for diphtheria in the ward? (Q858508)

A. One booster dose

B. Nothing, as the child is already exposed

C. Erythromycin + diphtheria toxoid

D. Erythromycin only

See Answer in Part B → Q6

@Neet_pg_bot

Q7: Which maternal antibodies do not confer substantial immunity in a newborn? (Q858504)

A. Tetanus

B. Polio

C. Diphtheria

D. Measles

See Answer in Part B → Q7

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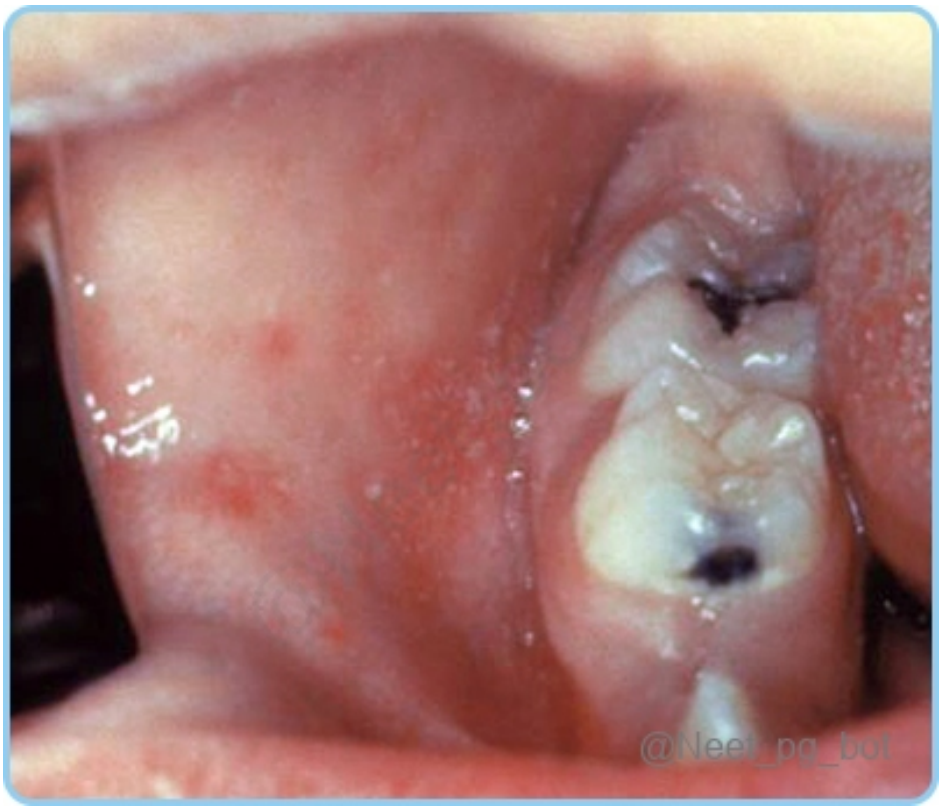
Q8: What would be your diagnosis for a 3-year-old male who has the given buccal mucosa findings and subsequently develops a rash after three days? (Q854948)

A. Measles

B. Leukoplakia

C. Scarlet fever

D. Kawasaki disease



See Answer in Part B → Q8

@Neet_pg_bot

Q9: What guidance should be provided to the students who have been exposed to meningococcal meningitis, considering that two girls in their class have been diagnosed with the disease? (Q854941)

A. Two doses of polysaccharide vaccine

B. Antibiotic prophylaxis

C. Two doses of conjugate vaccine

D. Single dose of meningococcal vaccine

See Answer in Part B → Q9

@Neet_pg_bot

Q10: The most common heart defect in congenital rubella syndrome is: (Q856517)

A. ASD

B. VSD

C. PDA

D. Pulmonary stenosis

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following investigations would be most beneficial in diagnosing the condition of a 10-year-old boy who is experiencing seizures along with a medical history of fever accompanied by a rash at the age of 1 year, which was resolved on its own? (Q856175)

A. lgG measles in CSF

B. MRI mesial temporal lobe sclerosis

C. IgM measles in CSF

D. C1Q4 antibodies in the CSF

See Answer in Part B → Q11

@Neet_pg_bot

Q12: An 18-month-old baby was brought to the hospital with complaints of poor feeding and abnormal twitching of his lower limbs. On examination, he has fever with fontanelle bulging, and the child was lethargic. The most probable cause is: (Q856787)

A. Febrile seizures

B. Meningitis

C. Pseudotumor cerebri

D. Intracranial haemorrhage

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A child presents with fever and vesicular lesions on the upper and lower limbs. Neck stiffness was present. Similar lesions were present on the palms, soles, and oral cavity. CSF analysis revealed normal glucose levels and elevated lymphocytes and protein. What is the most likely diagnosis? (Q855460)

A. Bacterial meningitis with sepsis

B. Coxsackie viral meningitis and Hand Foot Mouth disease

C. Herpes simplex gingivostomatitis and meningoencephalitis

D. Tuberculous meningitis



See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following is given as a part of the therapy for a child with severe COVID-19? (Q855457)

A. Corticosteroids

B. Ivermectin

C. Remdesivir

D. All of the above

See Answer in Part B → Q14

@Neet_pg_bot

Q15: Which of the statements below accurately describes congenital CMV infection? (Q855452)

A. About 20-30% of the infections are symptomatic

B. Triad of SNHL, periventricular calcification and enamel hypoplasia

C. Most children asymptomatic at birth can develop conductive hearing loss later in life

D. If the mother is lgG positive for CMV, the child is unlikely to develop an infection

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A young man is brought to the hospital with high-grade fever and altered consciousness. On examination, the patient had neck rigidity and pain when bending the neck. A lumbar puncture was performed and it showed a WBC count of 1500 cells/µL, the majority being neutrophils, elevated pressure with protein of 120 mg/dL, and a glucose level of 70 mg/dL (blood glucose level - 300 mg/dL). How will you manage the index case? (Q855734)

A. Piperacillin + tazobactum

B. Amphotericin + flucytosine

C. Vancomycin + ceftriaxone

D. Antitubercular therapy

See Answer in Part B → Q16

@Neet_pg_bot

Q17: An HIV-positive mother with a viral load of 1200 copies/mL delivers a baby. What is the most appropriate antiretroviral prophylaxis for the newborn? (Q866391)

A. Nevirapine for 6 weeks

B. Nevirapine + Zidovudine for 6 weeks

C. Nevirapine for 12 weeks

D. Zidovudine for 4 weeks

See Answer in Part B → Q17

@Neet_pg_bot

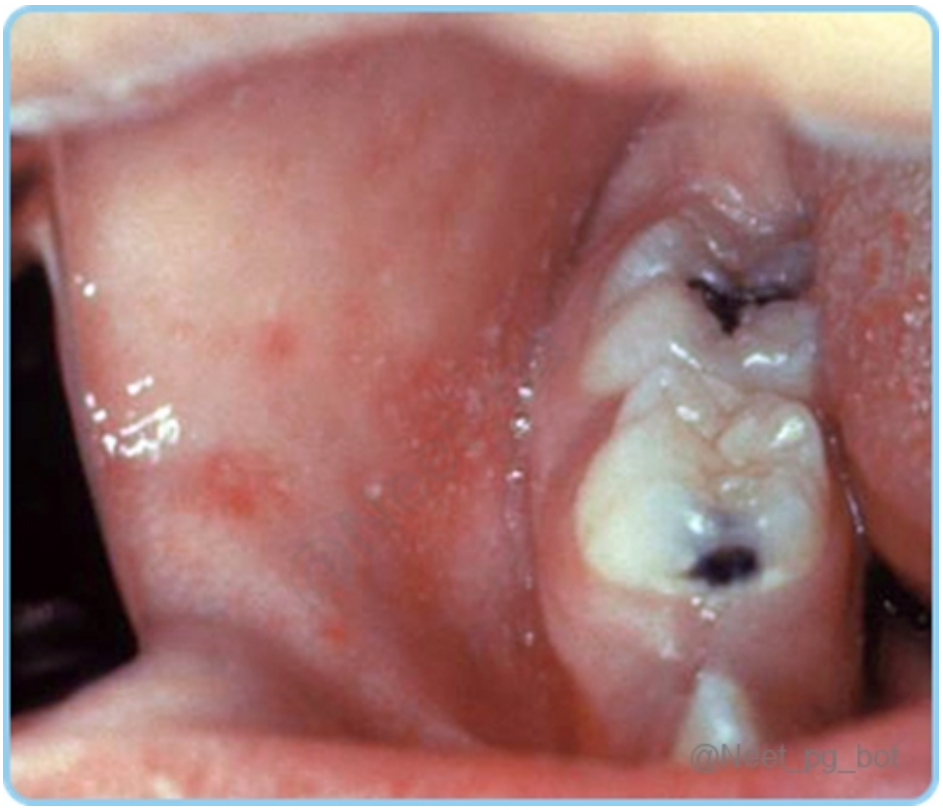
Q18: What is the diagnosis of a 5-year-old girl presented to the clinic with symptoms of fever, cough, red eyes, running nose, and rash, as depicted in the image of the child's appearance? (Q858063)

A. Mumps

B. Measles

C. Chickenpox

D. Erythema infectiosum



See Answer in Part B → Q18

@Neet_pg_bot

Q19: A 3-week-old infant presents with a cough and sore throat. The mother reports that the infant develops a paroxysm of cough followed by apnea. The total leukocyte count is >50,000 cells/μL. Which of the following drugs will you prescribe for this patient? (Q855506)

A. Azithromycin

B. Amoxicillin

C. Cotrimoxazole

D. Clarithromycin

See Answer in Part B → Q19

@Neet_pg_bot

Q20: A child presents with fever and a rash spreading from the face, behind cheeks and buccal mucosa to other body parts. On examination, Koplik's spot is present. What is the likely diagnosis? (Q855504)

A. Measles

B. Rubella

C. Varicella

D. Mumps

See Answer in Part B → Q20

@Neet_pg_bot

Q21: A 3-month-old baby comes with complaints of deafness, cataract, and patent ductus arteriosus. Which of the following is the most likely diagnosis? (Q855500)

A. Congenital herpes simplex virus infection

B. Congenital toxoplasmosis

C. Congenital cytomegalovirus infection

D. Congenital rubella syndrome

See Answer in Part B → Q21

@Neet_pg_bot

Q22: The causative agent of this condition is associated with which of the following conditions? (Q854745)

A. Gingivostomatitis

B. Pure red cell aplasia

C. Molluscum contagiosum

D. Kaposi sarcoma



See Answer in Part B → Q22

@Neet_pg_bot

Q23: The perinatal transmission of infection shows the spectrum of anaemia, possibly myocarditis, high-output cardiac failure, and ascites. Identify the causative agent. (Q854733)

A. Treponema pallidum

B. CMV

C. Parvovirus B19

D. Toxoplasma gondii

See Answer in Part B → Q23

@Neet_pg_bot

Q24: Which of the following has the least risk of perinatal transmission? (Q854718)

A. HSV

B. CMV

C. Rubella

D. Hepatitis B

See Answer in Part B → Q24

@Neet_pg_bot

Q25: Which of the following is correct about congenital CMV? (Q857391)

A. 40-50% of the cases are symptomatic at birth

B. Optimum sample for PCR is blood/urine/saliva sample within 2-3 weeks of birth

C. If asymptomatic at birth, then there is a 25.7% higher risk of developing SNHL later

D. Most common congenital infection after congenital syphilis

See Answer in Part B → Q25

@Neet_pg_bot

Q26: A 5-year-old male child was brought to the OPD with complaints of low-grade fever, headache and mild upper respiratory tract symptoms for the last 4 days. On examination, an erythematous rash was found on the cheeks. The parents said the rash developed on the cheeks first and then spread out to involve his trunk and limbs. The causative agent of this disease has a single-stranded DNA. What is the diagnosis? (Q860292)

A. Hand, foot and mouth disease

B. Measles

C. Erythema infectiosum

D. Rubella



See Answer in Part B → Q26

@Neet_pg_bot

Q27: A 3-year-old boy presents with a rash, bleeding gums, and a positive tourniquet test. His platelet count is 25,000. Which of the following is the most important prognostic feature in this clinical scenario? (Q844244)

A. Low platelet count

B. Elevated total leukocyte count (TLC)

C. Hematocrit

D. Peripheral smear

See Answer in Part B → Q27

@Neet_pg_bot

Q28: A 4-year-old unvaccinated child presents with fever, rash, and Bitot spots. What is the appropriate line of management? (Q852709)

A. Measles Vaccine + Vitamin A Supplementation

B. Only Measles Vaccine

C. Only Vitamin A Supplementation

D. Supportive Care

See Answer in Part B → Q28

@Neet_pg_bot

Q29: A baby is born with microcephaly, periventricular calcification and chorioretinitis. Which teratogenic infections is the mother suffering from? (Q852508)

A. Toxoplasma

B. CMV

C. Varicella

D. Rubella

See Answer in Part B → Q29

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Q30: An unvaccinated 5-year-old child of a migrant worker family was brought to the casualty with fever and a widespread erythematous maculopapular rash and coryza. Upon ocular examination, Bitot's spot was seen. What is the appropriate immediate management? (Q852501)

A. Oral Antibiotics and Vitamin A

B. Give measles vaccine and vitamin A supplement

C. Isolation, nutritional management with vitamin A supplement

D. Only measles vaccine

See Answer in Part B → Q30

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Q31: A neonate on examination has bilateral cataracts and, after investigations, is found to have a patent ductus arteriosus and salt & paper retinopathy. What is the most likely congenital infection? (Q852487)

A. Rubella

B. CMV

C. Toxoplasma

D. Varicella

See Answer in Part B → Q31

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• [11_Pediatric Respiratory Disorders] 027 Respiratory Disorders In Children - I

« Back to Folder Directory

[11_Pediatric Respiratory Disorders] 027 Respiratory Disorders In Children - I — Quick Jump

Q1 (p. 282)	*Q2 (p. 282)*	*Q3 (p. 283)*	*Q4 (p. 284)*	*Q5 (p. 284)*	*Q6 (p. 284)*
Q7 (p. 285)	*Q8 (p. 285)*	*Q9 (p. 286)*	*Q10 (p. 287)*	*Q11 (p. 287)*	*Q12 (p. 287)*
Q13 (p. 288)	*Q14 (p. 288)*	*Q15 (p. 289)*	*Q16 (p. 289)*	*Q17 (p. 289)*	*Q18 (p. 290)*
Q19 (p. 290)	*Q20 (p. 293)*	*Q21 (p. 293)*	*Q22 (p. 293)*	*Q23 (p. 294)*	*Q24 (p. 294)*
Q25 (p. 295)	*Q26 (p. 295)*	*Q27 (p. 296)*			

Q1: A female infant is born prematurely at 28 weeks gestation. Shortly after birth, she shows signs of Dyspnea, cyanosis, and tachypnea. She is placed on a ventilator for assisted breathing, and neonatal respiratory distress syndrome (hyaline membrane disease) is diagnosed. Which of the following is the cause of this syndrome? (Q882109)

A. Pulmonary hypoplasia

B. Intraventricular brain haemorrhage

C. Lack of fetal pulmonary maturity and deficiency of surfactant

D. Necrotizing enterocolitis

See Answer in Part B → Q1

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Q2: A 2-year-old child is brought to the clinic with a history of chronic productive cough, recurrent respiratory infections, and poor weight gain despite an adequate diet. Additionally, the parents report that the child's sweat is very salty. Which of the following sets of clinical features would most likely indicate the diagnosis? (Q850211)

A. Bronchial asthma, nasal polyps, and aspirin intolerance

B. Chronic sinusitis, meconium ileus in infancy, and rectal prolapse

C. Bronchiectasis, thrombocytopenia, and abdominal pain

D. Frequent diarrhea, poor weight gain, and recurrent otitis media

See Answer in Part B → Q2

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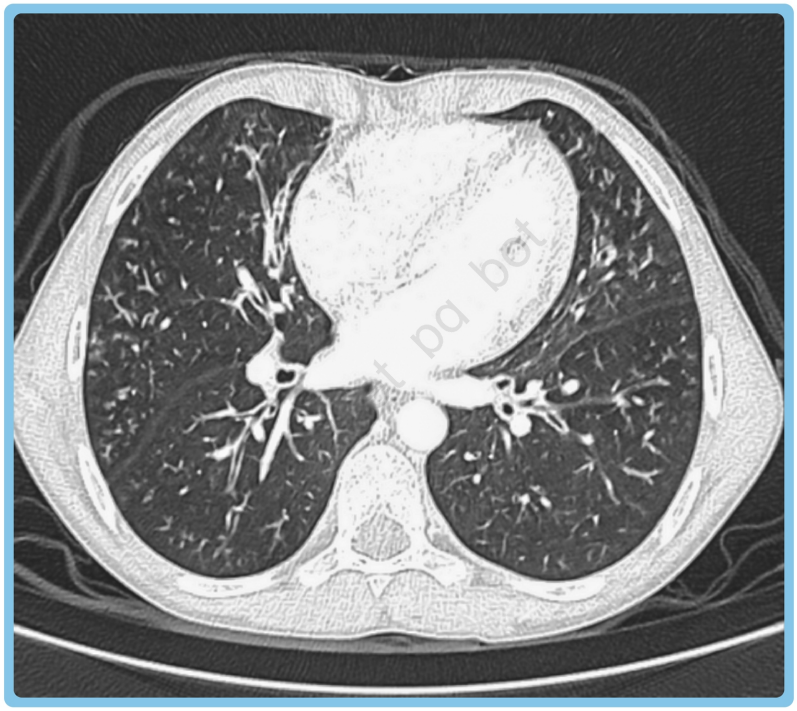
Q3: A 7-year-old child presents with a chronic productive cough, recurrent respiratory infections, and poor weight gain. A high-resolution computed tomography (HRCT) scan of the chest is taken and shown below. What is the most likely diagnosis? (Q850223)

A. Bronchial asthma

B. Bronchiectasis

C. Pneumonia

D. Chronic bronchitis



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See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 4-year-old child presents with multiple episodes of pneumonia over the past year. The pediatrician is concerned about the possibility of an underlying disorder contributing to these recurrent infections. Which of the following best describes the criteria for diagnosing recurrent pneumonia in children? (Q850222)

A. Two or more episodes in six months, with radiographic clearing.

B. Three or more episodes in a year, regardless of radiographic findings.

C. Two or more episodes in a year, with radiographic clearing.

D. Three or more episodes in six months, with or without radiographic clearing.

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which of the following radiological findings is most characteristic of Staphylococcal pneumonia in children? (Q850221)

A. Interstitial pneumonia

B. Perihilar and peribronchial infiltrates

C. Pneumatoceles

D. Hazy or fluffy exudates radiating from the hilar region

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 3-year-old child is brought to the clinic with a cough and difficulty breathing. The mother reports that the child has been lethargic and unable to drink or breastfeed. On examination, you find that the child's oxygen saturation is 88%, and there is stridor when the child is calm. The AVPU scale indicates a response to painful stimuli only. Based on the signs observed, how should this child's condition be

classified? (Q850220)

A. Pneumonia

B. No Pneumonia: Cough or Cold

C. Severe Pneumonia or Very Severe Disease

D. Mild Respiratory Infection

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 6-month-old infant presents with a 4-day history of cough, wheezing, and difficulty breathing. On examination, the infant has a respiratory rate of 65/min and an oxygen saturation of 90% on room air. A chest X-ray shows hyperinflation but no focal infiltrates. What is the most appropriate management? (Q850219)

A. Start oral corticosteroids and bronchodilators

B. Administer antibiotics and nebulized hypertonic saline

C. Provide moist oxygen and ensure proper hydration

D. Initiate ribavirin therapy in all infants with bronchiolitis

See Answer in Part B → Q7

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Q8: A 3-month-old infant is brought with a 2-day history of cough, wheezing, and poor feeding after an upper respiratory tract infection 1 week ago. On examination, the infant has intercostal retractions, hyperinflated chest, diffuse crackles, and a respiratory rate of 56/min. Oxygen saturation is 95% on room air. What is the most likely diagnosis? (Q850218)

A. Bronchial asthma

B. Bacterial pneumonia

C. Acute Bronchiolitis

D. Foreign body aspiration

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 3-year-old child presents with a 3-day history of a barking cough, hoarseness, and low-grade fever. The child has intermittent stridor, particularly at night, and exhibits mild respiratory distress. An X-ray PA view of the neck shows subglottic narrowing. What is the most likely diagnosis? (Q850217)

A. Epiglottitis

B. Bacterial tracheitis

C. Croup

D. Retropharyngeal abscess



See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 5-year-old child presents with sudden high fever, severe sore throat, drooling, and labored breathing. The child assumes a tripod position and shows cyanosis. A lateral neck X-ray is performed. Which of the following X-ray findings is most consistent with this clinical presentation? (Q850216)

A. Steeple sign

B. Thumb sign

C. Coiled spring sign

D. Double bubble sign

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 10-year-old boy presents with a sore throat, fever, headache, tonsillar exudates, and tender anterior cervical lymph nodes. A classmate was recently diagnosed with streptococcus pharyngitis. What is the best initial management? (Q850215)

A. Symptomatic treatment with antipyretics

B. Throat swab and start penicillin if positive

C. Start oral penicillin immediately

D. Treat with erythromycin

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 10-year-old child diagnosed with Cystic Fibrosis presents with recurrent lung infections, poor weight gain, and steatorrhea. Which of the following is the most appropriate combination of therapies for managing this patient's condition?

(Q850214)

A. Inhaled bronchodilators, insulin therapy

B. Chest physiotherapy, Ursodeoxycholic acid

C. CFTR modulators, antibiotics, chest physiotherapy

D. Inhaled corticosteroids, bone health management

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 6-year-old boy presents with recurrent respiratory infections, failure to thrive, and greasy stools. His older sibling was diagnosed with cystic fibrosis (CF). Which of the following is not a part of the diagnostic criteria of Cystic fibrosis in this patient? (Q850213)

A. Abnormal nasal potential difference measurement

B. Presence of two CFTR mutations

C. Two elevated sweat chloride concentration on separate days

D. Sputum culture positive for Burkholderia cepacia

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 3-month-old infant is brought to the pediatric OP for evaluation of failure to thrive, frequent greasy stools, and a persistent cough. The infant was diagnosed with an autosomal recessive disease via a sweat test. Which of the following is most likely to be associated with this patient's condition? (Q850212)

A. Hemoptysis

B. Pancreatic insufficiency

C. Paralytic ileus

D. Cor pulmonale

See Answer in Part B → Q14

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Q15: A 5-year-old child is brought to the emergency department following a road traffic injury with a low GCS score. The decision to intubate the child is made during the primary intervention. Which of the following facts should be considered while intubating a child? (Q850197)

A. The subglottis is the narrowest part of the pediatric airway.

B. The cricoid cartilage is situated at the level of vocal cords in children.

C. The pediatric trachea is less prone to collapse.

D. The functional residual capacity is higher than the closing capacity.

See Answer in Part B → Q15

@Neet_pg_bot

Q16: Which of the following best explains the pathophysiological basis for the chronic lung infections seen in patients with CFTR ΔF508 mutation? (Q850210)

A. Increased bicarbonate secretion leading to decreased mucus viscosity

B. Impaired chloride transport resulting in dehydrated airway surfaces

C. Enhanced ciliary function due to overactivation of ENaC channels

D. Decreased oxidative stress reducing bacterial clearance

See Answer in Part B → Q16

@Neet_pg_bot

Q17: Which of the following clinical indicators is most characteristic of life-threatening asthma? (Q850209)

A. Mild wheezing

B. Oxygen saturation of 92%

C. Silent chest

D. Peak expiratory flow (PEF) of 60% predicted

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 7-year-old boy presents to the emergency department with severe shortness of breath and wheezing unresponsive to his rescue inhaler. His vitals include a respiratory rate of 34/min, heart rate of 125/min, and oxygen saturation of 91% on room air. After giving oxygen and albuterol, what is the next step in management? (Q850208)

A. Intubation and mechanical ventilation

B. Start systemic corticosteroids

C. Administer intravenous magnesium sulfate

D. Provide inhaled anticholinergics like ipratropium bromide

See Answer in Part B → Q18

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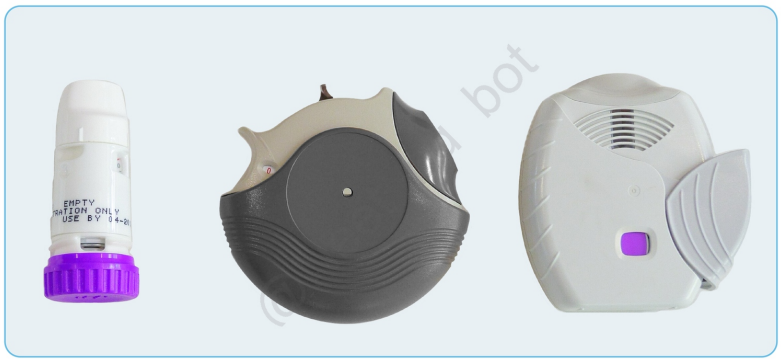
Q19: Match the following asthma medication devices with its corresponding image. 1. Metered Dose Inhaler (MDI) a. 2. MDI with Spacer b.■■■■■■■ 3. Dry Powder Inhaler (DPI) c.■■■■■■■ 4. Nebulizer d.■■■■■■■ (Q850207)

A. 1-b, 2-a, 3-c, 4-d

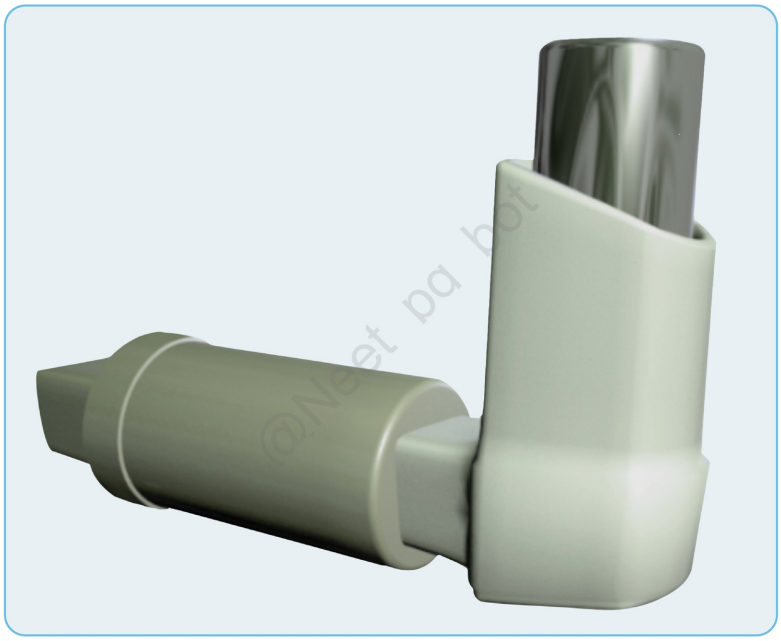
B. 1-a, 2-b, 3-d, 4-c

C. 1-d, 2-c, 3-a, 4-b

D. 1-c, 2-b, 3-a, 4-d



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See Answer in Part B → Q19

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Q20: A 10-year-old child with persistent asthma is currently on a low-dose inhaled corticosteroid (ICS) but is still experiencing symptoms. What is the next step in the management of this child according to the stepwise approach for long-term asthma management? (Q850206)

A. Increase to medium-dose ICS

B. Add a long-acting beta-agonist (LABA) to the low-dose ICS

C. Add a leukotriene receptor antagonist (LTRA) or theophylline to the low-dose ICS

D. All of the above

See Answer in Part B → Q20

@Neet_pg_bot

Q21: A 10-year-old child presents with symptoms of asthma that occur more than twice a week but not daily. The child has nighttime symptoms 3-4 times a month. Pulmonary function tests reveal an FEV1 of 85% of the predicted value. How would you classify the severity of this child's asthma? (Q850205)

A. Mild Intermittent

B. Mild Persistent

C. Moderate Persistent

D. Severe Persistent

See Answer in Part B → Q21

@Neet_pg_bot

Q22: A 10-year-old child presents with a history of recurrent wheezing and cough. The physician suspects asthma and decides to perform some diagnostic tests. Which test result would most strongly support the diagnosis of asthma? (Q850204)

A. FEV1/FVC ratio of 0.9

B. Increase in FEV1 by ≥12% post-bronchodilator

C. Daily peak expiratory flow <20%

D. FEV1 <12% after exercise challenge

See Answer in Part B → Q22

@Neet_pg_bot

Q23: A 5-year-old with recurrent wheezing, coughing, and shortness of breath, worsened by cold air and with a history of eczema and allergic rhinitis, is experiencing persistent symptoms despite antihistamines. Which type of asthma is most likely? (Q850203)

A. Transient nonatopic asthma

B. Seasonal allergic asthma

C. Late-onset asthma

D. Persistent atopy-associated asthma

See Answer in Part B → Q23

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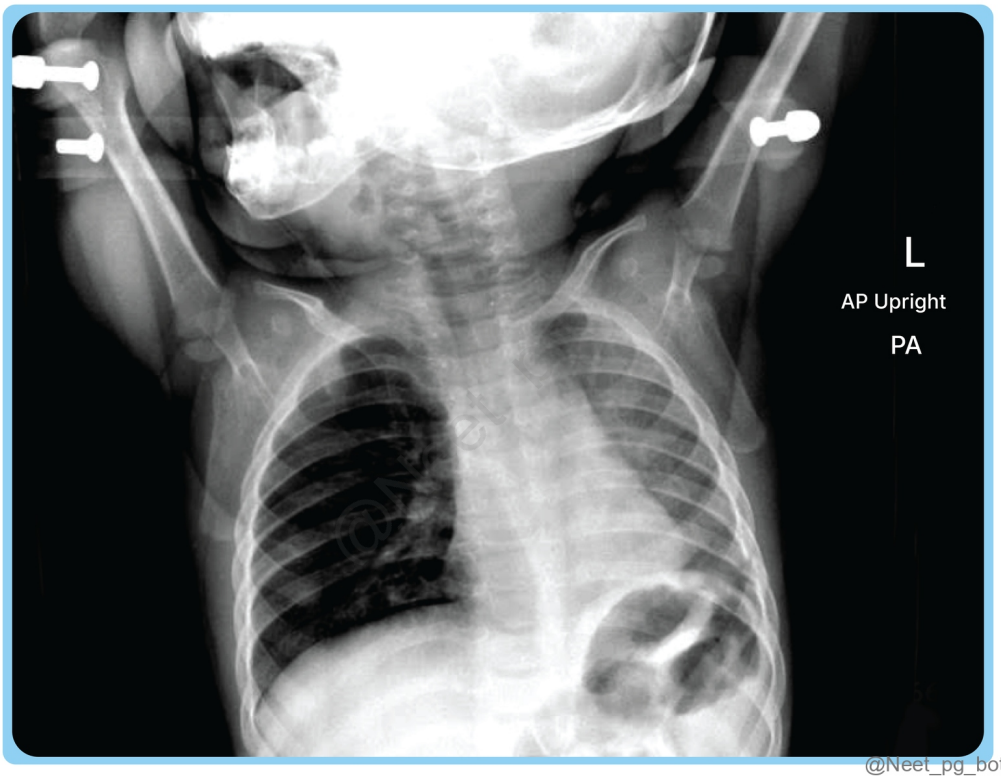
Q24: A 10-month-old child is brought with complaints of sudden coughing, wheezing, and difficulty breathing after playing with small toys. On examination, there are decreased breath sounds on one side. A chest X-ray was taken, which is shown below. What is the most appropriate initial management? (Q850202)

A. Administer supplemental oxygen.

B. Administer systemic corticosteroids.

C. Perform rigid bronchoscopy.

D. Perform emergency cricothyrotomy.



See Answer in Part B → Q24

@Neet_pg_bot

Q25: A 9-month-old infant presented with sudden choking on a small toy part while playing. The infant appears cyanotic and is making weak, ineffective attempts to breathe. What is the most appropriate initial intervention for this infant? (Q850201)

A. Perform heimlich maneuver.

B. Start CPR with chest compressions.

C. Deliver five back blows.

D. Give rescue breaths.

See Answer in Part B → Q25

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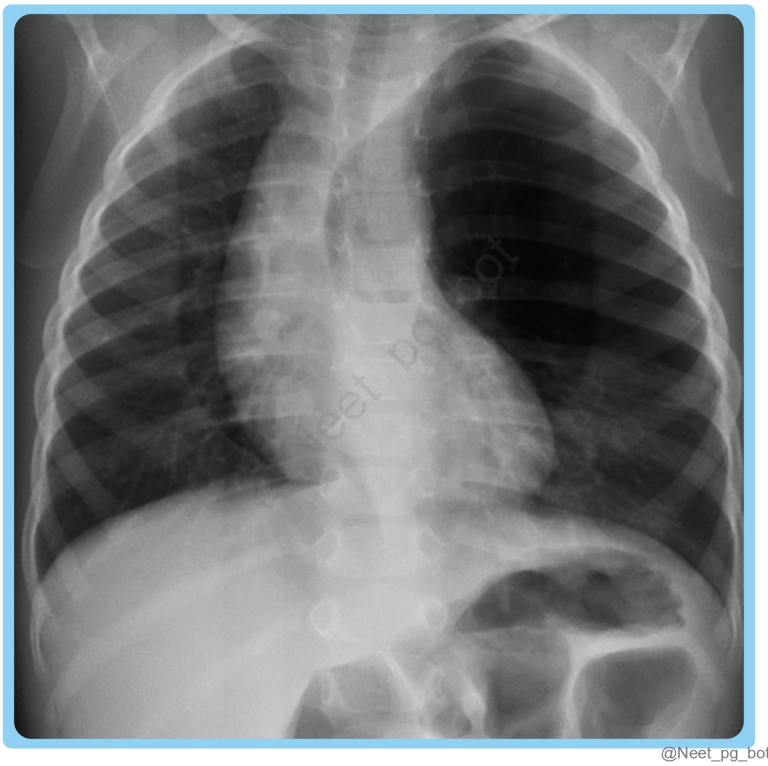
Q26: A newborn baby is brought to the hospital by her parents with complaints of wheezing. On further examination, she has tachypnea. Radiological examination shows a hyperlucent lobe and a mediastinal shift, as in the image. Which is the most common location of this condition? (Q850200)

A. Right upper lobe

B. Left upper lobe

C. Right lower lobe

D. Left lower lobe



See Answer in Part B → Q26

@Neet_pg_bot

Q27: A 2-week-old infant is brought to a pediatrics OPD due to feeding difficulties. The maternal history is unremarkable. On examination, the baby has a wet inspiratory stridor, that sounds like a low-pitched squeak. The pediatrician suspects laryngomalacia and is concerned about possible dysphagia. Which investigation is

most appropriate to confirm the diagnosis? (Q850198)

A. Chest X-ray

B. Airway films

C. Fibre optic endoscopic evaluation

D. Outpatient flexible laryngoscopy

See Answer in Part B → Q27

@Neet_pg_bot

• [11_Pediatric Respiratory Disorders] 028 Previous Year Questions

« Back to Folder Directory

[11_Pediatric Respiratory Disorders] 028 Previous Year Questions — Quick Jump

Q1 (p. 298)	*Q2 (p. 298)*	*Q3 (p. 299)*	*Q4 (p. 299)*	*Q5 (p. 299)*	*Q6 (p. 300)*
Q7 (p. 300)	*Q8 (p. 301)*	*Q9 (p. 301)*	*Q10 (p. 301)*	*Q11 (p. 302)*	*Q12 (p. 303)*
Q13 (p. 303)	*Q14 (p. 304)*	*Q15 (p. 305)*	*Q16 (p. 305)*	*Q17 (p. 305)*	*Q18 (p. 306)*
Q19 (p. 306)	*Q20 (p. 307)*	*Q21 (p. 307)*	*Q22 (p. 308)*	*Q23 (p. 308)*	*Q24 (p. 309)*
Q25 (p. 310)	*Q26 (p. 310)*	*Q27 (p. 311)*	*Q28 (p. 311)*		

Q1: Chloride level in sweat is used in the diagnosis of which disease: (Q855503)

A. Phenylketonuria

B. Cystic fibrosis

C. Gaucher’s disease

D. Osteogenesis imperfecta

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A full-term newborn develops tachypnea shortly after birth. The breathing difficulty resolves within 48 hours. Chest x-ray shows prominent vascular markings with fluid in the interlobar fissures. What is the most likely diagnosis (Q879242)

A. Transient tachypnea of the newborn

B. Pneumonia

C. Neonatal respiratory distress syndrome

D. Meconium aspiration syndrome

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A previously healthy child presented with acute-onset dyspnea. A chest X-ray shows unilateral hyperinflation of the lung. What is true for this patient? (Q856109)

A. Focal area of decreased air entry will be suggestive of foreign body

B. Flexible bronchoscopy used for removal

C. In complete obstruction, ball and valve mechanism causes hyperinflation

D. The child has developed acute laryngotracheobronchitis

See Answer in Part B → Q3

@Neet_pg_bot

Q4: During infancy, what is the most prevalent causative agent of acute bronchiolitis? (Q859503)

A. Influenza virus

B. Parainfluenza virus

C. Rhinovirus

D. Respiratory syncytial virus

See Answer in Part B → Q4

@Neet_pg_bot

Q5: What is the most suitable course of action for managing a one and a half year old child who was brought to the hospital presenting symptoms of breathlessness, fever, cough, and cold, and upon examination has a respiratory rate of 46 breaths per minute, chest retractions, but no danger signs were present? (Q859492)

A. Give IV antibiotics and observe

B. Give IV antibiotics and refer to higher centre

C. Oral antibiotics, warn of danger signs, and send home

D. No need of treatment only home remedies

See Answer in Part B → Q5

@Neet_pg_bot

Q6: Which of the following should be administered in addition to airway management for a 3-year-old child experiencing symptoms such as rapid breathing, high fever, noisy breathing during inhalation, and difficulty swallowing with excessive saliva production within 4-6 hours of the onset of fever? (Q856432)

A. Nebulisation with racemic adrenaline

B. IV ceftriaxone

C. Diphtheria antitoxin

D. Start steroids

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A baby assessed 5 minutes after birth is found to be pink, with blue extremities and irregular respiration. The heart rate is 80 beats per minute. There is a grimace and some flexion. What is the APGAR score for this baby? (Q856777)

A. 2

B. 3

C. 4

D. 5

See Answer in Part B → Q7

@Neet_pg_bot

Q8: Which of the following PFT findings in a child do not suggest asthma? (Q856767)

A. Increase in FEV1 > 12% after salbutamol inhalation

B. FEV1/FVC < 80%

C. Day-night variation of FEV1 > 15%

D. Decrease in FEV1 > 15% after exercise

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 5-year-old male with a known history of asthma developed sudden onset breathlessness and wheezing. He was rushed to the emergency, where the preliminary assessment was done. The pulse is 140/min, respiratory rate 28/min, and the FEV1 is 40% of the predicted value. Which of the following is the best next step in treatment in this case? (Q857602)

A. A high concentration of oxygen should be given by a face mask + Salbutamol nebulization

B. High doses of SABA to be given by a nebulizer only

C. Sedatives should be added to alleviate anxiety

D. Nebulized anticholinergics to be added immediately as the mainstay of treatment

See Answer in Part B → Q9

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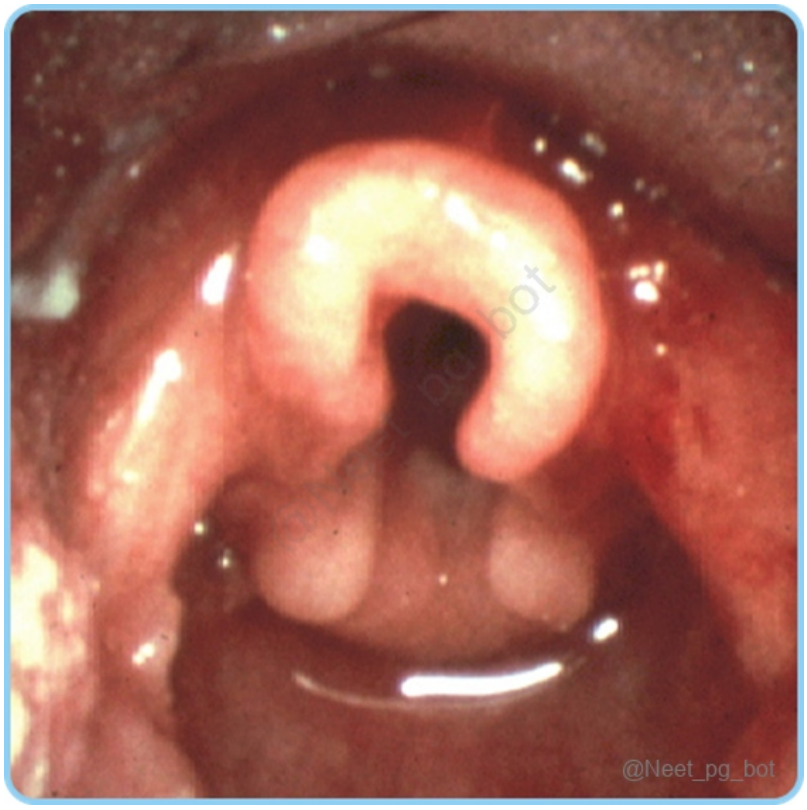
Q10: The following image is of the most common cause of stridor in children. Identify it. (Q857220)

A. Laryngomalacia

B. Laryngeal papilloma

C. Chronic epiglottitis

D. Laryngocele



See Answer in Part B → Q10

@Neet_pg_bot

Q11: A child was brought to the emergency room, with a fever for 2 days, dyspnea, drooling and inspiratory stridor. Lateral x-ray neck findings were as seen below. Which is the most common organism (in India) that causes this condition in children? (Q857198)

A. Haemophilus influenza B

B. Influenza virus

C. Staphylococcus

D. RSV



See Answer in Part B → Q11

@Neet_pg_bot

Q12: A child presents with acute exacerbation of asthma. Which of the following would you do? Chest X-ray Oxygen administration Salbutamol nebulization three times in 60 minutes Administration of oral corticosteroids (Q855050)

A. 3, 4

B. 1, 4

C. 1, 3, 4

D. 2, 3, 4

See Answer in Part B → Q12

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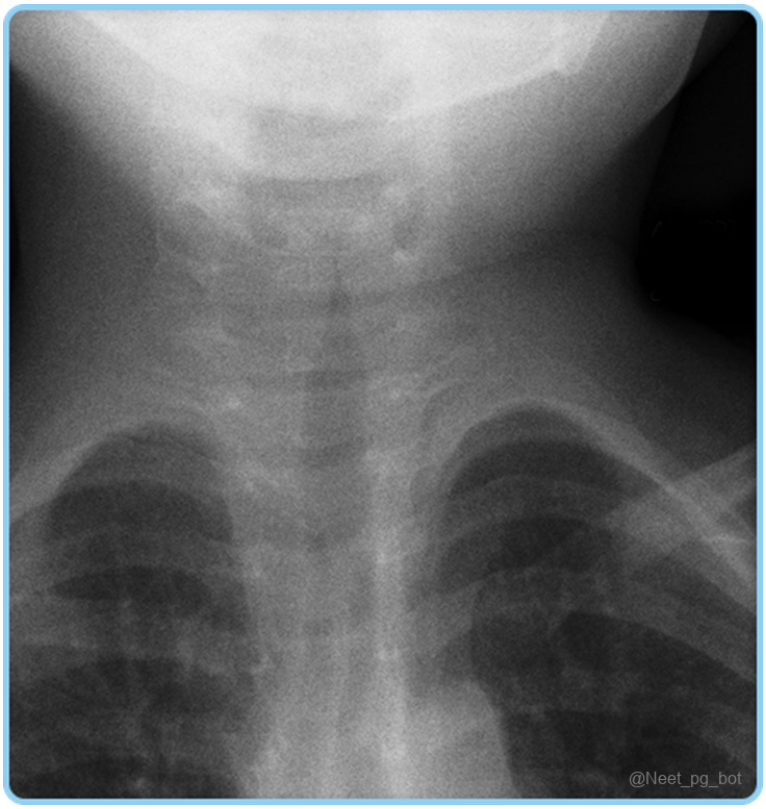
Q13: A child is brought to the hospital with respiratory distress and biphasic stridor. The radiograph is shown below. What is the diagnosis? (Q855508)

A. Acute epiglottitis

B. Acute laryngotracheobronchitis

C. Foreign body aspiration

D. Laryngomalacia



See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 4-month-old infant is brought to the emergency department with a respiratory rate of 66 breaths per minute, along with chest indrawing and nasal flaring. There are no other significant findings. What is the most likely diagnosis? (Q866762)

A. Pneumonia

B. Severe pneumonia

C. Severe asthma

D. Common cold

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A newborn presented with chest retractions, dyspnea, and lethargy. The pediatrician diagnosed the baby with respiratory distress syndrome. This occurs due to a deficiency of: (Q855490)

A. Dipalmitoyl inositol

B. Lecithin

C. Sphingomyelin

D. Dipalmitoylphosphatidylethanolamine

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 6-year-old boy was brought in with a history of chronic cough and foul-smelling stools. His sibling, who had similar complaints, died a few years back. Sweat chloride test and CFTR gene studies were done. CFTR gene codes for proteins involved in the transport of (Q854730)

A. Na+

B. HCO3-

C. Cl-

D. K+

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 9-month-old child is brought to the PHC with a fever and cough. She is feeding well and has normal urine output. On examination, a respiratory rate of 48 breaths/min is found, and no chest indrawing is seen. What is the next step of management? (Q857408)

A. Give symptomatic treatment, explain danger signs and send home

B. No pneumonia—Give amoxyclav + paracetamol and send home

C. Start IV ceftriaxone

D. Refer as the child has severe pneumonia

See Answer in Part B → Q17

@Neet_pg_bot

Q18: Choose the correct statements for cystic fibrosis: i. Increased Cl- in sweat. ii. Decreased Cl- in sweat. iii. Increased Cl- in pancreatic juice. iv. Decreased Cl- in pancreatic juice. (Q857393)

A. i and iii

B. i and iv

C. ii and iii

D. ii and iv

See Answer in Part B → Q18

@Neet_pg_bot

Q19: Which of the following is not a suitable method for free-flow oxygen delivery to a newborn baby? (Q840118)

A. Oxygen tube kept close to the baby's nose and mouth

B. Oxygen mask placed over the baby's mouth and nose

C. Self-inflating bag attached to an oxygen mask placed over baby's mouth and nose

D. A reservoir bag attached to an oxygen mask kept over the baby's nose and mouth

See Answer in Part B → Q19

@Neet_pg_bot

Q20: INSURE technique is used in which of the following conditions? (Q840115)

A. Respiratory distress syndrome

B. Birth asphyxia

C. Neonatal jaundice

D. Transient tachypnea of the newborn

See Answer in Part B → Q20

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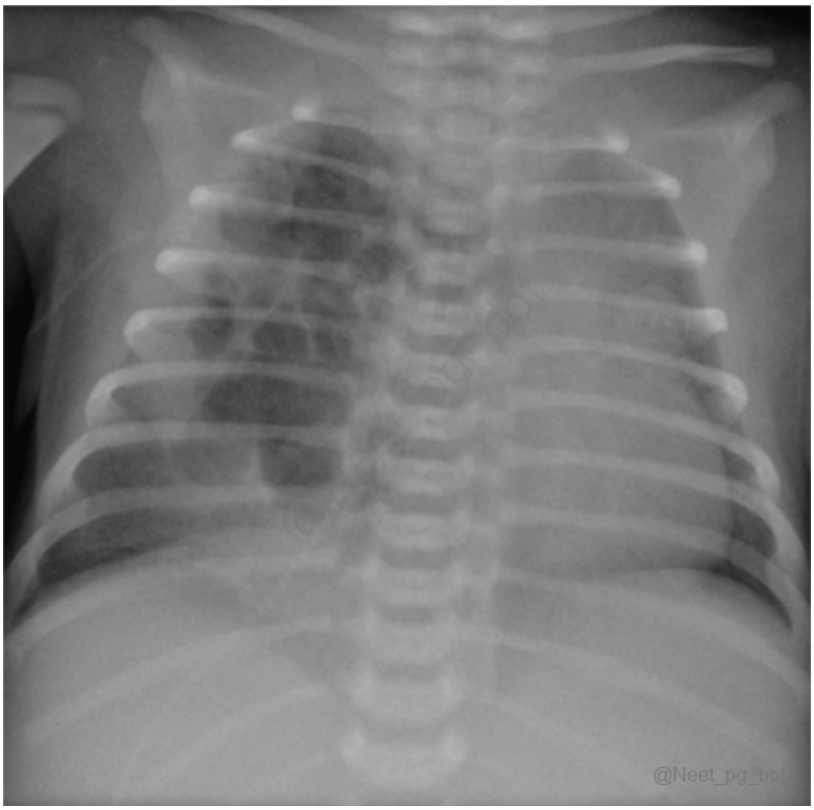
Q21: An infant presents with recurrent chest infections and tachypnea. Identify the likely clinical condition. (Q844252)

A. Congenital Cystic Adenomatoid Malformation (CCAM)

B. Right-sided Congenital Diaphragmatic Hernia (CDH)

C. Congenital Lobar Emphysema

D. Cystic Fibrosis



See Answer in Part B → Q21

@Neet_pg_bot

Q22: A neonate was born to a controlled gestational diabetes mother. At the time of birth, he was fine but 4 days later, he developed dyspnea with Spo2 80% at room air. What is the initial management? (Q852533)

A. Give 21% to 30% O2

B. Give 100% O2

C. Give 50% O2

D. Observation

See Answer in Part B → Q22

@Neet_pg_bot

Q23: A 3-month-old infant is brought to the clinic with a 2-day history of cough. The mother reports no difficulty in feeding and no history of convulsions. On examination, the child is alert, the respiratory rate is 56 breaths per minute, and oxygen saturation is 96% on room air. There is no chest indrawing, no stridor, and no general danger signs. According to the IMNCI guidelines, how should this child be classified? (Q852521)

A. Pneumonia

B. Cold and cough

C. Severe Pneumonia

D. Allergy

See Answer in Part B → Q23

@Neet_pg_bot

Q24: A newborn child is brought to the emergency department with respiratory difficulty. The doctor evaluated, and the child was found to have a posterolateral defect, as shown in the x-ray given. What is the diagnosis? (Q852464)

A. Bochdalek hernia

B. Morgagni hernia

C. Hiatal hernia

D. Traumatic diaphragmatic hernia



See Answer in Part B → Q24

@Neet_pg_bot

Q25: Which of the following is not a feature of cystic fibrosis? (Q853385)

A. Nasal polyposis

B. Biliary atresia

C. Meconium ileus

D. Bleeding diathesis

See Answer in Part B → Q25

@Neet_pg_bot

Q26: A 3-year-old was diagnosed with croup. Which of the following is the most common causative organism? (Q853382)

A. Hemophilus influenza

B. Streptococcus pneumonia

C. Influenza virus

D. Diphtheria

See Answer in Part B → Q26

@Neet_pg_bot

Q27: A child presents with recurrent sinusitis and repeated lung infections. Genetic testing shows a mutation in the CFTR gene. Which test is considered the gold standard to confirm the diagnosis? (Q866765)

A. Sweat chloride test

B. Lung biopsy

C. Chest X-ray

D. Nasal swab culture

See Answer in Part B → Q27

@Neet_pg_bot

Q28: An 18-months-old child is brought to the hospital with a history of breathlessness, fever, cough, and cold. The respiratory rate was 46/min on examination, and there were no danger signs. Which is the most appropriate management? (Q793784)

A. Administer IV antibiotics and observe

B. Administer IV antibiotics and refer to higher centre

C. Administer oral antibiotics, warn of danger signs, and send home

D. Administer only home remedies

See Answer in Part B → Q28

• [12_Pediatric Cardiology] 029 Pediatric Cardiology-I

« Back to Folder Directory

[12_Pediatric Cardiology] 029 Pediatric Cardiology-I — Quick Jump

Q1 (p. 313)	*Q2 (p. 313)*	*Q3 (p. 314)*	*Q4 (p. 314)*	*Q5 (p. 314)*	*Q6 (p. 315)*
Q7 (p. 315)	*Q8 (p. 316)*	*Q9 (p. 316)*	*Q10 (p. 316)*	*Q11 (p. 317)*	*Q12 (p. 317)*
Q13 (p. 318)	*Q14 (p. 318)*	*Q15 (p. 319)*	*Q16 (p. 319)*		

Q1: Which of the following statements is true regarding the blood carried by the umbilical vein in fetal circulation, and how many umbilical veins are present? (Q849995)

A. The umbilical vein carries deoxygenated blood and there are two umbilical veins.

B. The umbilical vein carries oxygenated blood and there are two umbilical veins.

C. The umbilical vein carries oxygenated blood and there is one umbilical vein.

D. The umbilical vein carries deoxygenated blood and there is one umbilical vein.

See Answer in Part B → Q1

@Neet_pg_bot

Q2: Which of the following statements regarding fetal circulation is/are true? The left and right heart in fetal circulation function as a parallel circuit as compared to series in adults. The placenta is not an efficient oxygen exchange organ as compared to lungs. Fetal superior vena cava (SVC) blood preferentially flows across the tricuspid valve, rather than the foramen ovale, into the right ventricle. Because the pulmonary arterial circulation is vasoconstricted, only approximately 5% of right ventricular (RV) outflow enters the lungs. (Q849994)

A. I only

B. I and IV only

C. I, II, and IV

D. All of the above

See Answer in Part B → Q2

@Neet_pg_bot

Q3: Which of the following changes does not occur in fetal circulation following birth? (Q849996)

A. Decrease in pulmonary vascular resistance (PVR)

B. Increase in mass and volume of the left ventricle

C. Closure of the ductus venosus

D. Increase in mass and volume of the right ventricle

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 5-year-old child is brought to the pediatric clinic after a heart murmur was detected during a recent febrile illness. On examination, the child has a soft ejection systolic murmur, best heard at the left lower sternal border. The second heart sound (S2) is normal. The child is asymptomatic, with no history of cyanosis, syncope, or respiratory distress. The fever has resolved, and the child is otherwise well. What is the most appropriate next step in managing this patient? (Q849997)

A. Reassure the parents that the murmur is likely innocent, and no further follow-up is necessary.

B. Immediately order an ECG and echocardiogram to rule out congenital heart disease.

C. Reassure the parents and schedule a follow-up assessment in a few weeks to reassess the murmur.

D. Refer to a pediatric cardiologist for further evaluation without additional tests.

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which of the following congenital heart defects can exhibit ductus-dependent pulmonary circulation, where the ductus arteriosus is critical for maintaining pulmonary blood flow? (Q849998)

A. Tetralogy of Fallot

B. Transposition of the Great Arteries

C. Coarctation of the Aorta

D. All the above

See Answer in Part B → Q5

@Neet_pg_bot

Q6: In a Ventricular septal defect (VSD), when does reversal of shunt occur? (Q849999)

A. If the Size of VSD decreases

B. When Pulmonary vascular resistance (PVR) becomes more than systemic vascular resistance (SVR)

C. Ratio of left ventricular pressure to right ventricular pressure increases

D. When Pulmonary vascular resistance (PVR) becomes less than systemic vascular resistance (SVR)

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 7-year-old child presents with difficulty in physical activity and a heart murmur. On examination, the child has a widely split and fixed second heart sound (S2), a systolic ejection murmur at the left upper sternal border, and a mid-diastolic murmur at the lower left sternal border. The echocardiogram reveals an atrial septal defect (ASD) located in the fossa ovalis. What is the most likely pathophysiological consequence of this ASD? (Q850000)

A. Decreased right atrial volume due to left-to-right shunting

B. Increased pulmonary vascular resistance leading to cyanosis

C. Left ventricular overload resulting in heart failure

D. Right ventricular volume overload leading to right atrial and ventricular enlargement

See Answer in Part B → Q7

@Neet_pg_bot

Q8: Determine which syndrome linked to atrial septal defect is accurately paired with its corresponding gene. (Q850001)

A. Cri du chat syndrome- CHD7

B. Noonan Syndrome- MLL2

C. Familial ASD without heart block- NKX2.5

D. Holt-Oram - TBX5

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 12-year-old child is evaluated for a heart murmur and an ECG is performed. The ECG shows right axis deviation and minor right ventricular conduction delay. Which of the following statements is TRUE regarding these ECG findings in the context of atrial septal defect (ASD)? (Q850002)

A. Evidence of left ventricular hypertrophy associated with pulmonary hypertension

B. Evidence of biventricular hypertrophy

C. Minor RV conduction delay

D. Left axis deviation

See Answer in Part B → Q9

@Neet_pg_bot

Q10: During the physical examination of an infant with a large Patent Ductus Arteriosus (PDA), which of the following statements is true regarding the findings? (Q850003)

A. Continuous machinery-like murmur

B. Pan systolic murmur at apex

C. Wide fixed split of S2

D. Ejection systolic murmur of pulmonary area

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A neonate is diagnosed with a ventricular septal defect during routine evaluation. The parents ask about the genetic basis of congenital heart diseases (CHDs). Which of the following is the most common pattern of inheritance seen in congenital heart disease? (Q891662)

A. X-linked recessive inheritance

B. Multifactorial inheritance

C. Autosomal recessive inheritance

D. Autosomal dominant inheritance

See Answer in Part B → Q11

@Neet_pg_bot

Q12: During routine newborn screening at a district hospital, a 1-month-old infant is found to have a pansystolic murmur best heard at the left lower sternal border. Echocardiography confirms a congenital cardiac defect. Which of the following is the most common congenital heart disease encountered in clinical practice? (Q891666)

A. Tetralogy of Fallot

B. Patent ductus arteriosus

C. Ventricular septal defect

D. Atrial septal defect

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 3-day-old neonate is admitted with jaundice, petechial rash, and hepatosplenomegaly. The mother reports a febrile illness with rash during early pregnancy. On examination, the baby has microcephaly and bilateral cataracts. Brainstem evoked response audiometry confirms sensorineural hearing loss. The clinical picture is suggestive of congenital infection. On cardiac evaluation, which of the following defects is least likely to be associated with this condition? (Q891669)

A. Patent ductus arteriosus

B. Pulmonary artery stenosis

C. Ventricular septal defect

D. Atrial septal defect

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 4-month-old infant is brought in with excessive irritability, poor feeding, and sweating during feeds. On examination, you note tachycardia, hepatomegaly, and a heart murmur. Considering the NADA criteria for evaluating congenital heart disease, which of the following findings are considered a major criterion? Grade 2 mid-diastolic murmur at the mitral area Wide and variable second heart sound (S2) Congestive cardiac failure Grade 3 pansystolic murmur at the lower left sternal border (Q891672)

A. 1 and 4

B. 1, 3, and 4

C. 2 and 3

D. 1, 2, 3, and 4

See Answer in Part B → Q14

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Q15: A 2-month-old infant is evaluated for a newly detected heart murmur. Echocardiography confirms a ventricular septal defect. Which of the following types of VSD is most commonly encountered in clinical practice? (Q891676)

A. Muscular

B. Supracristal

C. Membranous

D. Both membranous and muscular have equal prevalence

See Answer in Part B → Q15

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Q16: A 3-week-old infant born to a mother with poorly controlled gestational diabetes is diagnosed with a ventricular septal defect (VSD). On cardiovascular examination, which of the following findings would not typically be associated with this condition? Ejection systolic murmur at the pulmonary area Mid-diastolic murmur at the mitral area Holosystolic murmur at the left 4th intercostal space Reverse splitting of the second heart sound (S2) (Q891683)

A. 1 and 2

B. 4 only

C. 2, 3, and 4

D. 1, 2, 3, and 4

See Answer in Part B → Q16

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• [12_Pediatric Cardiology] 030 Pediatric Cardiology-Ii

« Back to Folder Directory

[12_Pediatric Cardiology] 030 Pediatric Cardiology-Ii — Quick Jump

Q1 (p. 321) *Q2 (p. 321)* *Q3 (p. 322)* *Q4 (p. 322)* *Q5 (p. 323)* *Q6 (p. 323)*
Q7 (p. 324) *Q8 (p. 325)* *Q9 (p. 325)* *Q10 (p. 326)* *Q11 (p. 327)* *Q12 (p. 328)*
Q13 (p. 328) *Q14 (p. 328)* *Q15 (p. 329)* *Q16 (p. 329)*

Q1: Which of the following is not a component of Tetralogy of Fallot (ToF)? (Q850005)

A. Pulmonary stenosis

B. Ventricular septal defect (VSD)

C. Left ventricular hypertrophy

D. Overriding aorta

See Answer in Part B → Q1

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Q2: A 2-month-old infant with Tetralogy of Fallot presents with severe cyanosis from birth and a loud systolic ejection murmur at the left sternal border. The cyanosis worsens with closure of the ductus arteriosus. What is the most likely severity of pulmonary stenosis in this infant? (Q850006)

A. Mild

B. Moderate

C. Severe

D. Pulmonary atresia

See Answer in Part B → Q2

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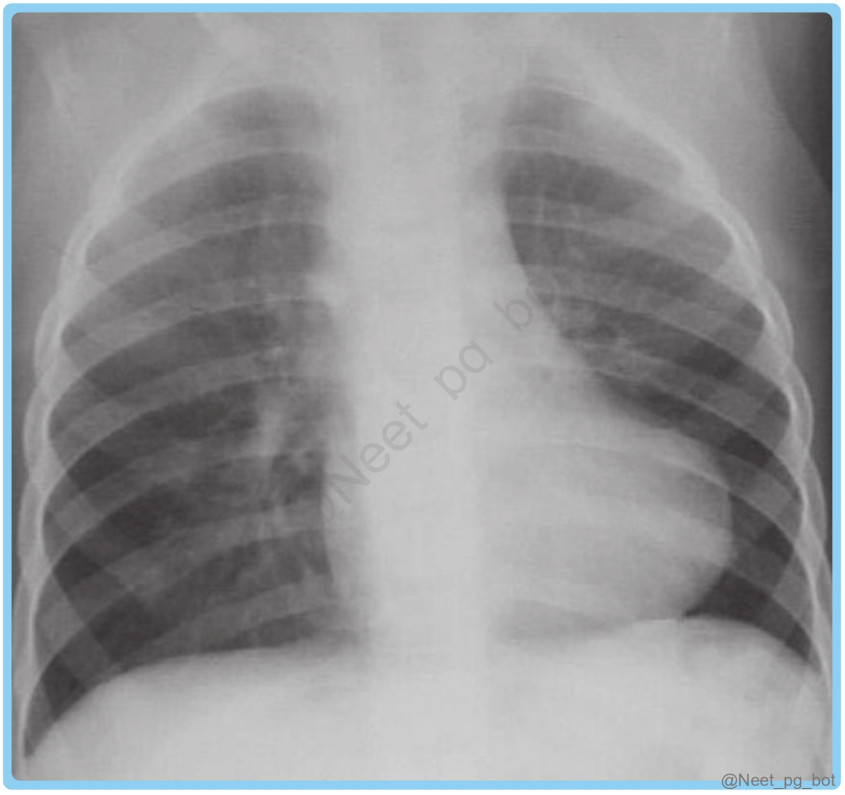
Q3: A 6-month-old infant presents with cyanotic spells and a chest x-ray as shown below. Which of the following investigations is considered the gold standard for diagnosing and characterizing this condition? (Q850007)

A. Electrocardiogram (ECG)

B. Chest X-Ray

C. Cardiac Catheterization

D. Echocardiography



See Answer in Part B → Q3

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Q4: A 10-year-old patient presents with symptoms suggestive of rheumatic fever. According to the modified Jones criteria, which of the following is considered a major criterion for diagnosing rheumatic fever for a low risk population ? (Q850008)

A. Arthralgia

B. Elevated ESR

C. Fever

D. Carditis

See Answer in Part B → Q4

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Q5: A 10-year-old boy with an ideal weight for his age presents with a history of acute rheumatic fever (ARF) and is being considered for secondary prophylaxis to prevent recurrence. What is the recommended regimen of benzathine penicillin for this patient, assuming he has no carditis? (Q850009)

A. 600,000 units every 4 weeks

B. 1.2 million units every 3 weeks

C. 1.2 million units every 2 weeks

D. 600,000 units every 2 weeks

See Answer in Part B → Q5

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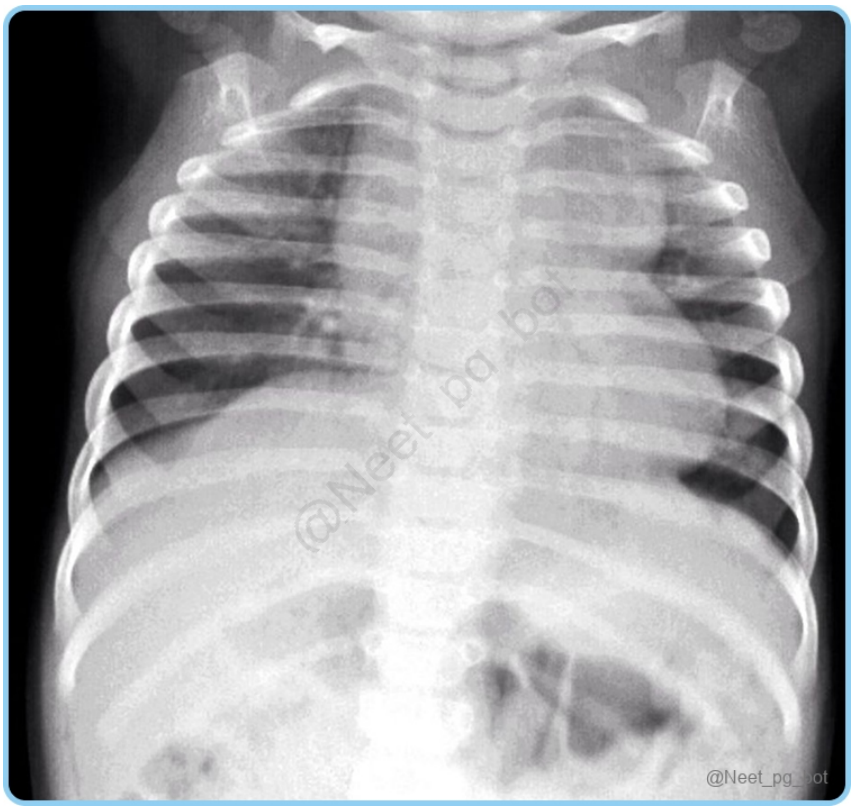
Q6: An 8-day-old neonate has severe cyanosis and is in respiratory distress shortly after birth. Chest X-ray is as shown below. An echocardiogram is performed and shows pulmonary veins draining into the right atrium via an abnormal venous connection. Which of the following is the most likely diagnosis? (Q850010)

A. Total Anomalous Pulmonary Venous Connection

B. Truncus Arteriosus

C. Transposition of the Great Arteries

D. Coarctation of the Aorta



See Answer in Part B → Q6

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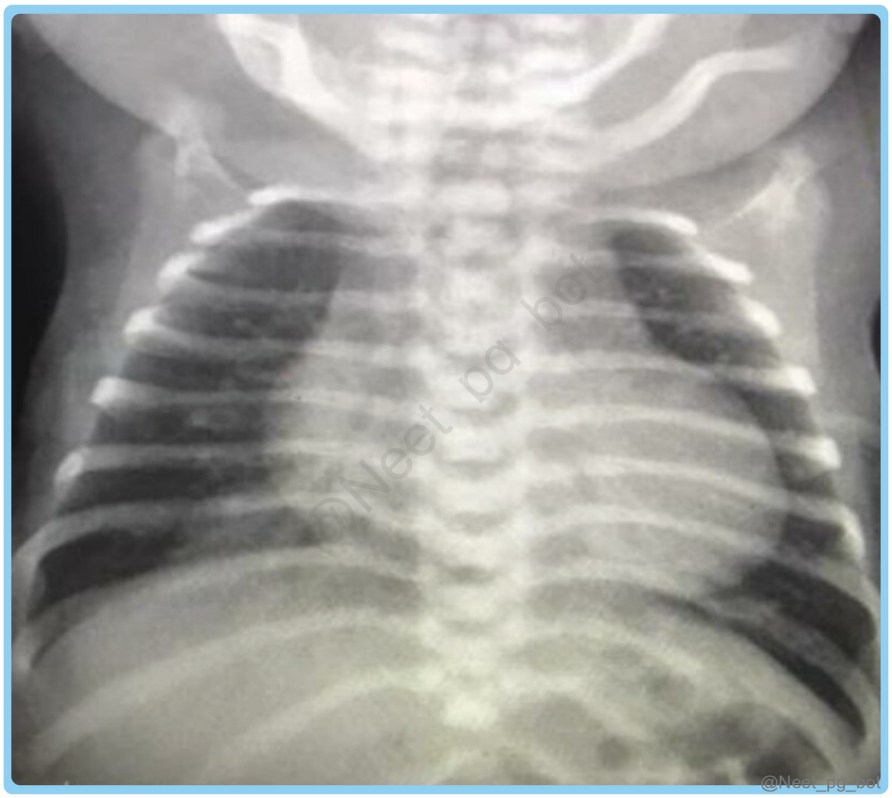
Q7: A neonate has cyanosis and is short of breath shortly after birth. On auscultation grade II ejection systolic murmur is heard. X-ray is taken as shown below. Which of the following congenital heart conditions is most likely associated with this radiographic finding? (Q850011)

A. Hypoplastic Left Heart Syndrome

B. Truncus Arteriosus

C. Transposition of the Great Arteries

D. Ebstein's Anomaly



See Answer in Part B → Q7

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Q8: Which congenital cardiac anomaly is associated with CATCH 22 or chromosome 22q11 deletion? (Q850012)

A. Hypoplastic Left Heart Syndrome

B. Truncus Arteriosus

C. Transposition of the Great Arteries

D. Coarctation of the Aorta

See Answer in Part B → Q8

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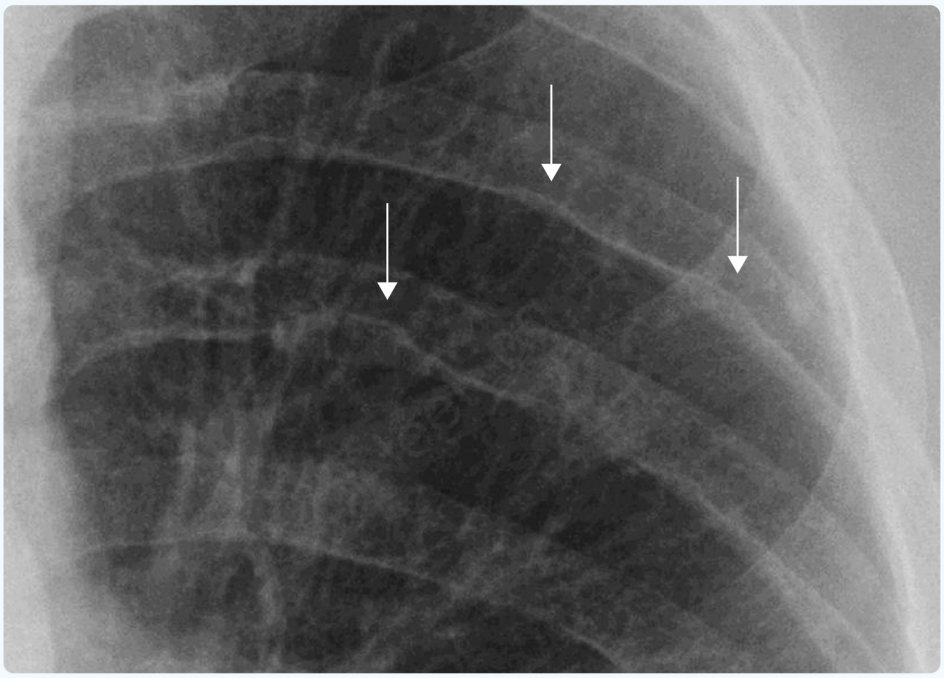
Q9: A 14-year-old boy presents with leg pain during physical activity. He is found to have a radio-femoral delay and murmur is heard on the shoulder region. A part of the chest X-ray is shown below. Which of the following conditions is most likely responsible for these findings? (Q850013)

A. Ventricular Septal Defect

B. Atrial Septal Defect

C. Patent Ductus Arteriosus

D. Coarctation of the Aorta



X-Ray showing Notching of inferior rib border

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See Answer in Part B → Q9

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Q10: A 6-month-old infant presents with cyanosis, difficulty breathing, and prominent 'a' waves in the jugular pulse. The ECG shows left axis deviation and left ventricular hypertrophy. What is the underlying pathophysiology? (Q850014)

A. No RA-RV communication

B. Obstructed pulmonary outflow with intact septum.

C. Ventricular septal defect and pulmonary stenosis.

D. Underdeveloped left heart.

See Answer in Part B → Q10

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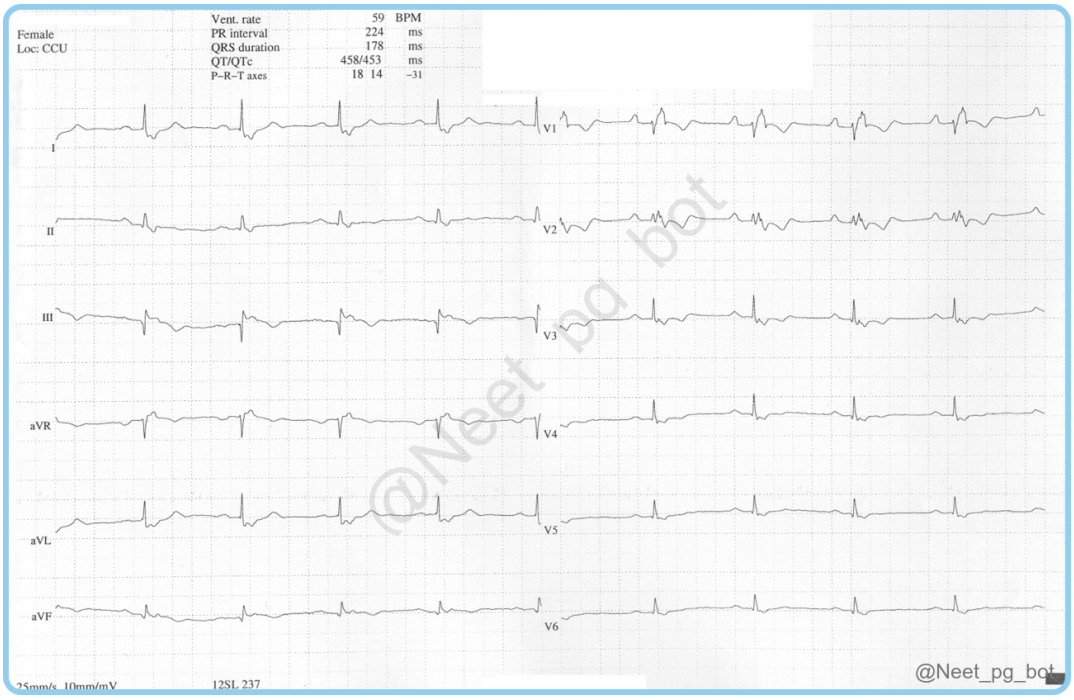
Q11: A 3-day-old infant has cyanosis shortly after birth.The mother has a history of Bipolar disorder. On examination, the infant has a prominent pansystolic murmur best heard along the left lower sternal border. The infant's ECG image is shown below. Which of the following is the most likely diagnosis? (Q850015)

A. Tetralogy of Fallot

B. Atrialization of the Right ventricle

C. Transposition of the Great vessels

D. Ventricular Septal Defect



See Answer in Part B → Q11

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Q12: A term newborn develops central cyanosis within the first few hours of life. Pulse oximetry shows oxygen saturation of 58% despite administration of 100% oxygen. There is no significant respiratory distress. Which of the following conditions is least likely to cause cyanosis in this neonate? (Q891637)

A. Pulmonary arteriovenous malformation

B. Isolated infundibular stenosis

C. Ebstein anomaly

D. Tetralogy of Fallot

See Answer in Part B → Q12

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Q13: A 6-month-old infant presents with progressive cyanosis and squatting episodes during crying. Which of the following represents the most common cyanotic congenital heart disease overall? (Q891642)

A. Transposition of the Great Arteries

B. Total Anomalous Pulmonary Venous Connection

C. Tetralogy of Fallot

D. Tricuspid atresia

See Answer in Part B → Q13

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Q14: A 3-month-old infant is evaluated for persistent cyanosis. The parents report episodes of deep blue discoloration during crying. A prior chest X-ray was described as showing a “boot-shaped” cardiac silhouette. Which of the following findings would be least expected in this child? (Q891648)

A. Prominent “a” waves in the jugular venous pulse

B. Cardiomegaly on chest X-ray

C. Soft or single second heart sound (P2)

D. Dilated ascending aorta

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 5-year-old boy with known cyanotic congenital heart disease develops bluish discoloration of his lips and fingertips while running. During these episodes, he instinctively squats and reports feeling better within minutes. Which of the following physiological changes does NOT occur during squatting? (Q891650)

A. Reduction in right-to-left shunting across the ventricular septal defect

B. Increased systemic vascular resistance

C. Increased magnitude of right-to-left shunt

D. Pooling of blood in the lower extremities

See Answer in Part B → Q15

@Neet_pg_bot

Q16: An 8-month-old infant with diagnosed Tetralogy of Fallot develops a sudden episode of deep cyanosis and irritability while crying. Oxygen saturation drops to 65%. You initiate medical management for a hypercyanotic spell. Which of the following medications would aggravate the cyanosis if administered? (Q891651)

A. Phenylephrine

B. Isoproterenol

C. Propranolol

D. Sodium bicarbonate

See Answer in Part B → Q16

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• [12_Pediatric Cardiology] 031 Previous Year Questions

« Back to Folder Directory

[12_Pediatric Cardiology] 031 Previous Year Questions — Quick Jump

Q1 (p. 331)	*Q2 (p. 331)*	*Q3 (p. 332)*	*Q4 (p. 332)*	*Q5 (p. 332)*	*Q6 (p. 333)*
Q7 (p. 333)	*Q8 (p. 334)*	*Q9 (p. 334)*	*Q10 (p. 335)*	*Q11 (p. 335)*	*Q12 (p. 335)*
Q13 (p. 336)	*Q14 (p. 337)*	*Q15 (p. 337)*	*Q16 (p. 337)*	*Q17 (p. 338)*	*Q18 (p. 338)*
Q19 (p. 338)	*Q20 (p. 339)*	*Q21 (p. 339)*			

Q1: A 24-year-old woman presents for an antenatal check-up and is currently on lithium for her bipolar disorder. This drug must be stopped, due to the risk of development of which of the following conditions in the fetus? (Q857184)

A. Ebstein anomaly

B. VACTERL defects

C. Coarctation of aorta

D. Supravalvular aortic stenosis

See Answer in Part B → Q1

@Neet_pg_bot

Q2: Acute rheumatic fever is diagnosed by minor and major components of jones criteria. Which of the following are components in jones minor/ major criteria? Select all that apply. Carditis Erythema nodosum Polyarthralgia Chorea Prolonged PR interval (Q879275)

A. 1,2,3,4,5

B. 1,2,3

C. 1,3,4,5

D. 1,2,4

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A child has a history of recurrent lung infections and, on examination, has a subclavicular continuous murmur. What is the diagnosis? (Q879224)

A. ASD

B. VSD

C. TGA

D. PDA

See Answer in Part B → Q3

@Neet_pg_bot

Q4: Which of the following is not a characteristic of tetralogy of Fallot? (Q859506)

A. Ventricular septal defect

B. Right ventricular hypertrophy

C. Atrial septal defect

D. Pulmonary stenosis

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which of the following congenital heart disease presents with split-second heart sounds? Atrial Septal Defect (ASD) Ventricular Septal Defect (VSD) Patent Ductus Arteriosus (PDA) Tetralogy of Fallot (TOF) (Q859485)

A. 1,2,3 are correct

B. 2,3,4 are correct

C. 1,2 are correct

D. All are correct

See Answer in Part B → Q5

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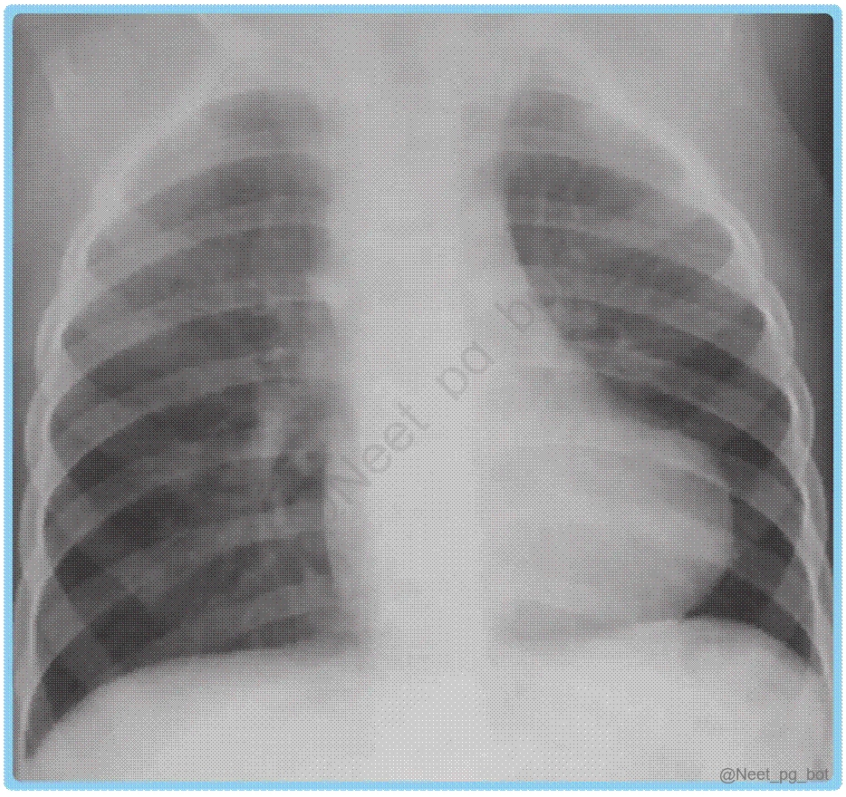
Q6: The given chest x-ray is suggestive of : (Q854979)

A. Tetralogy of fallot

B. Atrial septal defect

C. Ventricular septal defect

D. Ebstein’s anomaly



See Answer in Part B → Q6

@Neet_pg_bot

Q7: Which of the following features can be alleviated by performing surgical correction of VSD in an infant? (Q856437)

A. Respiratory alkalosis

B. Failure to thrive

C. Arrhythmia

D. Heart block

See Answer in Part B → Q7

@Neet_pg_bot

Q8: Which of the following vessels is responsible for returning deoxygenated blood back to the placenta in fetal circulation? (Q856174)

A. Umbilical Vein

B. Umbilical artery

C. Descending aorta

D. Pulmonary Artery

See Answer in Part B → Q8

@Neet_pg_bot

Q9: Which congenital heart disease exhibits equivalent saturation levels across all heart chambers? (Q856712)

A. Tetralogy of Fallot

B. Total anomalous pulmonary venous circulation

C. Tricuspid atresia

D. Transposition of great arteries

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 6-year-old child was brought to her paediatrician for routine well-child care. Her physical examination is normal except for a systolic murmur and a widely split-second heart sound that does not vary with respiration. She has no family history of heart disease. Which among the following is the most likely diagnosis? (Q857594)

A. Total anomalous pulmonary venous connection

B. Ventricular septal defect

C. Atrial septal defect

D. Pulmonic stenosis

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following is the most common association with Tetralogy of Fallot? (Q857187)

A. Klinefelters syndrome

B. Edwards syndrome

C. Down’s syndrome

D. Turner’s syndrome

See Answer in Part B → Q11

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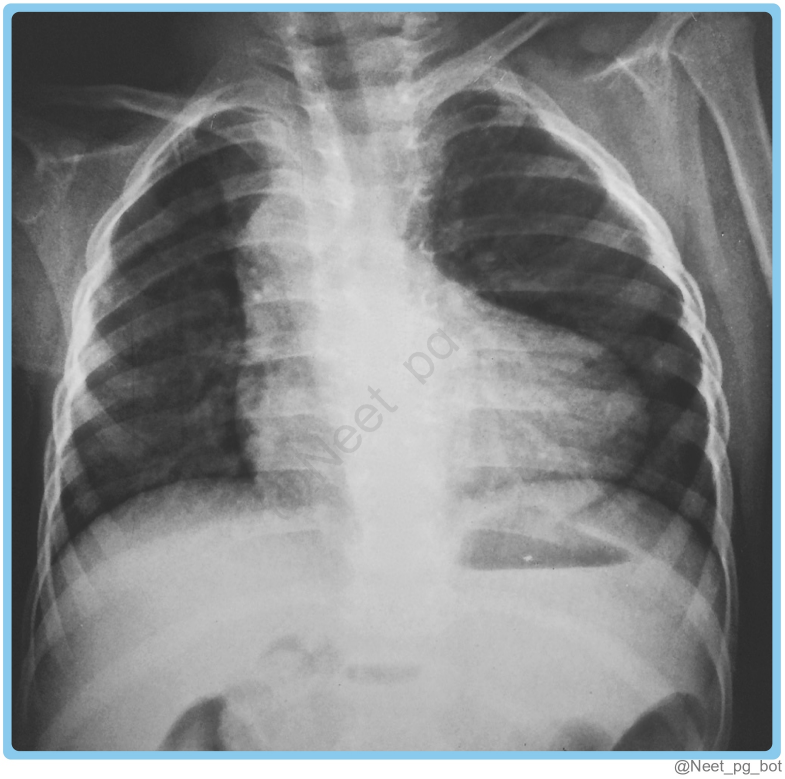
Q12: A 5-year-old child presents with exertional dyspnea and a history of cyanotic spells. On examination, there is clubbing and a harsh systolic murmur heard at the left upper sternal border. Chest X-ray is shown below. What is the most likely diagnosis? (Q866758)

A. Tetralogy of Fallot

B. Total Anomalous Pulmonary Venous Connection

C. Transposition of the Great Arteries

D. Atrial Septal Defect



See Answer in Part B → Q12

@Neet_pg_bot

Q13: An unconscious child is brought to the casualty. What is the correct sequence of the management? Assess breathing Assess pulse Assess response Start compressions Bag and mask ventilation (Q855728)

A. 3-1-2-5-4

B. 1-2-3-4-5

C. 3-1-2-4-5

D. 1-2-4-3-5

See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following cyanotic heart diseases causes increased pulmonary blood flow? Ebstein anomaly Tetralogy of Fallot Transposition of the great arteries (TGA) Total anomalous pulmonary venous communication (TAPVC) (Q855723)

A. 1, 4

B. 1, 2

C. 3, 4

D. 2, 4

See Answer in Part B → Q14

@Neet_pg_bot

Q15: Nada's Minor Criteria include Systolic murmur Grade 3 Diastolic murmur Abnormal second heart sound Abnormal BP (Q854741)

A. 3 and 4

B. 1, 2 and 3

C. 1, 2, 3 and 4

D. 2, 3 and 4

See Answer in Part B → Q15

@Neet_pg_bot

Q16: What could be the possible diagnosis for a newborn exhibiting weak lower limb pulses and strong upper limb pulses? (Q860239)

A. TGA

B. COA

C. TOF

D. Ebstein anomaly

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 2-year-old child presents with stable vitals and an ECG showing paroxysmal supraventricular tachycardia (PSVT). Which of the following is the appropriate treatment? (Q844221)

A. Cardioversion

B. Adenosine 0.2 mg/kg

C. Adenosine 0.1 mg/kg

D. IV Adrenaline

See Answer in Part B → Q17

@Neet_pg_bot

Q18: What is the most common defect in a ventricular septal defect? (Q852460)

A. Muscular defect

B. Membranous defect

C. Non-development of the perimembranous part of the septum

D. Incomplete fusion of the septum

See Answer in Part B → Q18

@Neet_pg_bot

Q19: Which of the following is the cause of the closure of ductus arteriosus? (Q853381)

A. Increase in Oxygen

B. Decrease in CO2

C. Increase in pulmonary vascular resistance

D. Fall in concentration of catecholamines

See Answer in Part B → Q19

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Q20: In children diagnosed with congenital heart disease, NADA's criteria include all of the following except? (Q853379)

A. Diastolic murmur- any grade

B. Increased Troponin T

C. Abnormal X-ray

D. Congestive heart failure

See Answer in Part B → Q20

@Neet_pg_bot

Q21: A 3-year-old child is brought to the clinic with a history of cyanosis since infancy. Which of the following is a component of Tetralogy of Fallot (TOF)? (Q865427)

A. Inter atrial septal defect

B. Infundibular pulmonary stenosis

C. Left ventricular hypertrophy (LVH)

D. Transposition of the great arteries (TGA)

See Answer in Part B → Q21

• [13_Pediatric Gastroenterology] 032 Git Disorders In Children

« Back to Folder Directory

[13_Pediatric Gastroenterology] 032 Git Disorders In Children — Quick Jump

Q1 (p. 341)	*Q2 (p. 341)*	*Q3 (p. 342)*	*Q4 (p. 342)*	*Q5 (p. 343)*	*Q6 (p. 344)*
Q7 (p. 344)	*Q8 (p. 345)*	*Q9 (p. 345)*	*Q10 (p. 346)*	*Q11 (p. 346)*	*Q12 (p. 347)*
Q13 (p. 347)	*Q14 (p. 348)*	*Q15 (p. 348)*	*Q16 (p. 349)*	*Q17 (p. 349)*	*Q18 (p. 350)*
Q19 (p. 350)	*Q20 (p. 351)*				

Q1: An eight-month-old child was brought to paediatrics OPD by his parents, complaining of loose, watery stools along with fever for the last 15 days. On examination, the child is active but malnourished. What is the appropriate management for this condition? (Q850279)

A. Nutritional rehabilitation

B. Elimination diet

C. Empirical antibiotic therapy

D. All of the above

See Answer in Part B → Q1

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Q2: A 4-year-old boy is brought to the emergency department by his parents. They report that he swallowed a small object while playing 2 hours ago. A chest X-ray shows a round object in the mid-oesophagus. Which of the following is not an indication of immediate endoscopic removal of the foreign body? (Q850288)

A. Airway compromise

B. Sharp object in the oesophagus

C. Button battery in the oesophagus

D. Retained coin without symptoms



See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 3-year-old boy presents with intermittent, painless rectal bleeding described as "brick-colored." He has no abdominal pain but appears pale. The pediatrician suspects Meckel's diverticulum. Which of the following is NOT true regarding this condition? (Q850287)

A. Presents with painless rectal bleeding in young children

B. Located about 2 feet proximal to the ileocecal valve

C. Technetium-99m pertechnetate scan has low sensitivity for diagnosis

D. Contains ectopic gastric or pancreatic tissue

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 2-day-old newborn presents with bilious vomiting. The pregnancy history reveals polyhydramnios. An abdominal X-ray image has been given. What's the likely diagnosis? (Q850286)

A. Jejunal atresia

B. Duodenal atresia

C. Pyloric stenosis

D. Malrotation with midgut volvulus



See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 2-week-old infant presents with persistent constipation since birth, abdominal distension, and failure to thrive. Initial X-rays reveal dilated bowel loops. Hirschsprung disease is suspected. What is the definitive test to confirm the diagnosis in this infant? (Q850285)

A. Contrast enema

B. Anorectal manometry

C. Rectal suction biopsy

D. Colonoscopy

See Answer in Part B → Q5

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Q6: A 2-day-old full-term newborn presents with abdominal distension, failure to pass meconium, and bilious vomiting. Physical examination reveals an empty rectum. A barium enema shows a narrow distal segment with proximal dilation. Which of the following best describes the underlying pathogenesis of this condition? (Q850284)

A. Absence of smooth muscle in the bowel wall

B. Lack of ganglionic cells in the submucosal and myenteric plexuses

C. Hypertrophy of the circular muscle layer in the entire colon

D. Excessive production of acetylcholine in the enteric nervous system

See Answer in Part B → Q6

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Q7: A 9-month-old child was brought to the emergency department as she has been unusually irritable and has had abdominal pain and vomiting over the past 24 hours. On examination, the sausage-shaped mass was palpable over the abdomen. The barium enema radiograph revealed a coiled spring appearance. What is the most likely diagnosis? (Q850283)

A. Hirschsprung disease

B. Duodenal atresia

C. Congenital Hypertrophic Pyloric Stenosis

D. Intussusception

See Answer in Part B → Q7

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Q8: A 2-year-old was taken to the paediatrician with symptoms of abdominal cramps, loose stools, and weight loss over the past few weeks. Her parents observed that the symptoms occurred after she ate bread or pasta. Tests showed elevated anti-tTG IgA levels, though they were less than 10 times the upper limit of normal. What is the next step of diagnosis? (Q850282)

A. Measure total serum IgG levels

B. HLA-DQ2 and HLA-DQ8 genotyping

C. Small intestinal biopsy

D. Test for anti-endomysial antibodies (EMA)

See Answer in Part B → Q8

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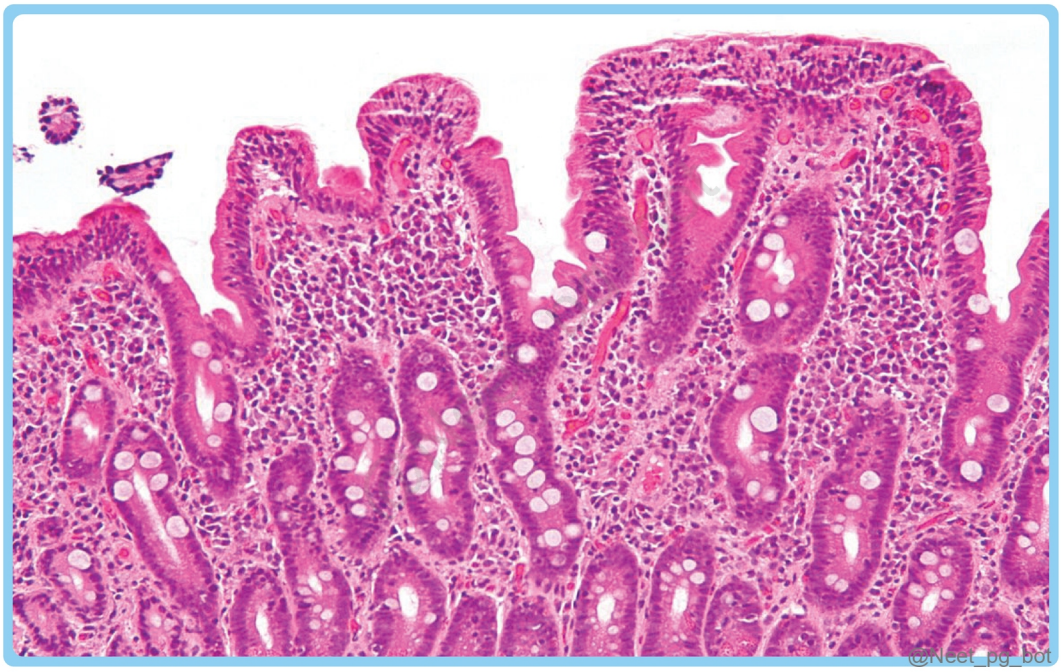
Q9: A 4-year-old child presents with abdominal pain, diarrhea, weight loss, irritability, and occasional vomiting. The duodenal biopsy is illustrated in the image below. Which of the following does not accurately describe this condition? (Q850281)

A. Associated with HLADQ2 & HLADQ8

B. T-cell-mediated autoimmune disorder

C. Associated with Down’s syndrome

D. Treatment includes a high-fiber wheat diet.



See Answer in Part B → Q9

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Q10: An infant with a 2-week history of loose stools now exhibits noisy loose stools, abdominal bloating, and crying, especially after feeding milk. The stool pH is approximately 6. What is the most probable diagnosis? (Q850280)

A. Irritable bowel syndrome

B. Small intestinal bacterial overgrowth

C. Lactose intolerance

D. Diverticulosis

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 4-month-old infant is brought to the pediatrician due to frequent postprandial regurgitation. The parents report that the infant appears irritable during and after feeding, frequently arches her back, and has episodes of choking and gagging. On

examination, the infant is mildly irritable with no signs of respiratory distress. What is the next best step in management? (Q850269)

A. Start proton pump inhibitors immediately.

B. Positioning therapy and thickened feedings.

C. Schedule an urgent Esophagogastroduodenoscopy

D. Antireflux surgery (fundoplication).

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 6-year-old boy weighing 20 kg is admitted to the pediatric ward with pneumonia. He is hemodynamically stable but requires IV fluids for maintenance hydration. What is the appropriate daily maintenance fluid volume for this patient? (Q850278)

A. 1100 mL/day

B. 1300 mL/day

C. 1500 mL/day

D. 1700 mL/day

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 3-year-old girl presents with severe diarrhoea, sunken eyes, and lethargy. She's unable to drink and has cool, mottled extremities. You decide to start IV fluids immediately. Which of the following is the most appropriate initial IV fluid choice? (Q850277)

A. 5% Dextrose

B. Normal Saline

C. Ringer's Lactate with 5% Dextrose

D. Half-Normal Saline

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 2-year-old boy presents with a 1-day history of watery diarrhoea and 4 episodes of loose stools in the last 24 hours, but no vomiting. He is alert, drinking normally, and shows no signs of dehydration. What is the most appropriate initial management? (Q850276)

A. Start ORS and withhold solid foods for 24 hours

B. Prescribe an antibiotic and advise clear fluids only

C. Continue normal diet with adequate fluid intake and ORS

D. Administer ondansetron and start a probiotic supplement

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 4-week-old male infant presents with projectile vomiting for the past week. The parents report reduced wet diapers, thirst, and irritability. Examination reveals a slightly sunken fontanelle, dry mucous membranes, normal heart rate, prolonged capillary refill of 3 seconds, and slow skin recoil but of <2 seconds. What is the most likely assessment of this infant's hydration status? (Q850275)

A. No dehydration

B. Mild dehydration

C. Some dehydration

D. Severe dehydration

See Answer in Part B → Q15

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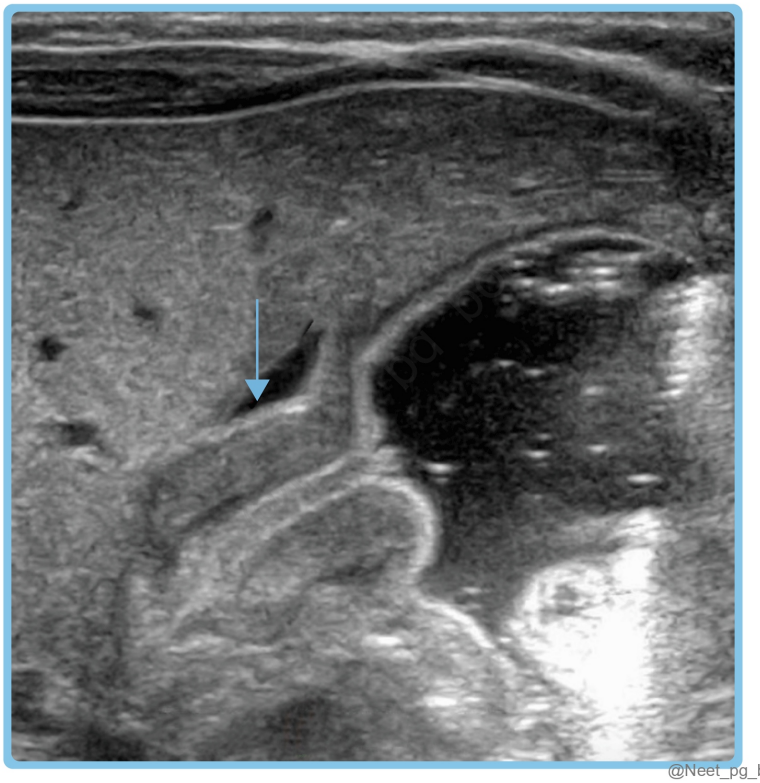
Q16: A 4-week-old male infant presents with projectile vomiting after feeds for two weeks. On examination, a palpable "olive-like" mass is noted in the epigastric region. Ultrasound shows a pyloric muscle thickness of 4 mm and a pyloric channel length of 18 mm. The infant is dehydrated but stable. What is the most appropriate next step in management? (Q850274)

A. Proceed immediately with pyloromyotomy

B. Start nasoduodenal feeding

C. Begin IV atropine administration

D. Correct fluid and electrolyte imbalances



See Answer in Part B → Q16

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Q17: A 2-week-old infant is admitted with projectile, non-bilious vomiting, visible gastric peristaltic waves, and a palpable olive-shaped mass. An ultrasound confirms congenital hypertrophic pyloric stenosis (CHPS). Which of the following is not a known risk factor for CHPS? (Q850273)

A. Familial history of CHPS

B. Male sex

C. Maternal use of macrolide antibiotics

D. Advanced maternal age

See Answer in Part B → Q17

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Q18: A 3-week-old male infant presents with projectile, non-bilious vomiting after feeds and visible peristalsis in the upper abdomen. On examination, a palpable mass is noted in the epigastric region. An abdominal ultrasound is performed. Which of the following radiologic findings would most likely be seen in this condition? (Q850272)

A. Elongated pyloric channel on contrast studies

B. Pyloric muscle thickness is normal on USG

C. Pyloric length of 8 mm on USG

D. Dilated duodenum on contrast studies

See Answer in Part B → Q18

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Q19: A 2-week-old infant presents with multiple congenital anomalies, including congenital heart defect (ventricular septal defect), lumbar vertebral defect, and anal atresia. Renal imaging reveals a horseshoe kidney. Which of the following is NOT associated with this condition? (Q850271)

A. Tracheoesophageal fistula

B. Radial limb defects

C. Esophageal atresia

D. Cleft palate

See Answer in Part B → Q19

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Q20: A 4-day-old infant is admitted with severe respiratory distress, frothy secretions from the mouth, and worsening cyanosis with feeding. A chest X-ray reveals a gas-filled abdomens, stomach, upper oesophagal pouch, and air in the trachea, but no visible air in the lower oesophagus. What type of tracheoesophageal fistula (TEF) is most likely indicated by this presentation? (Q850270)

A. Type A

B. Type B

C. Type C

D. Type D

See Answer in Part B → Q20

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• [13_Pediatric Gastroenterology] 033 Liver Disorders In Children

« Back to Folder Directory

[13_Pediatric Gastroenterology] 033 Liver Disorders In Children — Quick Jump

Q1 (p. 352)	*Q2 (p. 352)*	*Q3 (p. 353)*	*Q4 (p. 353)*	*Q5 (p. 353)*	*Q6 (p. 354)*
Q7 (p. 355)	*Q8 (p. 355)*	*Q9 (p. 356)*	*Q10 (p. 356)*	*Q11 (p. 357)*	*Q12 (p. 357)*
Q13 (p. 357)	*Q14 (p. 358)*	*Q15 (p. 358)*	*Q16 (p. 359)*	*Q17 (p. 359)*	*Q18 (p. 360)*
Q19 (p. 360)	*Q20 (p. 361)*	*Q21 (p. 361)*			

Q1: A 3-year-old child's mother is concerned about hepatitis C transmission to her kid as her uncle was recently diagnosed with hepatitis C. The Child does not have any symptoms and examination findings are appropriate for her age. Which of the following is the most common transmission mode of infection in children? (Q850336)

A. Perinatal

B. Blood transfusion

C. Illegal drug use with exposure to blood

D. Breastfeeding

See Answer in Part B → Q1

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Q2: A 3-month-old infant born to an HBsAg-positive mother is being evaluated for possible perinatal hepatitis B infection. Laboratory tests are ordered to determine whether active viral replication is occurring. Which of the following serologic markers indicates ongoing viral replication? (Q891762)

A. HBsAg

B. Anti-HBe

C. HBeAg

D. Anti-HBs

See Answer in Part B → Q2

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Q3: A 13-year-old boy with tremors, behavioral changes, and mild jaundice is suspected to have Wilson's disease. A liver biopsy is performed to measure hepatic copper concentration. Which of the following hepatic copper levels (in µg/g dry weight) is considered diagnostic of Wilson's disease? (Q891761)

A. > 100

B. > 250

C. > 400

D. > 50

See Answer in Part B → Q3

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Q4: A 10-year-old girl presents with declining school performance, loss of interest in hobbies, and progressive muscle weakness. On examination, she has mild hepatomegaly, and laboratory tests reveal low serum ceruloplasmin. Which of the following features are associated with this condition? Dystonia Renal Fanconi syndrome Sparse depigmented hair Ascites and portal hypertension (Q891760)

A. 1, 2, and 3

B. 1, 2, and 4

C. 1, 3, and 4

D. 2, 3, and 4

See Answer in Part B → Q4

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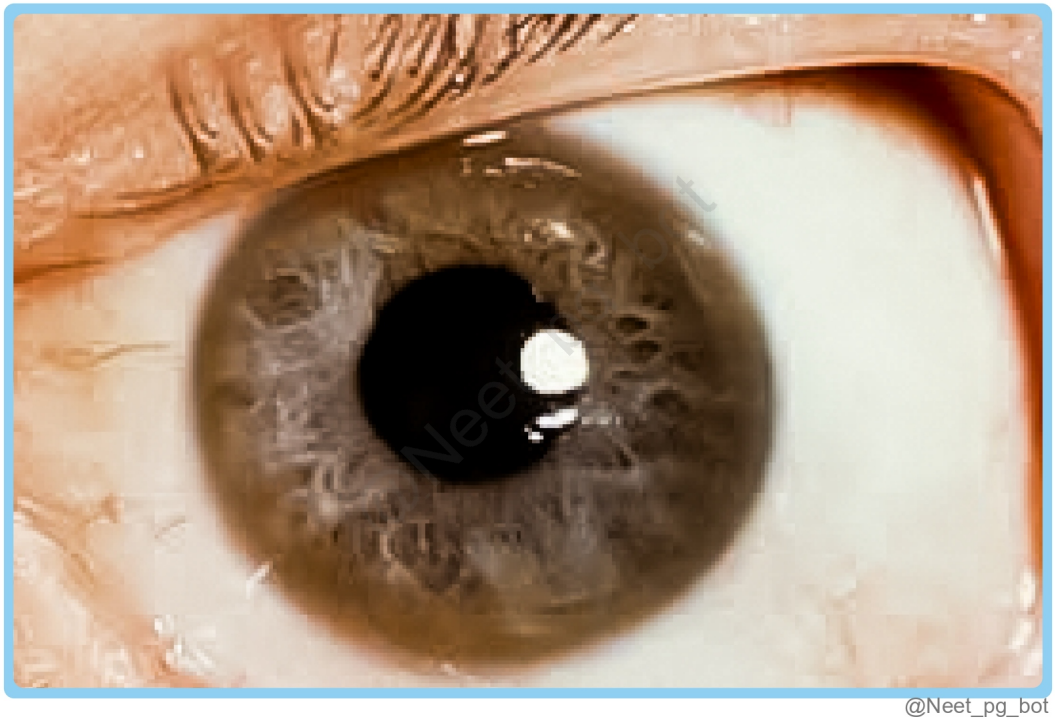
Q5: A 12-year-old boy is brought to your clinic with recent difficulty writing, tremors, and excessive drooling of saliva. On examination, mild hepatomegaly is noted. Ophthalmic findings are shown in the image below. Which of the following statements about this condition is correct? It is an autosomal dominant disorder Serum ceruloplasmin levels are low Coombs-positive hemolytic anemia may be present The patient can be treated with triethylenetetramine (Q891759)

A. 1 and 3

B. 2 and 4

C. 1, 2, and 3

D. 2, 3, and 4



See Answer in Part B → Q5

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Q6: Regarding Lucey-Driscoll syndrome, which of the following statements is not correct? (Q891758)

A. It presents with severe unconjugated hyperbilirubinemia in the neonatal period

B. It is caused by a circulating inhibitor of bilirubin conjugation

C. It may require temporary phototherapy or exchange transfusion

D. Permanent discontinuation of breastfeeding is the treatment of choice

See Answer in Part B → Q6

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Q7: A 16-year-old girl is evaluated for persistent mild jaundice noticed over the past year. She denies abdominal pain or pruritus. Laboratory tests show isolated elevation of conjugated (direct) bilirubin, while liver enzymes and hemolysis profile are normal. A liver biopsy reveals coarse dark brown pigment within hepatocytes. What is the most likely diagnosis? (Q891757)

A. Rotor syndrome

B. Crigler-Najjar syndrome

C. Dubin-Johnson syndrome

D. Gilbert syndrome

See Answer in Part B → Q7

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Q8: An 11-year-old child presents to the emergency department with massive hematemesis. On examination, he has pallor, splenomegaly, and dilated veins radiating from the umbilicus. Portal hypertension is suspected. Which of the following is the most appropriate initial investigation to identify the source of bleeding? (Q891756)

A. Contrast-enhanced CT abdomen

B. Upper gastrointestinal endoscopy

C. Capsule endoscopy

D. Abdominal ultrasonography with Doppler

See Answer in Part B → Q8

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Q9: A 6-year-old boy is brought to the clinic for progressive abdominal swelling and easy fatigability. His parents report episodes of nosebleeds and note prominent veins over his abdomen. On examination, he has splenomegaly, ascites, and palmar erythema. He is admitted for evaluation. During hospitalization, he suddenly develops massive hematemesis. What is the most likely cause of this acute event? (Q891755)

A. Acute myeloid leukemia

B. Mallory-Weiss tear

C. Esophageal varices

D. Visceral leishmaniasis

See Answer in Part B → Q9

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Q10: A 7-year-old child is brought to the emergency department with a recent history of influenza-like illness which was followed by sudden onset of vomiting, lethargy, and altered mental status. Parents report that the child was treated with aspirin for fever during the influenza episode. On examination, there are no signs of increased intracranial pressure and no focal neurological deficit. Given the diagnosis of Reye syndrome, what is the most appropriate management among the following options? (Q850338)

A. Supportive treatment

B. Mannitol or hypertonic saline

C. Continue aspirin use for fever

D. D-penicillamine administration

See Answer in Part B → Q10

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Q11: A 15-year-old patient has a history of progressive dystonia, tremors, and behavioral changes. On physical examination, a Kayser-Fleischer ring is observed in the corneal margin. Laboratory tests reveal elevated liver enzymes. A 24-hour urinary copper excretion test shows markedly increased copper levels. Which of the following statements is NOT true regarding the disorder in this patient? (Q850337)

A. It is an autosomal recessive mode of inheritance

B. Decreased biliary copper excretion leading to copper accumulation in organs

C. Increased serum ceruloplasmin levels

D. D-penicillamine is used for treatment

See Answer in Part B → Q11

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Q12: Which statement about unconjugated hyperbilirubinemia is incorrect ? (Q850311)

A. Chronic hemolytic anemias increase unconjugated bilirubin.

B. Crigler-Najjar Type I has a partial UDPGT deficiency.

C. Gilbert Syndrome involves a mild UDPGT deficiency.

D. Phenobarbitone treats Crigler-Najjar Type II.

See Answer in Part B → Q12

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Q13: An 8-hour-old infant was born to a mother who is known to be positive for hepatitis B virus (HBV). The mother's HBV serology shows high levels of hepatitis B surface antigen (HBsAg) and hepatitis B e antigen (HBeAg). What is the most appropriate initial management for this newborn to prevent HBV infection?

(Q850330)

A. Administer hepatitis B vaccine only

B. Administer hepatitis B immune globulin (HBIG) only

C. Administer hepatitis B vaccine and hepatitis B immune globulin (HBIG) within 12 hours of birth

D. To complete 2 doses of hepatitis B vaccine universal vaccination series

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 6-year-old child is brought to the hospital with a 2-week history of fever, joint pain and fatigue. On examination, jaundice with mild hepatic tenderness is noted. The child's mother reports that the child had a blood transfusion a few months back due to massive blood loss in a car accident. Serological testing reveals: Hepatitis B surface antigen (HBsAg): Positive Hepatitis B surface antibody (anti-HBs): Negative Hepatitis B core antibody (anti-HBc): Positive (IgM) Hepatitis B e antigen (HBeAg): Positive Which among the following options best describes the stage of hepatitis B infection? (Q850329)

A. Acute infection

B. Chronic infection

C. Acute resolving infection

D. Early acute infection

See Answer in Part B → Q14

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Q15: A 7-year-old boy is brought to the pediatric clinic with complaints of jaundice, fatigue, and abdominal pain for the past 5 days. The child has a history of poor appetite and dark urine. On examination, he is mildly icteric, with tender hepatomegaly but no splenomegaly. His liver function tests reveal elevated ALT and AST levels, with a significant rise in total and direct bilirubin. Anti-HAV IgM is

positive. Which of the following is the most appropriate next step in management? (Q850327)

A. Start antiviral therapy

B. Administer Hepatitis A vaccine

C. Supportive care with hydration and monitoring

D. Admit for immediate liver biopsy

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 9-year-old girl presents with a 2-week history of abdominal pain, progressive abdominal distension, and leg swelling. On examination, she has hepatomegaly, ascites, and mild jaundice. Doppler ultrasound reveals absent hepatic vein flow with collateral vessels. Which of the following is the most likely diagnosis? (Q850325)

A. Wilson disease

B. Hepatopulmonary syndrome

C. Budd-Chiari syndrome

D. Extrahepatic portal vein obstruction

See Answer in Part B → Q16

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Q17: A 12-year-old boy with a history of chronic liver disease presents with increasing shortness of breath that worsens when he stands up and improves when lying down. His parents also report that he has been more fatigued lately. On physical examination, he has digital clubbing and cyanosis. Contrast echocardiography reveals intrapulmonary vascular dilatations. What is the most likely diagnosis? (Q850323)

A. Congestive cardiac failure

B. Hepatopulmonary syndrome

C. Porto-Pulmonary hypertension

D. Primary ciliary dyskinesia

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 7-year-old child, post bone marrow transplantation for leukemia, presents with progressive jaundice, hepatomegaly, and increasing weight due to ascites and fluid retention. The child had undergone total body irradiation prior to the transplant. Which of the following diagnoses should be most strongly considered? (Q850321)

A. Acute hepatic failure

B. Budd-Chiari syndrome

C. Sinusoidal obstruction syndrome

D. Autoimmune hepatitis

See Answer in Part B → Q18

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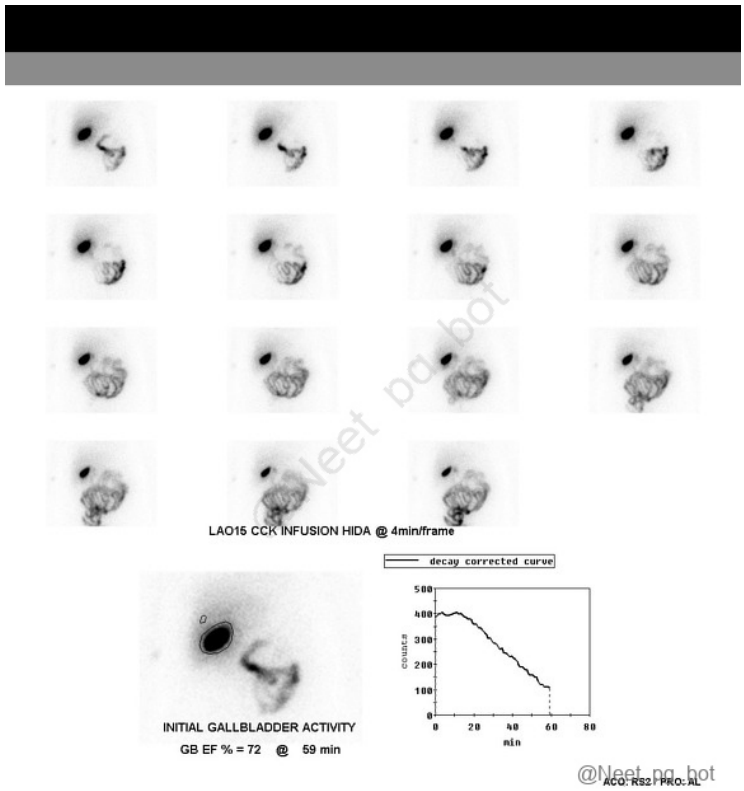
Q19: A neonate presents with conjugated hyperbilirubinemia. A HIDA scan is performed and results are shown below. What is the most probable diagnosis? (Q850319)

A. Extrahepatic biliary atresia (EHBA)

B. Neonatal hepatitis

C. Acute Cholecystitis

D. Bile duct stricture



See Answer in Part B → Q19

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Q20: A 7-week-old infant presents with jaundice, pale stools, and dark urine. Liver function tests reveal elevated conjugated bilirubin and alkaline phosphatase. An abdominal ultrasound shows a triangular cord sign. Which of the following is considered the best for confirming the diagnosis? (Q850315)

A. Ultrasound of the abdomen

B. HIDA scan

C. Liver biopsy

D. MRCP

See Answer in Part B → Q20

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Q21: Which statement about conjugated hyperbilirubinemia is incorrect? (Q850313)

A. Conjugated bilirubin is >2 mg/dL or >20% of total bilirubin.

B. Dubin-Johnson Syndrome involves a defect in hepatic uptake.

C. Rotor Syndrome affects hepatic uptake, storage, and excretion of bilirubin.

D. PFIC type 3 has elevated GGT levels.

See Answer in Part B → Q21

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• [13_Pediatric Gastroenterology] 034 Previous Year Questions

« Back to Folder Directory

[13_Pediatric Gastroenterology] 034 Previous Year Questions — Quick Jump

Q1 (p. 363)	*Q2 (p. 363)*	*Q3 (p. 364)*	*Q4 (p. 364)*	*Q5 (p. 365)*	*Q6 (p. 365)*
Q7 (p. 366)	*Q8 (p. 366)*	*Q9 (p. 367)*	*Q10 (p. 367)*	*Q11 (p. 367)*	*Q12 (p. 368)*
Q13 (p. 368)	*Q14 (p. 369)*	*Q15 (p. 369)*	*Q16 (p. 369)*	*Q17 (p. 370)*	*Q18 (p. 370)*
Q19 (p. 371)	*Q20 (p. 371)*	*Q21 (p. 372)*	*Q22 (p. 372)*	*Q23 (p. 372)*	*Q24 (p. 373)*
Q25 (p. 374)	*Q26 (p. 374)*	*Q27 (p. 374)*	*Q28 (p. 375)*	*Q29 (p. 375)*	*Q30 (p. 375)*
Q31 (p. 376)	*Q32 (p. 377)*	*Q33 (p. 377)*	*Q34 (p. 378)*	*Q35 (p. 379)*	*Q36 (p. 379)*
Q37 (p. 380)	*Q38 (p. 380)*	*Q39 (p. 381)*	*Q40 (p. 381)*	*Q41 (p. 382)*	*Q42 (p. 382)*
Q43 (p. 383)	*Q44 (p. 383)*	*Q45 (p. 383)*	*Q46 (p. 384)*	*Q47 (p. 384)*	*Q48 (p. 385)*

Q1: What is the rate of increase in head circumference in infants less than 3 months of age? (Q840067)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

See Answer in Part B → Q1

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Q2: Gonadal growth corresponds with _____. (Q858072)

A. Brain

B. Skeletal system

C. Lymphoid growth

D. Dental growth

See Answer in Part B → Q2

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Q3: Which alternative method can be used for the procedure shown in the image below? (Q855726)

A. Head circumference

B. Arm span

C. Crown-rump length

D. Knee height



See Answer in Part B → Q3

@Neet_pg_bot

Q4: Which is the first primary tooth to erupt? (Q857574)

A. Upper central incisor

B. Lower central incisor

C. Upper canine

D. Lower canine

See Answer in Part B → Q4

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Q5: A child is brought to the paediatrician with short stature. On evaluation, growth hormone levels are found to be high and insulin-like growth factor (IGF-1) levels are low. Which among the following could be the abnormality here? (Q857601)

A. GH deficiency

B. GHRH deficiency

C. GH receptor anomaly

D. IGF-1 deficiency

See Answer in Part B → Q5

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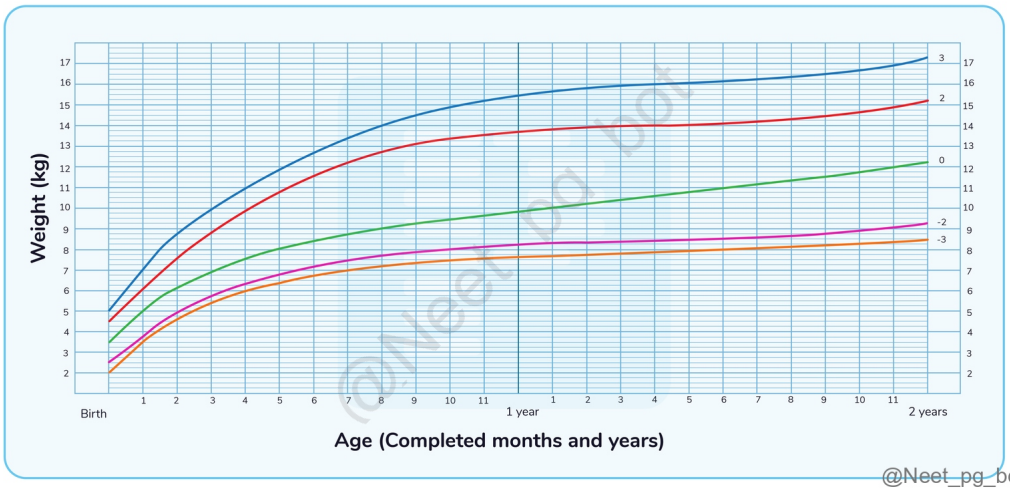
Q6: A 16-month-old boy weighs 8 kg. A WHO growth chart (weight-for-age) is provided below. What is the most appropriate advice for this child? (Q856176)

A. No malnutrition - assure the mother

B. Mild malnutrition - home treatment

C. Severe malnutrition - refer to nutrition rehabilitation centre

D. Moderate malnutrition - teach the mother how to feed



See Answer in Part B → Q6

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Q7: A 9-month-old infant is brought for a routine check-up. Which of the following developmental milestones is most likely to be present at this age? (Q866939)

A. Mature grasp

B. Creeps well on hands and knees

C. Can hop on one foot

D. Runs steadily

See Answer in Part B → Q7

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Q8: A 9-month-old infant is brought to the pediatrician due to concerns that the child cannot sit without support. The child is otherwise able to roll over, says "mama" and "dada", and demonstrates stranger anxiety. Which of the following is the most appropriate next step in management? (Q865432)

A. Refer for developmental assessment

B. Order an immediate MRI

C. Reassure the parents, as this is normal for the age

D. No further action needed at this time

See Answer in Part B → Q8

@Neet_pg_bot

Q9: What is the rate of increase in head circumference in infants at the first 3 months of age? (Q853239)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

See Answer in Part B → Q9

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Q10: Copies cross, tells stories, and goes to the toilet alone. What is the age of the child? (Q853383)

A. 3 years

B. 4 years

C. 5 years

D. 2 years

See Answer in Part B → Q10

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Q11: During a routine pediatric check-up, a mother brings her 5 month old baby to the clinic. The pediatrician observes that the baby actively looks at his mother’s face and seems to respond with interest as she talks to him, showing recognition and

engagement. When is this milestone normally achieved? (Q852742)

A. 2 months

B. 3 months

C. 6 months

D. 9 months

See Answer in Part B → Q11

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Q12: At what age does stranger anxiety appear? (Q860614)

A. 7 months

B. 9 months

C. 12 months

D. 15 months

See Answer in Part B → Q12

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Q13: A newborn presents with persistent jaundice, conjugated hyperbilirubinemia, intrahepatic cholestasis, and elevated alkaline phosphatase levels. Liver biopsy reveals eosinophilic PAS-positive, diastase-resistant cytoplasmic granules in hepatocytes. Which of the following is the most likely cause of jaundice in this newborn? (Q866764)

A. Hypoplasia of the biliary tract

B. Neonatal hepatitis

C. Choledochal cyst

D. Alpha-1 antitrypsin deficiency

See Answer in Part B → Q13

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Q14: At what age does the transfer of one object to another hand happen? (Q860231)

A. 4 months

B. 9 months

C. 7 months

D. 12 months

See Answer in Part B → Q14

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Q15: What is the likely age of a child who can ride a tricycle, walk up stairs with alternate steps, but cannot hop? (Q860253)

A. 2.5 years

B. 3.5 years

C. 4.5 years

D. 5.5 years

See Answer in Part B → Q15

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Q16: How do you calculate the mid-parental height for a male child with a father who is 183 cm tall and a mother who is 175 cm tall? (Q860257)

A. 185.5

B. 169.5

C. 192.5

D. 195.5

See Answer in Part B → Q16

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Q17: What is the underlying defect in the congenital malformation shown below? (Q820467)

A. Morulation

B. Neurulation

C. Lateral folding

D. Gastrulation





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See Answer in Part B → Q17

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Q18: Handedness is seen at the age of _____ (Q855733)

A. 1 year

B. 2 years

C. 3 years

D. 4 years

See Answer in Part B → Q18

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Q19: In an infant, which of the following milestones is achieved the earliest? (Q857221)

A. Immature pincer grasp

B. Mature pincer grasp

C. Radial palmar grasp

D. Ulnar palmar grasp

See Answer in Part B → Q19

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Q20: Match the following developmental milestones. 1 Transfers objects a 1-2 months 2 Social smile b 6-7 months 3 Pincer grasp c 12-15 months 4 Walks 1-2 steps d 9-12 months (Q856724)

A. 1-a, 2-b, 3-c, 4-d

B. 1-b, 2-a, 3-d, 4-c

C. 1-c, 2-b, 3-a, 4-d

D. 1-d, 2-c, 3-b, 4-a

See Answer in Part B → Q20

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Q21: The earliest indication of sexual maturation in females: (Q859488)

A. Maturation

B. Thelarche

C. Pubarche

D. Menarche

See Answer in Part B → Q21

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Q22: Which of the following is /are seen in Hirschsprung disease? Failure of migration of ganglion cells Causes intestinal obstruction postnatally Distal segment dilated Proximal segment constructed Non – co operative peristalsis (Q879273)

A. 1, 2, 3

B. 1, 2, 4

C. 1, 2, 5

D. 3, 4

See Answer in Part B → Q22

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Q23: Infant with 3 months progressive jaundice pale stools, high colored urine. Child was healthy, gaining weight and feeding well. HIDA scan showed no excretion. What is the next step? (Q879276)

A. Breast milk jaundice, stop for 2 weeks and give formula feed

B. Galactosemia, do tests to confirm

C. Metabolic condition requiring further testing

D. Liver biopsy

See Answer in Part B → Q23

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Q24: During the surgery for acute appendicitis in a 2-year-old child, the surgeon discovered a structure measuring 2 inches in length located 2 feet closer to the ileocecal junction. What is the most probable diagnosis in this case? (Q859938)

A. Sarcoma

B. Appendicitis

C. Meckel's diverticulum

D. Zenker's diverticulum



See Answer in Part B → Q24

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Q25: A 2-week-old infant presents with high conjugated (direct) bilirubin, dark-colored urine, and clay-colored stools. On examination, the infant appears jaundiced, but is feeding normally. What is the most likely diagnosis? (Q866763)

A. Biliary atresia

B. Gilbert's syndrome

C. Crigler-Najjar syndrome

D. Physiological jaundice

See Answer in Part B → Q25

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Q26: A 6-week-old infant presents with a history of non-bilious, non-projectile vomiting starting at 3 weeks of age. The infant's abdominal examination is normal. Which of the following is the most likely diagnosis? (Q865424)

A. Pyloric stenosis

B. Gastroesophageal reflux disease (GERD)

C. Cow Milk Protein Allergy

D. Intestinal obstruction

See Answer in Part B → Q26

@Neet_pg_bot

Q27: Which of the following is false regarding neonatal cholestasis? (Q853380)

A. Kasai procedure should be done within 90 days

B. HIDA scan is an investigation of choice

C. Biliary atresia is the most common cause

D. Liver biopsy rules out other causes

See Answer in Part B → Q27

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Q28: A 2-week-old neonate was brought to the hospital with a complaint of non-bilious vomiting. While examining the baby, the physician noted a lump in the left epigastric region, which showed movement while feeding. What is the likely diagnosis of this child? (Q852698)

A. Esophageal atresia

B. Duodenal atresia

C. IHPS

D. Intussusception

See Answer in Part B → Q28

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Q29: What is Celiac Sprue in a child? (Q844216)

A. Anti-tissue transglutaminase (tTG) antibodies are positive and used as a screening test

B. A type of food allergy causing skin rashes

C. A genetic disorder leading to lactose intolerance

D. An infection in the gastrointestinal tract caused by bacteria

See Answer in Part B → Q29

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Q30: A 3-month-old baby presents with jaundice and clay-colored stools. Lab investigation reveals that the baby has conjugated hyperbilirubinemia. The liver biopsy shows periductal proliferation. What is the most likely diagnosis? (Q855510)

A. Crigler-Najjar syndrome

B. Rotor syndrome

C. Dubin-Johnson syndrome

D. Biliary atresia

See Answer in Part B → Q30

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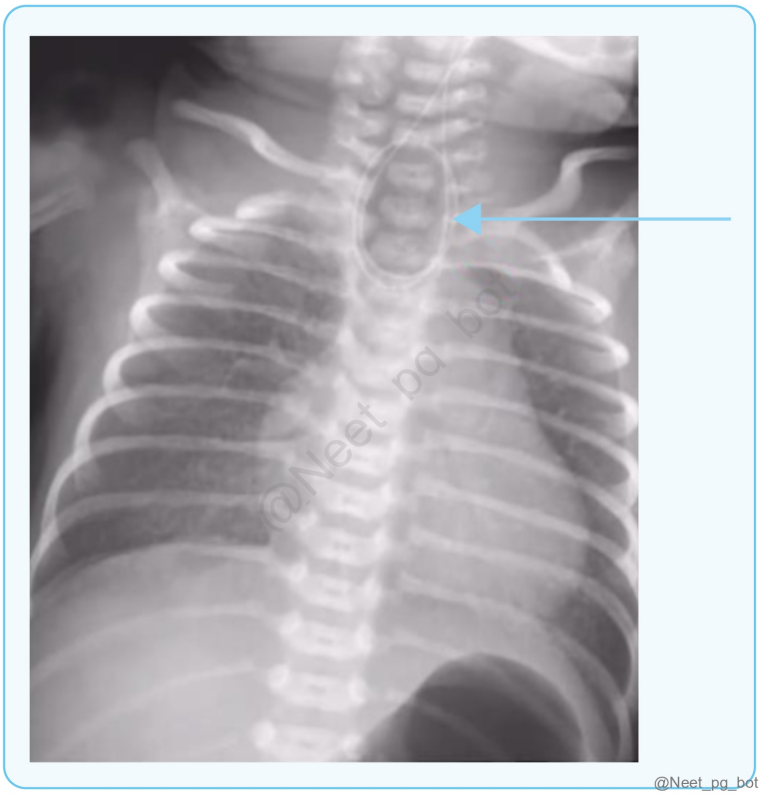
Q31: What is the most likely diagnosis for a neonate presenting with frothing from the mouth and respiratory distress, with the X-ray provided below? (Q858051)

A. Transient tachypnea of newborn

B. Congenital diaphragmatic hernia

C. Esophageal atresia with tracheo-esophageal fistula

D. Respiratory distress syndrome



See Answer in Part B → Q31

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Q32: An 11-year-old boy was brought to the outpatient clinic with intentional tremors, and poor scholastic performance. His sister has similar complaints. On examination, hepatomegaly is seen. The eye finding is shown in the image. What is the probable diagnosis? (Q855725)

A. Wilson's disease

B. Huntington's chorea

C. Glutaric aciduria

D. Hepatitis A



See Answer in Part B → Q32

@Neet_pg_bot

Q33: A 5-year-old child is brought to you with complaints of 18 episodes of loose stools in the last 24 hours and vomiting twice in the last 4 hours. The child is irritable but drinking fluids. The optimal therapy for this child is— (Q857206)

A. Intravenous fluids

B. Oral rehydration therapy with ORS

C. Intravenous fluid initially for 4 hours followed by oral fluids

D. Plain water add lithium

See Answer in Part B → Q33

@Neet_pg_bot

Q34: A 3-day-old male neonate who has not yet passed meconium developed abdominal distension. There is no history of fever. On rectal examination, forceful expulsion of stool was observed. A barium enema is performed; the findings are shown in the image below. Which of the following is the gold standard for the diagnosis of the above condition? (Q857600)

A. Ultrasonography

B. MRI abdomen

C. Rectal biopsy

D. Anorectal manometry



See Answer in Part B → Q34

@Neet_pg_bot

Q35: In a child presenting with infantile hypertrophic pyloric stenosis, what metabolic abnormality is commonly observed, given the presence of recurrent episodes of non-bilious vomiting? (Q856154)

A. Hypochloremic hypokalemic acidosis

B. Hypochloremic hypokalemic alkalosis

C. Hypokalemic hyperchloremic alkalosis

D. Hyperchloremic hypokalemic acidosis

See Answer in Part B → Q35

@Neet_pg_bot

Q36: A 6-year-old child is brought for evaluation of short stature. His height is comparable with his parent's height and his bone age corresponds to his chronological age. What is the diagnosis? (Q858070)

A. Familial short stature

B. Constitutional delay

C. Undernutrition

D. Growth hormone deficiency

See Answer in Part B → Q36

@Neet_pg_bot

Q37: What is the likely diagnosis for a newborn who has a liver and small intestine protruding through the umbilicus, covered by membranes at birth? (Q859940)

A. Omphalocele

B. Gastroschisis

C. Persistent vitellointestinal duct

D. Bochdalek hernia

See Answer in Part B → Q37

@Neet_pg_bot

Q38: What is the diagnosis for a patient who has chronic small bowel diarrhea, claims to have a wheat allergy, and exhibits villous atrophy on duodenal biopsy with tests positive for anti-endomysial antibodies and tissue transglutaminase (TTG) IgA antibodies? (Q859947)

A. Cystic fibrosis

B. Whipple's disease

C. Tropical sprue

D. Celiac sprue

See Answer in Part B → Q38

@Neet_pg_bot

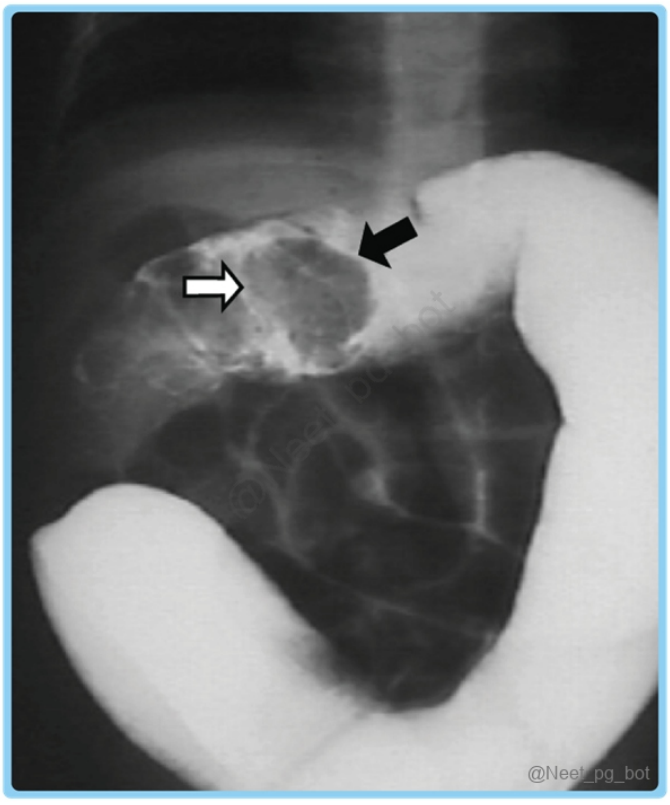
Q39: A baby presented with abdominal pain. On examination, a mass is palpated in the left lumbar region. A barium enema is done, and the image is given below. What is the likely diagnosis? (Q856071)

A. Intussusception

B. Volvulus

C. Duodenal atresia

D. Intestinal obstruction



See Answer in Part B → Q39

@Neet_pg_bot

Q40: A 10-year-old child presents with diarrhea and weight loss. On examination, the height and weight are lesser than expected. Laboratory investigations were positive for class II HLA-DQ2. Which of the following will you advise the child? (Q856114)

A. Fat-free diet

B. Lactose-free diet

C. Low carbohydrate diet

D. Gluten-free diet

See Answer in Part B → Q40

@Neet_pg_bot

Q41: A child presented with a history of loose stools with an increase in frequency for 4 days. On examination, he is drowsy, unable to feed, and skin on pinching goes back very slowly. According to the integrated management of neonatal and childhood illness (IMNCI), thischild will be classified as having: (Q856116)

A. Mild dehydration

B. Some dehydration

C. Severe dehydration

D. Moderate dehydration

See Answer in Part B → Q41

@Neet_pg_bot

Q42: While evaluating a 3-year-old with short stature, height is measured at 90cm and the lower segment is 45 cm. What is the likely diagnosis? (Q852540)

A. Achondroplasia

B. Congenital hypothyroidism

C. Rickets

D. Spondyloepiphyseal dysplasia

See Answer in Part B → Q42

@Neet_pg_bot

Q43: At which of the following ages does maximum brain growth occur? (Q844231)

A. 1 year

B. 2 years

C. 3 years

D. 4 years

See Answer in Part B → Q43

@Neet_pg_bot

Q44: A 10 year old child presented to the clinic with complaints of recurrent infection. Physical examination shows low height for age and Z line score is <-2SD. The parents also have a history of incorrect feeding method. What is the appropriate term for the above mentioned condition? (Q820479)

A. Stunting

B. Wasting

C. Malnutrition

D. Kwashiorkor

See Answer in Part B → Q44

@Neet_pg_bot

Q45: Which of the following is the best sign to indicate adequate growth in an infant with a birth weight of 2.8 kg? (Q855497)

A. Increase in length of 25 cm in the first year

B. Weight gain of 300 grams per month till 1 year

C. Anterior fontanelle closure by 6 months of age

D. Weight under the 75th percentile and height under the 25th percentile

See Answer in Part B → Q45

@Neet_pg_bot

Q46: At what age would a child normally be able to make a tower of 6 cubes, turn a doorknob, and use pronouns like "I" "me" or "you" ? (Q488282)

A. 36 months

B. 18 months

C. 15 months

D. 24 months

See Answer in Part B → Q46

@Neet_pg_bot

Q47: A mother expresses concern about her child's unwillingness to eat properly . Her 15-month-old son's length falls 2 standard deviations below the median for his age . What is the most probable medical condition ? (Q793765)

A. Acute malnutrition

B. Severe wasting

C. Moderately underweight

D. Moderate stunting

See Answer in Part B → Q47

@Neet_pg_bot

Q48: A 3-year-old child is brought to the OPD for a regular check-up. His growth chart shows a BMI between the 85th and 95th percentile . Which of the following categories would you place him in? (Q793757)

A. Moderate wasting

B. Severe acute malnutrition

C. Overweight

D. Obese

See Answer in Part B → Q48

@Neet_pg_bot

• [14_Pediatric Nephrology] 035 Renal Development And Congenital Disorders

« Back to Folder Directory

[14_Pediatric Nephrology] 035 Renal Development And Congenital Disorders — Quick Jump

Q1 (p. 386)	*Q2 (p. 386)*	*Q3 (p. 387)*	*Q4 (p. 387)*	*Q5 (p. 387)*	*Q6 (p. 388)*
Q7 (p. 388)	*Q8 (p. 388)*	*Q9 (p. 389)*	*Q10 (p. 389)*	*Q11 (p. 390)*	*Q12 (p. 390)*
Q13 (p. 391)	*Q14 (p. 391)*	*Q15 (p. 392)*	*Q16 (p. 392)*	*Q17 (p. 393)*	*Q18 (p. 393)*
Q19 (p. 394)					

Q1: Which of the following is the most appropriate initial antihypertensive agent for a child with CKD and proteinuria? (Q850304)

A. Metoprolol

B. Amlodipine

C. Enalapril

D. Furosemide

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 13-year-old boy presents with excessive thirst, increased urination, and growth retardation. His family has a history of kidney disease. Laboratory tests show anemia, and ultrasound imaging reveals small, scarred kidneys with a few cysts. Which of the following genes is most likely involved in this patient's condition? (Q850298)

A. PKD1

B. PKD2

C. PKHD1

D. NPHP1

See Answer in Part B → Q2

@Neet_pg_bot

Q3: Which of the following is a common electrolyte imbalance associated with Acute Kidney Injury (AKI)? (Q850307)

A. Hypokalemia

B. Hypercalcemia

C. Hyperkalemia

D. Hyponatremia

See Answer in Part B → Q3

@Neet_pg_bot

Q4: Which type of AKI is most commonly associated with posterior urethral valve? (Q850306)

A. Prerenal AKI

B. Intrarenal AKI

C. Postrenal AKI

D. Hypovolemic AKI

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which of the following is NOT a criterion for diagnosing AKI according to KDIGO guidelines? (Q850305)

A. Increase in serum creatinine by ≥0.3 mg/dL

B. Anuria for 12 hours

C. Urine output less than 0.5 mL/kg/h for 6 hours

D. Decrease in GFR by 25%

See Answer in Part B → Q5

@Neet_pg_bot

Q6: Which stage of CKD is characterized by a GFR of 60-89 mL/min/1.73 m^2? (Q850303)

A. Stage 1

B. Stage 2

C. Stage 3

D. Stage 4

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 16 year-old patient presents with sudden onset of flank pain and gross hematuria. Imaging studies reveal an enlarged kidney with a blood clot in the renal vein. Which of the following conditions is most strongly associated with renal vein thrombosis? (Q850302)

A. Hypertension

B. Nephrotic syndrome

C. Polycystic kidney disease

D. Diabetes mellitus

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 5-year-old child presents with a history of bloody diarrhea followed by decreased urine output, lethargy, and paleness. Laboratory tests reveal hemolytic anemia, thrombocytopenia, and elevated creatinine levels. What is the most likely diagnosis? (Q850301)

A. Immune Thrombocytopenic Purpura (ITP)

B. Disseminated Intravascular Coagulation (DIC)

C. Atypical Hemolytic Uremic Syndrome (aHUS)

D. Typical Hemolytic Uremic Syndrome

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 7-year-old female presents with a complaint of continuous urinary incontinence despite normal voiding patterns. Which of the following is the most likely diagnosis? (Q850300)

A. Vesicoureteral reflux

B. Ectopic ureter

C. Urethral stricture

D. Neurogenic bladder

See Answer in Part B → Q9

@Neet_pg_bot

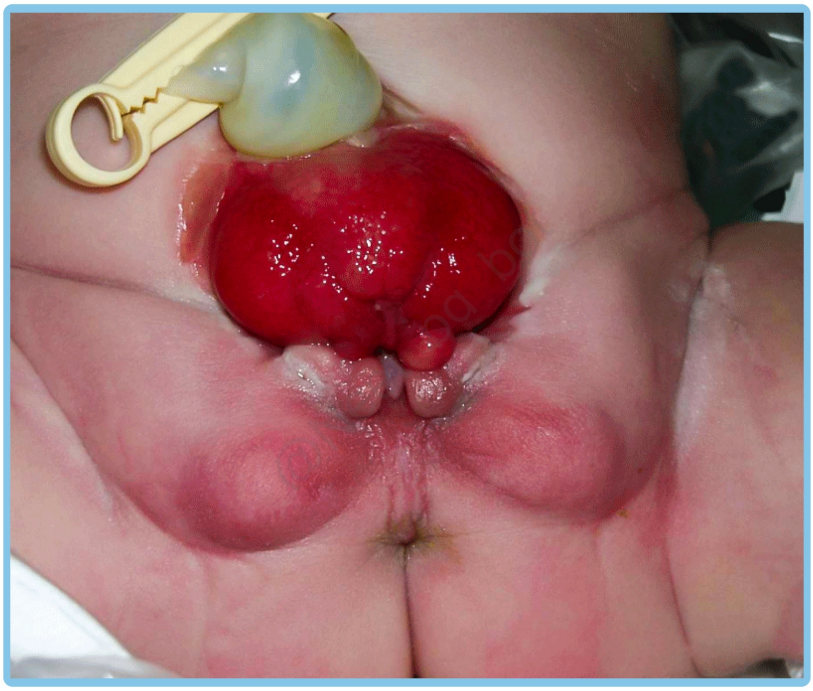
Q10: What is the most likely diagnosis and it’s best initial management? (Q850299)

A. Omphalocele; surgical repair after stabilization

B. Bladder exstrophy; surgery if required

C. Gastroschisis; urgent surgical closure of the defect

D. Bladder exstrophy; cover the exposed bladder with sterile plastic wrap and plan for surgery within the first 72 hours



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See Answer in Part B → Q10

@Neet_pg_bot

Q11: At what gestational age does glomerular filtration begin, indicating the kidney's initial role in fetal fluid balance? (Q850289)

A. 3-4 weeks

B. 5-9 weeks

C. 10-12 weeks

D. 13-15 weeks

See Answer in Part B → Q11

@Neet_pg_bot

Q12: Which of the following statements regarding Autosomal Dominant Polycystic Kidney Disease (ADPKD) are true? Kidneys are enlarged Cysts originates from all regions of a nephron Symptomatic most commonly in the fourth or fifth decade Majority of the cases are PKD1 mutation which is more severe Associated with saccular cerebral aneurysms Cysts seen in other organs as well (Q850297)

A. 1,2,5

B. 2,6

C. 1,2,5,6

D. 1,2,3,4,5,6

See Answer in Part B → Q12

@Neet_pg_bot

Q13: An 8-year-old boy has a genetic disease involving the PKHD1 gene which encodes for fibrocystin. Which of the following features will not be found in him? (Q850296)

A. Large cystic kidneys

B. Progressive hepatic fibrosis

C. Spontaneous pneumothorax

D. Hypotension

See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following statements about Horseshoe kidney is false? (Q850295)

A. Lower poles fused in midline

B. Isthmus ascent is prevented by Inferior mesenteric artery.

C. Can be associated with Multicystic Dysplastic Kidney (MCDK) affecting one side.

D. Isthmectomy is done to relieve symptoms

See Answer in Part B → Q14

@Neet_pg_bot

Q15: Which of the following statements regarding Multicystic Dysplastic Kidney (MCDK) is false? (Q850294)

A. Usually unilateral

B. Increased risk of Wilms tumor

C. Most common cause of abdominal mass in newborn

D. Mostly autosomal dominant inheritance

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A neonate died shortly after birth due to pulmonary hypoplasia. The neonate has characteristic “Potter Facies” as given below. What is the basic etiology of this condition? (Q850293)

A. Bilateral renal agenesis

B. Hepatic agenesis

C. Urinary outlet obstruction

D. Lack of pulmonary circulation



See Answer in Part B → Q16

@Neet_pg_bot

Q17: A child 5 y/o who had recurrent UTI when evaluated was incidentally found to have a simple renal cyst of 1 cm diameter. What is the treatment plan for this child? (Q850292)

A. Nil intervention and follow up

B. Surgical Excision

C. Regular follow up .

D. Medical Management

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 6-year-old child has a height of 110 cm and a serum creatinine level of 0.8 mg/dL. Using the Schwartz formula with a constant "k" value of 0.42, what is the estimated GFR (mL/min/1.73 m²)? (Q850291)

A. 50.75 mL/min/1.73 m²

B. 57.75 mL/min/1.73 m²

C. 61.75 mL/min/1.73 m²

D. 66.75 mL/min/1.73 m²

See Answer in Part B → Q18

@Neet_pg_bot

Q19: A 5-year-old child presents with persistent hypertension and growth retardation. Urine examination reveals proteinuria, and blood tests show elevated creatinine levels. Which of the following methods is the most appropriate for estimating the glomerular filtration rate (GFR) in this child? (Q850290)

A. Serum creatinine measurement

B. Blood urea nitrogen (BUN) test

C. Creatinine clearance

D. Clearance of PAH (Paraaminohippuric acid)

See Answer in Part B → Q19

@Neet_pg_bot

• [14_Pediatric Nephrology] 036 Renal Disorders

« Back to Folder Directory

[14_Pediatric Nephrology] 036 Renal Disorders — Quick Jump

Q1 (p. 395)	*Q2 (p. 395)*	*Q3 (p. 396)*	*Q4 (p. 396)*	*Q5 (p. 396)*	*Q6 (p. 397)*
Q7 (p. 397)	*Q8 (p. 398)*	*Q9 (p. 398)*	*Q10 (p. 399)*	*Q11 (p. 399)*	*Q12 (p. 400)*
Q13 (p. 400)	*Q14 (p. 400)*	*Q15 (p. 401)*	*Q16 (p. 401)*	*Q17 (p. 402)*	*Q18 (p. 402)*
Q19 (p. 403)					

Q1: A 7-year-old child presents with symptoms indicative of acute pyelonephritis, including high fever, flank pain and nausea. The child is stable but unable to tolerate oral medications. What is the most appropriate initial treatment for this child? (Q850335)

A. Start oral Nitrofurantoin and follow with a 3-day course of antibiotics.

B. Begin intravenous Ceftriaxone and transition to oral Cefixime after 3 days.

C. Administer oral Amoxicillin and monitor for 5 days.

D. Initiate treatment with intravenous Fluoroquinolones and assess after 7 days.

See Answer in Part B → Q1

@Neet_pg_bot

Q2: Which of the following features will not be seen in a child with Type I RTA? (Q850322)

A. Urine pH < 5.5

B. Nephrocalcinosis

C. Hypercalciuria

D. Bone diseases

See Answer in Part B → Q2

@Neet_pg_bot

Q3: Which of the following laboratory findings is not indicative of Minimal Change Disease (MCD) compared to Post-Streptococcal Glomerulonephritis (PSGN)? (Q850339)

A. Normal serum complement C3

B. Hypercholesterolemia

C. Prominent hematuria

D. Heavy proteinuria on dipstick

See Answer in Part B → Q3

@Neet_pg_bot

Q4: Match the grade of VUR with its description. Grade of VUR Description 1. Grade I A. Reflux into a grossly dilated ureter 2. Grade II B. Reflux into a nondilated ureter 3. Grade III C. Massive reflux with significant ureteral dilation and tortuosity 4. Grade IV D. Reflux into the upper collecting system without dilation 5. Grade V E. Reflux into a dilated ureter and/or blunting of calyceal fornices (Q850334)

A. 1-B, 2-D, 3-E, 4-A, 5-C

B. 1-A, 2-E, 3-C, 4-D, 5-B

C. 1-D, 2-C, 3-A, 4-E, 5-B

D. 1-E, 2-B, 3-D, 4-C, 5-A

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which of the following correctly represents the classic triad of symptoms associated with Prune Belly Syndrome? (Q850333)

A. Deficient abdominal musculature, hydronephrosis and pulmonary hypoplasia.

B. Cryptorchidism, urinary tract abnormalities and pulmonary hypoplasia.

C. Deficient abdominal musculature, cryptorchidism and urinary tract abnormalities.

D. Cryptorchidism, gastrointestinal malformations and hydronephrosis.

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 6-year-old child presents with recurrent episodes of flank pain, hematuria and failure to thrive. An abdominal ultrasound reveals bilateral hydronephrosis and a voiding cysto-urethrogram (VCUG) shows no evidence of vesico-ureteric reflux (VUR). Laboratory tests reveal hypercalciuria. What is the most appropriate initial management for this patient? (Q850332)

A. Immediate surgical intervention

B. Increased fluid intake and dietary modification

C. Start on antibiotics to prevent UTI

D. Dietary calcium restriction

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 2-month-old male infant presents with a history of reduced urine passage and recurrent UTIs. His antenatal scan showed findings as below. Which of the following is the most appropriate next step in confirming the diagnosis ? (Q850331)

A. Renal ultrasound

B. Retrograde Urethrogram

C. Voiding cystourethrogram (VCUG)

D. Intravenous pyelography (IVP)



See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 5-year-old boy presents with an asymptomatic flank mass. Ultrasonography reveals a dilated renal pelvis without ureteric dilatation. Which of the following is the most appropriate next step in confirming the diagnosis? (Q850328)

A. Intravenous pyelography (IVP)

B. MAG 3 scan

C. MRI

D. CT scan

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 6-year-old boy with muscle spasms and polyuria has been diagnosed with Gitelman syndrome. Which of the following is not likely to be seen in him? (Q850326)

A. Hypochloremia

B. Hypokalemia

C. Hypocalciuria

D. Hypermagnesemia

See Answer in Part B → Q9

@Neet_pg_bot

Q10: Which of the following is the cause of Type IV RTA? (Q850324)

A. Hypoaldosteronism

B. Pseudohypoaldosteronism

C. Either A or B

D. Neither A or B

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following is a characteristic renal biopsy finding in post-streptococcal glomerulonephritis (PSGN)? (Q850308)

A. Immune complex deposition in the mesangial area

B. Subepithelial immune complex deposits with a hump appearance

C. Linear staining of glomerular basement membrane for IgG

D. Diffuse glomerular sclerosis with hyaline deposits

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 2-year-old child presents with polyuria, growth failure, fair skin, blond hair, and photophobia. Slit-lamp examination reveals cystine crystals in the cornea. Which genetic mutation is most likely responsible for this patient's condition? (Q850320)

A. CFTR

B. PKD1

C. CTNS

D. HFE

See Answer in Part B → Q12

@Neet_pg_bot

Q13: Which of the following statements about Fanconi syndrome is false? (Q850318)

A. Rickets is seen

B. Anorexia is a symptom

C. Growth retardation is seen

D. Only tubular dysfunction is bicarbonaturia

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 3 month old infant is diagnosed with congenital nephrotic syndrome (CNS) and presents with severe generalised edema, recurrent infections and failure to thrive. Genetic testing reveals a mutation of NPHS1 gene. Which of the following is the definitive treatment for this patient's condition? (Q850317)

A. Albumin infusions and diuretics

B. ACE inhibitors and/or angiotensin II receptor blockers

C. Bilateral nephrectomy followed by chronic dialysis

D. Renal transplantation

See Answer in Part B → Q14

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Q15: A 3 month old infant presents with severe generalised edema and poor growth even with adequate feeds and recurrent infections. On further investigations, the infant is found to have hypoalbuminemia and proteinuria. Genetic testing confirms a mutation in the NPHS1 gene. Which of the following conditions is most likely associated with this clinical presentation? (Q850316)

A. Denys-Drash syndrome

B. Finnish type of Congenital Nephrotic Syndrome

C. Pierson syndrome

D. Focal segmental glomerulosclerosis (FSGS)

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 2-month-old infant presents with generalised edema, hypoalbuminemia, and oliguria. Prenatal records indicate elevated alpha-fetoprotein (AFP) levels in maternal serum and amniotic fluid. Which of the following genetic mutations is most likely responsible for this condition? (Q850314)

A. WT1

B. NPHS1

C. PLCE1

D. NPHS2

See Answer in Part B → Q16

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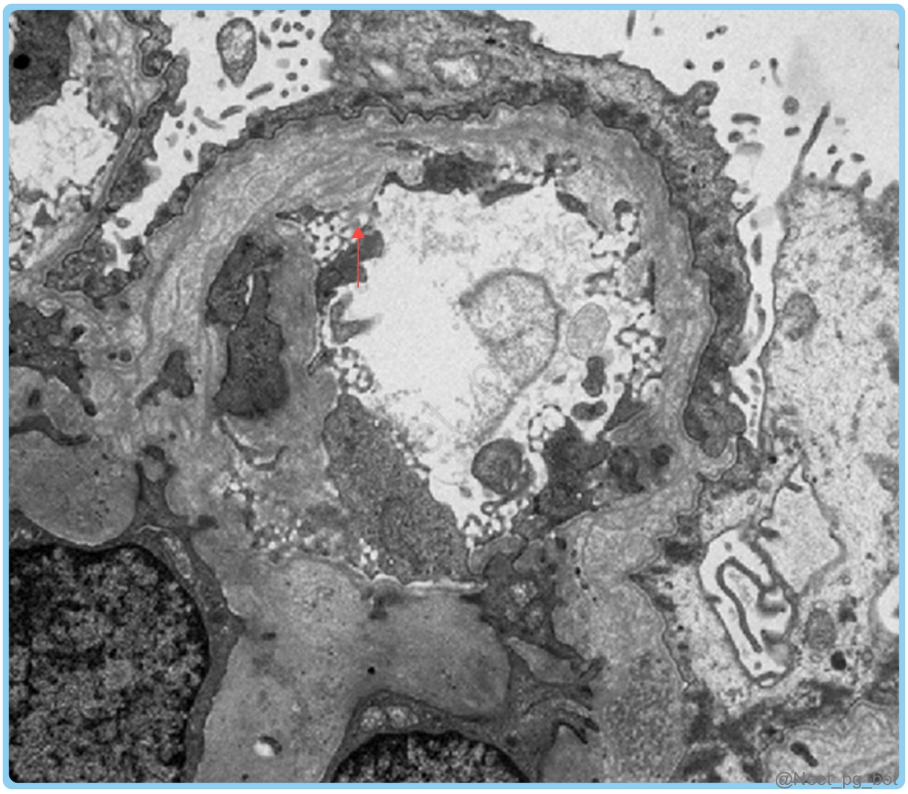
Q17: A 13 y/o child presents with progressive hearing loss and occasional visual disturbances. His investigation reports show persistent microscopic hematuria and moderate proteinuria. Kidney biopsy shows irregularities in the glomerular basement membrane. Genetic testing reveals a mutation in the COL4A gene. What is the most likely diagnosis? (Q850312)

A. Alport Syndrome

B. Goodpasture Syndrome

C. IgA Nephropathy

D. Thin Basement Membrane Disease



See Answer in Part B → Q17

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Q18: A 13 year old boy who has upper respiratory infections presents with recurrent episodes of blood in his urine and hypertension. A renal biopsy reveals IgA deposition in the mesangium. Which of the following is the most appropriate initial treatment for controlling his condition? (Q850310)

A. Daily use of diuretics

B. ACE inhibitors or angiotensin II receptor blockers

C. Antibiotics to prevent infections

D. High-dose corticosteroids

See Answer in Part B → Q18

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Q19: A 13 year old boy presents with hemoptysis. His investigation reports are suggestive of rapidly worsening renal function. Kidney biopsy shows linear IgG deposits along the glomerular basement membrane. Which type of rapidly progressive glomerulonephritis (RPGN) is most consistent with these findings? (Q850309)

A. Type I RPGN (Anti-GBM Antibody Disease)

B. Type II RPGN (Immune Complex Mediated)

C. Type III RPGN (Pauci-Immune)

D. Membranoproliferative glomerulonephritis

See Answer in Part B → Q19

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• [14_Pediatric Nephrology] 037 Previous Year Questions

« Back to Folder Directory

[14_Pediatric Nephrology] 037 Previous Year Questions — Quick Jump

Q1 (p. 404)	*Q2 (p. 404)*	*Q3 (p. 405)*	*Q4 (p. 405)*	*Q5 (p. 405)*	*Q6 (p. 406)*
Q7 (p. 406)	*Q8 (p. 407)*	*Q9 (p. 407)*	*Q10 (p. 407)*	*Q11 (p. 408)*	*Q12 (p. 409)*
Q13 (p. 409)	*Q14 (p. 410)*	*Q15 (p. 410)*			

Q1: A 12-year-old child is diagnosed with systemic lupus erythematosus (SLE) and presents with nephrotic-range proteinuria. Renal biopsy reveals "wire loop lesions. Which of the following is the drug of choice in this case? (Q865419)

A. IV Steroids only

B. IV Steroids + cyclophosphamide

C. Mycophenolate mofetil

D. Cyclophosphamide only

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 5-year-old child with chronic kidney disease (CKD) presents with bow legs. Laboratory investigations reveal: Serum Calcium: 9.1 mg/dL (normal) Serum Phosphate: 6.9 mg/dL (elevated) Alkaline Phosphatase: Elevated 25(OH) Vitamin D: Low What is the most appropriate next step in management? (Q866394)

A. Calcium supplementation

B. Phosphate binder

C. Oral calcium + Vitamin D

D. Growth hormone therapy

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 10-year-old child, treated with antibiotics for follicular tonsillitis, presents with periorbital edema. Blood work reveals eosinophilia and urine microscopy shows WBC casts. What is the most likely diagnosis? (Q840084)

A. Pyelonephritis

B. Allergic interstitial nephritis

C. Glomerulonephritis

D. IgA nephritis

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 4-year-old child presents with a 14 cm tender mass in the flank region. The parents report noticing the mass gradually increasing in size over the past few weeks. On physical examination, the child appears well but discomforted due to the mass. The mass is non-fluctuant, firm, and non-mobile, with no signs of inflammation or skin changes. There are no other associated symptoms. What is the most likely diagnosis? (Q820483)

A. Wilm’s tumor

B. Angiomyolipoma

C. Renal cell carcinoma

D. Neuroblastoma

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 4-year-old male child with a body weight of 15kg and height of 100cm is admitted with renal failure. His blood urea was 100 mg/dL and serum creatinine was 1

mg/dL. What is the closest calculated eGFR in the patient? (Q855027)

A. 33 ml/min/1.73 m2 BSA

B. 40 ml/min/1.73 m2 BSA

C. 55 ml/min/1.73 m2 BSA

D. 80 ml/min/1.73 m2 BSA

See Answer in Part B → Q5

@Neet_pg_bot

Q6: Regarding urinary tract infection (UTI) in children, which of the following is true? Most common cause of UTI is Streptococcus pneumoniae. Bowel, bladder dysfunction increases the risk of recurrence. Cotrimoxazole is not given. Micturating cysto-urethrogram (MCU) is done in children with recurrence of UTI. (Q855048)

A. 1, 3, 4

B. 2, 4

C. 2, 3, 4

D. 1, 4

See Answer in Part B → Q6

@Neet_pg_bot

Q7: An 8-year-old boy presented with dark-coloured urine, oliguria, hypertension, and facial puffiness for 3 days. The urine test is positive for albumin. He had a history of throat infection 2 weeks back. On microscopic examination, enlarged, pale glomeruli and epithelial humps are seen. Which of the following is the most likely diagnosis? (Q857589)

A. Post-staphylococcal glomerulonephritis

B. Post-streptococcal glomerulonephritis

C. Nephrotic syndrome

D. IgA nephropathy

See Answer in Part B → Q7

@Neet_pg_bot

Q8: What is the most probable diagnosis for a young girl who experiences constant urine dribbling, despite voiding normally, and has never been completely dry since birth, according to her parents? (Q856428)

A. Ectopic ureter

B. Ureterocele

C. Congenital megaureter

D. Vesicoureteric reflux

See Answer in Part B → Q8

@Neet_pg_bot

Q9: What is true about vaccination in a child with steroid-dependent nephrotic syndrome who is brought to the OPD? (Q856449)

A. All live vaccines under NIS can be given as per schedule

B. All killed vaccines under NIS can be given

C. Only pneumococcal vaccine should be given to the child in the acute phase

D. Live vaccines are contraindicated in the child's sibling

See Answer in Part B → Q9

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Q10: A male infant was brought to the emergency pediatric unit with abdominal distention. There was a history of recurrent urinary tract infections. On examination,

he was found to have urinary retention. Imaging showed bilateral hydronephrosis. What could be the probable diagnosis of his condition? (Q859501)

A. Vesicoureteric reflux

B. Posterior urethral valves

C. Horseshoe kidney

D. Pelviureteric junction obstruction

See Answer in Part B → Q10

@Neet_pg_bot

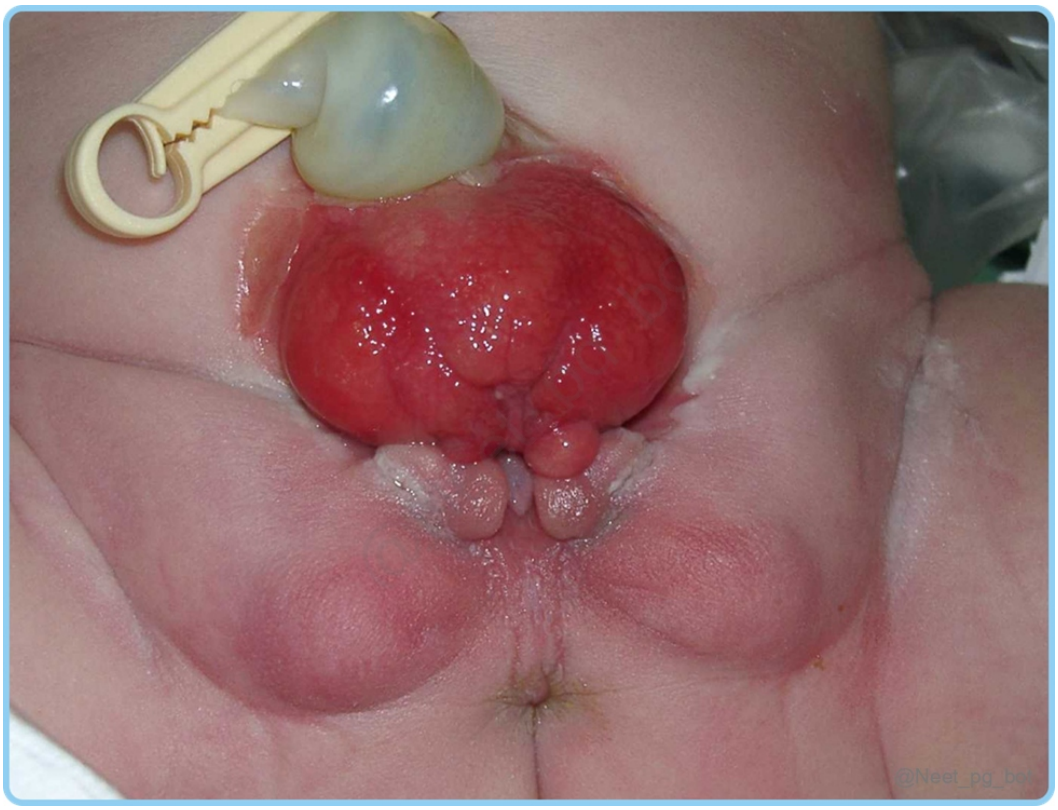
Q11: Identify the condition? (Q856103)

A. Bladder exstrophy

B. Omphalocele

C. Persistent vitellointestinal duct

D. Gastroschisis



See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 10-year-old presents with edema and anasarca. A diagnosis of minimal change disease is made. Which of the following is true about this condition? (Q856113)

A. Light microscopy shows effacement of podocytes

B. Good response to steroids

C. Most common in adults

D. Non-selective proteinuria

See Answer in Part B → Q12

@Neet_pg_bot

Q13: 10-year-old child, treated with antibiotics for follicular tonsillitis, presents with periorbital edema. Blood work reveals eosinophilia, and urine microscopy shows WBC casts. What is the most likely diagnosis? (Q853243)

A. Pyelonephritis

B. Allergic interstitial nephritis

C. Glomerulonephritis

D. IgA nephritis

See Answer in Part B → Q13

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Q14: What is the usual method of collecting a sample of urine to detect UTI? (Q852693)

A. Early morning sample

B. Midstream catch

C. Supra pubic catheter

D. Starting stream collection

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 3-year-old boy who presents with repetitive episodes of urinary tract infection. The mother reports that he urinates frequently but has a weak urinary flow and dribbling of urine. Upon examination, a palpable bladder is detected. What is the most sensitive investigation that can be employed to determine the underlying diagnosis? (Q859928)

A. Ultrasonogram

B. Micturating cystourethrography

C. Urine routine examination

D. DMSA scan

See Answer in Part B → Q15

@Neet_pg_bot

• [15_Pediatric Endocrinology] 038 Pituitary Thyroid And Adrenal Disorders

« Back to Folder Directory

[15_Pediatric Endocrinology] 038 Pituitary Thyroid And Adrenal Disorders — Quick Jump

Q1 (p. 412)	*Q2 (p. 412)*	*Q3 (p. 413)*	*Q4 (p. 413)*	*Q5 (p. 414)*	*Q6 (p. 414)*
Q7 (p. 414)	*Q8 (p. 415)*	*Q9 (p. 415)*	*Q10 (p. 416)*	*Q11 (p. 416)*	*Q12 (p. 417)*
Q13 (p. 417)	*Q14 (p. 418)*	*Q15 (p. 418)*	*Q16 (p. 419)*	*Q17 (p. 419)*	*Q18 (p. 420)*

Q1: A 30-year-old woman had been taking medications for depression for the last 3 months, but antidepressants were found not to be very effective with her. The doctor started with another drug, and after 3 weeks, she came for a follow-up and reported that she was able to get sound sleep. The woman was also in her first trimester of pregnancy, but she forgot to tell the psychiatrist and continued to take the drug for the next 2 months. After the delivery, she found that she was not able to feed her baby as there was no lactation. Which of the following drugs led to suppressed lactation in this patient? (Q882138)

A. Amphetamine

B. Carbamazepine

C. Labetalol

D. Ibuprofen

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 10-year-old girl presents with a 3-month history of unexplained weight loss (5 kg) despite increased appetite. She reports feeling constantly warm, sweating excessively, experiencing palpitations, and having decreased concentration in class. On examination, she has visible neck swelling, moist skin, and fine tremors in her outstretched hands. What is the most appropriate initial treatment? (Q850261)

A. Propylthiouracil

B. Methimazole

C. Prednisolone

D. Propranolol

See Answer in Part B → Q2

@Neet_pg_bot

Q3: In a pediatric patient presenting with hypertension and episodic symptoms such as palpitations, sweating, and headaches, which of the following diagnostic tests is most appropriate? (Q850268)

A. Serum calcium level

B. Plasma fractionated metanephrines

C. Thyroid function test

D. MRI of the brain

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A pediatric patient presents with resistant hypertension and hypokalemia. Which of the following diagnostic tests is most appropriate to evaluate for primary hyperaldosteronism? (Q850267)

A. Serum cortisol level

B. Plasma aldosterone concentration to plasma renin activity ratio

C. Serum sodium level

D. 24-hour urinary calcium excretion

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 15-year-old girl presents with weight gain, easy bruising, and fatigue. She has a history of hypertension. O/E, she has a rounded face, purple striae on her abdomen, and proximal muscle weakness. Which of the following is the most appropriate initial diagnostic test to confirm the suspected diagnosis? (Q850266)

A. 24-hour urinary free cortisol test

B. Overnight DST

C. Serum cortisol level measurement at 8 am

D. ACTH stimulation test

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 14-year-old girl presents with fatigue, weight loss, and hyperpigmentation of her skin. She also reports experiencing abdominal pain and orthostatic dizziness. Laboratory tests reveal low serum cortisol levels, elevated ACTH levels, and normal aldosterone levels. What is the most likely diagnosis? (Q850265)

A. Primary adrenal insufficiency

B. Secondary adrenal insufficiency

C. Tertiary adrenal insufficiency

D. Cushing’s syndrome

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 16-year-old girl presents with hypertension, hypokalemia, and amenorrhea. She has a history of reduced secondary sexual characteristics and has not menstruated since puberty. Lab reports reveal elevated serum aldosterone levels, normal cortisol levels, and low serum testosterone levels. What is the most likely diagnosis? (Q850264)

A. 17 ■ hydroxylase deficiency

B. 11 hydroxylase deficiency

C. 3 ■ HSD deficiency

D. None of the above

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 6-week-old infant is brought to the emergency room with symptoms of vomiting, dehydration, and shock. On physical examination, the infant's genitalia are noted to be ambiguous. Initial laboratory tests reveal severe electrolyte imbalances. Given these clinical findings, which of the following is the most likely diagnosis and the appropriate diagnostic test to confirm it? (Q850263)

A. 21-Hydroxylase deficiency with simple virilizing form; ACTH stimulation test with 17-OHP levels

B. 21-Hydroxylase deficiency with salt-wasting form; elevated 17-OHP levels

C. Non-Classic 21-Hydroxylase deficiency; Measurement of 17-OHP levels before and after ACTH stimulation

D. 11-Hydroxylase deficiency; Hydrocortisone alone

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 5-day-old neonate is admitted to the NICU with tachycardia, irritability, and poor weight gain. The infant's mother has a history of Graves' disease and was treated with propylthiouracil throughout her pregnancy. Initial examination reveals a heart rate of 170 bpm, and thyroid function tests show elevated T3 and T4 levels with suppressed TSH.Which of the following statements about this condition is false? (Q850262)

A. Affects infants born to mothers with Graves' disease

B. Treatment with corticosteroids only

C. Symptoms of neonatal thyrotoxicosis can be delayed due to maternal antithyroid medications

D. Infants are prone to cardiac failure

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 6-year-old boy is brought to the clinic due to concerns about his short stature. His height is below the 1st percentile for age, and his growth velocity has been consistently below the 25th percentile for the past two years. He was born at term with normal birth weight and length. Physical examination reveals proportionate short stature without dysmorphic features. Laboratory tests show low IGF-1 levels and two provocative growth hormone stimulation tests reveal peak GH levels of 3 ng/mL and 4 ng/mL. Which of the following is the most appropriate next step in management? (Q850252)

A. Observe and reassess in 6 months as normal growth might occur on its own

B. Start recombinant human growth hormone therapy

C. Perform genetic testing for PROP1 mutations

D. Initiate monotherapy with gonadotropin-releasing hormone agonist to delay epiphyseal fusion

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 7-year-old child from a region with known iodine deficiency presents to the clinic with symptoms including developmental delay, short stature, and coarse facial features. The child's parents report a high prevalence of goiter in their community. To prevent similar cases in the future, which of the following preventive measures is the most appropriate? (Q850260)

A. Prescribing high-dose thyroid hormone replacement therapy

B. Recommending the use of iodinated salt or iodized oil

C. Advising on a diet high in vegetables and fruits

D. Performing regular thyroid function tests for all community members

See Answer in Part B → Q11

@Neet_pg_bot

Q12: What is the most effective method for screening newborns for congenital hypothyroidism to ensure early detection and intervention? (Q850259)

A. Heel prick test for TSH

B. Heel prick test for thyroid hormone (T4 and T3)

C. USG of the thyroid gland

D. Clinical assessment of physical signs of hypothyroidism

See Answer in Part B → Q12

@Neet_pg_bot

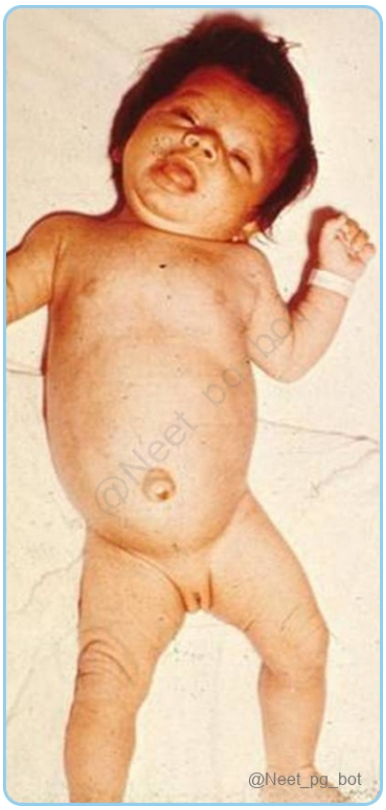
Q13: Which of the following is not typically a finding in the shown condition? (Q850258)

A. Poor feeding

B. Constipation

C. Hypertonia

D. Jaundice



See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following is not typically associated with MEN 1 syndrome? (Q850257)

A. Pituitary adenoma

B. Hyperparathyroidism

C. Gastrinoma

D. Medullary thyroid carcinoma

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 10-year-old child presents with excessive thirst and frequent urination for the past several months, causing him to wake up multiple times at night to drink water. Lab tests show hypernatremia and dilute urine with low urine osmolality. What is the most appropriate treatment for managing his condition? (Q850256)

A. Insulin therapy

B. Desmopressin

C. Metformin

D. Spironolactone

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 10-year-old girl presents to her primary care physician with complaints of excessive thirst and urination for the past 3 months. Laboratory tests reveal: Serum sodium: 147 mEq/L (Normal: 135-145 mEq/L) Serum osmolality: 305 mOsm/kg (Normal: 275-295 mOsm/kg) Urine osmolality: 150 mOsm/kg (Normal: 300-900 mOsm/kg) Urine specific gravity: 1.005 (Normal: 1.005-1.030) A water deprivation test is performed, and after 8 hours, the patient's urine osmolality remains at 200 mOsm/kg. Administration of desmopressin results in a rapid increase in urine osmolality to 600 mOsm/kg within 2 hours. Which of the following is the most characteristic symptom of this condition? (Q850255)

A. Polyuria and polydipsia

B. Hyperglycemia

C. Edema

D. Polyphagia

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 12-year-old boy is brought to the endocrinology clinic due to rapid growth over the past year. He has grown 12 cm in the last 12 months and is now 175 cm tall (>97th percentile). Physical examination reveals coarse facial features, large hands and feet, and a deep voice. Laboratory tests show elevated IGF-1 and IGFBP-3 levels. An oral glucose tolerance test fails to suppress GH levels below 5 ng/mL. An MRI of the brain revealed no significant findings. What is the most appropriate initial treatment for this patient? (Q850254)

A. Trans-sphenoidal surgery

B. Pegvisomant

C. Octreotide

D. Cabergoline

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A pediatric endocrinology fellow is reviewing hormone profiles of patients with various growth disorders. Match the following conditions with their expected hormone levels: a. GHRH deficiency 1. Low GH, low IGF-1, normal or high GHRH b. GHRH receptor resistance 2. High GH, low IGF-1, high GHRH c. GH deficiency 3. Low GH, low IGF-1, low GHRH d. GH receptor resistance (Laron syndrome) 4. Normal or high GH, low IGF-1, high GHRH (Q850253)

A. a-3, b-1, c-1, d-2

B. a-3, b-4, c-1, d-2

C. a-1, b-2, c-3, d-3

D. a-3, b-1, c-4, d-2

See Answer in Part B → Q18

@Neet_pg_bot

• [15_Pediatric Endocrinology] 039 Pediatric Endocrinology And Metabolism

« Back to Folder Directory

[15_Pediatric Endocrinology] 039 Pediatric Endocrinology And Metabolism — Quick Jump

Q1 (p. 421)	*Q2 (p. 421)*	*Q3 (p. 422)*	*Q4 (p. 422)*	*Q5 (p. 423)*	*Q6 (p. 424)*
Q7 (p. 424)	*Q8 (p. 424)*	*Q9 (p. 425)*	*Q10 (p. 425)*	*Q11 (p. 426)*	*Q12 (p. 426)*
Q13 (p. 426)	*Q14 (p. 427)*	*Q15 (p. 427)*	*Q16 (p. 428)*	*Q17 (p. 428)*	*Q18 (p. 428)*

Q1: Which of the following clinical features is most likely associated with severe Diabetic Ketoacidosis? (Q850243)

A. Venous pH between 7.25 and 7.35, alert patient

B. Venous CO 2 between 16 and 20 mEq/L, patient with mild fatigue

C. Venous pH less than 7.15, patient with Kussmaul respirations and depressed sensorium

D. Venous CO 2 between 10 and 15 mEq/L, patient who is sleepy but arousable

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 17 y/o patient presents with symptoms of polyuria, polydipsia, and fatigue. The patient reports a family history of diabetes and has recently experienced weight loss. Genetic testing identifies a mutation in the GCK gene. Based on this information, what is the most likely diagnosis? (Q850251)

A. Type 1 Diabetes Mellitus

B. Type 2 Diabetes Mellitus

C. Maturity Onset Diabetes of the Young

D. Latent Autoimmune Diabetes of Adults

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 13-year-old female presents for a routine check-up. Physical examination reveals terminal pubic hair covering the entire pubic triangle and an elevated areola with a “double scoop” appearance. Which Tanner stage is most appropriate for this patient? (Q850250)

A. Stage 2

B. Stage 3

C. Stage 4

D. Stage 5

See Answer in Part B → Q3

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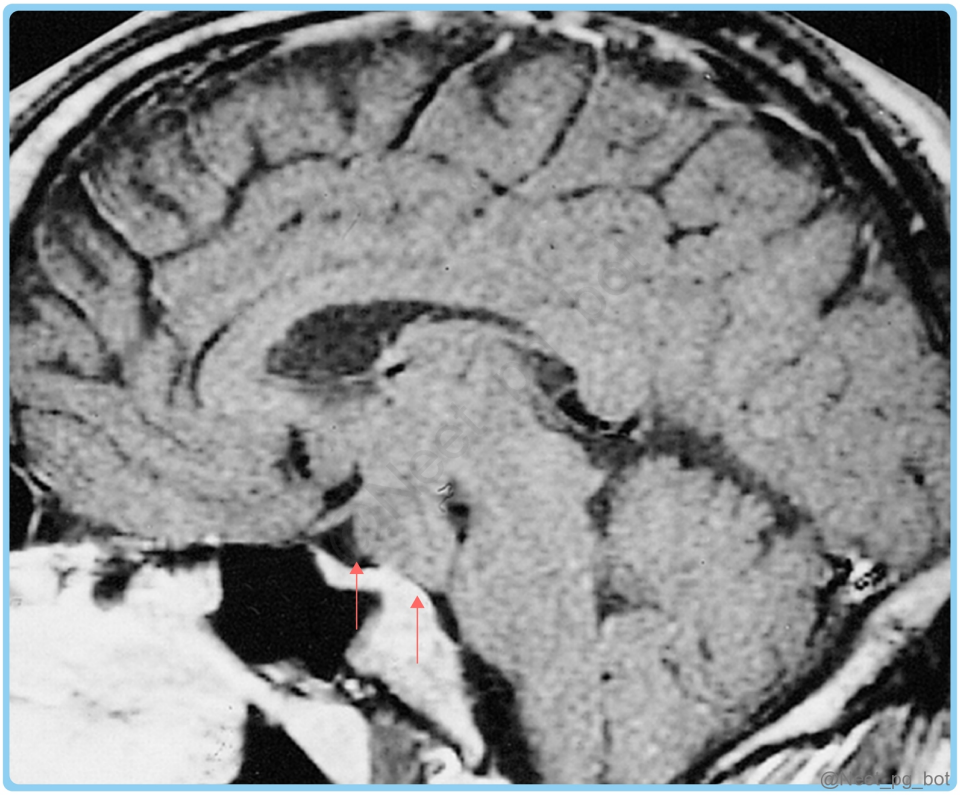
Q4: A 5 y/o girl presents with early-onset and rapid progression of puberty, frequent laughing spells, and seizures. An MRI is performed and the image is given below. What is the most likely diagnosis? (Q850249)

A. Craniopharyngioma

B. Hypothalamic hamartoma

C. Hydrocephalus

D. Head trauma



See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 10 y/o boy presents with a 2-year history of weight gain. His height is in the 90th percentile, weight is in the 95th percentile, and there are no developmental delays or dysmorphic features. Both parents are obese, and there is no history of neurological issues or chronic medication use. What is the most likely cause of his obesity? (Q850248)

A. Cushing syndrome

B. Hypothyroidism

C. Constitutional obesity

D. Prader-Willi syndrome

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 7-year-old child with obesity is enrolled in a weight management program. The family is introduced to the Traffic Light Diet, and they struggle with understanding which foods should be prioritized for their child. Which of the following foods should be categorized as "Yellow" in the Traffic Light Diet? (Q850247)

A. Fried chicken

B. Carrot sticks

C. Whole grain bread

D. Candy

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 5 y/o child presents with obesity, feeding difficulties in infancy, developmental delays, and a history of behavioural issues like anxiety and obsessive-compulsive disorder. O/E, you note small hands and dysmorphic facial features. Which genetic syndrome best describes the child's condition? (Q850246)

A. Prader-Willi Syndrome

B. Laurence-Moon-Bardet-Biedl Syndrome

C. Down Syndrome

D. Turner Syndrome

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 6-year-old girl with a BMI in the 98th percentile presents with lethargy, frequent thirst, increased urination, and dark patches on her neck. What is the most likely diagnosis? (Q850245)

A. Type 2 Diabetes Mellitus (T2DM) with associated obesity.

B. Hypothyroidism with weight gain.

C. Cystic Fibrosis-related diabetes (CFRD).

D. Adrenal insufficiency.

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 12 y/o girl is undergoing treatment for diabetic ketoacidosis (DKA). After an initial bolus of 0.9% saline, she is started on an insulin infusion at 0.1 U/kg/h after an hour. Several hours later, her blood glucose level decreased to 260 mg/dL. What should be the next step in her management? (Q850244)

A. Increase the insulin infusion rate

B. Stop insulin therapy

C. Add 5% dextrose to the IV fluids

D. Administer an additional bolus of 0.9% saline

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 7y/o girl presents with early breast development and rapid growth. Examination shows Tanner's stage 3 breasts and her height is above the 90th percentile. Blood tests reveal elevated LH levels. What is the most likely diagnosis? (Q850234)

A. Peripheral Precocious Puberty

B. Constitutional delayed puberty

C. Premature Thelarche

D. Central Precocious Puberty

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following insulin regimes is considered more flexible in terms of meal timing and carbohydrate intake? (Q850242)

A. Basal-Bolus Regimen

B. Three Daily Injection Regimen

C. Once-daily injection of long-acting insulin only

D. Twice-daily injection of short-acting insulin only

See Answer in Part B → Q11

@Neet_pg_bot

Q12: Which of the following criteria is NOT diagnostic of Type 1 Diabetes Mellitus? (Q850241)

A. A fasting plasma glucose level of ≥ 126 mg/dL.

B. A 2-hour plasma glucose level of ≥ 200 mg/dL on OGTT.

C. A random plasma glucose level of ≥ 180 mg/dL with symptoms of diabetes.

D. Haemoglobin A1c ≥ 6.5%

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 16 y/o girl with normal breast development presents with primary amenorrhea. An ultrasound shows an absent uterus and undescended testes. Laboratory results reveal elevated androgen levels, normal estrogen levels, and a 46, XY karyotype. A mutation in the AR gene is confirmed. What is the most likely diagnosis? (Q850240)

A. Complete Androgen Insensitivity Syndrome

B. Partial Androgen Insensitivity Syndrome

C. Mild Androgen Insensitivity Syndrome

D. Klinefelter Syndrome

See Answer in Part B → Q13

@Neet_pg_bot

Q14: Which of the following conditions is classified as a 46, XY DSD? (Q850239)

A. Placental aromatase deficiency

B. 17β-HSD deficiency

C. Klinefelter syndrome

D. 21-hydroxylase deficiency

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 24-week-old fetus is found to have ambiguous genitalia during a routine ultrasound. Karyotyping reveals a 46, XY chromosomal pattern. Ultrasound and examination indicate underdeveloped male internal genitalia and features more typical of female external genitalia. Which of the following is the most likely explanation for this presentation? (Q850238)

A. Deficient Expression of SRY

B. Excessive SOX9 Activity

C. Absent AMH Production

D. Decreased DAX1 Expression

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 14-year-old boy presents with delayed puberty and is significantly below the 3 rd percentile for height. His laboratory tests reveal low levels of luteinizing hormone (LH) and follicle-stimulating hormone (FSH). What is the most likely cause of his delayed puberty? (Q850237)

A. Constitutional Delay

B. Hypogonadotropic Hypogonadism

C. Hypergonadotropic Hypogonadism

D. Klinefelter Syndrome

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 7 y/o boy is evaluated due to early signs of puberty, including the development of pubic hair, a noticeable growth spurt, increased testicular volume, and significantly advanced bone age. Blood tests show elevated basal luteinizing hormone (LH) levels. What is the most probable cause of his early pubertal development? (Q850236)

A. Central precocious puberty

B. Peripheral precocious puberty due to congenital adrenal hyperplasia

C. Peripheral precocious puberty due to an hCG-secreting tumour

D. Peripheral precocious puberty due to an androgen-secreting testicular tumour

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 5 y/o girl is brought to the clinic with a history of irregular vaginal bleeding, early breast development and an advanced bone age. The examination findings of her skin are given below. What is the underlying cause of her symptoms? (Q850235)

A. McCune-Albright syndrome

B. Central precocious puberty

C. Hypothyroidism

D. Adrenal hyperplasia



See Answer in Part B → Q18

@Neet_pg_bot

• [15_Pediatric Endocrinology] 040 Previous Year Questions

« Back to Folder Directory

[15_Pediatric Endocrinology] 040 Previous Year Questions — Quick Jump

Q1 (p. 430) *Q2 (p. 430)* *Q3 (p. 430)* *Q4 (p. 431)* *Q5 (p. 431)* *Q6 (p. 432)*
Q7 (p. 432) *Q8 (p. 432)* *Q9 (p. 433)* *Q10 (p. 433)* *Q11 (p. 434)*

Q1: A 15-year-old child presents with progressive enlargement of hands and feet, coarse facial features, prominent enlarged jaw, and frontal bossing. What is the most definitive test to confirm the diagnosis? (Q866401)

A. Increased IGF-1

B. Increased IGF-1 with oral glucose challenge test

C. Increased GH

D. Increased GH with oral glucose challenge test

See Answer in Part B → Q1

@Neet_pg_bot

Q2: When is a blood sample taken to diagnose neonatal hypothyroidism? (Q852495)

A. Immediately from the umbilical cord

B. 24 hours after delivery

C. 23-48 hours after delivery

D. 72 hours after delivery

See Answer in Part B → Q2

@Neet_pg_bot

Q3: What condition is likely in a newborn presenting with dry, rough skin, a big tongue and rough hair? (Q860248)

A. Congenital hypothyroidism

B. Prader-Willi syndrome

C. Edward syndrome

D. Galactosemia

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A child with type 1 DM presents with acidosis, and blood sugar 400 mg/dl. What is the further management? (Q857400)

A. IV insulin stat

B. Normal saline with SC insulin stat

C. Normal saline followed by insulin infusion after 1 hour

D. Normal saline and insulin infusion immediately

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 3-week-old neonate presents with ambiguous genitalia with Na+ - 127, K+ - 6 meq/L with a BP of 50/22 mm Hg. Along with IV fluids, what specific management is done? (Q856786)

A. Spironolactone

B. Potassium binding resins

C. Hydrocortisone

D. Broad spectrum antibiotics

See Answer in Part B → Q5

@Neet_pg_bot

Q6: The mother brought her 3-year-old daughter to seek medical attention due to the girl's enlarged clitoris. The results of the karyotype test showed a 46XX pattern. What is the probable underlying cause for this condition? (Q854975)

A. 21 hydroxylase deficiency

B. 11 hydroxylase deficiency

C. 3 beta dehydrogenase deficiency

D. 17α-OH deficiency

See Answer in Part B → Q6

@Neet_pg_bot

Q7: What could be a potential cause for a child with short stature who is brought to the pediatrician and has high growth hormone levels and low insulin-like growth factor (IGF-1) levels? (Q859510)

A. Turner syndrome

B. Pituitary dwarfism

C. Laron dwarfism

D. Maternal deprivation dwarfism

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 22-year-old mother presented with her 2-week-old newborn who had a large tongue and an umbilical hernia. Which of the following investigations has to be done in view of congenital hypothyroidism? (Q859514)

A. A fresh blood sample and screen first for TSH levels

B. A fresh blood sample and screen first for T4 levels

C. A dried blood sample and screen first for TSH levels

D. A dried blood sample and screen first for T4 levels

See Answer in Part B → Q8

@Neet_pg_bot

Q9: An 8-day-old newborn was found to have thyroid-stimulating hormone levels of more than 100 mIU/L. Which of the following will be the next best investigation? (Q856075)

A. Urine iodine excretion

B. Serum thyroid receptor antibody

C. Radiotracer uptake with technetium

D. Perchlorate secretion test

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 10-year-old child presented with abdominal pain and vomiting. Lab values are given below. What is the next best step of management? Lab values: RBS - 450 mg/dL pH - 7.0 HCO3 - 4 Na - 145 K - 4.8 mEq/L (Q879246)

A. 10 mL/kg NS over 20 mins (10% deficit correction) followed by insulin infusion with 20 mmol/L KCL with bicarbonate

B. 20 mL/kg 1/2NS over 20 min (7% deficit correction) followed by insulin infusion and KCL 40 mEq/L

C. 20 mL/kg NS over 20 min (10% deficit correction) followed by insulin infusion and KCL 40 mEq/L

D. 20 mL/kg RL over 20 min (10% deficit correction) followed by insulin infusion and KCL 40 mEq/L

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 3-year-old child presents with cough, wheeze, and recurrent infections, for which he has been taking oral medications. He now presents with excessive weight gain, a round face, and hirsutism with hair growth on the forehead. Developmental milestones are normal. The child's BMI is > +2SD, but height for age is < –2SD. What is the next best step in management? (Q879454)

A. Check T3, T4, TSH for congenital hypothyroidism

B. Check for early morning serum cortisol levels and exogenous cortisol administration

C. Advise exercise and dietary changes

D. Evaluate for genetic causes of obesity

See Answer in Part B → Q11

@Neet_pg_bot

• [16_Pediatric Neurology] 041 Cns Malformations Hydrocephalus And Seizures In Children

« Back to Folder Directory

[16_Pediatric Neurology] 041 Cns Malformations Hydrocephalus And Seizures In Children — Quick Jump

Q1 (p. 435)	*Q2 (p. 436)*	*Q3 (p. 436)*	*Q4 (p. 437)*	*Q5 (p. 437)*	*Q6 (p. 438)*
Q7 (p. 438)	*Q8 (p. 439)*	*Q9 (p. 439)*	*Q10 (p. 440)*	*Q11 (p. 440)*	*Q12 (p. 441)*
Q13 (p. 441)	*Q14 (p. 442)*	*Q15 (p. 442)*	*Q16 (p. 443)*	*Q17 (p. 443)*	*Q18 (p. 443)*

Q1: A 6-month-old infant presents with rapid head growth, a prominent occiput, and developmental delays. An MRI is ordered which shows the finding as shown in the image. What is the most likely diagnosis? (Q850385)

A. Arnold-Chiari malformation Type I

B. Arnold-Chiari malformation Type II

C. Dandy-Walker malformation

D. Hydranencephaly



See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 6-year-old child with status epilepticus has received two doses of intravenous lorazepam without seizure cessation after initial management. What is the most appropriate next step? (Q850393)

A. IV Fosphenytoin

B. IV Sodium Valproate

C. IV Levetiracetam

D. IV Phenobarbitone

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 4-year-old child presents with recurrent, prolonged seizures and developmental delay. Genetic testing reveals a mutation in the SCN1A gene. Based on this genetic finding and the clinical presentation, which of the following is most likely associated? (Q850392)

A. West Syndrome

B. Dravet Syndrome

C. Lennox-Gastaut Syndrome

D. Rett Syndrome

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 7-month-old infant presents with recurrent clusters of sudden jerking movements and has recently shown a loss of developmental milestones. An EEG reveals high-voltage, chaotic background activity with multifocal spikes. Given these findings, what is the first-line treatment for the suspected condition? (Q850391)

A. ACTH

B. Vigabatrin

C. Gabapentin

D. Topiramate

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 7-year-old girl presents with brief episodes of staring and unresponsiveness lasting a few seconds, occurring multiple times a day. Her teacher reports she often misses instructions. An EEG shows 3-Hz spike-and-slow-wave discharges precipitated by hyperventilation. What is the most likely diagnosis? (Q850390)

A. Myoclonic seizures

B. Typical absence seizures

C. Complex partial seizures

D. Atypical absence seizures

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 2-year-old boy has experienced three febrile seizures in the past 6 months, each lasting about 2-3 minutes. He has no neurological deficits and develops normally. His parents are anxious about future episodes and request preventive treatment. What is the most appropriate management approach for this child? (Q850389)

A. Start continuous daily phenobarbital

B. Prescribe intermittent oral clobazam during febrile illnesses

C. Recommend daily valproic acid

D. Advise only antipyretic use during febrile illnesses

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 2.5-year-old girl presents to the emergency department with a fever of 39.5°C (103.1°F). She experienced a generalised tonic-clonic seizure lasting 5 minutes, which stopped spontaneously. The child has no history of seizures or neurological issues and appears well after the episode. What is the most appropriate immediate management for this child? (Q850388)

A. Administer high-dose steroids

B. Oral antipyretics and reassurance

C. Start intravenous antiepileptics

D. Perform a lumbar puncture to rule out infection

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 14-month-old boy presents to the emergency department with a fever of 39°C (102.2°F) and a generalised- tonic-clonic seizure lasting 5 minutes. The seizure self-resolved, and the child returned to baseline within 10 minutes. There's no history of prior seizures or neurological issues. What is the most likely diagnosis? (Q850387)

A. Meningitis

B. Simple febrile seizure

C. Complex febrile seizure

D. Febrile status epilepticus

See Answer in Part B → Q8

@Neet_pg_bot

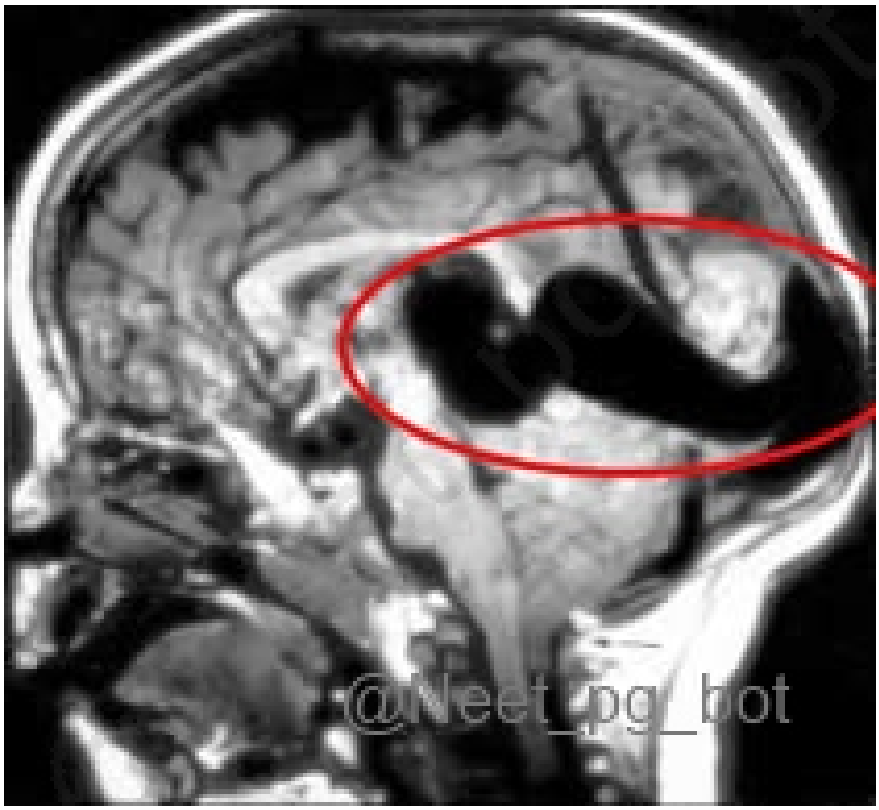
Q9: A 2-month-old infant presents with signs of heart failure, hydrocephalus, and an enlarging head. Neuroimaging reveals a finding shown in the image. The infant's condition is found to be due to an arteriovenous malformation. Which vessel is primarily involved in this malformation? (Q850386)

A. Internal Jugular Vein

B. Middle meningeal Artery

C. Basal Vein of Rosenthal

D. Median Prosencephalic Vein



See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 2-day-old male neonate presents with a translucent sac-like swelling in the lumbosacral region. On examination, the infant exhibits normal motor function and bladder control, and the spinal cord remains within the spinal canal. What is the most likely diagnosis? (Q850375)

A. Myelomeningocele

B. Meningocele

C. Spina Bifida Occulta

D. Tethered Cord Syndrome

See Answer in Part B → Q10

@Neet_pg_bot

Q11: An infant presented with apnea, bradycardia, fever, poor feeding, and irritability for the past 2 days, and has a history of ventriculoperitoneal (VP) shunt placement for hydrocephalus. What is the most common organism responsible for infections related to VP shunt complications? (Q850384)

A. Staphylococcus aureus

B. Staphylococcus hominis

C. Staphylococcus haemolyticus

D. Staphylococcus epidermidis

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A 6-month-old infant is diagnosed with hydrocephalus and exhibits a rapidly enlarging head circumference. The clinical team is considering treatment options to manage the condition. Which of the following treatment approaches is generally considered for long-term management of this condition? (Q850383)

A. Acetazolamide

B. Endoscopic third ventriculostomy (ETV)

C. Ventriculoperitoneal (VP) shunt

D. Furosemide

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A month-old infant presents with an increasing head circumference and signs of raised intracranial pressure. Physical examination reveals an upward gaze palsy. Cranial ultrasound shows enlarged ventricles. Which of the following conditions is the most likely cause of this infant's condition? (Q850382)

A. Aqueductal stenosis

B. Dandy-Walker malformation

C. Posterior fossa tumor

D. Intraventricular hemorrhage

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 32-year-old woman with a history of delivering a child with a neural tube defect (NTD) is planning her next pregnancy. To optimise the prevention of NTDs in this upcoming pregnancy, what is the recommended folic acid supplementation regimen for her? (Q850381)

A. 0.4 mg daily, starting 1 month before conception

B. 1 mg daily, starting 1 week before conception

C. 2 mg daily, starting 1 week before conception

D. 4 mg daily, starting 1 month before conception

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 25-year-old pregnant woman undergoes routine prenatal screening during her 16th week of pregnancy. The serum alpha-fetoprotein (AFP) level is found to be elevated. This finding suggests the presence of which of the following conditions? (Q850380)

A. Spina Bifida

B. Down Syndrome

C. Trisomy 18

D. Cystic Fibrosis

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 6-month-old female infant presents with developmental delays and frequent seizures. Neuroimaging reveals agenesis of the corpus callosum. The infant also has characteristic eye abnormalities, including distinctive chorioretinal lacunae. Based on these findings, which of the following syndromes is most commonly associated with this presentation? (Q850379)

A. Aicardi Syndrome

B. Tuberous Sclerosis Complex

C. Sturge Weber Syndrome

D. West Syndrome

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A neonate is found to have a brain imaging result showing a "smooth brain" and an hourglass appearance, with an absence of normal gyri and sulci formation. Which condition does this finding most likely indicate? (Q850377)

A. Lissencephaly

B. Schizencephaly

C. Holoprosencephaly

D. Polymicrogyria

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 30-week pregnant woman undergoes an antenatal ultrasound examination. The ultrasound reveals an abnormal fetal posture where the fetus is noted to have a hyperextended neck and head, resembling an upward gaze. Based on this finding,

which of the following conditions is most likely? (Q850376)

A. Anencephaly

B. Iniencephaly

C. Porencephaly

D. Encephalocele



See Answer in Part B → Q18

@Neet_pg_bot

• [16_Pediatric Neurology] 042 Cns Disorders In Children

« Back to Folder Directory

[16_Pediatric Neurology] 042 Cns Disorders In Children — Quick Jump

Q1 (p. 445) *Q2 (p. 445)* *Q3 (p. 446)* *Q4 (p. 446)* *Q5 (p. 446)* *Q6 (p. 447)*
Q7 (p. 448) *Q8 (p. 448)* *Q9 (p. 449)* *Q10 (p. 449)* *Q11 (p. 449)* *Q12 (p. 450)*
Q13 (p. 451) *Q14 (p. 452)*

Q1: A 3-year-old child with a history of premature birth presents with spasticity predominantly in the lower limbs. Which of the following pathology is associated with this type of presentation? (Q850340)

A. Parasagittal infarction

B. Periventricular leukomalacia

C. Focal infarct

D. Demyelination

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 6-year-old boy presents to the clinic with multiple café-au-lait spots and freckling in the groin area. His mother has a known history of Neurofibromatosis Type 1 (NF1) and similar skin findings. Which of the following additional findings would most strongly support the diagnosis of NF1 in this child? 6 or more café-au-lait spots Sphenoid dysplasia on imaging Optic glioma. 2 or more hamartomas in iris detected by slit lamp examination (Q850341)

A. 1,2

B. 2,3

C. 2,3,4

D. 1,2,3,4

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 15-year-old male child presents with bilateral hearing loss, tinnitus, and unsteadiness. His mother had a history of multiple meningiomas and unilateral vestibular schwannoma. Which of the following genetic mutations is most likely associated with his condition? (Q850342)

A. NF1 gene mutation

B. SPRED1 gene mutation

C. NF2 gene mutation

D. SMARCB1 gene mutation

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 5-year-old child presents with multiple hypopigmented macules on the trunk and extremities, facial angiofibromas, and a history of epilepsy. MRI reveals cortical tubers and subependymal nodules. Genetic testing confirms a mutation in the TSC2 gene. Which of the following is most likely true regarding this patient's condition? (Q850343)

A. The condition is inherited in an autosomal recessive pattern.

B. The patient is at increased risk for developing renal cell carcinoma.

C. The mutation in TSC2 gene suggests a more severe clinical presentation.

D. Subependymal giant cell astrocytomas (SEGA) rarely require monitoring.

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 12-year-old child presents with multiple facial skin lesions as depicted below. The medical history includes developmental delay and intellectual disability. Based on the clinical presentation and history, which of the following statements is incorrect regarding the diagnosis? (Q850344)

A. Shagreen patches are seen in this condition.

B. Malignant cardiac rhabdomyomas are associated with this condition.

C. Facial angiofibromas may be seen.

D. Seizures and developmental delay are usually seen.



See Answer in Part B → Q5

@Neet_pg_bot

Q6: Which of the following statements is true about Sturge-Weber syndrome? It is due to a mutation in the GNAQ gene Port-wine stain tends to be unilateral and contralateral to the brain involvement MRI with contrast is the investigation of choice Glaucoma may be seen in these individuals. (Q850355)

A. I and III only

B. I, II, and III only

C. I, III, and IV only

D. All the above

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 7-year-old child with a known T-cell defect presents with fever, headache, and neck stiffness. The physician suspects meningitis. Given the child's immunodeficiency, which of the following organisms is the most likely cause of meningitis in this patient? (Q850356)

A. Streptococcus pneumoniae

B. Neisseria meningitidis

C. Haemophilus influenzae

D. Listeria monocytogenes

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 6-month-old infant presents with a coma and focal neurologic signs and is diagnosed with acute bacterial meningitis. Despite appropriate antibiotic therapy, the child continues to experience seizures on the fifth day of treatment. The CSF analysis shows a leukocyte count of 200/mm³. Gram stain of CSF showed a field full of gram positive organisms . Given this clinical scenario, which of the following are poor prognostic indicators in this child? (Q850357)

A. Presence of coma and focal neurologic signs at presentation

B. Gram positive organisms seen in large quantities on CSF microscopy

C. Seizures occurring more than 4 days into therapy

D. All of the above

See Answer in Part B → Q8

@Neet_pg_bot

Q9: Which of the following investigations are indicated in a baby found to have TSH 70 mIU/L on newborn screening? (Q850358)

A. Reconfirmation by a serum sample only

B. Reconfirmation by a serum sample only followed by USG thyroid and thyroid nuclear scan if the baby is found to have congenital hypothyroidism

C. Reconfirmation by a serum sample only and USG thyroid gland

D. Further investigations not required; start the treatment

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 12-year-old obese girl presents with persistent headaches, visual disturbances, and dizziness. She has bilateral sixth cranial nerve palsy, no papilledema, normal MRI, and elevated CSF opening pressure of 285 mm CSF. Which neuroimaging finding supports Idiopathic Intracranial Hypertension (IIH) in this patient? (Q850359)

A. Empty sella

B. Flattening of the posterior aspect of the globe

C. Distention of the perioptic subarachnoid space without a tortuous optic nerve

D. All of the above

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 5-year-old child is brought to the emergency department after a severe head injury from a motor vehicle accident. Despite aggressive resuscitation efforts, the child

remains unresponsive. Which of the following is not true for diagnosing brain death in this child? (Q850360)

A. Performing two separate clinical evaluations, separated by a 24-hour interval.

B. Ensuring the core temperature is above 32°C.

C. Administering ancillary tests.

D. Confirming the absence of all brainstem reflexes.

See Answer in Part B → Q11

@Neet_pg_bot

Q12: Identify the Image? (Q850361)

A. Anencephaly

B. Inencephaly

C. Craniorachischisis

D. Lissencephaly



See Answer in Part B → Q12

@Neet_pg_bot

Q13: Which type of neural tube defect is most likely depicted in the picture given below? (Q850362)

A. Spina Bifida Occulta

B. Meningocele

C. Myelomeningocele

D. Encephalocele



See Answer in Part B → Q13

@Neet_pg_bot

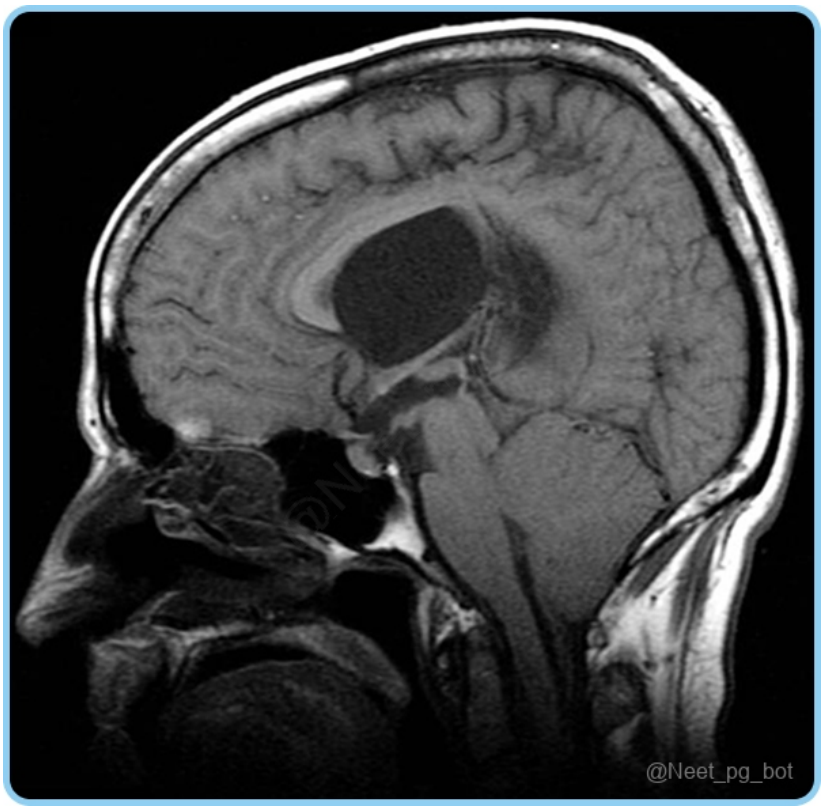
Q14: A 3-month-old infant is brought with a history of lethargy and poor feeding. The infant has also exhibited some developmental delays and hydrocephalus. On examination, the neurologist notes myelomeningocele. An MRI is shown below. Which of the following is the most likely diagnosis? (Q850363)

A. Arnold-Chiari Malformation Type 1

B. Arnold-Chiari Malformation Type 2

C. Dandy-Walker Malformation

D. Hydranencephaly



See Answer in Part B → Q14

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• [16_Pediatric Neurology] 043 Previous Year Questions

« Back to Folder Directory

[16_Pediatric Neurology] 043 Previous Year Questions — Quick Jump

Q1 (p. 454)	*Q2 (p. 454)*	*Q3 (p. 455)*	*Q4 (p. 455)*	*Q5 (p. 455)*	*Q6 (p. 456)*
Q7 (p. 456)	*Q8 (p. 457)*	*Q9 (p. 457)*	*Q10 (p. 457)*	*Q11 (p. 458)*	*Q12 (p. 458)*
Q13 (p. 459)	*Q14 (p. 459)*	*Q15 (p. 459)*	*Q16 (p. 460)*	*Q17 (p. 461)*	*Q18 (p. 461)*
Q19 (p. 461)	*Q20 (p. 462)*	*Q21 (p. 462)*			

Q1: Steroid-resistant nephrotic syndrome is defined as failure to achieve remission after ___ weeks when on a daily corticosteroid therapy regimen. (Q857201)

A. 6

B. 4

C. 12

D. 10

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A child presents to the outpatient department with periorbital and pedal edema. Which of the following laboratory findings are characteristic of nephrotic syndrome? Protein in urine (3.5 gm/day) Hyperlipidemia Elevated serum creatinine Hypoalbuminemia (Q879237)

A. a,c,d

B. a,b,c

C. a,b,d

D. a,b,c,d

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 10-month-old infant was brought with complaints of jerking movement of limbs towards the body. On examination, there is a regression in developmental milestones. Electroencephalogram shows hypsarrhythmia. Which of the following is the drug of choice in this condition? (Q856080)

A. Phenytoin

B. Adrenocorticotropic hormone (ACTH)

C. Levetiracetam

D. Phenobarbitone

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 7-year-old child from a socioeconomically disadvantaged background has presented with fever, convulsions, and unusual behavior over the past two months, and has now become unresponsive to their parents for the past two days. On examination, the child exhibits neck stiffness, and their cerebrospinal fluid (CSF) analysis reveals an elevated number of lymphocytes, glucose levels of 30 mg%, and protein levels of 300 mg%. What is the diagnosis? (Q859932)

A. Viral meningitis

B. Bacterial meningitis

C. Tubercular meningitis

D. Partially treated bacterial meningitis

See Answer in Part B → Q4

@Neet_pg_bot

Q5: In a 1-year-old male child who arrives at the hospital with fever and neck stiffness, the suspected diagnosis is meningitis. Among the options provided, which pathogen is the leading cause of meningitis in this particular age group? (Q859484)

A. Klebsiella

B. Streptococcus pneumoniae

C. Staphylococcus aureus

D. Mycobacterium tuberculosis

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A child presents with continuing seizures for the past 30 minutes. The relatives say that there had been no seizure-free intervals in the past 30 minutes. After stabilizing the vitals, what is the first drug that should be administered? (Q859483)

A. Diazepam

B. Phenytoin

C. Phenobarbital

D. Thiopentone sodium

See Answer in Part B → Q6

@Neet_pg_bot

Q7: What is the significance of a child transferring an object from one hand to the other? (Q856765)

A. Visual-motor coordination

B. Ability to compare objects

C. Ability to handle small objects

D. Voluntary release

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A young child with congenital hydrocephalus was treated with a successful ventriculoperitoneal (VP) shunt. Four months post-surgical repair, the child presented with fever, nuchal rigidity, and irritability. Suspecting meningitis, which of the following is the next best step of management? (Q856173)

A. Wait and watch

B. Check shunt patency by nuclear study

C. Blood culture and take CSF sample from shunt tap

D. Blood culture and take CSF sample by lumbar puncture

See Answer in Part B → Q8

@Neet_pg_bot

Q9: What is the probable diagnosis for a child who exhibits generalized swelling and is diagnosed with high cholesterol levels, as well as protein 3+ and fat bodies observed in urine analysis? (Q856165)

A. Nephrotic syndrome

B. Nephritic syndrome

C. Goodpasture's disease

D. lgA nephropathy

See Answer in Part B → Q9

@Neet_pg_bot

Q10: In a child presenting with febrile seizures, which is the first-line drug used to control the seizures? (Q857599)

A. Sodium valproate

B. Phenytoin

C. Midazolam

D. Phenobarbitone

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A newborn infant is brought to the pediatric clinic due to the presence of a sac-like protrusion on the lower back. The protrusion is covered by a thin membrane and contains spinal cord tissue and nerves. The infant's lower limbs exhibit weakness and impaired sensation. The mother reports inadequate prenatal folic acid intake during pregnancy. Which of the following conditions is the most likely diagnosis? (Q857222)

A. Cleft lip and palate

B. Down syndrome

C. Gastroschisis

D. Spina bifida

See Answer in Part B → Q11

@Neet_pg_bot

Q12: A four-year-old child presents with difficulty in walking, a broad-based gait, and inability to perform heel-to-toe walking. The child was clingy towards his mother. On examination, the child is hyperreflexic and Babinski sign is positive. What could be the probable diagnosis ? (Q865445)

A. Guillain-Barre syndrome

B. Cerebral Palsy

C. ADEM

D. Spinal cord lesion

See Answer in Part B → Q12

@Neet_pg_bot

Q13: Which of the following increase the risk of recurrence of febrile seizures? Age <1 year Temperature of 38-39°C Duration of fever <24 h Duration of fever >48 h (Q855053)

A. 1, 2, 4

B. 1, 4

C. 1, 2, 3

D. 1, 3, 4

See Answer in Part B → Q13

@Neet_pg_bot

Q14: How would you manage a child with status epilepticus? Airway and breathing IV Lorazepam Midazolam, Propofol, Thiopentone IV Fosphenytoin (Q855736)

A. 1, 2, 3, 4

B. 2, 1, 4, 3

C. 1, 3, 4, 2

D. 1, 2, 4, 3

See Answer in Part B → Q14

@Neet_pg_bot

Q15: Adrenocorticotropic hormone is the drug of choice in which of the following conditions? (Q855722)

A. Juvenile myoclonic epilepsy

B. Rolandic epilepsy

C. West syndrome

D. Lennox Gastaut syndrome

See Answer in Part B → Q15

@Neet_pg_bot

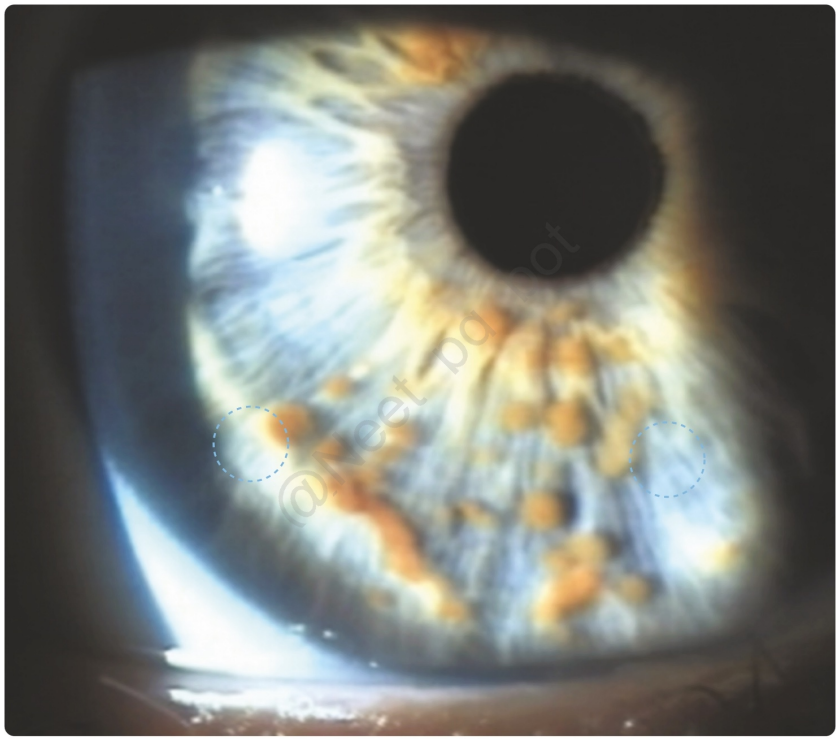
Q16: Which of the following is false regarding the given image? (Q855512)

A. It represents melanocytic hamartoma

B. It causes no visual disturbance

C. It is associated with facial angiofibroma

D. They are diagnostic of a neurocutaneous syndrome



See Answer in Part B → Q16

@Neet_pg_bot

Q17: Which of the following MRI findings will be seen in a child with spastic quadriplegia? (Q840120)

A. Basal ganglia calcifications

B. Periventricular leukomalacia

C. Cerebellar degeneration

D. Multicystic encephalomalacia

See Answer in Part B → Q17

@Neet_pg_bot

Q18: Anencephaly occurs due to the inability of the neural tube to close at which week of intrauterine life? (Q860528)

A. 3rd week

B. 4th week

C. 5th week

D. 2nd week

See Answer in Part B → Q18

@Neet_pg_bot

Q19: A child presents to the OPD with intracranial diffuse calcifications, chorioretinitis, and hydrocephalus. Which of the following is the most likely diagnosis? (Q844225)

A. Congenital Toxoplasmosis

B. Dandy-Walker Malformation

C. Budd-Chiari Syndrome

D. Congenital Hydrocephalus

See Answer in Part B → Q19

@Neet_pg_bot

Q20: A 3-year-old child is brought to the emergency room with a generalized seizure following a high-grade fever. What is the first-line drug of choice for seizure control in this acute febrile setting? (Q866398)

A. Diazepam

B. Valproate

C. Fosphenytoin

D. Doxycycline / Amoxicillin

See Answer in Part B → Q20

@Neet_pg_bot

Q21: What is the most common cause of seizures in a 2-year-old child ? (Q793790)

A. Trauma to the head

B. Malnutrition

C. Febrile seizures

D. Neurological deficit

See Answer in Part B → Q21

@Neet_pg_bot

• [17_Musculoskeletal Disorders in Children] 044 Musculoskeletal Disorders In Children

« Back to Folder Directory

[17_Musculoskeletal Disorders in Children] 044 Musculoskeletal Disorders In Children — Quick Jump

Q1 (p. 463)	*Q2 (p. 463)*	*Q3 (p. 464)*	*Q4 (p. 464)*	*Q5 (p. 465)*	*Q6 (p. 465)*
Q7 (p. 465)	*Q8 (p. 466)*	*Q9 (p. 467)*	*Q10 (p. 468)*	*Q11 (p. 469)*	*Q12 (p. 469)*
Q13 (p. 470)	*Q14 (p. 470)*	*Q15 (p. 471)*	*Q16 (p. 472)*	*Q17 (p. 472)*	*Q18 (p. 473)*
Q19 (p. 473)	*Q20 (p. 474)*	*Q21 (p. 475)*	*Q22 (p. 475)*	*Q23 (p. 475)*	*Q24 (p. 476)*
Q25 (p. 476)	*Q26 (p. 477)*	*Q27 (p. 477)*	*Q28 (p. 478)*	*Q29 (p. 478)*	*Q30 (p. 478)*

Q1: A 10-year-old child has swelling and pain around the wrist joints and fingers. Classic rheumatoid nodules were seen over the spine and bony prominences of the hands. Which of the following about the management of juvenile idiopathic arthritis is false? (Q850368)

A. Methotrexate is used as it acts within a few days of intake

B. Abatacept and tocilizumab target specific immune system components

C. Anakinra is effective for systemic JIA

D. Corticosteroids are used for the control of uveitis

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 3-year-old child presents with bowing of the legs, delayed growth, and poor weight gain. Lab tests show normal serum calcium, low serum phosphate, high serum alkaline phosphatase, normal parathyroid hormone (PTH), and normal 25-hydroxyvitamin D levels. Which of the following is the most likely diagnosis? (Q850350)

A. Hypophosphatemic rickets

B. Vitamin D deficiency

C. Vitamin D-dependent rickets type 1

D. Vitamin D-dependent rickets type 2

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 10-year-old girl presents with ptosis, difficulty swallowing, and generalized muscle weakness for the past 2 weeks. The symptoms worsen with activity and improve after rest. On examination, ptosis and mild proximal muscle weakness in the upper limbs are noted. Reflexes and sensation are normal. What is the most likely diagnosis? (Q850373)

A. Juvenile Myasthenia Gravis

B. Guillain-Barré Syndrome

C. Muscular Dystrophy

D. Duchenne Muscular Dystrophy

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A newborn presents with limbs that resemble the flippers of a seal without intermediate segments. The mother reports taking medication for anxiety during early pregnancy. What is the most likely cause of this condition? (Q850372)

A. Thalidomide exposure

B. Vitamin D deficiency

C. Genetic mutation

D. Impaired blood flow to the limbs

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 5-year-old child presents with multiple fractures following minimal trauma, blue sclerae, and mild hearing loss. Physical examination reveals joint hypermobility, and radiographs show osteopenia with evidence of previous fractures. What is the most likely underlying pathophysiology? (Q850371)

A. Defective type I collagen synthesis

B. Deficiency of vitamin D

C. Impaired osteoclast function

D. Abnormal calcium metabolism

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 4-month-old infant presents with macrocephaly, hepatosplenomegaly, and recurrent fractures. The radiograph shows diffuse bone sclerosis and a "bone within bone" appearance. Which of the following is the most appropriate treatment to prevent the progression of this condition? (Q850370)

A. Vitamin D supplementation

B. Hematopoietic stem cell transplantation (HSCT)

C. Bisphosphonate therapy

D. Physical therapy and fracture management

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 5-year-old boy presents with asymmetric arthritis of the lower extremities, dactylitis, and erythematous plaques on his soles 4 weeks after an episode of dysentery. Which of the following is true regarding the diagnosis? (Q850369)

A. HLA-B27 decreases the likelihood of gastrointestinal inflammation

B. Arthritis is symmetric and commonly affects small joints

C. Typically follows a Gastrointestinal or genitourinary infection

D. Broad-spectrum antibiotics are essential for treatment

See Answer in Part B → Q7

@Neet_pg_bot

Q8: An 8-year-old child is brought to the pediatrics department with a low-grade fever and swelling around both the knees, elbows, and shoulders for 5 months. There is pain and swelling around the wrists as well. Numerous nodules are noted on the hands and over the spine, as shown. Which of the following findings is associated with this disease? (Q850367)

A. Asymmetric joint involvement

B. Uveitis

C. Involvement of smaller joints

D. Positive rheumatoid factor



See Answer in Part B → Q8

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Q9: A 4-year-old male child is brought to the hospital with swelling around knee joints and both ankles for three months. The mother of the child noticed this after an episode of bacterial pneumonia, which is now cured, and explains that the swelling has stayed in these joints since the beginning. What is the diagnosis here? (Q850366)

A. Rheumatoid factor-negative polyarthritis

B. Systemic Juvenile idiopathic arthritis

C. Persistent oligoarthritis

D. Rheumatoid factor-positive polyarthritis



See Answer in Part B → Q9

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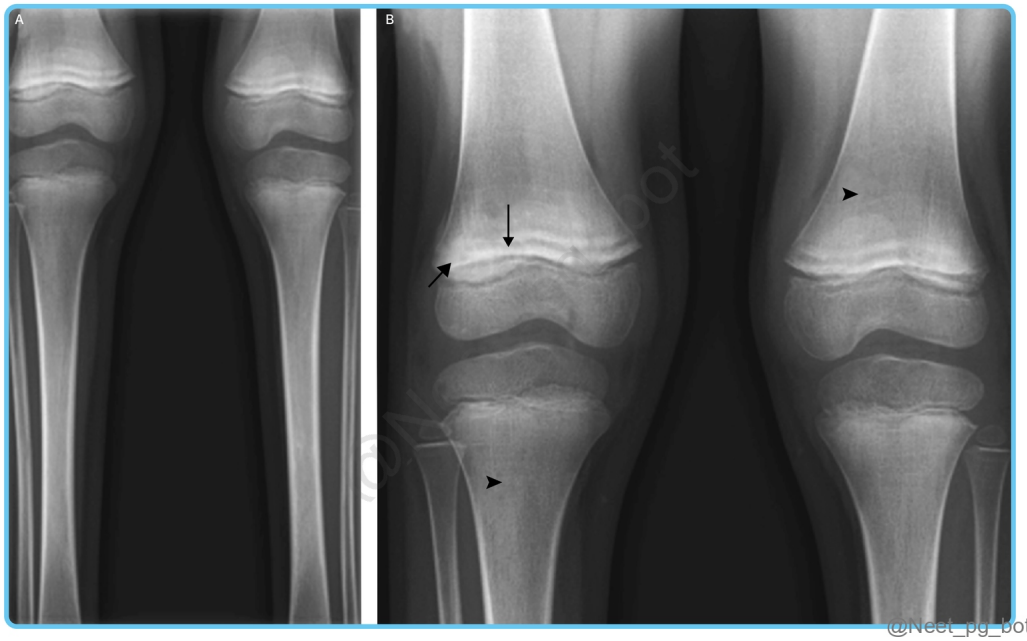
Q10: A 12-year-old child was brought to the pediatric department with complaints of reduced appetite, irritability, and leg swelling. On examination, he has a low-grade fever and tenderness in the legs. The following X■ray was taken. Which of the following radiographic findings is depicted in this child's knee X■ray? (Q850365)

A. Ground glass appearance

B. Trummerfeld zone

C. Pelkan spur

D. Wimberger sign



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See Answer in Part B → Q10

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Q11: A 14-year-old child presents with swelling of gums and associated bleeding especially while brushing teeth. On examination, perifollicular hemorrhages are noted. Which of the following micronutrients is usually found deficient in association with this condition? (Q850364)

A. Zinc

B. Magnesium

C. Copper

D. Iron

See Answer in Part B → Q11

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Q12: A 5-year-old girl presents with short stature, leg bowing and a waddling gait. Her lab results show low serum phosphate, elevated alkaline phosphatase and

increased urinary phosphate excretion. A genetic test reveals a mutation on the X chromosome. Which gene is most likely mutated in this patient? (Q850354)

A. SLC34A3

B. FGF23

C. PHEX

D. DMP1

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 2-year-old girl presents with delayed walking, bowed legs and frontal bossing. Her lab results show low calcium, low phosphorus, normal 25-hydroxyvitamin D (25-D), low 1,25-dihydroxyvitamin D (1,25-D), and elevated parathyroid hormone (PTH). What is the most likely diagnosis? (Q850353)

A. Vitamin D-Dependent Rickets Type 1A

B. Vitamin D-Dependent Rickets Type 1B

C. Vitamin D-Dependent Rickets Type 2A

D. Vitamin D-Dependent Rickets Type 2B

See Answer in Part B → Q13

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Q14: A 4-year-old boy presents with poor growth, bowed legs, muscle weakness, low serum phosphate, low bicarbonate, normal calcium, serum pH of 6.5 and normal creatinine. The child has no response to vitamin D therapy. What is the most likely diagnosis? (Q850352)

A. Renal tubular acidosis associated rickets

B. Vitamin D-dependent rickets

C. Hypophosphatemic rickets

D. Chronic kidney disease associated rickets

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 2-year-old child presents with delayed growth and bowed legs. The child has a history of inadequate sun exposure and a diet low in vitamin D. An x-ray image of the forearm is shown below. What is the most appropriate treatment? (Q850351)

A. Daily low-dose vitamin D (2000 IU) for 90 days with oral calcium

B. Weekly low-dose vitamin D (2000 IU) for 12 weeks with oral calcium

C. Single high-dose vitamin D (600,000 IU) with oral calcium

D. Daily low-dose vitamin D (3000 IU) for 90 dayswith oral calcium



See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 10-year-old boy presents with progressive proximal muscle weakness and calf hypertrophy. Genetic testing reveals a mutation in the dystrophin gene. Which of the following statements about the diagnosis is true? (Q850224)

A. Most cases are autosomal dominant

B. It is caused by the complete loss of dystrophin

C. It is due to frameshift mutations causing a truncated protein

D. It is milder with slow progression

See Answer in Part B → Q16

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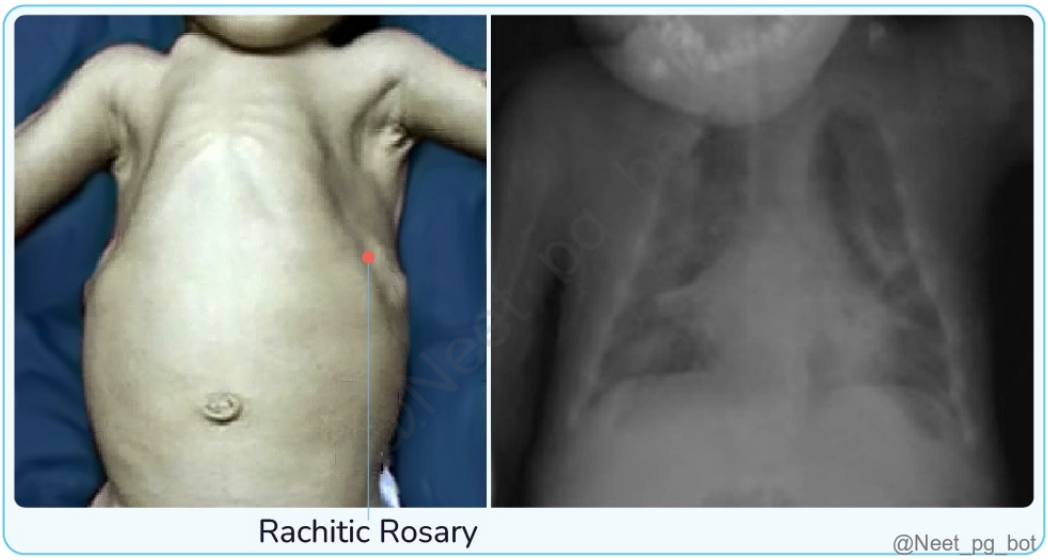
Q17: A 7-year-old child presents with delayed dentition and prominent frontal bossing. During the physical examination, non-tender, round deformity over the chest is noted as shown in the image given below. What is the most likely diagnosis in this case? (Q850349)

A. Acromegaly

B. Scurvy

C. Rickets

D. Osteomalacia



See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 5-year-old child presents with bone pain and noticeable deformities, including bowed legs. The child has a diet predominantly consisting of processed foods with minimal dairy products and very limited outdoor activity. What is the most common cause of the child's condition? (Q850348)

A. Vitamin D deficiency

B. Calcium deficiency

C. Phosphate deficiency

D. Fanconi syndrome

See Answer in Part B → Q18

@Neet_pg_bot

Q19: Which of the following statements about the management of spinal muscular atrophy is true? (Q850347)

A. Nusinersen is administered intravenously for increasing SMN protein production.

B. Gene therapy focuses on delivering a functional SMN2 gene intrathecally.

C. AVXS-101 is used for spinal muscular atrophy Type I.

D. Olesoxime is an oral medication that increases SMN protein production.

See Answer in Part B → Q19

@Neet_pg_bot

Q20: A 4-month-old baby with severe hypotonia is brought to the hospital and has a weak cough and lie, as shown in the image. Which type of SMA is the child suffering from? (Q850346)

A. Type 0

B. Type II

C. Type I

D. Type IV



See Answer in Part B → Q20

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Q21: A baby at birth has profound weakness of the limbs and trunk and severe hypotonia. On examination, there are facial diplegia and joint contractures. The neonate is in respiratory distress. Which type of disease in this scenario is this baby affected by? (Q850345)

A. Werdnig-Hoffmann: Type I

B. Intermediate: Type II

C. Kugelberg-Wulander: Type III

D. Very severe: Type 0

See Answer in Part B → Q21

@Neet_pg_bot

Q22: A 2-day-old newborn baby developed respiratory insufficiency, difficulty in sucking and swallowing, and generalized hypotonia. There is little spontaneous motor activity and no respiratory infection. The mother has a history of myasthenia gravis. What would be the cause of this disease in the infant? (Q850233)

A. Choline acetyltransferase deficiency

B. Endplate AChE deficiency

C. MuSK deficiency

D. Placental transfer of anti-AChR antibodies

See Answer in Part B → Q22

@Neet_pg_bot

Q23: A child is being treated for juvenile myasthenia gravis and suddenly develops symptoms like diarrhea, cramping, excessive sweating, excessive urination, and salivary secretion. Which of the following drugs used for the treatment of myasthenia

gravis caused this? (Q850232)

A. Prednisone

B. Atropine

C. Rituximab

D. Pyridostigmine

See Answer in Part B → Q23

@Neet_pg_bot

Q24: A worried pair of parents came to the pediatrician as their child was showing weakness, difficulty in swallowing, and inability to coordinate her eye movements. The child is unable to raise her hands higher, especially towards the end of the day. Her serological evaluation for acetylcholine receptor antibodies came back negative. What would be the next best investigation to confirm the diagnosis? (Q850231)

A. Antinuclear antibody detection

B. Repetitive nerve stimulation (RNS)

C. Electromyography

D. Muscle-specific tyrosine Kinase (MuSK) Antibody detection

See Answer in Part B → Q24

@Neet_pg_bot

Q25: A 7-year-old unimmunized child presents with sudden onset of asymmetric leg weakness and reduced reflexes. Sensation remains intact. Lumbar puncture reveals lymphocytic pleocytosis with normal or slightly increased protein levels. What is the most likely diagnosis? (Q850230)

A. Guillain-Barré Syndrome

B. Transverse Myelitis

C. Poliomyelitis

D. Traumatic Neuritis

See Answer in Part B → Q25

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Q26: A pediatrician is evaluating an infant with generalized muscle weakness and hypotonia with a history of feeding difficulties and delayed motor response. He suspects a congenital myopathy and orders genetic testing along with a muscle biopsy. Which of the following conditions is not classified as a type of congenital myopathy? (Q850229)

A. Nemaline Myopathy

B. Duchenne Muscular Dystrophy

C. Centronuclear Myopathy

D. Core Myopathy

See Answer in Part B → Q26

@Neet_pg_bot

Q27: A mother brings her 7-year-old son to the clinic because he has difficulty buttoning his shirt. She notes that his eyes remain partially open during sleep. Upon examination, the child exhibits asymmetric wrist and finger weakness, a puckered and rounded mouth, and winging of scapula. What is the most likely diagnosis? (Q850228)

A. Emery-Dreifuss muscular dystrophy

B. Facioscapulohumeral muscular dystrophy

C. Congenital muscular dystrophies

D. Limb-girdle muscular dystrophy

See Answer in Part B → Q27

@Neet_pg_bot

Q28: A 6-year-old girl presents with decreased muscle tone. Physical examination reveals a high-arched palate, an inverted V-shaped upper lip, and prominent facial muscle wasting. During physical examination, the patient was asked to make tight fists and then quickly open her hands, but a delay in the relaxation of the muscles was noted. What is the most likely diagnosis? (Q850227)

A. Duchenne muscular dystrophy

B. Becker muscular dystrophy

C. Emery-Dreifuss muscular dystrophy

D. Myotonic dystrophy

See Answer in Part B → Q28

@Neet_pg_bot

Q29: A 6-year-old boy with a history of progressive muscle weakness and elevated serum CK levels is being evaluated for Duchenne Muscular Dystrophy (DMD). Genetic testing did not reveal any deletions or duplications in the dystrophin gene. What would be the next best step in confirming the diagnosis? (Q850226)

A. Initiation of glucocorticoid therapy without further testing

B. Performing a muscle biopsy with dystrophin immunohistochemistry

C. Starting exon-skipping therapy with Eteplirsen based on clinical suspicion

D. Conducting an electromyography (EMG) to assess for myopathic changes

See Answer in Part B → Q29

@Neet_pg_bot

Q30: A 4-year-old boy presents with a history of delayed motor milestones. He began walking at 18 months and has recently started exhibiting a waddling gait and difficulty climbing stairs. On examination, the boy displays a positive Gowers sign and

hypertrophy of the calf muscles. His serum creatine kinase levels are markedly elevated. What is the most probable diagnosis? (Q850225)

A. Duchenne muscular dystrophy

B. Becker muscular dystrophy

C. Emery-Dreifuss muscular dystrophy

D. Myotonic muscular dystrophy

See Answer in Part B → Q30

@Neet_pg_bot

• [17_Musculoskeletal Disorders in Children] 045 Previous Year Questions

« Back to Folder Directory

[17_Musculoskeletal Disorders in Children] 045 Previous Year Questions — Quick Jump

Q1 (p. 480) *Q2 (p. 480)* *Q3 (p. 481)* *Q4 (p. 481)* *Q5 (p. 482)* *Q6 (p. 482)*
Q7 (p. 483) *Q8 (p. 483)* *Q9 (p. 484)* *Q10 (p. 484)* *Q11 (p. 485)*

Q1: A 10-year-old child weighs 40 kg and presents with mental retardation. On examination, the upper segment to lower segment (US:LS) ratio is 1.1:1. What is the most likely diagnosis? (Q866749)

A. Cretinism

B. Rickets

C. Achondroplasia

D. Hypothyroidism

See Answer in Part B → Q1

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Q2: In a child presenting with a beaded appearance in the chest with the following X-ray, what is the diagnosis? (Q852696)

A. Scurvy

B. Rickets

C. Beri Beri

D. Pellagra



See Answer in Part B → Q2

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Q3: A 15-year-old boy presents with short stature. On examination, his US/LS ratio is 0.8:1. Which of the following is the likely diagnosis? (Q840095)

A. Spondyloepiphyseal Dysplasia

B. Achondroplasia

C. Growth hormone deficiency

D. Hypothyroidism

See Answer in Part B → Q3

@Neet_pg_bot

Q4: Which of the following biochemical parameters are correct in vitamin D-dependent rickets? Serum calcium PTH level A Decreased / normal Normal B Decreased / normal Increased C Decreased Increased D Increased Increased (Q857204)

A. A

B. B

C. C

D. D

See Answer in Part B → Q4

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Q5: Dystrophin protein is absent completely in which of the following diseases? (Q857595)

A. Becker’s Muscular Dystrophy

B. Duchenne Muscular Dystrophy

C. Myasthenia gravis

D. Lambert Eaton myasthenic syndrome

See Answer in Part B → Q5

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Q6: A 6-year-old girl, born out of a non-consanguineous marriage, presented with rachitic changes in her limbs since the age of 2 despite receiving several rounds of vitamin D treatment. Investigations are shown below. What is the most likely diagnosis? Parameter Lab determined value Serum Calcium 9.5 mg/dL Serum Phosphate 1.6 mg/dL ALP 814 IU PTH Within normal limits Serum electrolytes Within normal limits Serum creatinine Within normal limits ABG Within normal limits (Q856161)

A. Vitamin D-dependent rickets

B. Hypoparathyroidism

C. Chronic renal failure

D. Hypophosphatemic rickets

See Answer in Part B → Q6

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Q7: What is the diagnosis for a 4-year-old boy who has muscle weakness, difficulty climbing stairs, and getting up from the floor, with a muscle biopsy showing small muscle fibrils and absence of dystrophin? (Q858512)

A. Becker muscle dystrophy

B. Duchenne muscular dystrophy

C. Myotonic dystrophy

D. Limb-girdle muscular dystrophy

See Answer in Part B → Q7

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Q8: Which statement correctly describes X-linked hypophosphatemic rickets? (Q859765)

A. FGF-23 levels decreased

B. PHEX gene is affected

C. It is the most common cause of rickets

D. Excretion of phosphorus is decreased

See Answer in Part B → Q8

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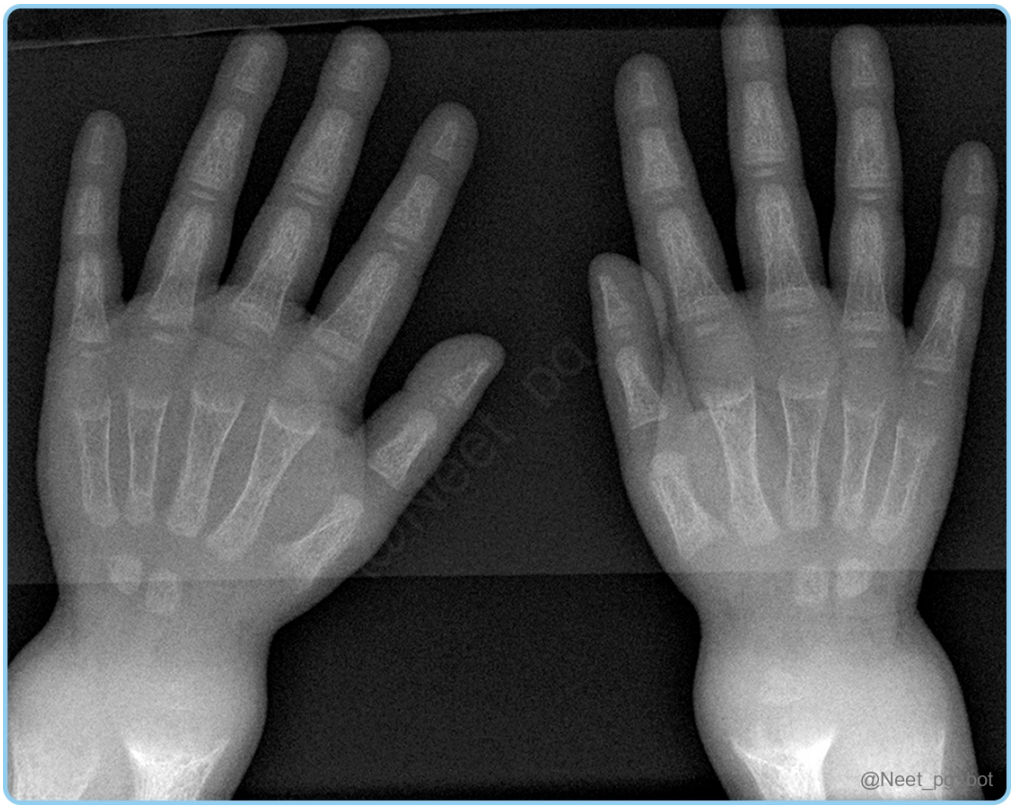
Q9: The X-ray image of a child with muscle weakness and failure to thrive is attached below. What is the likely diagnosis? (Q859775)

A. Scurvy

B. Rickets

C. Osteomalacia

D. Osteopetrosis



See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 10-year-old child is brought to the OPD with a history of repeated fractures for the past 2 years. On examination, blue sclera and dental abnormalities are noted. There is a family history of similar complaints. Which of the following is the diagnosis? (Q859781)

A. Scurvy

B. Rickets

C. Osteogenesis imperfecta

D. Osteomalacia

See Answer in Part B → Q10

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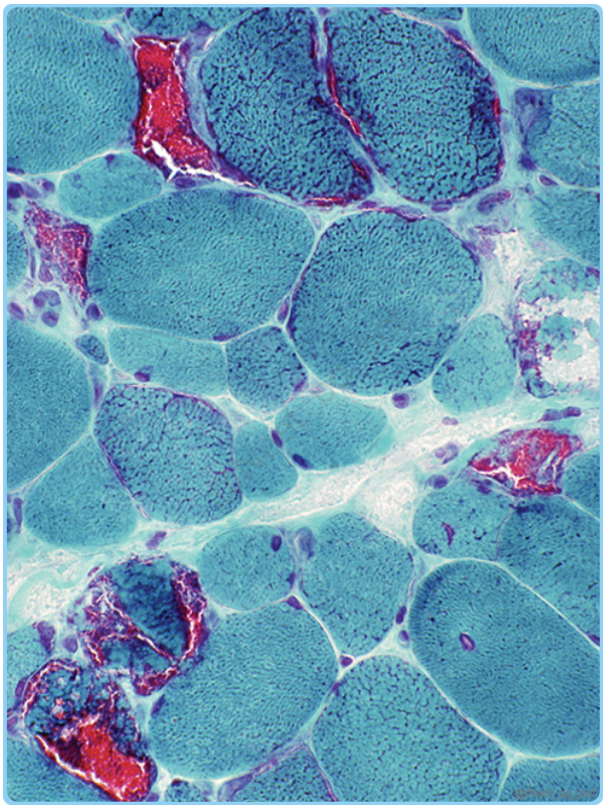
Q11: An 8-year-old child has difficulty walking and getting up from a squatting position. A muscle biopsy was done and is shown in the image. Which of the following is true about this condition? (Q856089)

A. Death occurs in 3 rd decade

B. Previous history of viral prodrome

C. It is a mitochondrial storage disorder

D. Early treatment has an excellent prognosis



See Answer in Part B → Q11

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• [18_Pediatric Hematology and Oncology] 046 Pediatric Hematology

« Back to Folder Directory

[18_Pediatric Hematology and Oncology] 046 Pediatric Hematology — Quick Jump

Q1 (p. 487)	*Q2 (p. 487)*	*Q3 (p. 488)*	*Q4 (p. 488)*	*Q5 (p. 488)*	*Q6 (p. 489)*
Q7 (p. 489)	*Q8 (p. 490)*	*Q9 (p. 490)*	*Q10 (p. 490)*	*Q11 (p. 491)*	*Q12 (p. 491)*
Q13 (p. 492)	*Q14 (p. 492)*	*Q15 (p. 492)*	*Q16 (p. 493)*	*Q17 (p. 493)*	*Q18 (p. 494)*
Q19 (p. 496)	*Q20 (p. 496)*	*Q21 (p. 497)*	*Q22 (p. 497)*	*Q23 (p. 498)*	*Q24 (p. 498)*

Q1: In which of the following conditions, a child can have recurrent episodes of hemolysis and dark coloured urine? (Q850133)

A. Glucose-6-phosphatase deficiency

B. Alpha-1 antitrypsin deficiency

C. Glucose-6-phosphate dehydrogenase (G6PD) deficiency

D. Cystic fibrosis

See Answer in Part B → Q1

@Neet_pg_bot

Q2: Which of the following statements regarding Burkitt’s lymphoma is incorrect? (Q850151)

A. It is commonly associated with Epstein-Barr virus (EBV) infection, especially in endemic cases

B. The disease predominantly affects children and young adults

C. The standard treatment typically involves low-intensity chemotherapy due to its slow-growing nature

D. The tumor cells typically show translocation t(8;14) involving the MYC gene

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 17-year-old male is diagnosed with classical Hodgkin's lymphoma, and staging investigations reveal stage IIA disease, with involvement of lymph nodes only above the diaphragm but no B symptoms. Which of the following treatment regimens is considered the standard approach for initial therapy in this stage of the disease? (Q850150)

A. Radiotherapy alone

B. Single-agent therapy with vinblastine

C. Chemotherapy with ABVD regimen

D. Chemotherapy with vinblastine, etoposide and prednisolone

See Answer in Part B → Q3

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Q4: Based on the Ann Arbor staging system, which stage is described by the following features: involvement of two or more lymph node regions on the same side of the diaphragm, without extranodal involvement? (Q850149)

A. IA E

B. X

C. IIIB E

D. IIB

See Answer in Part B → Q4

@Neet_pg_bot

Q5: A 17-year-old patient undergoing treatment for acute promyelocytic leukemia develops severe adverse reactions, including high fever, difficulty breathing, and peripheral edema. What is the most appropriate treatment to manage this patient? (Q850148)

A. High-dose chemotherapy

B. Corticosteroids

C. Blood transfusion

D. ACE inhibitors

See Answer in Part B → Q5

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Q6: In a patient with more than 20% blast cells observed in a smear, which of the following chromosomal abnormalities is NOT useful in differentiating Acute Myeloid Leukemia (AML) from Acute Lymphoblastic Leukemia (ALL)? (Q850147)

A. t(8;21)

B. t(15;17)

C. t(9;22)

D. inv (16)

See Answer in Part B → Q6

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Q7: Which variant of leukemia is most commonly associated with the development of Disseminated Intravascular Coagulation? (Q850146)

A. M3 AML

B. M5 AML

C. M7 AML

D. ALL

See Answer in Part B → Q7

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Q8: A 2.5-year-old child has been diagnosed with severe Acute Lymphoblastic Leukemia (ALL). Given the high risk of central nervous system (CNS) involvement with this condition, the oncologist is planning appropriate prophylactic measures. What is the most appropriate step for prophylaxis to prevent central nervous system (CNS) involvement in this child? (Q850145)

A. Oral methotrexate

B. Administration of intrathecal methotrexate

C. Use of oral corticosteroids

D. Multiagent chemotherapy

See Answer in Part B → Q8

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Q9: A 7-year-old child with Down syndrome presents with symptoms of fatigue, pallor, and easy bruising. Laboratory tests reveal anaemia, thrombocytopenia, and an elevated white blood cell count. A bone marrow biopsy shows the presence of lymphoblasts. Cytogenetic analysis confirms the presence of chromosomal abnormalities. Which type of leukaemia is most commonly associated with paediatric patients who have Down syndrome? (Q850137)

A. AML-M7

B. ALL

C. CML

D. CLL

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 5-year-old child is diagnosed with acute lymphoblastic leukaemia (ALL). The initial diagnostic workup includes a white blood cell count of 15,000/µL, and

cytogenetic analysis reveals hyperdiploidy. The child begins treatment with a standard chemotherapy regimen and responds well. Which of the following factors is most indicative of a favourable prognosis for this child? (Q850136)

A. The child's age at diagnosis >1 and < 10 years of age

B. The elevated initial white blood cell count (>50000/µL)

C. The presence of the Philadelphia chromosome - t(9;22)

D. Presence of t(4;11) translocation

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which of the following genetic syndromes is not associated with the development of leukemia in a pediatric patient? (Q850135)

A. Down syndrome

B. Fanconi anemia

C. Neurofibromatosis type 1

D. Hereditary spherocytosis

See Answer in Part B → Q11

@Neet_pg_bot

Q12: Which of the following statements are true regarding Heamophilia A? a. It is caused by a deficiency in clotting factor VIII. b. It is inherited in an autosomal dominant pattern. c. It shows increased aPTT and normal PT. d. Patients with severe Hemophilia A often experience spontaneous bleeding into joints and muscles. Select the correct answer from the codes given below. (Q850134)

A. a, b, c

B. a, b, d

C. a, c, d

D. b, c, d

See Answer in Part B → Q12

@Neet_pg_bot

Q13: A 3-month-old infant is being evaluated for anemia. The pediatrician orders a hemoglobin electrophoresis test, and the results reveal that the majority of the hemoglobin present is fetal hemoglobin (HbF). What is the predominant hemoglobin chain composition of fetal hemoglobin found in this infant? (Q849993)

A. α■β■

B. α■δ■

C. α■γ■

D. α■ε■

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A child is diagnosed with immune thrombocytopenic purpura (ITP). The most recent platelet count is 32,000/μL, and the child does not exhibit any signs of active bleeding. What is the appropriate next step in management for this child? (Q850126)

A. Prednisolone

B. Platelet transfusion

C. Splenectomy

D. Wait and watch

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A newborn presents with an umbilical cord stump that has not separated from the body, even after 1 month. The pediatrician suspects an underlying coagulation disorder. Which of the following tests would be most appropriate to assess the suspected deficiency in this newborn? (Q850125)

A. Hageman factor (Factor XII) assay

B. Prothrombin Time (PT)

C. Activated Partial Thromboplastin Time (aPTT)

D. Fibrinogen level

See Answer in Part B → Q15

@Neet_pg_bot

Q16: Match the following bleeding and clotting disorders with their corresponding pathology. 1 Glanzmann Thrombasthenia a Defect in (GPIIb/IIIa) 2 Bernard-Soulier Syndrome b Defect in GPIb-IX-V 3 Von Willebrand Disease c Defect in (vWF) 4 Haemophilia A d Defect in Factor 8 (Q850123)

A. 1-b, 2-a, 3-c, 4-d

B. 1-a, 2-b, 3-c, 4-d

C. 1-a, 2-b, 3-d, 4-c

D. 1-b, 2-a, 3-d, 4-c

See Answer in Part B → Q16

@Neet_pg_bot

Q17: A 15-year-old male presents with a history of chronic fatigue, frequent nosebleeds, and recurrent infections over the past few months. His laboratory results show pancytopenia and peripheral blood smear reveals markedly reduced cellularity without evidence of blasts or dysplasia. A bone marrow biopsy demonstrates severe hypocellularity with less than 10% hematopoietic cells and prominent fatty infiltration. Based on these findings, which of the following is the most likely

diagnosis? (Q850120)

A. Acute myeloid leukemia

B. Myelodysplastic syndrome

C. Aplastic anemia

D. Fanconi anemia

See Answer in Part B → Q17

@Neet_pg_bot

Q18: A 6-year-old child presents with progressive bone marrow failure, short stature, and multiple congenital abnormalities. The child also has distinct skin lesions as shown below. Radiological imaging reveals the following features. Which of the following is the most appropriate management strategy for this condition? (Q850118)

A. High-dose corticosteroids

B. Hematopoietic stem cell transplantation

C. Blood transfusion

D. Targeted gene therapy





See Answer in Part B → Q18

@Neet_pg_bot

Q19: A 7-year-old boy presents with fatigue, pallor, and recurrent episodes of abdominal pain. His medical history includes multiple hospitalizations for anemia requiring transfusions. Physical examination reveals jaundice and a palpable liver/ On ultrasound, no spleen is observed. Laboratory tests show a hemoglobin level of 7 g/dL, elevated reticulocyte count, and indirect hyperbilirubinemia. What is the most likely underlying condition? (Q850117)

A. Beta-thalassemia major

B. Hereditary spherocytosis

C. Sickle cell disease

D. Autoimmune hemolytic anemia

See Answer in Part B → Q19

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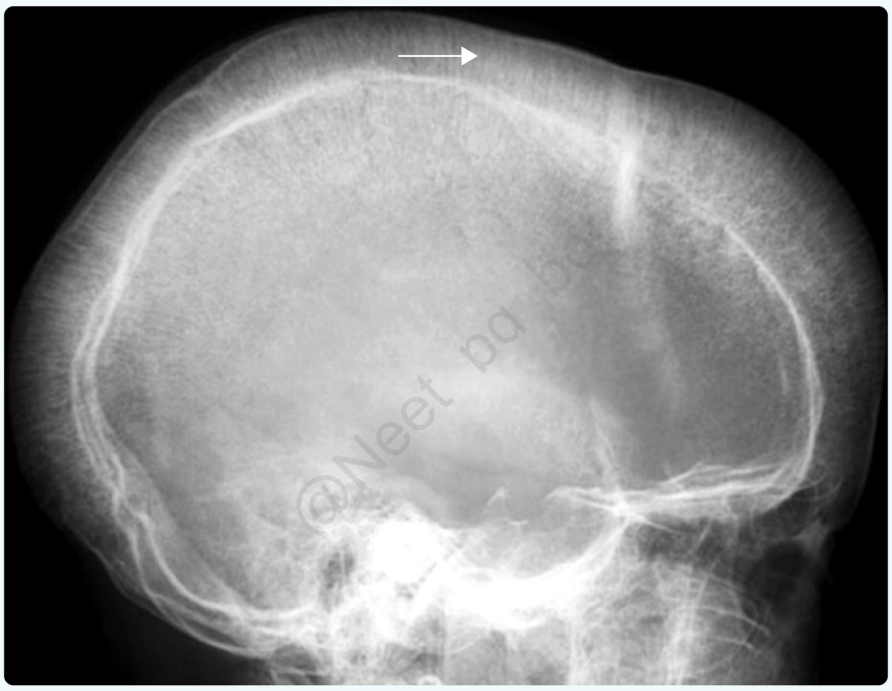
Q20: A 12-year-old boy presents with complaints of feeling excessively tired. He gives a history of repeated blood transfusions. A skull radiograph revealed the following findings. Which of the following is the most probable cause of this radiographic finding? (Q850116)

A. Increased osteoclastic activity

B. Increased marrow hyperplasia

C. Decreased bone remodeling

D. Increased osteoblastic activity



X-Ray skull showing hair-on-end appearance

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See Answer in Part B → Q20

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Q21: A 6-year-old child is diagnosed with folate deficiency based on laboratory tests but shows no signs of Vitamin B12 deficiency. The pediatrician plans to initiate treatment to address the folate deficiency. Which of the following treatment options should be avoided in this child? (Q850114)

A. Oral folic acid supplementation

B. Parenteral folic acid supplementation

C. High-dose folic acid supplementation

D. Dietary modification to include folate-rich food

See Answer in Part B → Q21

@Neet_pg_bot

Q22: A 4-year-old child has been diagnosed with iron deficiency anemia and has just started oral iron supplementation. The pediatrician advises the parents that certain changes and observations can be expected during the initial days of treatment. On the 3 rd day after initiating oral iron therapy, which of the following is most likely to be observed in the child on evaluation. (Q850112)

A. Immediate normalization of hemoglobin levels

B. Increase in the reticulocyte count

C. Decreased irritability, improved appetite

D. Replenishment of stores

See Answer in Part B → Q22

@Neet_pg_bot

Q23: An 8-year-old child is brought to the pediatric clinic with complaints of fatigue and pallor. The pediatrician conducts a complete blood count (CBC) to evaluate the child's hemoglobin levels. According to WHO criteria, anemia is classified based on specific hemoglobin thresholds for different age groups. What hemoglobin level would classify this 8-year-old child as anemic according to WHO criteria? (Q850111)

A. <10 g/dl

B. <11g/dl

C. <12 g/dl

D. <13 g/dl

See Answer in Part B → Q23

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Q24: At 5 weeks of intrauterine life, which of the following structures is the primary site of hematopoiesis in the developing fetus? (Q850100)

A. Liver

B. Bone Marrow

C. Spleen

D. Yolk Sac

See Answer in Part B → Q24

@Neet_pg_bot

• [18_Pediatric Hematology and Oncology] 047 Previous Year Questions

« Back to Folder Directory

[18_Pediatric Hematology and Oncology] 047 Previous Year Questions — Quick Jump

Q1 (p. 500) *Q2 (p. 500)* *Q3 (p. 501)* *Q4 (p. 501)* *Q5 (p. 502)* *Q6 (p. 502)*
Q7 (p. 503) *Q8 (p. 503)* *Q9 (p. 504)* *Q10 (p. 504)* *Q11 (p. 505)* *Q12 (p. 505)*
Q13 (p. 505)

Q1: A child presents with petechiae, purpura, and a platelet count of 10,000/µL. Bone marrow examination reveals increased megakaryocytes.Which of the following is the drug of choice (DOC) for this condition? (Q865441)

A. Bone marrow transplant

B. Methotrexate

C. Intravenous immunoglobulin (IVIG)

D. Aspirin

See Answer in Part B → Q1

@Neet_pg_bot

Q2: A 2-week-old infant presents with a history of epistaxis and recurrent rectal bleeding. The parents also reported a history of bleeding from the umbilicus since birth. Laboratory investigations revealed normal prothrombin time (PT), normal thrombin time, normal activated partial thromboplastin time (aPTT), normal platelet count, and normal function. Urea clot solubility test was positive. What is the most likely deficient factor in this patient? (Q853386)

A. Factor XIII

B. Factor XI

C. Factor X

D. Factor XII

See Answer in Part B → Q2

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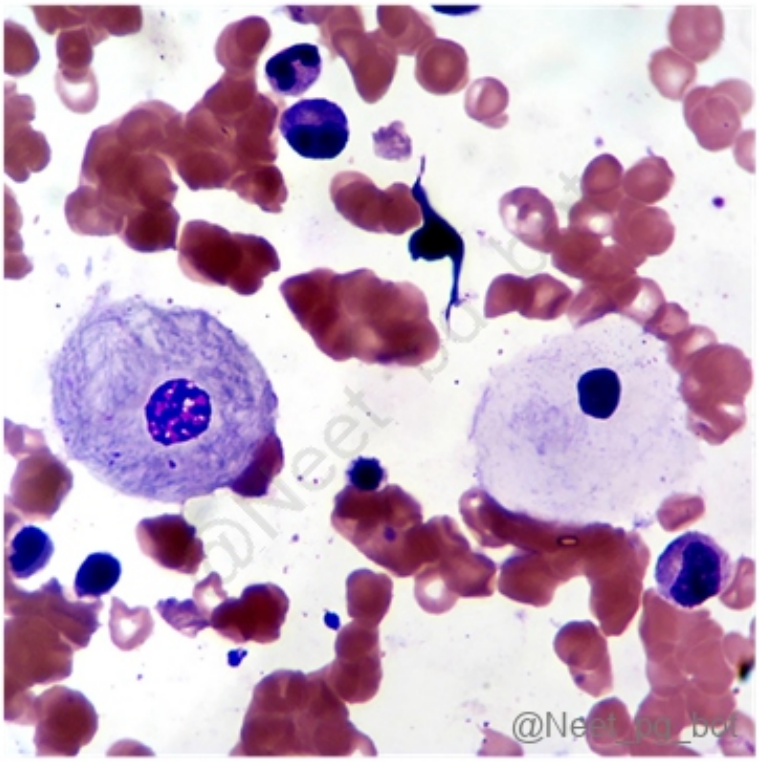
Q3: A child presented with anemia, mental retardation, bone pains, and hepatosplenomegaly. Bone marrow biopsy showed a "crumpled tissue paper" appearance. What is the enzyme deficiency producing this condition? (Q844196)

A. Hexosaminidase-A

B. Iduronate 2-sulphatase

C. Glucose-6-phosphate dehydrogenase

D. Glucocerebrosidase



See Answer in Part B → Q3

@Neet_pg_bot

Q4: An 18-month-old child presents with hepatosplenomegaly, a hemoglobin level of 7 g/dL, a white blood cell count of 50,000 cells/cu.mm, and petechiae and purpura. What is the recommended drug treatment for this condition? (Q844248)

A. Vincristine + Prednisolone

B. IVIG

C. L-Asparinigase +Prednisolone

D. Daunorubicin + Prednisolone

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which of the following is least likely regarding Rh incompatibility in a newborn? (Q856764)

A. Increased unconjugated bilirubin

B. Increased fecal urobilinogen

C. Increased urine bilirubin

D. Increased stercobilinogen

See Answer in Part B → Q5

@Neet_pg_bot

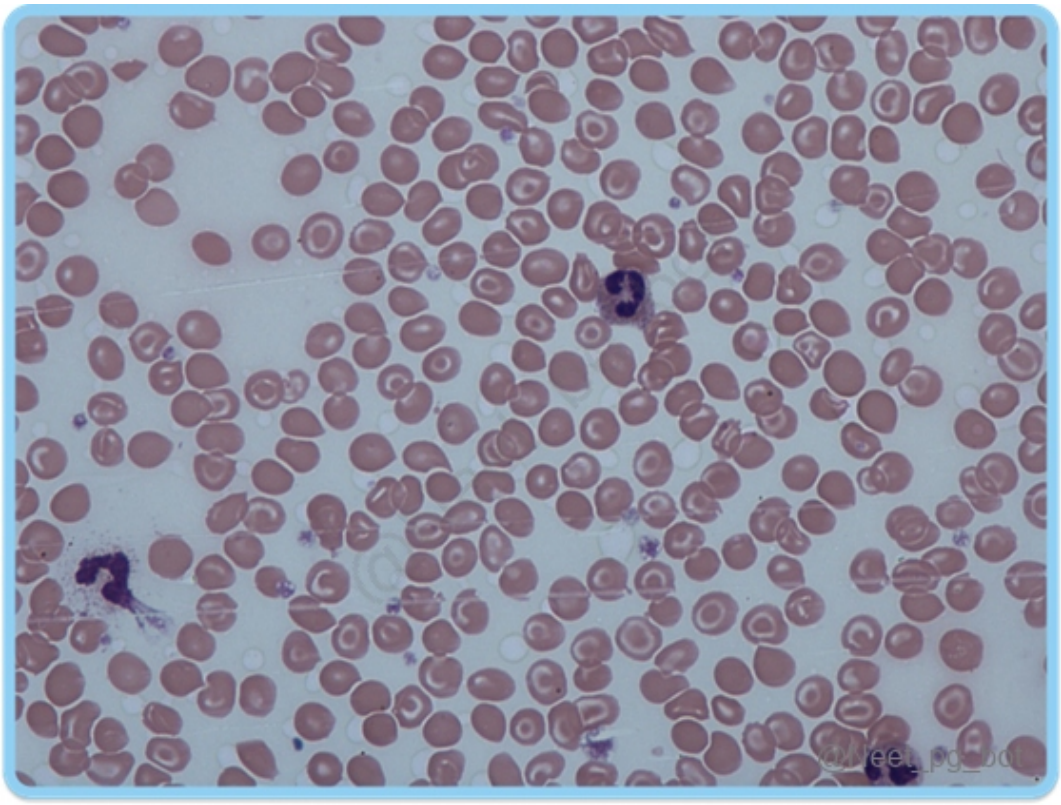
Q6: A 14-month-old child with Hb 6.3 was undergoing repeated blood transfusions. The last transfusion was given in the 9 th month. Which of the following investigations is used for a definitive diagnosis? (Q856451)

A. High-performance liquid chromatography

B. Ferritin levels estimation

C. Bone marrow aspiration

D. Globin gene sequencing



See Answer in Part B → Q6

@Neet_pg_bot

Q7: A patient has bruising, petechiae, and occasional minor epistaxis, which has very little interference with his daily activities. Based on further workup, a diagnosis of a mild case of ITP is made. How will you manage the patient? (Q859768)

A. Short course corticosteroid therapy

B. Intravenous anti-D administration

C. A single dose of intravenous immunoglobulin

D. Education, counseling, and watchful expectancy

See Answer in Part B → Q7

@Neet_pg_bot

Q8: A 2 year old child presents with leg pain, difficulty walking and easy fatiguability. Which is the unusual diagnosis for this ? (Q865456)

A. Ewing sarcoma

B. Metastatic renal clear cell sarcoma

C. Metastatic neuroblastoma

D. Metastatic retinoblastoma

See Answer in Part B → Q8

@Neet_pg_bot

Q9: Which of the following malignant tumors, commonly found in children, has a high tendency to spread to the bone marrow? (Q859770)

A. Wilms tumor

B. Neuroblastoma

C. Adrenal gland tumors

D. Granulosa cell tumor of ovary

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A 2-month-old child presents with watery eyes and photophobia. All of the following conditions can cause these symptoms, except? (Q840081)

A. Congenital glaucoma

B. Congenital NLD blockage

C. Congenital entropion

D. Herpes simplex keratitis

See Answer in Part B → Q10

@Neet_pg_bot

Q11: A 6-year-old child presented to emergency department with complaints of bleeding from the nose. Which of the following artery is most affected? (Q820457)

A. Anterior ethmoidal artery

B. Posterior ethmoidal artery

C. Sphenopalatine artery

D. Greater palatine artery

See Answer in Part B → Q11

@Neet_pg_bot

Q12: Which of the following is not a correct match for ABCD according to pediatric advanced life support? (Q858060)

A. Airway

B. Breathing

C. Circulation

D. Dehydration

See Answer in Part B → Q12

@Neet_pg_bot

Q13: What is the probable diagnosis for a 7-year-old girl who presents with cramping abdominal pain, rashes on the back of her legs, buttocks, and extensor surface of her forearms, along with proteinuria and microscopic hematuria upon laboratory analysis? (Q793677)

A. Systemic lupus erythematosus

B. Henoch-Schonlein purpura

C. Post-streptococcal glomerulonephritis

D. Hemolytic uremic syndrome

See Answer in Part B → Q13

@Neet_pg_bot

• [19_Normal Development] 048 Previous Year Questions

« Back to Folder Directory

[19_Normal Development] 048 Previous Year Questions — Quick Jump

Q1 (p. 507)	*Q2 (p. 508)*	*Q3 (p. 508)*	*Q4 (p. 508)*	*Q5 (p. 509)*	*Q6 (p. 509)*
Q7 (p. 509)	*Q8 (p. 510)*	*Q9 (p. 510)*	*Q10 (p. 510)*	*Q11 (p. 511)*	*Q12 (p. 511)*
Q13 (p. 512)	*Q14 (p. 512)*	*Q15 (p. 512)*			

Q1: What is the underlying defect in the congenital malformation shown below? (Q820467)

A. Morulation

B. Neurulation

C. Lateral folding

D. Gastrulation



See Answer in Part B → Q1

@Neet_pg_bot

Q2: What is the rate of increase in head circumference in infants less than 3 months of age? (Q840067)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

See Answer in Part B → Q2

@Neet_pg_bot

Q3: During a routine pediatric check-up, a mother brings her 5 month old baby to the clinic. The pediatrician observes that the baby actively looks at his mother's face and seems to respond with interest as she talks to him, showing recognition and engagement. When is this milestone normally achieved? (Q852742)

A. 2 months

B. 3 months

C. 6 months

D. 9 months

See Answer in Part B → Q3

@Neet_pg_bot

Q4: What is the rate of increase in head circumference in infants at the first 3 months of age? (Q853239)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Copies cross, tells stories, and goes to the toilet alone. What is the age of the child? (Q853383)

A. 3 years

B. 4 years

C. 5 years

D. 2 years

See Answer in Part B → Q5

@Neet_pg_bot

Q6: Handedness is seen at the age of _____ (Q855733)

A. 1 year

B. 2 years

C. 3 years

D. 4 years

See Answer in Part B → Q6

@Neet_pg_bot

Q7: Match the following developmental milestones. 1 Transfers objects a 1-2 months 2 Social smile b 6-7 months 3 Pincer grasp c 12-15 months 4 Walks 1-2 steps d 9-12

months (Q856724)

A. 1-a, 2-b, 3-c, 4-d

B. 1-b, 2-a, 3-d, 4-c

C. 1-c, 2-b, 3-a, 4-d

D. 1-d, 2-c, 3-b, 4-a

See Answer in Part B → Q7

@Neet_pg_bot

Q8: In an infant, which of the following milestones is achieved the earliest? (Q857221)

A. Immature pincer grasp

B. Mature pincer grasp

C. Radial palmar grasp

D. Ulnar palmar grasp

See Answer in Part B → Q8

@Neet_pg_bot

Q9: The earliest indication of sexual maturation in females: (Q859488)

A. Maturation

B. Thelarche

C. Pubarche

D. Menarche

See Answer in Part B → Q9

@Neet_pg_bot

Q10: At what age does the transfer of one object to another hand happen? (Q860231)

A. 4 months

B. 9 months

C. 7 months

D. 12 months

See Answer in Part B → Q10

@Neet_pg_bot

Q11: What is the likely age of a child who can ride a tricycle, walk up stairs with alternate steps, but cannot hop? (Q860253)

A. 2.5 years

B. 3.5 years

C. 4.5 years

D. 5.5 years

See Answer in Part B → Q11

@Neet_pg_bot

Q12: How do you calculate the mid-parental height for a male child with a father who is 183 cm tall and a mother who is 175 cm tall? (Q860257)

A. 185.5

B. 169.5

C. 192.5

D. 195.5

See Answer in Part B → Q12

@Neet_pg_bot

Q13: At what age does stranger anxiety appear? (Q860614)

A. 7 months

B. 9 months

C. 12 months

D. 15 months

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 9-month-old infant is brought to the pediatrician due to concerns that the child cannot sit without support. The child is otherwise able to roll over, says "mama" and "dada", and demonstrates stranger anxiety. Which of the following is the most appropriate next step in management? (Q865432)

A. Refer for developmental assessment

B. Order an immediate MRI

C. Reassure the parents, as this is normal for the age

D. No further action needed at this time

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A 9-month-old infant is brought for a routine check-up. Which of the following developmental milestones is most likely to be present at this age? (Q866939)

A. Mature grasp

B. Creeps well on hands and knees

C. Can hop on one foot

D. Runs steadily

See Answer in Part B → Q15

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• [20_Developmental and Behavioural Disorders] 049 Normal Development Developmental Behavioral Disorders

« Back to Folder Directory

[20_Developmental and Behavioural Disorders] 049 Normal Development Developmental Behavioral Disorders — Quick Jump

Q1 (p. 514)	*Q2 (p. 514)*	*Q3 (p. 515)*	*Q4 (p. 515)*	*Q5 (p. 516)*	*Q6 (p. 516)*
Q7 (p. 516)	*Q8 (p. 517)*	*Q9 (p. 517)*	*Q10 (p. 518)*	*Q11 (p. 518)*	*Q12 (p. 518)*
Q13 (p. 519)	*Q14 (p. 519)*	*Q15 (p. 519)*	*Q16 (p. 520)*	*Q17 (p. 520)*	*Q18 (p. 521)*
Q19 (p. 521)	*Q20 (p. 522)*				

Q1: A child has an IQ of 65 and is able to perform basic self-care tasks with some supervision.The boy is struggling academically and has limited vocabulary. Which level of intellectual disability is most likely? (Q849925)

A. Mild

B. Moderate

C. Severe

D. Profound

See Answer in Part B → Q1

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Q2: A 7-year-old, otherwise well child has been experiencing involuntary urination in clothes at night, despite having been toilet trained for over a year. The episodes occur only at night and have been persistent for the past six months. Which of the following is the most appropriate initial management approach for the child? (Q849934)

A. Initiate treatment with desmopressin as the first-line treatment.

B. Comprehensive evaluation including urine culture, renal ultrasound, and voiding studies.

C. Behavioural therapy with positive reinforcement and using a bladder alarm if needed.

D. Refer to a specialist for a psychological assessment.

See Answer in Part B → Q2

@Neet_pg_bot

Q3: A 10-year-old child has been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). The primary approach for managing ADHD involves several strategies. Which of the following treatment options is the most appropriate first-line approach for managing ADHD in children? (Q849933)

A. Immediate initiation of treatment with methylphenidate.

B. Intensive cognitive-behavioral therapy (CBT) as the sole treatment option.

C. Implementation of behavioral interventions and psychotherapy tailored to the individual, with medication if necessary.

D. Referral to a specialist for neurological evaluation before starting behavorial therapy.

See Answer in Part B → Q3

@Neet_pg_bot

Q4: A 7-year-old is brought to the clinic with complaints of low academic performance. He has difficulty listening in class, often makes careless mistakes, frequently interrupts others, is restless and is often fidgeting during lessons. He has had symptoms for the past year. Based on the above scenario, which diagnosis is most likely? (Q849932)

A. Autism Spectrum Disorder (ASD)

B. Generalized Anxiety Disorder (GAD)

C. Specific Learning Disability (SLD)

D. Attention Deficit Hyperactivity Disorder (ADHD)

See Answer in Part B → Q4

@Neet_pg_bot

Q5: Which of the following statements is true regarding PICA in children? (Q849931)

A. PICA is observed only in children who have experienced severe emotional trauma or neglect.

B. PICA is characterized by the persistent ingestion of non-nutritive substances for at least 1 month..

C. Typically occurs in children between 5-10 years.

D. Low socioeconomic status is not a risk factor.

See Answer in Part B → Q5

@Neet_pg_bot

Q6: A 2-year-old boy has had several episodes- of turning pale or bluish and losing consciousness for a brief period. These episodes occur when he is upset or frustrated, no other significant symptoms and development is normal. During these events, he is unresponsive for about 30 seconds and then recovers spontaneously. What is the most appropriate initial management? (Q849930)

A. ECG to rule out underlying cardiac issues and reassure about the disease.

B. Reassure and educate about the disease.

C. Administration of oral iron supplements to address possible iron deficiency anemia.

D. Initiation of anticonvulsant medication to prevent further episodes.

See Answer in Part B → Q6

@Neet_pg_bot

Q7: A 4-year-old girl is brought to the OPD by her parents reporting that she initially met her developmental milestones but has recently begun to lose previously acquired skills. They also mention that she has started to exhibit repetitive hand movements and difficulty with motor control. On examination, you observe that she has a characteristic hand-wringing movement and a loss of purposeful hand movements. Which of the following is the most likely diagnosis for this child? (Q849929)

A. Prader-Willi syndrome

B. Rett Syndrome

C. Cerebral Palsy

D. Attention Deficit Hyperactivity disorder

See Answer in Part B → Q7

@Neet_pg_bot

Q8: Above what age should the absence of a social smile be considered a developmental red flag? (Q849928)

A. 1 month

B. 2 months

C. 4 months

D. 6 months

See Answer in Part B → Q8

@Neet_pg_bot

Q9: A 6-month-old infant presents with hypotonia, poor feeding, constipation and developmental delays. The child was born at term with a low birth weight. Which of the following conditions is most likely to be the underlying cause? (Q849927)

A. Down syndrome

B. Congenital Hypothyroidism

C. Cerebral palsy

D. Fragile X syndrome

See Answer in Part B → Q9

@Neet_pg_bot

Q10: A child who is 4 years old is capable of speaking only 2-word sentences and pronouns. What is the Developmental Quotient (DQ) of the child in the language domain? (Q849926)

A. 25

B. 50

C. 75

D. 100

See Answer in Part B → Q10

@Neet_pg_bot

Q11: Which among the following developmental milestones is not developed by the age of 9 months? (Q849915)

A. Mature pincer grasp

B. Bisyllables

C. Unidextrous reach

D. Waves bye bye

See Answer in Part B → Q11

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Q12: A 9-month-old watches as her mother hides her favorite toy bunny under a blanket. Instead of forgetting about it, Emma lifts the blanket to find the bunny. What does it imply? (Q849924)

A. Object permanence

B. Transferring object

C. Visuomotor coordination

D. Object comparison

See Answer in Part B → Q12

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Q13: Match the following months with the milestones achieved at that age 1. 5 months a. Rolling over 2. 7 months b. Transfers objects 3. 9 months c. Waves bye-bye 4. 12 months d. 1-2 words with meaning (Q849923)

A. 1-a, 2-b, 3-c, 4-d

B. 1-d, 2-c, 3-b, 4-a

C. 1-b, 2-a, 3-d, 4-c

D. 1-a, 2-c, 3-b, 4-d

See Answer in Part B → Q13

@Neet_pg_bot

Q14: A 3-year-old girl can jump, copy circles, share toys, and ask questions. Which of these milestones would she have achieved before 3 years? (Q849922)

A. Jumping

B. Copying circles

C. Sharing toys

D. Asking questions

See Answer in Part B → Q14

@Neet_pg_bot

Q15: A mother found her healthy baby boy sitting with the support of his hands for the first time. How old is he likely to be based on this finding ? (Q849921)

A. 1 year

B. 9 months

C. 6 months

D. 15 months

See Answer in Part B → Q15

@Neet_pg_bot

Q16: A 15-month-old baby girl can walk alone, imitate scribbling, creep upstairs, and is heard saying 1-2 words other than mama and dada. Which among these is not a developmental milestone she achieved at 15 months? (Q849920)

A. Walking alone

B. Imitates scribbling

C. 2 words sentences

D. Creeps upstairs

See Answer in Part B → Q16

@Neet_pg_bot

Q17: By which age the milestone given in the image below is achieved by the child? (Q849919)

A. 1 month

B. 2 months

C. 3 months

D. 6 months



See Answer in Part B → Q17

@Neet_pg_bot

Q18: Which among the following statements is false regarding the rules of development of a child? (Q849918)

A. Sequence of attainment of milestone is same in all children

B. Disorganized mass activity is replaced by specific actions

C. Some primitive reflexes have to be lost before relevant milestone are attained

D. The process of development progresses from toe to head.

See Answer in Part B → Q18

@Neet_pg_bot

Q19: During a routine pediatric check-up, a mother brings her 5 month old baby to the clinic. The pediatrician observes that the baby actively looks at his mother's face and seems to respond with interest as she talks to him, showing recognition and engagement. When is this milestone normally achieved? (Q849917)

A. 2 months

B. 3 months

C. 6 months

D. 9 months

See Answer in Part B → Q19

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Q20: During a developmental check-up, a pediatrician observes a group of toddlers at a local playgroup. The children are engaged in playing with toys independently but are situated close to one another. Each child seems focused on their own activity, occasionally glancing at the others but not interacting directly. At what age is this type of play most commonly observed? (Q849916)

A. 6 months

B. 1 years

C. 2 years

D. 4 years

See Answer in Part B → Q20

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• [21_Miscellaneous] 050 Previous Year Questions

« Back to Folder Directory

[21_Miscellaneous] 050 Previous Year Questions — Quick Jump

Q1 (p. 523)

Q1: A 5 year old boy presented with hematemesis and was found to have splenomegaly, on examination. There was a past history of exchange transfusion in this child for neonatal jaundice. What is the probable diagnosis? (Q859499)

A. Splenic vein thrombosis

B. Portal vein thrombosis

C. Budd chiari syndrome

D. Liver cirrhosis

See Answer in Part B → Q1

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Part B — All Answers & Explanations

• [01_Neonatology] 001 Neonatal Terminology Reflexes

« Back to Folder Directory

[01_Neonatology] 001 Neonatal Terminology Reflexes — Quick Jump

Q1 (p. 524)	*Q2 (p. 525)*	*Q3 (p. 528)*	*Q4 (p. 533)*	*Q5 (p. 533)*	*Q6 (p. 534)*
Q7 (p. 535)	*Q8 (p. 535)*	*Q9 (p. 536)*	*Q10 (p. 537)*	*Q11 (p. 540)*	*Q12 (p. 542)*
Q13 (p. 542)	*Q14 (p. 544)*	*Q15 (p. 545)*	*Q16 (p. 546)*	*Q17 (p. 547)*	

Q1: A full-term neonate born to a healthy mother presents on the third day of life with a birth weight of 2.9 kg, length of 50 cm, head circumference of 35 cm, heart rate of 130 bpm, respiratory rate of 50 breaths/min, and peripheral cyanosis noted on the extremities. The baby is passing urine but has not passed any stools till now. Which of the following findings in this neonate would be most concerning? (Q849950)

A. Peripheral cyanosis (acrocyanosis) noted on the extremities

B. Passage of the first stool after 48 hours of birth

C. Respiratory rate of 50 breaths/min

D. Head circumference of 35 cm

Correct Answer: B. Passage of the first stool after 48 hours of birth

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Delayed passage of the first stool (beyond 48 hours) may indicate a potential issue like meconium ileus or other gastrointestinal problems. Characteristics of normal term neonate: Birth weight of an average Indian baby: 2.9 kg Length: 50 cm US: LS ratio: 1.7:1 Head circumference: (Option D) 33-37 cm Heart rate: 110-160 bpm Respiratory rate: (Option C) 40 -60 breaths/min Peripheral cyanosis (Acrocyanosis) normal finding (Option A) 1st passage of stool Within 48 hrs. 1st passage of urine Within 24 hrs. Murmur Soft systolic murmur - normal

References:

Ghai Essential Pediatrics, 10th Edition, Pages 132,133

Passage of stool, urine

Murmur

Meconium ileus

↑ *Back to this question in Part A*

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Q2: A 3-month-old infant is brought for a checkup. The pediatrician notices that when the baby's head is rotated to one side, the arm on the same side extends, and the arm on the opposite side flexes. Which of the following best explains these observations? (Q849955)

A. ATNR

B. STNR

C. Parachute reflex

D. Rooting reflex

Correct Answer: A. ATNR

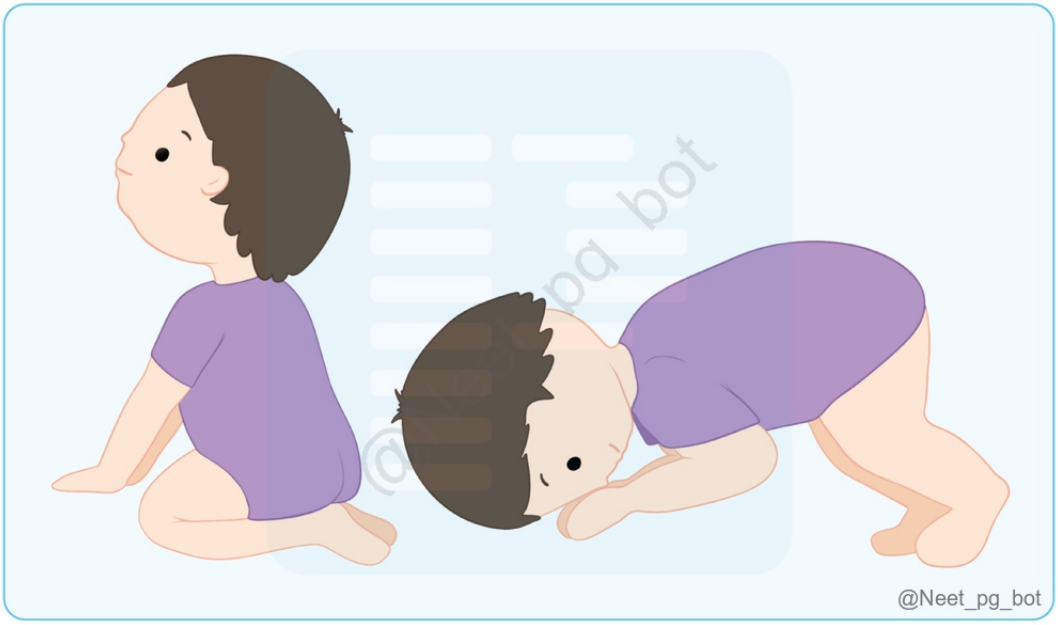
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: ATNR is typically triggered when the infant's head is rotated to one side, resulting in an extension of the upper and lower limbs on the same side and flexion of the limbs on the opposite side. When this reflex disappears, the baby learns to roll over. This is a normal reflex that helps with hand-eye coordination and usually disappears in 6-7 months. The parachute reflex, which appears around 7-8 months and is fully developed by 10-11 months, is a protective reflex where the infant extends their arms when falling to break the fall. Reflex Onset Disappearance Description Rooting 32 wk gestation 1 month The rooting reflex, where the mouth turns toward a stimulus, is triggered by gently stroking the cheek or presenting an object within the infant's line of sight. Tonic neck reflexes: 1) Asymmetric Tonic Neck Reflex (ATNR): 35 wk gestation 3 months ATNR is triggered by rotating the infant's head to one side, which causes extension of the arm on the side the face is turned to and flexion of the arm on the opposite side. This reflex helps in hand-eye coordination development. An obligatory response, where the baby becomes "stuck" in this position, indicates a CNS disorder 2) Symmetric Tonic Neck Reflex (ATNR): 6-9 months 9-11 months STNR involves neck movement impacting arm and leg movement differently—neck flexion leads to arm flexion and leg extension, and neck extension causes arm extension and leg flexion. It helps prepare the baby for crawling. Parachute 8-9 months postnatal Remains throughout life This reflex develops in slightly older infants and is elicited by holding the infant's trunk and lowering them quickly as if they were falling. The baby will instinctively extend their arms to break the fall. This reflex is a precursor to walking.


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References:

Ghai Essential Pediatrics, 10th Edition, Page 138

Nelson Textbook of Pediatrics, 21st Edition, Page 870

Primitive Reflexes - StatPearls - NCBI Bookshelf

STNR

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: Match the following images with their distinguishing features 1) a) Benign capillary malformation 2) b) Contains eosinophils 3) c) Contains melanocytes 4) d) Contains keratin (Q849956)

A. 1-b, 2-a, 3-d, 4-c

B. 1-c, 2-d, 3-b, 4-a

C. 1-a, 2-b, 3-c, 4-d

D. 1-d, 2-c, 3-a, 4-b




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Correct Answer: D. 1-d, 2-c, 3-a, 4-b

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Condition Features Milia Small (≈3 mm), benign, white keratin-filled cysts are commonly found on the face and nose. Mongolian Spots/ Dermal melanocytosis Slate-blue patches on the back/buttocks due to dermal melanocytes are common in Black, Asian, and Native American infants. Benign , usually fades within 1 year. Stork bites/ Salmon Patch/ Angel kiss The benign capillary malformation can appear as flat red patches on a newborn's forehead and upper eyelids. Do not need treatment because they are harmless and will fade over time. Erythema toxicum neonatorum Small white papules on a red base, appearing 1–3 days after birth, benign and lasts about a week, seen on face, torso, and limbs.


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References:

Ghai Essential Pediatrics, 10th Edition, Page 131

Nelson Textbook of Pediatrics, 21st Edition, Pages 868, 869

Stork Bite, Angel Kiss, Salmon Patch: Causes & Treatment

Milia - Dermatology Advisor

Mongolian Blue Spots Information | Mount Sinai - New York

↑ *Back to this question in Part A*

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Q4: You are providing routine postnatal care to a healthy full-term newborn immediately after delivery. What is the recommended prophylactic dose and route of administration of vitamin K in this setting? (Q891186)

A. 1-5 mg IV

B. 5-10 mg IV

C. 0.1-0.5 mg IM

D. 0.5-1 mg IM

Correct Answer: D. 0.5-1 mg IM

Explanation: All newborns should receive intramuscular vitamin K (0.5-1 mg IM) at birth to prevent vitamin K deficiency bleeding (hemorrhagic disease of the newborn). Vitamin K Causes of deficiency Poor placental transfer, sterile gut, low hepatic stores, low vitamin K in breast milk Prophylaxis A single 0.5-1 mg IM dose of vitamin K at birth in healthy term neonates → prevents early, classical, and late vitamin K deficiency bleeding (VKDB). (Option D) Therapeutic dose 1-5 mg IV → for established vitamin K deficiency or bleeding (Option A ruled out)

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 386, 972.

O.P. Ghai Essential Pediatrics, 10th Edition, Page95.

↑ *Back to this question in Part A*

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Q5: A newborn delivered at 37 weeks to a mother with gestational diabetes is noted to be unusually large for gestational age. Which birth-weight percentile defines this

category? (Q891183)

A. >97th percentile

B. >90th percentile

C. >95th percentile

D. >75th percentile

Correct Answer: B. >90th percentile

Explanation: Large-for-gestational-age (LGA) infants are defined as those whose birth weight is greater than the 90th percentile for their gestational age. Large-for-gestational-age (LGA) Definition Birth weight >90th percentile for gestational age (Option B) Common in infants of diabetic/obese mothers Predisposing Factors Maternal diabetes mellitus Maternal obesity Excess maternal weight gain Neonatal Complications Birth trauma: Brachial plexus injury, Phrenic nerve palsy, Cephalohematoma Metabolic: Neonatal hypoglycemia (most common), Polycythemia Others: Congenital heart disease, Respiratory distress >75th percentile (Option D): Includes many normal babies and does not indicate pathological overgrowth.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 907.

O.P. Ghai Essential Pediatrics, 10th Edition, Page131.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: During newborn assessment, the infant's weight is recorded and categorized. A baby is labeled very low birth weight (VLBW) when the birth weight is below what value? (Q891180)

A. 2.5 kg

B. 1 kg

C. 1.5 kg

D. 2 kg

Correct Answer: C. 1.5 kg

Explanation: A very low birth weight (VLBW) infant is defined as a newborn weighing less than 1.5 kg (1500 g) . Birth weight categories Low birth weight (LBW): < 2.5 kg (Option A, D ruled out) Very low birth weight

(VLBW): < 1.5 kg (Option C) Extremely low birth weight (ELBW): < 1 kg (Option B ruled out) VLBW infants → usually premature (<37 weeks of gestation) and require intensive monitoring due to risks such as respiratory distress, hypothermia, sepsis, and feeding intolerance.

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 119.

↑ *Back to this question in Part A*

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Q7: When documenting delivery details, a newborn needs to be categorized by gestational age. At what gestational age is an infant considered post-term? (Q891179)

A. 41 completed weeks of gestation

B. 42 completed weeks of gestation

C. 40 weeks and 2 days

D. 40 completed weeks of gestation

Correct Answer: B. 42 completed weeks of gestation

Explanation: A post-term infant is defined as a baby born after 42 completed weeks of gestation (≥294 days) calculated from the first day of the mother's last menstrual period, irrespective of birth weight. Gestational age classification Preterm: < 37 completed weeks Term: 37 weeks to 41 weeks + 6 days Early term: 37-38 weeks + 6 days Full term: 39-40 weeks + 6 days (Option C, D ruled out) Late term: 41-41 weeks + 6 days (Option A ruled out) Post-term: ≥ 42 completed weeks (Option B) Risk of placental insufficiency, meconium aspiration, oligohydramnios, and dysmaturity syndrome due to placental aging.

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 118-119.

↑ *Back to this question in Part A*

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Q8: A hospital neonatal audit requires application of the WHO definition of the perinatal period. Which of the following time intervals correctly represents this period? (Q891175)

A. From 28 weeks of gestation to 28 days after birth

B. From 22 weeks of gestation to 7 completed days after birth

C. From 37 weeks of gestation to 28 days after birth

D. From 30 weeks of gestation to 7 days after birth

Correct Answer: B. From 22 weeks of gestation to 7 completed days after birth

Explanation: The WHO defines the perinatal period as from 22 completed weeks of gestation to 7 completed days after birth , corresponding to a fetal weight ≥500 g and potential for extra-uterine survival. Perinatal period Beginning: 22 weeks of gestation Approx. 154 days of intrauterine life Fetus becomes potentially viable Ending: 7 days after birth (early neonatal period) Perinatal mortality statistics: From 28 weeks of gestation (≥1000 g birth weight) Neonatal period: Birth to 28 days Infancy: Birth to 1 year From 28 weeks of gestation to 28 days after birth (Option A): Covers late fetal and full neonatal periods; 28 weeks is used only for perinatal mortality stats, not the WHO biological definition (22 wks-7 days).

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 18.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 12-hour-old infant on routine examination presents with a well-defined, firm mass on the head. The mass is located over the parietal bones and does not cross the suture lines. The parents mention that the mass became noticeable shortly after birth and has been increasing in size for the past few hours. Which of the following is the most likely diagnosis? (Q849959)

A. Caput Succedaneum

B. Cephalohematoma

C. Subgaleal Hemorrhage

D. Craniotabes

Correct Answer: B. Cephalohematoma

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Cephalohematoma presents as a well-circumscribed, firm mass over the parietal bones that does not cross suture lines. It typically develops in the first few hours after birth, with increasing size for 12-24 hours, and

then stabilizes. This fits the description provided in the scenario. Characteristic Caput Succedaneum (Option A) Cephalohematoma (Option B) Incidence Common Less common Location Subcutaneous plane Over parietal bones, between the skull and periosteum. Time of Presentation Maximum size and firmness at birth. Develops during the 1st few hours of life. Increasing size for 12-24 hours and then stable. Time Course Softens progressively from birth. Takes 3-6 weeks to resolve, but may resolve within 2-3 days. Characteristic Findings Diffuse Circular boggy area of oedema with indistinct borders. Often with overlying ecchymosis Crosses suture line Well-circumscribed fluid-filled mass. Does not cross the suture line Association None Linear skull fracture (5-25%); hyperbilirubinemia Subgaleal Hemorrhage (Option C) is a more diffuse, larger haemorrhage that crosses suture lines and is associated with more severe symptoms. It is less likely to present as a firm, well-defined mass and is typically associated with significant blood loss, which is not described in the scenario. Craniotabes (Option D) refers to soft areas of the skull due to delayed skull bone ossification that may feel soft and dentable, like a ping pong ball , often found in the parietal bones near the sagittal suture, typically in preterm infants or those with uterine compression. Craniotabes present as soft areas rather than firm, localized masses and are more common in different contexts, such as preterm birth or specific congenital conditions.

References:

Ghai Essentials of Pediatrics, 10th Edition, Page 135

Nelson Textbook of Pediatrics, 21st Edition, Page 869

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: Which of the following statements are true regarding the neonatal conditions described? 1. Mastitis neonatorum is seen only in female neonates 2. Vaginal bleeding in neonates usually resolves within 10 days. 3. Hymenal tags are usually symptomatic and often require medical treatment. 4. Term neonates can lose up to 10% of their birth weight in the first week of life. 5. Physiologic phimosis usually resolves on its own and is generally asymptomatic. 6. Preterm infants regain their birth weight within 7-10 days. (Q849958)

A. 1, 3, 4, 5

B. 3, 4, 6

C. 1, 2, 5, 6

D. 2, 4, 5

Correct Answer: D. 2, 4, 5

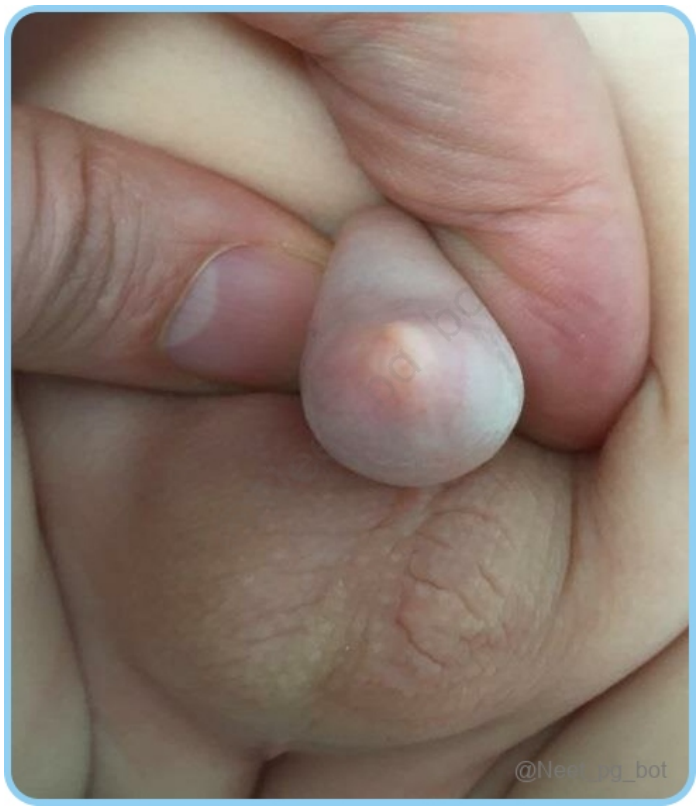
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Neonatal vaginal bleeding is a normal physiological process caused by decreased maternal estrogen and typically resolves within 10 days. (Statement 2) It is normal for term neonates to lose 7-10% of their birth weight in the first week due to loss of extracellular fluid. (Statement 4) Physiologic phimosis is a normal condition where the foreskin cannot be retracted and generally resolves by age 3-5 without causing symptoms. (Statement 5) Condition Features Duration Management Mastitis Neonatorum Infection of breast tissue related to maternal hormones. Symptoms include unilateral breast swelling , erythema, warmth, tenderness, and possible purulent discharge. (Statement 1 ruled out) Resolves within a few weeks Antibiotics; usually resolve on their own Vaginal Bleeding Normal due to decreased maternal estrogen. Symptoms include a small amount of blood-tinged discharge or bleeding. Resolves within 10 days Medical evaluation if bleeding persists or if other concerns arise Hymenal Tags Benign remnants of tissue at the vaginal opening. Normal anatomical variations and typically asymptomatic (Statement 3 ruled out) . Often resolves on its own (Statement 3) Treatment only if causing discomfort Physiologic Weight Loss Expected weight loss in the first week of life. Term neonates lose 7-10% of birth weight; preterm infants lose 10-15%. They then gain about 20 to 40 grams daily. This initial weight loss is primarily due to the loss of extracellular fluid, while subsequent weight gain is attributed to increased intracellular water and solids, supporting cellular growth. Term infants regain within 7-10 days; preterm infants by 10-14 days (Statement 6 ruled out) Weight gain of 20-40 grams daily after regaining birth weight. Physiologic Phimosis A normal condition where the foreskin cannot be retracted due to preputial adhesion. Generally asymptomatic. This differs from pathologic phimosis which involves scarring or inflammation, which may need treatment. The prepuce becomes retractable by 3 yr of age. Resolves by age 3-5; may take longer Gentle retraction during bathing to aid in loosening.







References:

Ghai Essential Pediatrics, 10th Edition, Page 129

Nelson Textbook of Pediatrics, 21st Edition, Pages 870, 871

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www.msdmanuals.com/home/women-s-health-issues/symptoms-of-gynecologic-disorders/vaginal-bleeding-in-infants-and-children#Causes_v91501541

www.ncbi.nlm.nih.gov/pmc/articles/PMC1949079/

emedicine.medscape.com/article/777539-overview

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: Which of the following conditions in newborns typically resolves on its own without treatment? (Q849957)

A. Subconjunctival hemorrhage

B. Acne neonatorum

C. Epstein pearls

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: All the conditions listed (subconjunctival haemorrhage, acne neonatorum, and Epstein pearls) are typically self-limiting and do not require medical treatment to resolve. BENIGN NEONATAL CONDITIONS SUBCONJUNCTIVAL HEMORRHAGE (Option A) Subconjunctival haemorrhages are frequently observed due to birth trauma caused by sudden increases in internal or external pressure. Common factors include: Following vaginal delivery Difficult or extended labour Fetal macrosomia Improper use of forceps or vacuum extractors Typically resolve on their own. ACNE NEONATORUM (Option B) Acne neonatorum, or neonatal acne, is a common condition in newborns characterized by facial eruptions of inflamed and non-inflamed lesions. It usually appears around 3 weeks of age and lasts about 4 months. Males>females. The condition, linked to sebaceous gland overactivity due to neonatal androgens, typically resolves on its own within 3 months. EPSTEIN PEARLS (Option C) Epstein pearls are small, benign cysts that commonly appear in newborns' mouths, particularly on the gums and the roof of the mouth. These white or yellowish bumps, caused by trapped skin cells filled with keratin, can be mistaken for teeth due to their firmness. Present in about 85% of newborns, Epstein pearls typically resolve on their own within a few weeks to within 3 months and do not require treatment. Activities such as breastfeeding or using pacifiers can help them dissolve more quickly.





References:

Ghai Essential Pediatrics, 10th Edition, Page 135

Nelson Textbook of Pediatrics, 21st Edition, Page 870

Neonatal Acne: Causes, Symptoms, and Treatment (skinsight.com)

Acne neonatorum: a study of 22 cases

Epstein Pearls Causes & Treatment (clevelandclinic.org)

Subconjunctival Hemorrhage in Newborns - Learn More (childbirthinjuries.com)

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A newborn is delivered at 36 weeks of gestation with a birth weight of 1,200 grams. How should this newborn be classified based on gestational age and birth weight? (Q849948)

A. Pre-Term and Low Birth Weight (LBW)

B. Term and Very Low Birth Weight (VLBW)

C. Pre-term and Very Low Birth Weight (VLBW)

D. Post-Term and Low Birth Weight (LBW

Correct Answer: C. Pre-term and Very Low Birth Weight (VLBW)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant was born at 37 completed weeks of gestation, classifying them as Preterm (<37 weeks) . With a birth weight of <1500 grams, they are also categorised as Very Low Birth Weight (VLBW) (<1,500 grams). Therefore, the newborn is best classified as both Pre-Term and Very Low Birth Weight (VLBW). Classification according to gestational age Pre-Term Born at < 37 weeks of gestation. Term (Option B) Born between 37 completed weeks to <42 weeks of gestation. Post-Term (Option D) Born at or beyond 42 weeks of gestation. Classification according to Birth weight Low birth weight (LBW) (Option A) <2500 grams birth weight. Very low birth weight (VLBW) <1500 grams Birth Weight. Extremely low birth weight (ELBW) <1000 grams birth weight.

References:

Ghai Essential Pediatrics, 10th Edition, Page 119

Nelson Textbook of Pediatrics, 21st Edition, Page 902

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 3-day-old newborn shows no startle response to sudden movement or sound. The pediatrician notes an absent Moro reflex, with no asymmetry. The baby is alert but cries weakly. What is the most likely cause? (Q849954)

A. Erb’s palsy

B. Severe asphyxia during birth

C. Tay Sach disease

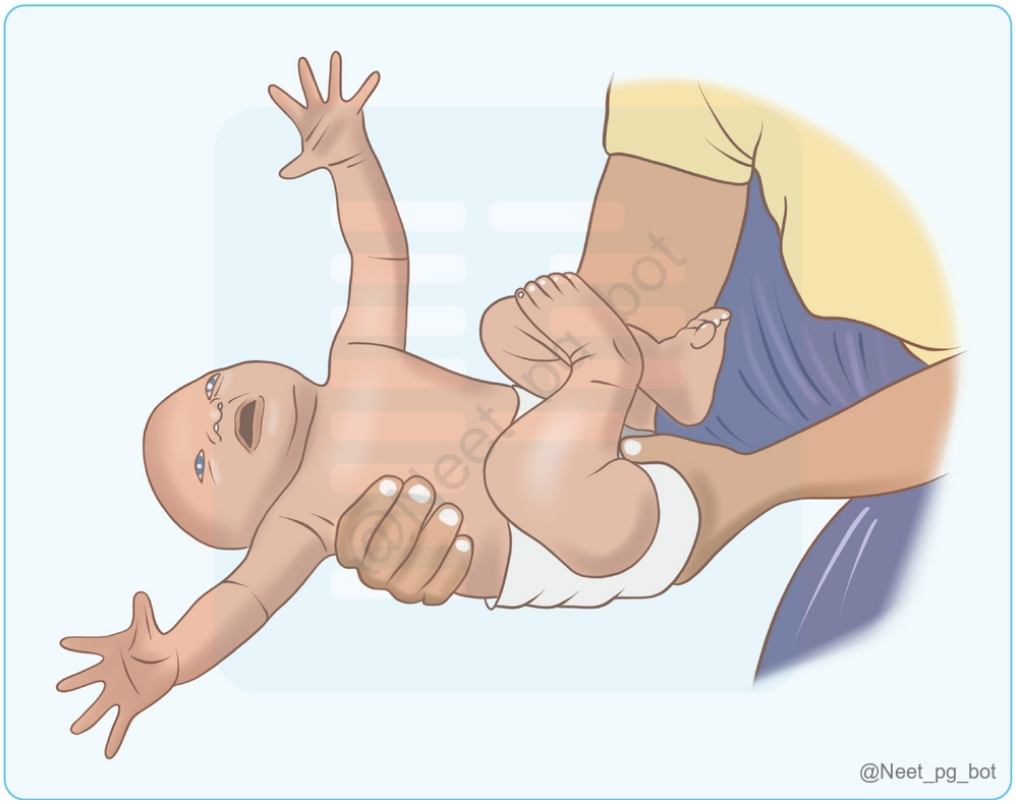
D. Clavicle fracture

Correct Answer: B. Severe asphyxia during birth

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Severe asphyxia can cause brain damage due to oxygen deprivation, which often leads to an absent Moro reflex . In this scenario, the weak cry and the absent reflex strongly suggest a potential neurological injury caused by perinatal hypoxia. Hence, Option B, severe asphyxia, will be the best answer. Moro Reflex: The Moro reflex or Startle reflex is a primitive neonatal reflex that can be elicited by supporting the baby's head and letting it fall back slightly while still supporting it. This triggers a response where the baby first extends and abducts their arms and fingers, then flexes the arms back towards the body, typically accompanied by a cry. The reflex begins to develop in utero , with hand opening at 28 weeks, arm extension and abduction at 32 weeks , and full response (including flexion) by 37 weeks . Normally, the Moro reflex disappears by 3 to 6 months of age . ABNORMAL MORO REFLEX CAUSES Absent Moro Reflex Birth injuries: Trauma during delivery Intracranial hemorrhage Severe asphyxia: Oxygen deprivation during birth General muscular weakness Cerebral palsy: Especially in spastic forms, the reflex may be absent. Asymmetric Moro Reflex Brachial plexus injury e.g., Erb's palsy (Option A) Clavicle fracture (Option D) Cervical spine injury Exaggerated Moro Reflex Hyperekplexia: A genetic disorder with an exaggerated startle response, often accompanied by muscle rigidity. Severe brain damage: Conditions like microcephaly or hydranencephaly. Tay-Sachs Disease (Option C): While this is a neurodegenerative disorder, it typically does not present at 3 days of age . Symptoms usually appear between 3–6 months when the child begins to lose motor skills and develops an exaggerated startle response (hyperacusis), not an absent one.



References:

Ghai Essential Pediatrics, 10th Edition, Page 138

Nelson Textbook of Pediatrics, 21st Edition, Pages 3059, 3060

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www.webmd.com/baby/what-is-the-moro-reflex

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A 2-month-old infant is brought to the clinic for a developmental check-up. Which reflex should the clinician expect to see at this stage of development? (Q849953)

A. STNR

B. Moro's Reflex

C. Parachute Reflex

D. Landau Reflex

Correct Answer: B. Moro's Reflex

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Moro's reflex is a primitive (infantile) reflex that is present at birth , fully developed by 37 weeks , and persists till 5–6 months of age . Appearance: Present at birth (complete by 37 weeks) Disappearance: By 5–6 months Triggered by: Sudden noise or loss of head support Response: Sudden extension/abduction of arms Then adduction of arms ("embracing" movement) Since this infant is 2 months old , Moro's reflex should normally be present at this stage of development. Symmetric Tonic Neck Reflex (Option A) Appearance: ~ 4–6 months of age Action: When the neck flexes → both arms flex & both legs extend; when the neck extends → arms extend & legs flex Parachute Reflex (Option C) Appearance: Around 7–9 months (≈ 8 months) Action: When the infant is tilted forward, they extend arms as if to break a fall Landau Reflex (Option D) Appearance: Around 3–4 months Action: When held prone in the air: Neck extends → trunk & legs extend Neck flexes → trunk & legs flex

References:

Ghai Essential Pediatrics, 10th Edition, Page 138

Nelson Textbook of Pediatrics, 21st Edition, Page 3059

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↑ *Back to this question in Part A*

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Q15: A newborn is admitted to the NICU with signs of hypoglycemia and respiratory distress. The mother had multiple gestation and gestational diabetes during her pregnancy. Which of the following is not a pregnancy-related complication that contributes to the high-risk status of this infant? (Q849952)

A. Multiple gestations

B. Gestational diabetes

C. Maternal obesity

D. Preeclampsia

Correct Answer: C. Maternal obesity

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Maternal obesity can increase maternal health risks, but it does not directly cause neonatal complications such as hypoglycemia or respiratory distress. It is primarily a maternal health condition, not an acute pregnancy-related complication. High-risk newborn status is determined by factors that directly affect neonatal survival or immediate health. Unlike other complications, maternal obesity does not directly increase NICU admission risk for the infant. The infant's high-risk features (hypoglycemia, respiratory distress) are not typically caused by maternal obesity alone. Therefore, maternal obesity is not considered a direct contributor to the infant's high-risk status in this scenario. Multiple gestations (Option A): Directly increases the risk of prematurity, low birth weight, and NICU admission. Gestational diabetes (Option B) : Leads to neonatal hypoglycemia, macrosomia, and respiratory distress. Preeclampsia (Option D) : Causes placental insufficiency and intrauterine growth restriction, increasing neonatal morbidity risk.

References:

www.nichd.nih.gov/health/topics/high-risk/conditioninfo/factors

link.springer.com/referenceworkentry/10.1007/978-3-642-02202-9_13/tables/1

Nelson Textbook of Pediatrics, 21st Edition, Page 898

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 43-week-old postterm neonate is delivered vaginally. Which of the following is not a characteristic appearance of a post-term neonate? (Q849951)

A. Overgrown Nails

B. Sparse scalp hair

C. Visible creases on palms and soles

D. Dry, loose, peeling skin

Correct Answer: B. Sparse scalp hair

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Posterm neonates generally have abundant scalp hair, not sparse. Characteristics of a Postterm Neonate Dry, loose, peeling skin (Option D) Overgrown nails (Option A) Abundant scalp hair Visible creases on

palms and soles of feet (Option C) Minimal fat deposits. Green, brown, or yellow skin colouring from meconium staining More alert and "wide-eyed" appearance.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: A 38-week gestational-age infant is delivered with a birth weight of 3,200 grams. The neonatal team assesses the infant's weight percentile and notes that it falls between the 10th and 90th percentile for their gestational age. How should this newborn be classified according to gestational age and birth weight? (Q849949)

A. Small for Gestational Age (SGA)

B. Appropriate for Gestational Age (AGA)

C. Large for Gestational Age (LGA)

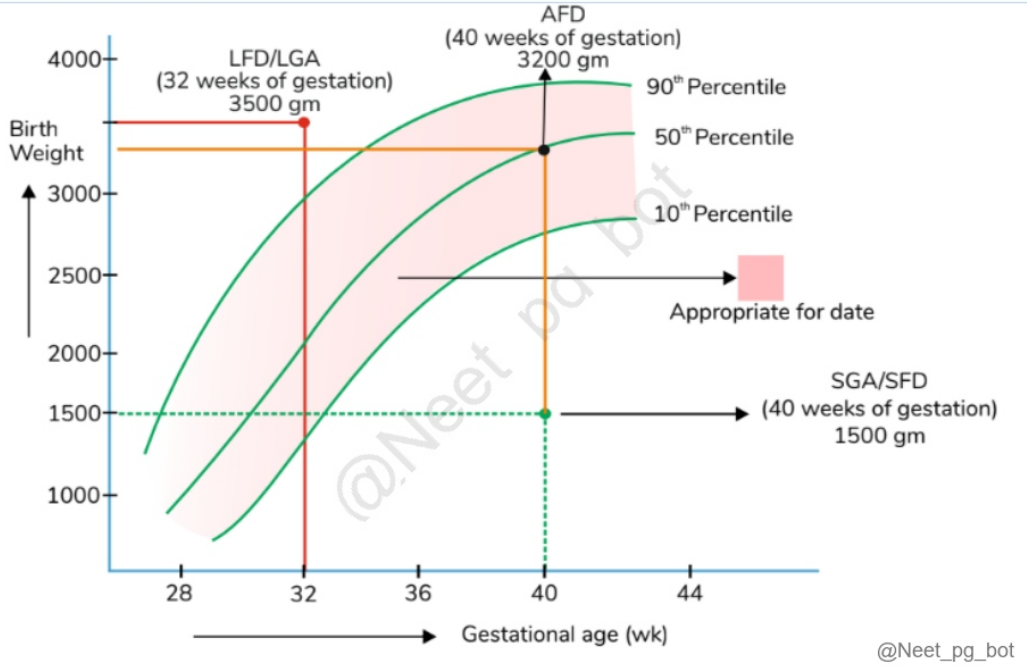
D. Pre-Term and Low Birth Weight (LBW)

Correct Answer: B. Appropriate for Gestational Age (AGA)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant's weight falls within the 10th to 90th percentile for their gestational age, classifying them as Appropriate for Gestational Age (AGA). Classification according to gestational age and birth weight. Appropriate for gestational age (AGA) The baby's weight is appropriate for the gestational age (weight between the 10th and 90th percentile). Small for gestational age (SGA) (Option A) Baby's weight is less than expected for the gestational age (weight less than 10th percentile). Large for gestational age (LGA) (Option C) The baby's weight is more than expected for the gestational age (weight more than the 90th percentile). Pre-Term and Low Birth Weight (LBW)(Option D): Pre-Term refers to infants born before 37 weeks of gestation, and LBW is defined as a birth weight of less than 2,500 grams. The infant in the scenario was born at 38 weeks with a weight of 3,200 grams, so neither pre-term nor LBW criteria are met.



References:

Ghai Essential Pediatrics, 10th Edition, Page 131

Nelson Textbook of Pediatrics, 21st Edition, Pages 906, 907

↑ *Back to this question in Part A*

@Neet_pg_bot

• [01_Neonatology] 002 Neonatology-I

« Back to Folder Directory

[01_Neonatology] 002 Neonatology-I — Quick Jump

Q1 (p. 549)	*Q2 (p. 550)*	*Q3 (p. 551)*	*Q4 (p. 552)*	*Q5 (p. 553)*	*Q6 (p. 554)*
Q7 (p. 555)	*Q8 (p. 555)*	*Q9 (p. 556)*	*Q10 (p. 557)*	*Q11 (p. 559)*	*Q12 (p. 561)*
Q13 (p. 562)	*Q14 (p. 563)*	*Q15 (p. 564)*	*Q16 (p. 565)*	*Q17 (p. 566)*	*Q18 (p. 567)*
Q19 (p. 567)	*Q20 (p. 568)*	*Q21 (p. 569)*			

Q1: A 2700-g male infant, born at 36 weeks gestation, presents at 6 hours of age with grunting, nasal flaring, and intercostal retractions. He is also experiencing poor feeding. His temperature is 35.8°C, and blood pressure is 42 mm Hg systolic. A CBC shows a WBC count of 2500 cells/mm3 with 80% bands. What is the most likely diagnosis? (Q849939)

A. Neonatal Sepsis

B. Respiratory Distress Syndrome

C. Transient Tachypnea of the Newborn

D. Meconium Aspiration Syndrome

Correct Answer: A. Neonatal Sepsis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The combination of respiratory distress(grunting, nasal flaring, and intercostal retractions), hypothermia(35.8 °C), poor perfusion(42 mm Hg systolic), and a low white blood cell count with a high percentage of bands points to Neonatal sepsis. Clinical Features of Neonatal Sepsis: Early Signs: Poor feeding Temperature Disturbances: Hypothermia (more common than fever) Metabolic Issues: Hypoglycemia, metabolic acidosis, elevated lactate Systemic Manifestations: CNS: Shrill cry, irritability, seizures, abnormal posturing, bulging anterior fontanelle Respiratory: Tachypnea, hypoxia, retractions, grunting GI: Abdominal distension, feed intolerance, recurrent vomiting, necrotizing enterocolitis-like features Severe Sepsis: Septic shock, Multi-organ dysfunction, DIC Sclerema: Generalized non-pitting edema due to severe sepsis or hypothermia Respiratory Distress Syndrome (Option B): Presents with respiratory distress but does not commonly cause significant hypothermia or systemic signs such as poor perfusion and low blood pressure. Transient Tachypnea of the Newborn (Option C): Presents with respiratory distress but usually resolves quickly without the systemic involvement seen in this case. Meconium Aspiration Syndrome (Option D): MAS typically does not cause hypothermia or the profound leukopenia and bandemia observed here.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1451, 1452

Ghai Essential Pediatrics, 10th Edition, Pages 166, 167

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 3-day-old preterm neonate is brought to the NICU with an axillary temperature of 31.5°C after being found hypothermic in the maternity ward. The baby is placed under a radiant warmer, and rewarming measures are initiated. After 1 hour, the baby's temperature is rechecked. Which of the following indicates that the rewarming process is proceeding at an appropriate rate for neonatal hypothermia? (Q849945)

A. The baby's temperature rises to 34°C within the first hour.

B. The baby's temperature rises to 36.5°C within 2 hours.

C. The baby's temperature rises by 0.5°C within the first hour.

D. The baby's temperature rises by 0.2°C within the first hour.

Correct Answer: C. The baby's temperature rises by 0.5°C within the first hour.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A rise in temperature of 0.5°C/hour is considered adequate in the treatment of a neonate with severe hypothermia. Treatment of Hypothermia in neonates: Cold stress and Moderate hypothermia (Temperatures up to 32°C) Severe hypothermia (Temperature < 32°C) Passive rewarming: Eliminate exposure to cold environments, cold clothing, or wet clothing. Active rewarming: Skin-to-skin contact, warm room, radiant warmer, or incubator. Monitor Temperature Ensure frequent feedings Rewarming: Initial rapid rewarming up to 34°C followed by slow rewarming. Temperature Monitoring: Every hour for the first 3 hours, every 2 hours until the temperature is normal, then every 3 hours for the next 12 hours. If the rise of temperature has been by 0.5°C per hour then heating is considered adequate (Option C) Additional Support: Provide oxygen. Empirical antibiotics. IV saline if in shock, IV dextrose, and vitamin K. Continuously monitor vital signs

References:

Ghai Essential Pediatrics, 10th Edition, Page 144.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A newborn is examined after a normal vaginal delivery. A firm, localized swelling is noted over the parietal region of the scalp. Which of the following statements is not characteristic of this condition? (Q891222)

A. Appears several hours after birth

B. Confined to one cranial bone, does not cross suture lines

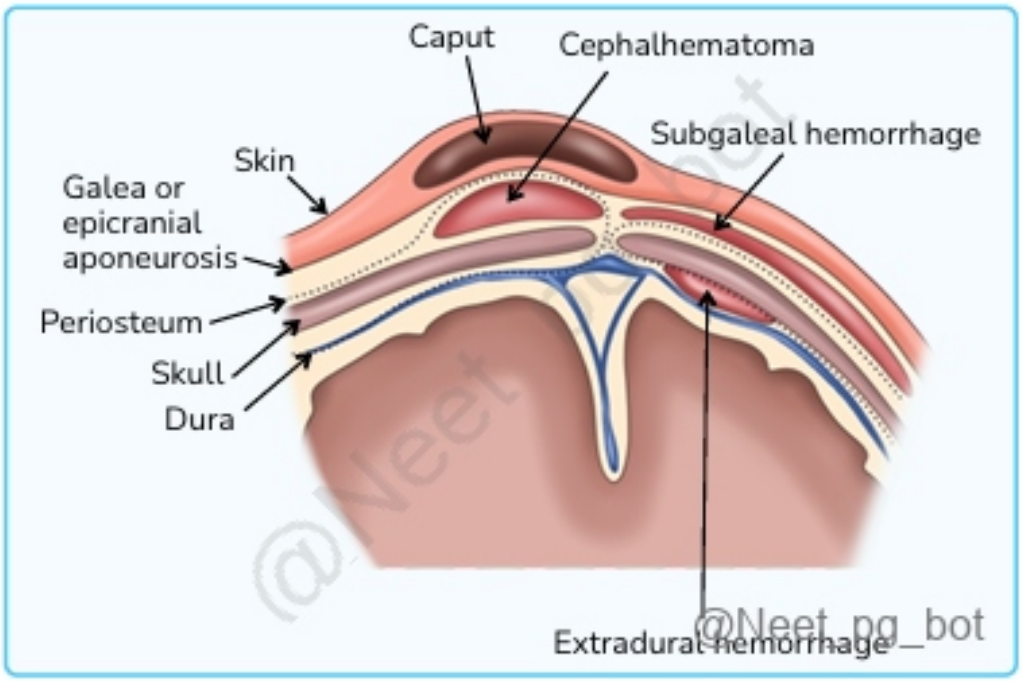
C. Gradually resorbs over 2 weeks to 3 months

D. Swelling of the soft tissues of the scalp



Correct Answer: D. Swelling of the soft tissues of the scalp

Explanation: The clinical findings described, along with the image, are consistent with Cephalohematoma , a subperiosteal hemorrhage that appears hours after birth, is confined to one cranial bone without crossing suture lines, and resolves gradually over weeks to months. “Swelling of the soft tissues of the scalp” instead describes Caput succedaneum , which crosses suture lines and is present at birth Cephalohematoma: Confined to one cranial bone - does not cross suture lines (Option B ruled out) Firm, not soft or pitting (unlike caput succedaneum) Appears several hours after birth due to accumulation of blood (Option A ruled out) Slowly resorbs over 2 weeks to 3 months (Option C ruled out) Usually self-limiting; may calcify in rare cases.



References:

Nelson Textbook of Pediatrics, 21st Edition, Chapter 113, Page 869.

https://www.ncbi.nlm.nih.gov/books/NBK470192/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A term neonate is delivered vaginally after a prolonged second stage of labor. Immediately after birth, there is a soft, diffuse, pitting swelling over the scalp that crosses suture lines. What is the most likely diagnosis? (Q891220)

A. Subgaleal hemorrhage

B. Caput succedaneum

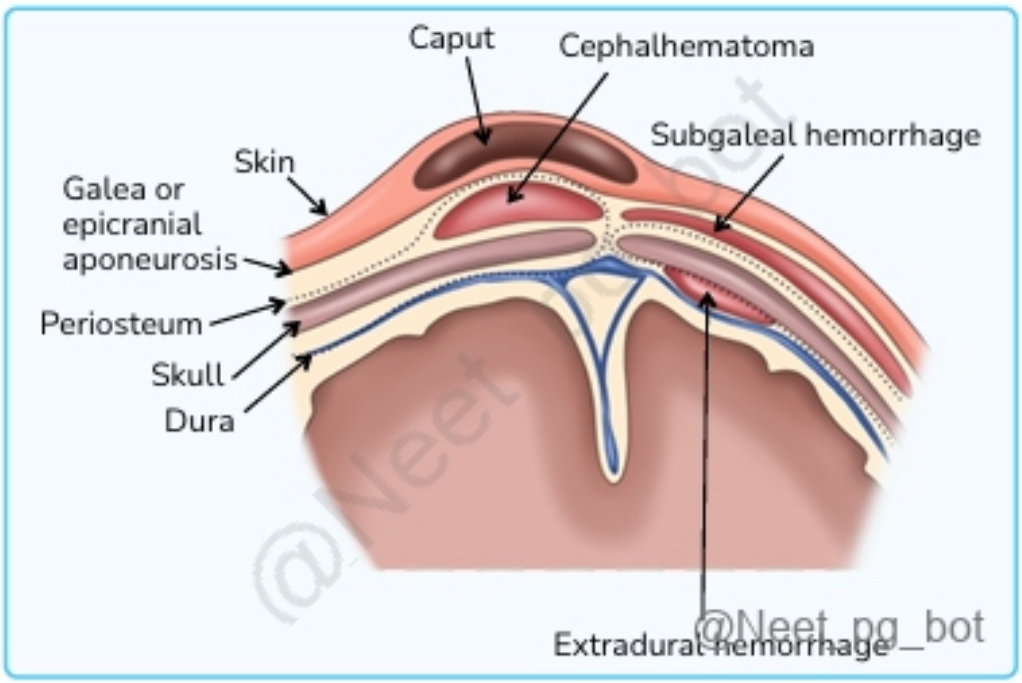
C. Cephalohematoma

D. Epidural hematoma

Correct Answer: B. Caput succedaneum

Explanation: Caput succedaneum is a diffuse, soft, edematous swelling of the scalp caused by extravasation of fluid into the subcutaneous tissue during labor. Features: Crosses suture lines Soft, pitting consistency Appears

immediately after birth Resolves spontaneously within a few days Usually harmless Subgaleal hemorrhage (Option A): Diffuse swelling also crosses suture lines but is firmer, fluctuating, may expand rapidly, and can cause significant blood loss and hypovolemic shock. Cephalohematoma (Option C): Localized swelling confined to one cranial bone, does not cross suture lines, develops hours after birth, and is firm to palpation. Epidural hematoma (Option D): Rare in neonates, does not present as a scalp swelling, is intracranial, and may present with neurological signs rather than visible scalp edema.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 869.

https://www.ncbi.nlm.nih.gov/books/NBK574534/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 29-year-old multigravida (G2P1L1) delivers a female infant at 42 weeks + 4 days of gestation. The baby shows features of postmaturity syndrome. Which of the following neonatal complications is least likely to be associated in this setting? (Q891218)

A. Meconium aspiration syndrome

B. Persistent pulmonary hypertension of the newborn (PPHN)

C. Polycythemia

D. Anemia

Correct Answer: D. Anemia

Explanation: A pregnancy extending beyond 42 completed weeks is termed post-term pregnancy. Due to placental aging, uteroplacental insufficiency develops, leading to chronic fetal hypoxia. Common neonatal complications include: Meconium aspiration syndrome (MAS) due to fetal distress (Option A ruled out) Persistent pulmonary hypertension of the newborn (PPHN) secondary to hypoxia (Option B ruled out) Polycythemia due to chronic intrauterine hypoxia → increased erythropoietin production (Option C ruled out) Hypoglycemia (due to depleted glycogen stores) Chronic intrauterine hypoxia stimulates erythropoietin production, resulting in: Polycythemia (↑ hematocrit) Increased blood viscosity Risk of hyperbilirubinemia Therefore, anemia is unlikely in this scenario.

References:

https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/postmaturity

https://www.stanfordchildrens.org/en/topic/default?id=postmaturity-in-the-newborn-90-P02399

↑ *Back to this question in Part A*

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Q6: A multigravida with an uncertain last menstrual period is reassessed and found to have a corrected gestational age of 42+5 weeks. Due to non-reassuring fetal heart rate tracing suggestive of uteroplacental insufficiency, she underwent emergency cesarean section. Which of the following findings is least likely to be present in the newborn? (Q891201)

A. Long fingernails

B. Dry, peeling skin

C. Decreased subcutaneous fat

D. Abundant scalp hair

Correct Answer: D. Abundant scalp hair

Explanation: A baby born after 42 completed weeks is considered post-term . With placental insufficiency, the neonate may develop postmaturity syndrome (dysmaturity) . Features: Long nails (Option A ruled out) Dry, cracked, peeling skin (parchment-like) (Option B ruled out) Reduced subcutaneous fat → thin, wasted appearance (Option C ruled out) Meconium staining Alert, wide-eyed look Oligohydramnios history These babies appear thin due to chronic intrauterine malnutrition. Scalp hair is usually scanty, not abundant , in postmature infants.

References:

https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/postmaturity

https://www.stanfordchildrens.org/en/topic/default?id=postmaturity-in-the-newborn-90-P02399

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A woman with no prior antenatal care delivers a 2.3 kg male infant by vaginal delivery. Since gestational age is uncertain, a clinical assessment of maturity is performed. Which of the following findings would argue against a diagnosis of prematurity? (Q891199)

A. Absent plantar creases

B. Undescended testes

C. Well-formed ear cartilage with instant recoil

D. Barely palpable breast tissue

Correct Answer: C. Well-formed ear cartilage with instant recoil

Explanation: Gestational maturity is commonly assessed using physical criteria (as in the Ballard scoring system). Features of prematurity: Poorly developed ear cartilage (soft pinna, slow recoil) Absent or faint plantar creases (Option A ruled out) Minimal breast tissue (<5 mm nodule) (Option D ruled out) Undescended testes in males (Option B ruled out) Thin skin with visible veins A well-formed ear with firm cartilage and prompt recoil indicates term maturity and therefore goes against prematurity.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 868-871.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A term neonate born by planned cesarean delivery is evaluated soon after birth. Anthropometric measurements reveal a ponderal index of 1.7. Which of the following maternal conditions is least likely to be associated with this finding? (Q891198)

A. Chronic hypertension

B. Diabetes with microvascular complications

C. Sickle cell disease

D. Gestational diabetes without vascular disease

Correct Answer: D. Gestational diabetes without vascular disease

Explanation: Ponderal Index (PI) = Weight (g) × 100 / Length³ (cm³) Normal PI ≈ 2.0-2.5 A PI of 1.7 (<2) indicates asymmetrical intrauterine growth restriction (IUGR) . Asymmetrical IUGR results from uteroplacental insufficiency , typically due to maternal conditions causing reduced placental blood flow. Common causes include: Chronic hypertension (Option A ruled out) Diabetes with vasculopathy (Option B ruled out) Severe anemia Sickle cell disease (Option C ruled out) Maternal cardiac or renal disease In asymmetrical IUGR: Weight is reduced Length relatively preserved Brain-sparing effect present. Gestational diabetes without vascular disease typically causes fetal macrosomia due to hyperinsulinemia, leading to increased fat deposition and a normal or high ponderal index, not a low one.

References:

https://www.sciencedirect.com/topics/medicine-and-dentistry/ponderal-index

https://pubmed.ncbi.nlm.nih.gov/9690756/

https://mpra.ub.uni-muenchen.de/118334/1/Pandural%20-19-8-23%20MPRA.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A term neonate born to a mother with pregnancy-induced hypertension undergoes anthropometric assessment immediately after birth. The baby weighs 2.1 kg and measures 50 cm in length. The calculated ponderal index is 1.6. Which of the following organs is least likely to be affected in this neonate? (Q891195)

A. Liver

B. Brain

C. Skeletal muscle

D. Subcutaneous fat

Correct Answer: B. Brain

Explanation: Ponderal Index (PI) = Weight (g) × 100 / Length³ (cm³) Normal PI ≈ 2.0-2.5 A low ponderal index (< 2) suggests asymmetrical intrauterine growth restriction (IUGR) . Asymmetrical IUGR: Occurs due to uteroplacental insufficiency Weight is reduced more than length There is “brain-sparing effect” Because of

preferential shunting of blood to vital organs (brain, heart, adrenals), the brain size remains relatively preserved . Organs Affected in Asymmetrical IUGR: ↓ Subcutaneous fat ↓ Muscle mass ↓ Liver size (due to depleted glycogen stores) Relative preservation of brain size Liver (Option A): Commonly reduced in size due to decreased glycogen storage in asymmetrical IUGR. Skeletal muscle (Option C): Muscle mass decreases because of chronic nutrient deprivation. Subcutaneous fat (Option D): Markedly reduced, giving the baby a thin, wasted appearance.

References:

https://www.sciencedirect.com/topics/medicine-and-dentistry/ponderal-index

https://pubmed.ncbi.nlm.nih.gov/9690756/

https://mpra.ub.uni-muenchen.de/118334/1/Pandural%20-19-8-23%20MPRA.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A preterm male neonate is delivered at 35 weeks of gestation via emergency cesarean section. During routine examination of the placenta, histopathological evaluation of the umbilical cord reveals the finding shown in the image below? (Q891189)

A. Gastrointestinal system

B. Cardiovascular system

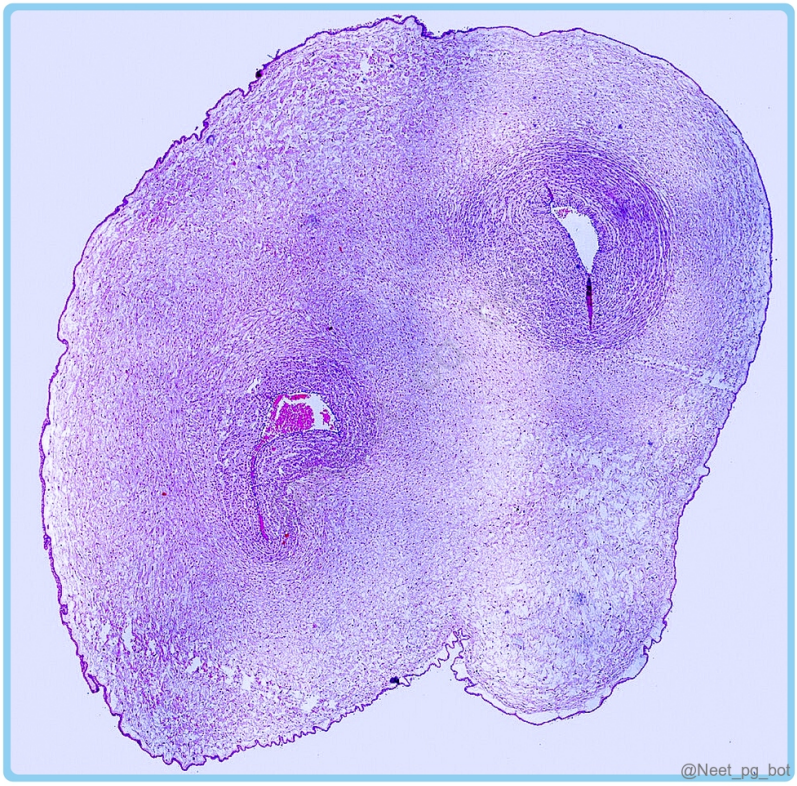
C. Renal system

D. Musculoskeletal system



Correct Answer: C. Renal system

Explanation: In this scenario, histopathological examination of the umbilical cord shows only one artery and one vein , instead of the normal three-vessel cord . Normally, the umbilical cord contains two umbilical arteries and one umbilical vein . The presence of a single umbilical artery (SUA) is a common umbilical cord abnormality. SUA is strongly associated with congenital malformations, particularly involving the renal system (most common association) Renal agenesis Polycystic kidney Hydronephrosis Vesicoureteral reflux This association occurs because the umbilical arteries are embryologically derived from the fetal internal iliac arteries, which are closely related to the developing urogenital system. Gastrointestinal system (Option A): May be associated (e.g., tracheoesophageal fistula, anorectal malformations), but renal anomalies are the most common association with single umbilical artery. Cardiovascular system (Option B): Cardiac defects are the second most frequent association, but they are less common than renal anomalies. Central nervous system (Option D): CNS anomalies may occur in syndromic cases, especially with chromosomal abnormalities, but isolated single umbilical artery most commonly affects the renal system.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 975.

OP Ghai Textbook of Pediatrics, 10th Edition, Page 136.

https://pmc.ncbi.nlm.nih.gov/articles/PMC11424200/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: You are examining an LGA neonate who presents with the physical finding shown in the image below. Given this finding, you suspect the neonate might have an associated congenital heart anomaly. What is the most common congenital heart anomaly you would suspect in this case? (Q849947)

A. Atrial Septal Defect (ASD)

B. Tetralogy of Fallot (TOF)

C. Ventricular Septal Defect (VSD)

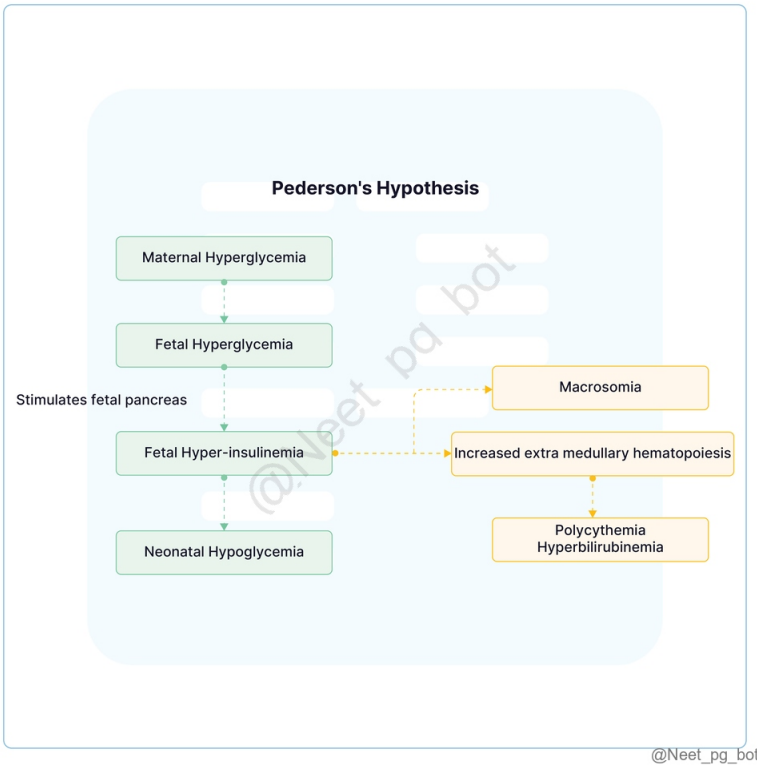
D. Patent Ductus Arteriosus (PDA)



Correct Answer: C. Ventricular Septal Defect (VSD)

- *Listen (English)*
- *Listen (Hindi)*

Explanation: A hairy pinna points to the diagnosis of an infant of a diabetic mother, and the most common congenital heart disease in IDM is ventricular septal defect (VSD) Infant of a diabetic mother: Diabetes is one of the most common endocrine disorders affecting women during pregnancy. Infants of diabetic mothers (IDM) have a higher incidence of congenital malformations, estimated to be between 2.5 and 12%, with an excess of cardiac problems. Pathogenesis: Problems in IDM: Macrosomia/Large for Date Baby Increased risk of birth trauma if forceps are used in obstructed labor. Increased chances of perinatal asphyxia in prolonged labor. Metabolic Hypoglycemia Hypocalcemia Hypomagnesemia Polycythemia Neonatal jaundice CVS The most common congenital abnormality in infants of diabetic mothers (IDM) is congenital heart disease (CHD). The most common congenital heart disease in IDM is ventricular septal defect (VSD). (Option C) The most specific congenital heart disease in IDM is transposition of the great arteries (TGA). Respiratory System Respiratory distress syndrome or Hyaline membrane disease due to delayed maturation of surfactant. CNS Most common congenital neurologic abnormality in IDM: Neural tube defects. Most specific neurologic abnormality in IDM: Sacral agenesis or caudal regression syndrome. Renal Renal vein thrombosis Renal agenesis Duplication of ureter Hydroureteronephrosis GI Duodenal atresia Lazy/small left colon syndrome Long Term Problems Blindness Obesity Nonketotic hypoglycemia Deafness



References:

Ghai Essential Pediatrics, 10th Edition, Page 177.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 1-day-old term neonate born to a mother with gestational diabetes is found to have a blood glucose level of 35 mg/dL during routine screening. The baby is asymptomatic and has been breastfeeding moderately well. What is the most appropriate next step in the management of this neonate? (Q849946)

A. Start intravenous glucose infusion immediately.

B. Administer a bolus of 2 mL/kg of 10% dextrose and then start glucose infusion.

C. Provide a trial of oral feeds and recheck blood glucose in 30-45 minutes.

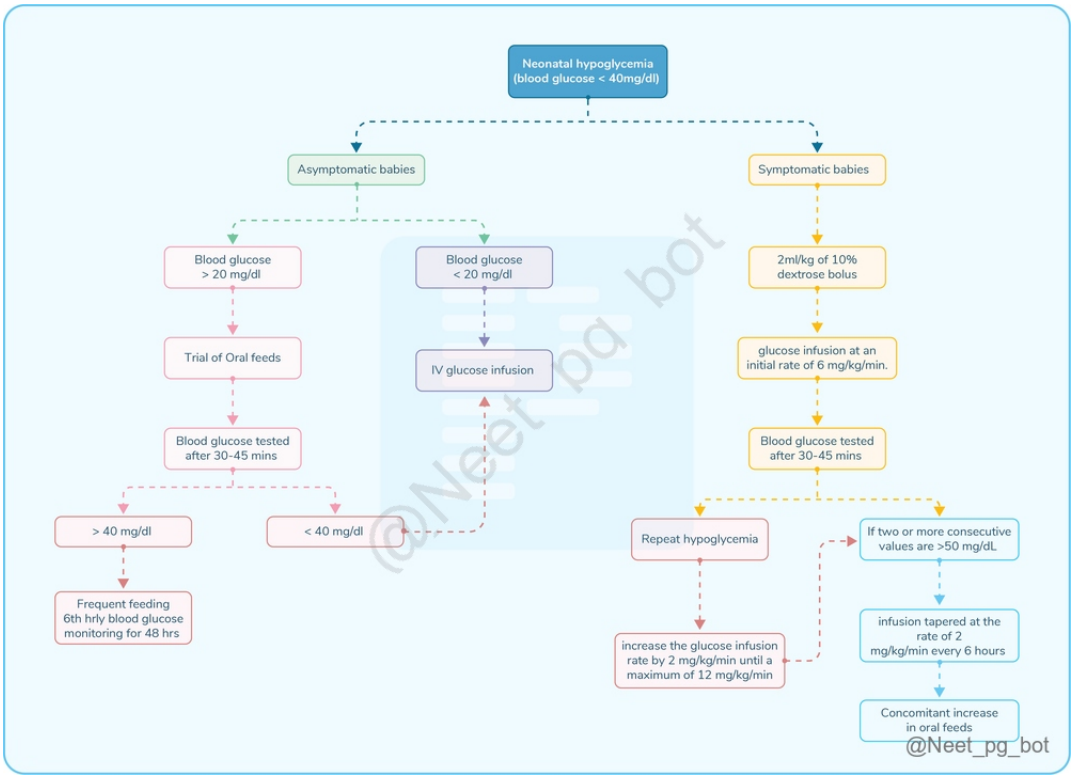
D. Repeat the blood glucose test after 1 hour without feeding and monitor.

Correct Answer: C. Provide a trial of oral feeds and recheck blood glucose in 30-45 minutes.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In asymptomatic babies with blood sugar of > 20 mg/ dL, a trial of oral feeds is given and blood sugar is rechecked after 30-45 minutes. Management of Hypoglycemia in neonates: Age Group Blood Glucose Threshold Notes Neonates < 40 mg/dL (2.2 mmol/L) in first 24 hrs Common in first days of life; risk of neurological damage if untreated < 45 mg/dL (2.5 mmol/L) after 24 hrs Thresholds vary by institution and clinical context Children < 60 mg/dL (3.3 mmol/L) Symptoms and context (e.g., fasting, illness) are crucial for interpretation Adults < 70 mg/dL (3.9 mmol/L) Based on activation of counter-regulatory hormones and onset of symptoms



References:

Ghai Essential Pediatrics, 10th Edition, Page 176.

https://www.ncbi.nlm.nih.gov/books/NBK537105/

https://www.ncbi.nlm.nih.gov/books/NBK534841/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 32-week pregnant woman presents due to concerns about her baby's growth. Her pregnancy has been complicated by chronic hypertension. The ultrasound reveals

that the fetal head size is within the normal range, but the body weight and length are significantly below the 10 th percentile. What is the most likely etiology of the fetal growth restriction in this case? (Q849935)

A. Genetic disorders

B. Chromosomal disorders

C. Intrauterine infection

D. Placental insufficiency

Correct Answer: D. Placental insufficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The Presence of normal head size with reduced body weight and length, combined with the maternal history of chronic hypertension, points to asymmetric IUGR due to placental insufficiency Symmetric IUGR Asymmetric IUGR Time of insult Early pregnancy (1 trimester or early 2 trimester) Late pregnancy (2 or 3 trimester) Etiology Genetic disorders (Option A ruled out) TORCH infections (Option C ruled out) Chromosomal disorders (Option B ruled out) Maternal undernutrition Maternal Hypertension Anemia Effect on cells No. of cells is decreased The size of cells is mainly affected Anthropometric parameters Head circumference, length and weight is equally affected Head circumference and length are less affected than weight Ponderal index (P.I) ≥ 2 < 2 Better prognosis

References:

Ghai Essential Pediatrics, 10th Edition, Page 148

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A full-term neonate is born in a resource-limited rural health center. The delivery room temperature is 20°C. Which of the following steps is not part of the warm chain that should be immediately implemented to prevent neonatal hypothermia? (Q849944)

A. Drying the baby immediately after birth.

B. Skin-to-skin contact between the mother and baby.

C. Covering the baby’s head with a warm cap.

D. Bathing the baby in warm water

Correct Answer: D. Bathing the baby in warm water

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The Warm Chain is a series of 10 interlinked procedures to ensure the thermal protection of newborns. Bathing the baby in warm water is not part of the Warm Chain. Components of the warm chain: Thermal care in the delivery room Warm resuscitation Immediate drying (Option A ruled out) Skin-to-skin contact (Option B ruled out) Breastfeeding Postponing Bathing (Option D) Clothing and bedding (Option C ruled out) Rooming in Warm transportation Training and awareness

References:

Ghai Essential Pediatrics, 10th Edition, Page 143.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: Which of the following statements is INCORRECT about Kangaroo Mother Care (KMC)? I. KMC is only recommended for preterm infants weighing less than 1500 grams. II. KMC must be performed continuously for at least 24 hours a day to be effective. III. KMC is not necessary once the baby's weight > 2500 g IV. KMC is as good as incubator care in terms of safety and thermal care. (Q849943)

A. I only

B. II only

C. I and II

D. III and IV

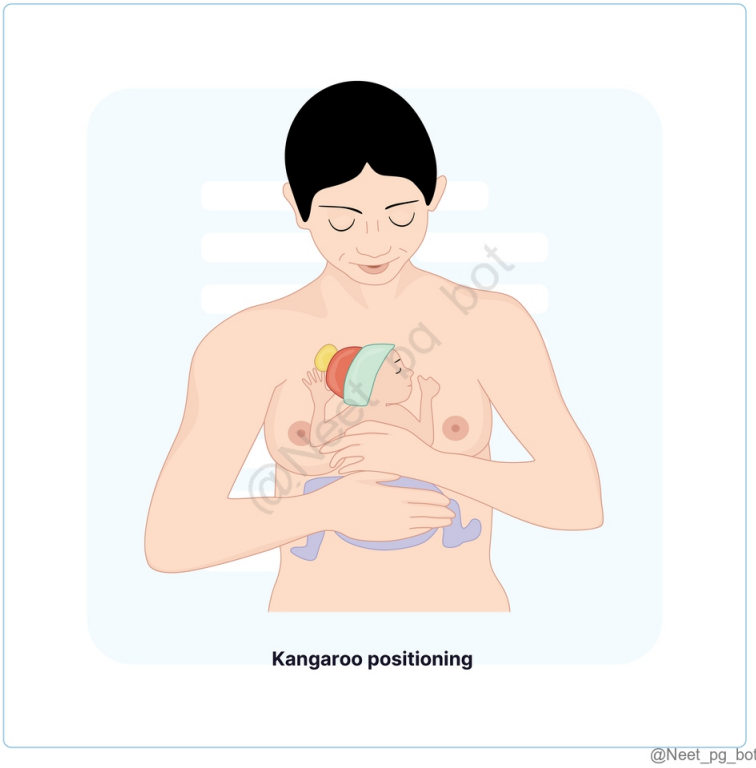
Correct Answer: C. I and II

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The incorrect statements are I and II: KMC is recommended for all low birth weight infants, not just those under 1500 grams. KMC does not have to be performed continuously for 24 hours to be effective; shorter, practical periods of KMC are also beneficial. Kangaroo Mother Care (KMC): KMC was first suggested in 1978 by Dr Edgar Rey in Bogota, Colombia, for the prevention of neonatal hypothermia in low birth weight/ premature newborns. Kangaroo Mother Care (KMC) can be carried out by the mother or any other caregiver. Reduces severe morbidity. Promoted bonding between mother and child. It is indicated for all hemodynamically stable low birth weight babies . (Statement I). It is as good as incubators, in terms of safety and thermal protection. (Statement IV)

Short sessions of KMC (Statement II) can be initiated in babies on medical treatment like IV fluids or oxygen therapy. KMC can be gradually stopped once the baby reaches ~2500 g and can maintain temperature independently. (Statement III) Positioning for KMC: The baby is placed between the mother's breasts in an upright position. The hips are abducted and flexed in the frog position, and the arms are also flexed. The abdomen of the baby should be at the level of the mother's epigastrium. In this position, the mother's breathing would stimulate the baby and prevent the development of apnea.



References:

Ghai Essential Pediatrics, 10th Edition, Page 153.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: During a routine examination of a newborn weighing 2.5 kg, 15 minutes after birth, you would classify the neonate as having moderate hypothermia if the body temperature is: (Q849942)

A. 36.0–36.4 °C

B. 32.0–35.9 °C

C. 28.0–31.9 °C

D. <28.0 °C

Correct Answer: B. 32.0–35.9 °C

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Moderate hypothermia in neonates is classified when the axillary temperature (thermometer kept in the axilla for a minimum of 3 minutes) ranges from 32.0 to 35.9 °C. Neonatal hypothermia is classified as follows: Cold stress 36.0 to 36.4 o C (Option A ruled out) Moderate Hypothermia 32.0–35.9 o C Severe Hypothermia <32 o C (Option C and D ruled out)

References:

Ghai Essential Pediatrics, 10th Edition, Page 143.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: A 3-day-old neonate presents with fever, irritability, and poor feeding. The sepsis screen is equivocal, but a lumbar puncture confirms the diagnosis of bacterial meningitis. Blood culture is pending, but the clinical team decides to initiate treatment immediately. Which of the following is the most appropriate antibiotic regimen and duration of therapy for this neonate? (Q849941)

A. Oral Cefotaxime and Gentamicin for 21 days

B. IV Cefotaxime and Gentamicin for 14 days

C. IV Ampicillin and Gentamicin for 21 days

D. IV Cefotaxime and Gentamicin for 21 days

Correct Answer: D. IV Cefotaxime and Gentamicin for 21 days

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In confirmed neonatal meningitis, the recommended antibiotic regimen includes a 3 rd generation cephalosporin like Cefotaxime, often in combination with Gentamicin, for a duration of 21 days to ensure complete eradication of the infection and prevent complications. Oral antibiotics have no role in the treatment of Neonatal Sepsis. Treatment of Neonatal Sepsis: Duration of antibiotic therapy: Sepsis screen Blood culture Meningitis Term used Duration - - - Clinical sepsis 5-7 days + - - Screen positive sepsis 7-10 days +/- + - Culture-positive sepsis 14 days +/- +/- + Meningitis 21 days (Option B ruled out)

References:

Ghai Essentials of Pediatrics, 10th Edition, Page 161

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A 2-day-old, term neonate presents with lethargy, poor feeding, and mild hypothermia. You suspect neonatal sepsis and order a sepsis screen as part of the diagnostic workup. Which of the following findings would be included in the sepsis screen for this neonate? (Q849940)

A. Total leukocyte count > 5000 /mm 3

B. Total leukocyte count < 5000 /mm 3

C. Increased absolute neutrophil count

D. Decreased platelet count

Correct Answer: B. Total leukocyte count < 5000 /mm 3

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In neonatal sepsis, a total leukocyte count of < 5000/mm 3 is included in a sepsis screen. A sepsis screen includes: Components Abnormal values Total Leucocyte count (TLC) <5000/mm 3 (Option B) Absolute Neutrophil Count (ANC) Low counts as per Manroe chart for term infants Mouzinho's chart for VLBW infants Immature/Total neutrophil (IT) >0.2 Micro-ESR >15mm in 1st hour C-reactive protein >1 mg/dl A positive sepsis screen is indicated by at least two abnormal parameters. A lumbar puncture is recommended for all suspected cases of neonatal sepsis (NNS), except for asymptomatic infants being evaluated solely for maternal risk factors.

References:

Ghai Essential Pediatrics, 10th Edition, Page 160.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: A 14-day-old preterm infant (35 weeks gestation) presents with worsening respiratory distress, irritability, and poor feeding. The mother reports poor cord care and the infant is febrile (38°C). Based on the clinical presentation and age, what is the

most likely type and timing of sepsis in this infant? (Q849938)

A. Early-onset sepsis occurring up to 72 hours after birth

B. Early-onset sepsis occurring after 72 hours but before 7 days of life

C. Late-onset sepsis occurring beyond 7 days of life

D. Very late-onset sepsis occurring more than 10 days after birth

Correct Answer: C. Late-onset sepsis occurring beyond 7 days of life

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant is 14 days old , which clearly places the infection in the late-onset sepsis category (beyond 7 days of life). Clinical Features of Neonatal Sepsis: Earliest manifestation: Poor feeding, alteration in established feeding behaviour. Temperature disturbances: Hypothermia > Fever Metabolic disturbances: Hypoglycemia, Metabolic acidosis, Elevated lactates. Systemic manifestations: Meningitis along with neonatal sepsis CNS manifestations: Shrill cry, irritability, seizures, abnormal posturing, bulging anterior fontanelle. Respiratory manifestations: Tachypnea, Hypoxia Features of respiratory distress: retraction, grunting GI manifestations: Abdominal distension, feed intolerance, recurrent episodes of vomiting, and necrotising enterocolitis-like features can be present. Severe sepsis → Septic shock → Multi organ dysfunction DIC: Bleeding manifestations Sclerema: Generalized non pitting edema can be due to severe neonatal sepsis or severe hypothermia in neonates. Parameter Early-Onset Sepsis Late-Onset Sepsis Timing Within the first 72 hours of life, but can occur up to day 7 of life Begins beyond the first week of life Common Organisms Derived from maternal genital tract: Group B Streptococcus, E. coli, Klebsiella Community-acquired (e.g., S.aureus), Nosocomial (e.g., Acinetobacter, Klebsiella Risk factors Spontaneous onset of preterm labor Prolonged rupture of membranes (>18 hours) Foul-smelling liquor Multiple per vaginal Examinations Maternal fever Prolonged labor Poor hand hygiene LBW Lack of breastfeeding Poor cord care Superficial infections (pyoderma, umbilical sepsis) Aspiration of feeds Needle pricks Use of IV fluids. Case fatality rate High Low

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1451

Ghai Essential Pediatrics, 10th Edition, Page 167

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: A 30-year-old pregnant woman is in her second trimester with a history of mild hypertension. Her obstetrician is concerned about the risk of IUGR due to her history . Which of the following strategies should be recommended to prevent IUGR? (Q849937)

A. Low-dose aspirin

B. Increase caffeine intake

C. High-dose antioxidant supplement

D. Avoid all forms of exercise

Correct Answer: A. Low-dose aspirin

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Low-dose aspirin (50 mg daily) is recommended for women at risk of IUGR, particularly those with a history of hypertension or other factors that may impair placental blood flow. It helps improve placental perfusion and reduce the risk of growth restriction. Prevention of IUGR: Balanced energy/protein supplementation (extra 300 calories/day) is associated with a 30% reduction in the risk of IUGR. Low-Dose Aspirin (50 mg daily) is associated with a 10% reduction in the risk of IUGR. Restriction of caffeine intake is associated with a reduction in the risk of IUGR. Increase caffeine intake (Option B) : High caffeine intake is associated with increased risk of IUGR, low birth weight, and preterm birth. Recommended practice is caffeine restriction, not increase (usually advised to limit to ≤ 200 mg/day in pregnancy). High-dose antioxidant supplement (Option C): Routine high-dose antioxidant supplementation (e.g., vitamins C & E) has not been proven to prevent IUGR . Some studies have even suggested potential adverse effects and no clear benefit in preventing placental insufficiency or IUGR . Avoid all forms of exercise (Option D): Moderate, regular exercise in pregnancy is generally beneficial and associated with better maternal cardiovascular health. Avoiding all exercise does not prevent IUGR and may contribute to excessive weight gain, poor glycemic control, and worsened hypertension.

References:

DC Dutta’s Textbook of Obstetrics, 9th Edition, Pages 434, 435

↑ *Back to this question in Part A*

@Neet_pg_bot

Q21: Which of the following best describes morphological IUGR? (Q849936)

A. Birth weight below the 10th percentile with malnutrition.

B. Birth weight between the 10th and 25th percentiles with malnutrition.

C. Birth weight above the 25th percentile with malnutrition.

D. Birth weight at the 50th percentile with no malnutrition

Correct Answer: B. Birth weight between the 10th and 25th percentiles with malnutrition.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Morphological IUGR : Definition : Babies with clinical features of malnutrition. Birth Weight : Between the 10th and 25th percentiles of the expected weight for their gestational age. Classification : These babies are considered IUGR but are not classified as SGA. SGA: Birth weight less than the 10th percentile of the expected weight for a given gestational age. IUGR: Clinical diagnosis based on growth patterns and clinical features.

References:

Ghai Essential Pediatrics, 10th Edition, Page 131

↑ *Back to this question in Part A*

@Neet_pg_bot

• [01_Neonatology] 003 Neonatology-Ii

« Back to Folder Directory

[01_Neonatology] 003 Neonatology-Ii — Quick Jump

Q1 (p. 571)	*Q2 (p. 572)*	*Q3 (p. 572)*	*Q4 (p. 573)*	*Q5 (p. 574)*	*Q6 (p. 575)*
Q7 (p. 575)	*Q8 (p. 576)*	*Q9 (p. 577)*	*Q10 (p. 578)*	*Q11 (p. 579)*	*Q12 (p. 580)*
Q13 (p. 582)	*Q14 (p. 585)*	*Q15 (p. 586)*	*Q16 (p. 587)*	*Q17 (p. 588)*	*Q18 (p. 589)*
Q19 (p. 589)	*Q20 (p. 590)*	*Q21 (p. 591)*	*Q22 (p. 592)*	*Q23 (p. 593)*	*Q24 (p. 594)*
Q25 (p. 595)	*Q26 (p. 596)*	*Q27 (p. 596)*	*Q28 (p. 597)*	*Q29 (p. 598)*	

Q1: A baby is born to an HIV-positive mother. The mother has been on antiretroviral therapy (ART) for the past 6 months. What is the appropriate management for this newborn? (Q849974)

A. Daily nevirapine prophylaxis starting at birth for 6 weeks

B. Zidovudine and nevirapine for 6 weeks if the baby is not breastfed

C. Zidovudine and nevirapine for 12 weeks if the baby is breastfed

D. Daily nevirapine prophylaxis starting at birth for 12 weeks

Correct Answer: A. Daily nevirapine prophylaxis starting at birth for 6 weeks

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Since the mother is on ART, the standard prophylaxis for the neonate is daily nevirapine starting at birth for 6 weeks. The other options are relevant for different scenarios or specific high-risk situations. Management of a Baby Born to an HIV-Positive Mother If the Mother is on ART: Daily nevirapine prophylaxis starting at birth Duration: 6 weeks (Option D) For High-Risk Neonates: (Options B and C) High-Risk Factors: Mother not on ART or received ART for <4 weeks High viral load in the mother (> 1000 copies/ml) Newly identified with HIV within 2 weeks of delivery Prophylaxis Regimen: Two drugs: zidovudine + nevirapine Duration: If the baby is not breastfed: 6 weeks If the baby is breastfed: 12 weeks

References:

https://clinicalinfo.hiv.gov/en/guidelines/perinatal/management-infants-arv-hiv-exposure-infection

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A parent reports that her child can pull to stand and moves sideways while holding onto furniture. Around what age is this developmental milestone usually achieved? (Q891394)

A. 13 months

B. 8 months

C. 10 months

D. 15 months

Correct Answer: C. 10 months

Explanation: The described activity is Cruising , a gross motor milestone in which the infant stands holding furniture and walks sideways with support. Occurs after the child learns to pull to stand Represents transition from standing with support → independent walking Typically achieved at 10-11 months of age Developmental Milestones 6 months Sits with support 8-9 months Pulls to stand (Option B ruled out) 10-11 months Cruising (Option C) 12 months Walks with one hand held 12-15 months Independent walking (Option A, D ruled out)

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 88, 135.

O.P. Ghai Essential Pediatrics, 9th Edition, Page26.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A term pregnant woman reports absent fetal movements for several hours and undergoes an emergency delivery for fetal distress. The newborn is apneic and cyanotic at birth. What should be the initial oxygen used during resuscitation? (Q891390)

A. 70% oxygen

B. Hyperbaric oxygen

C. Room air

D. 30% oxygen

Correct Answer: C. Room air

Explanation: For term neonates with apnea and cyanosis, resuscitation should start with room air (21% oxygen) rather than high-concentration oxygen. Initial oxygen: Start neonatal resuscitation with room air (21% oxygen) . (Option C) Preterm infants: May start with 21-30% oxygen. (Option D ruled out) Monitoring: Use pulse oximetry to track oxygen saturation. Adjustment: Increase oxygen gradually only if saturation targets are not met. Efficacy: Room air is as effective as 100% oxygen for establishing spontaneous breathing. Avoids hyperoxia complications: Reduced cerebral blood flow, free-radical injury, oxidative cellular damage. When higher oxygen may be needed: If saturation targets are not reached within ~90 seconds Special situations (persistent pulmonary hypertension, meconium aspiration, congenital diaphragmatic hernia). 70% oxygen (Option A): High oxygen concentration is not recommended initially because it increases risk of hyperoxia-induced tissue injury. Hyperbaric oxygen (Option B): No role in immediate neonatal resuscitation. It is used only in specific conditions like decompression illness or severe carbon monoxide poisoning.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 926-927.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: While performing cardiopulmonary resuscitation on a newborn infant with persistent bradycardia despite adequate ventilation, which compression-to-ventilation ratio should be followed? (Q891361)

A. 5:1

B. 30:2

C. 2:1

D. 3:1

Correct Answer: D. 3:1

Explanation: In neonatal resuscitation, persistent bradycardia despite adequate ventilation requires a 3:1 Compression-Ventilation Ratio , as cardiac arrest in newborns is usually secondary to respiratory failure, making ventilation the priority. Recommended ratio → 3 compressions: 1 ventilation Delivers approximately: 90 compressions/min 30 breaths/min Total ≈ 120 events/min When to start compressions: After 30 seconds of effective positive pressure ventilation if HR < 60/min . When to stop compressions: Once HR ≥ 60/min ; continue ventilation until HR > 100/min with adequate spontaneous breathing. 30:2 (Option B): Adult and child CPR ratio for single rescuer. Not appropriate in neonates because ventilation is the primary problem.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 927.

O.P. Ghai Essential Pediatrics, 10th Edition, Page125.

↑ *Back to this question in Part A*

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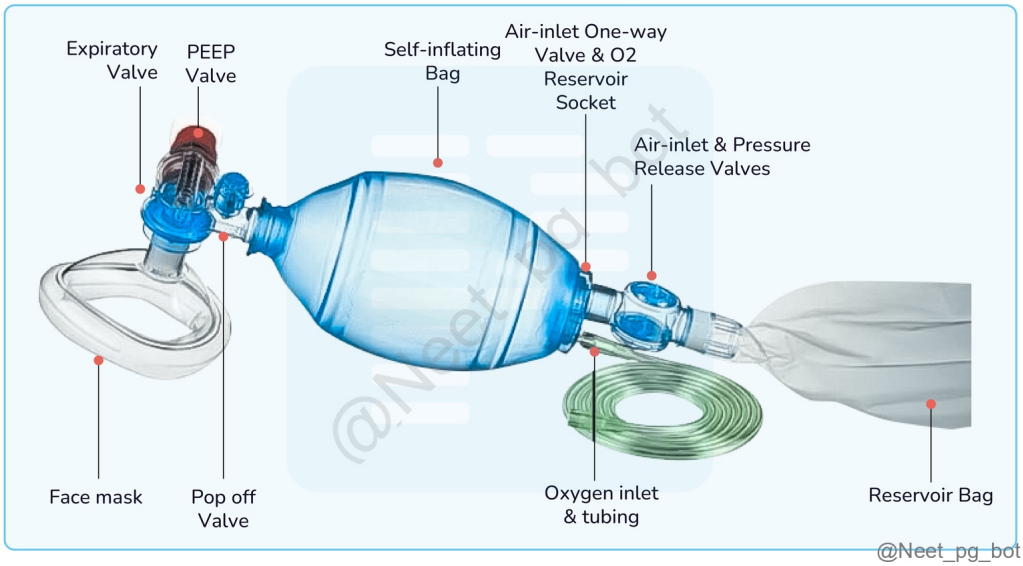
Q5: During newborn resuscitation, a self-inflating bag and mask device is prepared. At which numbered part should the oxygen tubing be connected? (Q891354)

A. 2

B. 4

C. 1

D. 3



Correct Answer: D. 3

Explanation: The device is a self-inflating bag and mask (Ambu bag) used for neonatal positive pressure ventilation, and the oxygen tubing should be connected to part 3 . Parts of the device 1 - Pressure release (pop-off) valve: Limits airway pressure; prevents barotrauma. (Option C ruled out) 2 - 360° swivel connector: Connects bag to mask; allows positioning. (Option A ruled out) 3 - Oxygen inlet: Attachment site for oxygen tubing. (Option D) 4 - Air inlet: Draws room air if oxygen not connected. (Option B ruled out) Functions without compressed oxygen, but oxygen attachment increases FiO■. Absolute contraindication: Suspected congenital diaphragmatic hernia (risk of gastric insufflation).

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 123.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: While calculating the APGAR score of a newborn immediately after delivery, which of the following parameters is not included? (Q891350)

A. Muscle tone

B. Respiratory rate

C. Heart rate

D. Skin color

Correct Answer: B. Respiratory rate

Explanation: APGAR score is a rapid clinical assessment of a newborn after birth, and it evaluates respiratory effort rather than respiratory rate. Rapid clinical assessment of a neonate's condition, performed at 1 minute and 5 minutes after birth. Components: A - A ppearance: Skin color (Option D ruled out) P - P ulse: Heart rate (Option C ruled out) G - G rimace: Reflex irritability (response to stimulation/catheter in nostril) A - A ctivity: Muscle tone (Option A ruled out) R - R espiration: Respiratory effort (crying or breathing effort) Assesses transition to extra-uterine life. Monitors response to resuscitation. Not used to decide initiation of resuscitation - start immediately if indicated, before the 1-minute score.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 872.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A preterm neonate admitted in the NICU develops temperature instability and lethargy on day 10 of life. Blood and central venous catheter tip cultures grow Streptococcus species within 24 hours. This represents late-onset neonatal sepsis. Which of the following is the most common clinical manifestation of this type of sepsis? (Q891331)

A. Septic shock

B. Disseminated intravascular coagulation

C. Pneumonia

D. Meningitis

Correct Answer: D. Meningitis

Explanation: Symptoms appearing after 72 hours indicate late-onset neonatal sepsis , usually hospital-acquired and associated with prematurity, NICU stay, and invasive devices; its most common focal complication is Neonatal meningitis , particularly with Group B Streptococcus infection. Late-Onset Neonatal Sepsis (LONS) Timing Occurs after 72 hours of life , commonly seen in hospitalized or preterm neonates Risk factors Prematurity Prolonged NICU stay Invasive devices such as central venous catheters Mode of infection Hospital-acquired → Pathogens enter the bloodstream through indwelling catheters or mucosal colonization , leading to systemic infection. Most common focal manifestation (Option D) Neonatal meningitis Associated with Group B Streptococcus and other hospital pathogens Lethargy Irritability Apnea Poor feeding Bulging fontanelle (may appear later) Seizures in severe cases Why CNS involvement is common Immature blood-brain barrier Reduced complement and opsonization Poor neutrophil function Incomplete neonatal immune response. Septic shock (Option A) may occur in severe cases but is a complication of overwhelming sepsis, not the most common manifestation. Disseminated intravascular coagulation (Option B): DIC is a late and serious complication due to systemic inflammatory response; it is not the usual presentation. Pneumonia (Option C): More characteristic of early-onset neonatal sepsis due to aspiration of infected amniotic fluid.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 585-586.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A full-term newborn delivered to a mother with prolonged rupture of membranes and intrapartum fever develops respiratory distress and poor feeding within 12 hours of birth. Blood culture later confirms early-onset neonatal sepsis. Which of the following statements regarding early-onset neonatal sepsis are true? It usually presents within the first 72 hours of life. Vertical transmission from the maternal genital tract is a common source. Group B Streptococcus is a frequent causative organism. Empirical therapy commonly includes ampicillin with an aminoglycoside. (Q891314)

A. 1, 2, 3

B. 1, 2, 3, and 4

C. 3 and 4 only

D. 2 and 4 only

Correct Answer: B. 1, 2, 3, and 4

Explanation: Early-Onset Neonatal Sepsis (EONS) occurs within the first 72 hours of life and is strongly associated with maternal risk factors such as chorioamnionitis, prolonged rupture of membranes, and maternal fever. Early-Onset Neonatal Sepsis (EONS Timing Occurs within the first 72 hours of life , most commonly within 24 hours after birth (Option 1) Mode of transmission Usually due to vertical transmission from the maternal genital tract or infected amniotic fluid during labor and delivery (Option 2) Common pathogens Group B Streptococcus (most frequent) (Option 3) Escherichia coli Listeria monocytogenes Empirical antibiotic therapy Standard initial treatment: (Option 4) Ampicillin - covers GBS and Listeria Gentamicin (aminoglycoside) - covers Gram-negative organisms.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 166-169.

https://pmc.ncbi.nlm.nih.gov/articles/PMC8905581/

https://pmc.ncbi.nlm.nih.gov/articles/PMC8720117/

↑ *Back to this question in Part A*

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Q9: A 3-day-old term neonate is admitted to the NICU after the parents notice rhythmic, repetitive jerking movements as shown below, occurring intermittently without loss of consciousness. The baby had normal Apgar scores and normal blood glucose levels. What is the most likely diagnosis? (Q891288)

A. Subtle seizure

B. Focal clonic seizure

C. Infantile spasms

D. Focal tonic seizure



Correct Answer: B. Focal clonic seizure

Explanation: The neonate shows rhythmic, repetitive jerking of limb without loss of consciousness, which is characteristic of a focal clonic seizure . Normal Apgar and glucose rule out metabolic or subtle seizures; infantile spasms occur later, and focal tonic seizures cause sustained posturing. Neonatal seizures → classified as subtle, clonic, tonic, or myoclonic. Focal clonic seizure: Rhythmic, repetitive jerking Involves one limb or one side of the body Movements are slow (1-3 jerks per second) May not impair consciousness Often associated with focal cerebral lesions. Subtle seizure (Option A) presents with eye deviation, lip smacking, bicycling movements, apnea, or autonomic changes rather than rhythmic focal jerking. Infantile spasms (Option C) occur later in infancy (typically 3-8 months), not in neonates; characterized by brief symmetric flexor or extensor spasms. Focal tonic seizure (Option D): Sustained posturing of a limb or trunk without rhythmic jerking; not characterized by repetitive clonic movements.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 579-581.

↑ *Back to this question in Part A*

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Q10: A full-term neonate develops multifocal clonic movements and poor feeding within 12 hours of birth. The baby had a history of delayed cry and required

resuscitation at birth. What is the most common cause of seizures in a term neonate? (Q891284)

A. Intraventricular haemorrhage

B. Hypoxic-ischemic encephalopathy

C. Hypoglycemia

D. Neonatal sepsis

Correct Answer: B. Hypoxic-ischemic encephalopathy

Explanation: The most common cause of seizures in a term neonate is hypoxic-ischemic encephalopathy (HIE) . HIE occurs due to perinatal asphyxia , leading to cerebral hypoxia and ischemia. Seizures typically occur within the first 24 hours of life and are often subtle (lip smacking, eye deviation, apnea) rather than generalised tonic-clonic. Intraventricular haemorrhage (Option A): More common in preterm infants due to fragile germinal matrix vessels; not the leading cause of seizures in term neonates. Hypoglycemia (Option C): An important and treatable cause of neonatal seizures but not the most common cause in term babies. Neonatal sepsis (Option D): Can cause seizures due to meningitis or metabolic disturbances, but it is less common than HIE as the primary cause in term neonates.

References:

OP Ghai Textbook of Pediatrics, 10th Edition, Page 162.

https://www.ninds.nih.gov/health-information/disorders/hypoxic-ischemic-encephalopathy

https://emedicine.medscape.com/article/973501-overview

↑ *Back to this question in Part A*

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Q11: During routine examination of a term 2.8 kg neonate, a large, wide anterior fontanelle is noted. Which of the following conditions is least likely to be associated with this finding? (Q891243)

A. Achondroplasia

B. Osteogenesis imperfecta

C. Trisomy 21

D. Craniosynostosis

Correct Answer: D. Craniosynostosis

Explanation: A large anterior fontanelle is a common finding in several congenital disorders due to delayed ossification of the cranial bones: Achondroplasia: Characterized by short limbs, frontal bossing, and a wide anterior fontanelle. (Option A ruled out) Osteogenesis imperfecta: Defective collagen leads to fragile bones and delayed skull ossification → large fontanelle. (Option B ruled out) Trisomy 21: Wide anterior fontanelle is a classical physical sign. (Option C ruled out) Craniosynostosis , however, involves premature fusion of one or more cranial sutures , which results in a small or absent anterior fontanelle , not a wide one. Hence, it is least likely. Large / Wide Fontanelle Small / Unusually Small Fontanelle Achondroplasia Cleidocranial dysostoses Osteogenesis imperfecta Trisomies (9p, 13, 18, 21) Hypothyroidism Intrauterine malnutrition Apert syndrome Congenital rubella syndrome Hallermann-Streiff syndrome Hydrocephaly Hypophosphatasia Intrauterine growth restriction Kenny syndrome Prematurity Pyknodysostosis Russell-Silver syndrome Vitamin D deficiency rickets Brain growth retardation Craniosynostosis Hyperthyroidism

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 869.

https://pmc.ncbi.nlm.nih.gov/articles/PMC7733335/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A term neonate is delivered at a primary health center and immediately referred to a tertiary hospital. On examination, there is herniation of bowel loops through a defect in the abdominal wall lateral to the umbilicus, with the bowel lying exposed without a covering sac. What is the most likely diagnosis? (Q891233)

A. Omphalocele

B. Gastroschisis

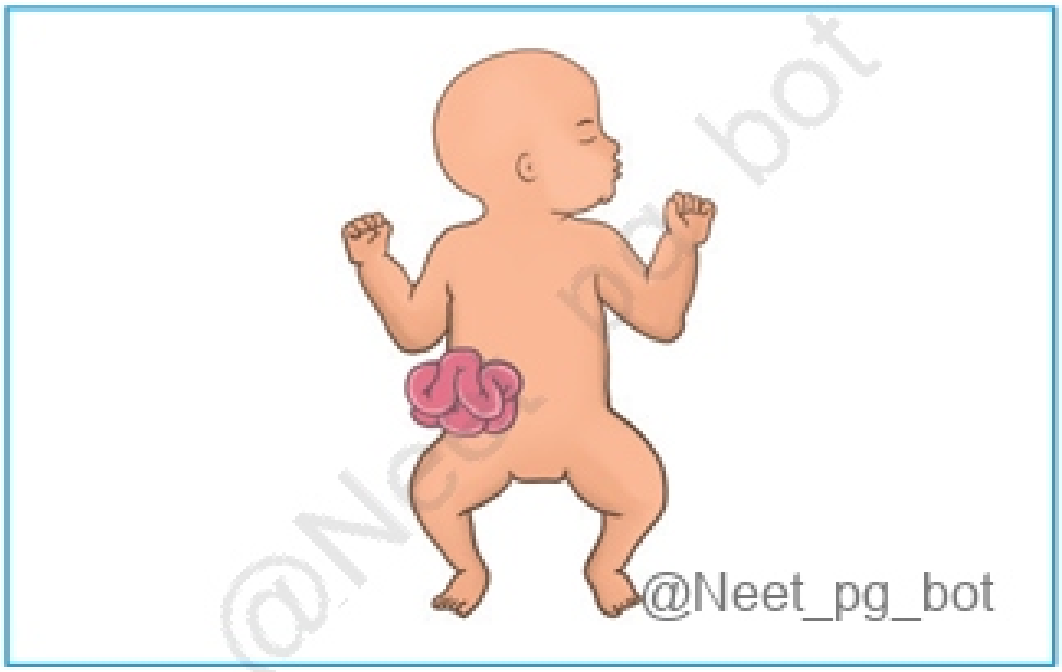
C. Umbilical hernia

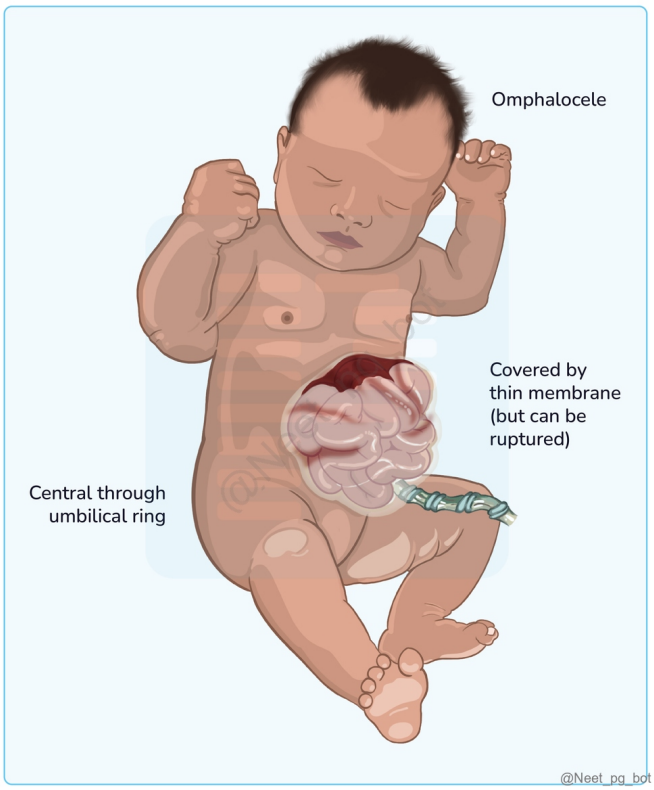
D. Bladder exstrophy

Correct Answer: B. Gastroschisis

Explanation: Gastroschisis is a congenital full-thickness defect of the anterior abdominal wall, usually to the right of the umbilicus, through which intestines (and sometimes stomach, rarely other organs) eviscerate without a covering sac . Features: Defect lateral to the umbilicus , usually right-sided Bowel loops directly exposed to amniotic fluid → can appear edematous or matted No peritoneal sac covering the bowel Associated anomalies are uncommon (unlike omphalocele) Preterm babies are more frequently affected. Omphalocele (Option A): Midline defect at the base of the umbilical cord; herniated organs are covered by a membranous sac; frequently associated with cardiac, chromosomal, or other anomalies. Umbilical hernia (Option C): Herniation is covered by skin,

usually small, and the umbilical ring is intact; bowel is not exposed. Bladder exstrophy (Option D): Involves exposed urinary bladder at the lower abdominal wall, not bowel loops; located infraumbilically.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 871.

https://www.ncbi.nlm.nih.gov/books/NBK557894/

↑ *Back to this question in Part A*

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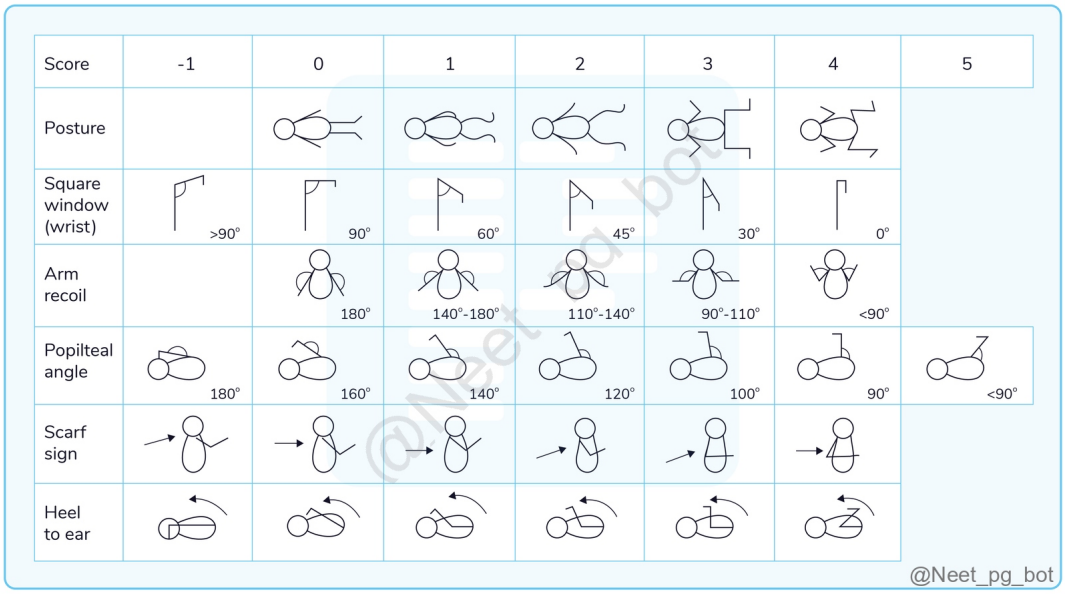
Q13: Which of the following is true about the scoring tool? (Q849977)

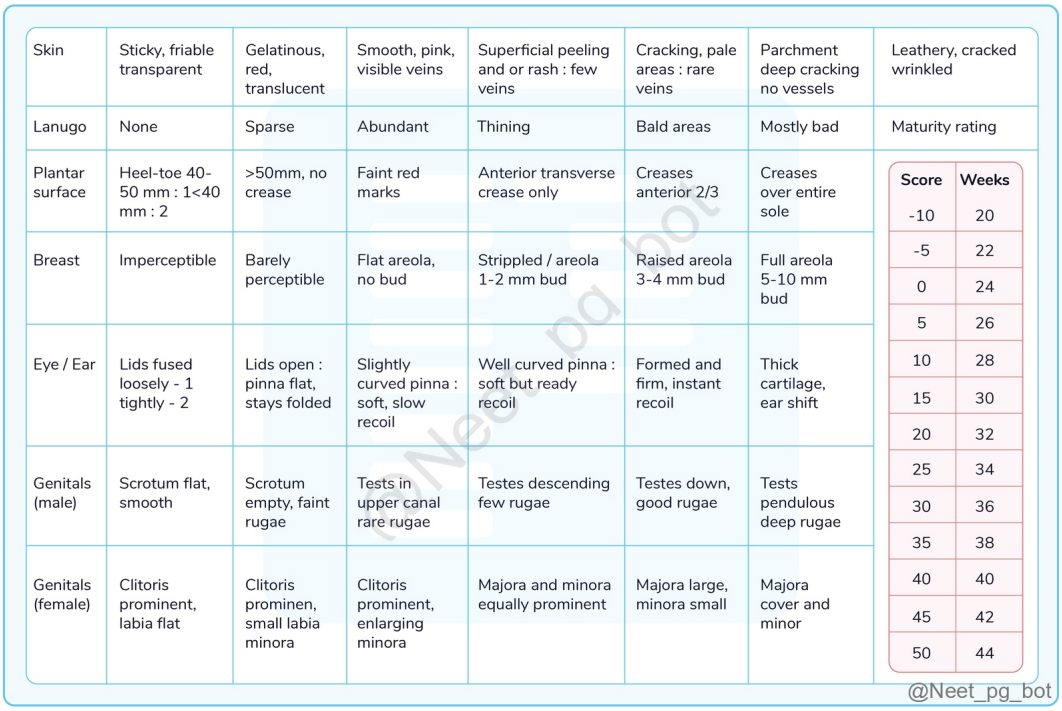
A. Used solely to assess the neuromuscular maturity

B. Used to assess gestational age based on Physical and Neuromuscular maturity

C. Used only to ascess physical maturity

D. Used exclusively to determine the baby's weight





Skin	Sticky, friable transparent	Gelatinous, red, translucent	Smooth, pink, visible veins	Superficial peeling and or rash : few veins	Cracking, pale areas : rare veins	Parchment deep cracking no vessels	Leathery, cracked wrinkled
Lanugo	None	Sparse	Abundant	Thining	Bald areas	Mostly bad	Maturity rating
Plantar surface	Heel-toe 40-50 mm : 1<40 mm : 2	>50mm, no crease	Faint red marks	Anterior transverse crease only	Creases anterior 2/3	Creases over entire sole	
Breast	Imperceptible	Barely perceptible	Flat areola, no bud	Strippled / areola 1-2 mm bud	Raised areola 3-4 mm bud	Full areola 5-10 mm bud	
Eye / Ear	Lids fused loosely - 1 tightly - 2	Lids open : pinna flat, stays folded	Slightly curved pinna : soft, slow recoil	Well curved pinna : soft but ready recoil	Formed and firm, instant recoil	Thick cartilage, ear shift	
Genitals (male)	Scrotum flat, smooth	Scrotum empty, faint rugae	Tests in upper canal rare rugae	Testes descending few rugae	Testes down, good rugae	Tests pendulous deep rugae	
Genitals (female)	Clitoris prominent, labia flat	Clitoris prominen, small labia minora	Clitoris prominent, enlarging minora	Majora and minora equally prominent	Majora large, minora small	Majora cover and minor	

Score	Weeks
-10	20
-5	22
0	24
5	26
10	28
15	30
20	32
25	34
30	36
35	38
40	40
45	42
50	44

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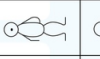
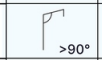
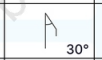
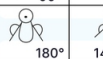
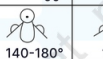
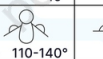
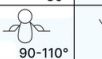
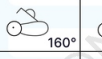
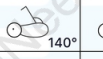
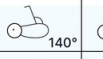
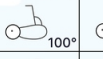
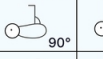
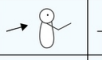
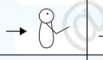
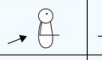
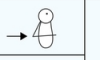
Correct Answer: B. Used to assess gestational age based on Physical and Neuromuscular maturity

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given image shows the Expanded New Ballard Score The Expanded New Ballard Score assesses Gestational age by evaluating neuromuscular and physical maturity. (Options A, C and D ruled out)

Neuromuscular Maturity

Score	-1	0	1	2	3	4	5
Posture							
Square window (wrist)	 >90°	 90°	 60°	 45°	 30°	 0°	
Arm recoil		 180°	 140-180°	 110-140°	 90-110°	 <90°	
Popliteal angle	 180°	 160°	 140°	 140°	 100°	 90°	 <90°
Scarf sign							
Heel to ear							

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Physical Maturity

Skin	Sticky, friable transparent	Gelatinous, red, translucent	Smooth, pink, visible veins	Superficial peeling and or rash; few veins	Cracking. pale areas; rare veins	Parchment, deep cracking no vessels	Leathery, cracked wrinkled
Lanugo	None	Sparse	Abundant	Thinning	Bald areas	Mostly bald	Maturity Rating
Plantar surface	Heel -toe 40-50 mm; -1 <40 mm; -2	>50 mm, no crease	Faint red marks	Anterior transverse crease only	Creases anterior 2/3	Creases over entire sole	
Breast	Imperceptible	Barely perceptible	Flat areola, no bud	Stippled areola, 1-2 mm bud	Raised areola 3-4 mm bud	Full areola 5-10 mm. bud	
Eye/ Ear	Lids fused loosely -1 Tightly -2	Lids open; pinna flat, stays folded	Slightly curved pinna; soft, slow recoil	Well curved pinna; soft but ready recoil	Formed and firm, instant recoil	Thick cartilage, ear shift	
Genitals (male)	Scrotum flat, smooth	Scrotum empty, faint rugae	Testes in upper canal rare rugae	Testes descending few rugae	Testes down, good rugae	Testes pendulous deep rugae	
Genitals (female)	Clitoris prominent, labia flat	Clitoris prominent, small labia minora	Clitoris prominent, enlarging minora	Majora and minora equally prominent	Majora large, minora small	Majora covers minora	

Score	Weeks
-10	20
-5	22
0	24
5	26
10	28
15	30
20	32
25	34
30	36
35	38
40	40
45	42
50	44

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References:

Ghai Essential Pediatrics, 10th Edition, Page 133, 134

↑ *Back to this question in Part A*

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Q14: Refer to the image provided. Which of the following statements is correct regarding the features shown in the image? (Q849976)

A. The system provides an open care environment

B. The system does not include an option for humidification.

C. Method by which neonate is kept warm is Convection

D. The system is known for being low in cost .



Correct Answer: C. Method by which neonate is kept warm is Convection

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The picture shows an incubator. Incubators lose heat primarily through radiation, while radiant warmers primarily lose heat through convection. Incubator Radiant Warmer Access to the Baby: Restricted (Option A ruled out) Insensible Water Loss: Lesser (suitable for neonates below 1500 g) Option to Add Humidification: Available in advanced machines (Option B ruled out) Maintenance and Disinfection: Difficult to

maintain and disinfect Cost: High (Option D ruled out) Method by which neonate is kept warm: Convection Access to the Baby: Easy Insensible Water Loss: Greater (can result in dehydration in small neonates) Option to Add Humidification: Not available Maintenance and Disinfection: Easy Cost: Low Method by which neonate is kept warm: Radiation Radiant Warmer



References:

Ghai Essential Pediatrics, 10th Edition, Page 141

↑ *Back to this question in Part A*

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Q15: A preterm neonate is admitted to the neonatal intensive care unit and requires invasive BP monitoring. The team decides to place an umbilical artery catheter (UAC) and an umbilical venous catheter (UVC).Which of the following statement is correct? (Q849975)

A. UAC is used for drug administration and is associated with sepsis.

B. UVC is used for blood pressure monitoring and blood sampling

C. UAC can cause limb discoloration, while UVC is used for drug administration.

D. UAC is the vascular access of choice, for neonatal resuscitation

Correct Answer: C. UAC can cause limb discoloration, while UVC is used for drug administration.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The UAC is associated with complications like limb discoloration due to potential effects on blood flow. The UVC is indeed used for administering drugs and fluids. Feature Umbilical Artery Catheter (UAC) Umbilical Venous Catheter (UVC) Vessel used Umbilical artery Umbilical vein Direction of flow From baby → Placenta From placenta → Baby Primary uses Continuous BP monitoring Repeated blood sampling Blood gas monitoring Drug administration IV fluids TPN Emergency medications Vascular access of choice for neonatal resuscitation (Option D) Not used for Routine drug administration (except in special situations) (Option A) Blood pressure monitoring (Option B) Most common complication Limb ischemia/discoloration, thrombosis, vasospasm Sepsis, malposition, liver injury Blood gases (normal fetus) Lower pH, higher pCO■ than venous Higher pH, lower pCO■ than arterial

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 936

↑ *Back to this question in Part A*

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Q16: A 3-day-old preterm infant, born at 29 weeks of gestation, presents with feeding intolerance, abdominal distension, and bilious vomiting. On examination, the abdomen is tense, and bowel sounds are diminished. An abdominal X-ray reveals pneumatosis intestinalis and portal venous gas. Which of the following anatomical locations is most commonly involved in this condition? (Q849960)

A. Distal part of the jejunum and proximal ileum.

B. Distal part of the ileum and proximal colon.

C. Proximal part of the duodenum and distal jejunum.

D. Sigmoid colon and rectum.

Correct Answer: B. Distal part of the ileum and proximal colon.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above clinical scenario depicts necrotizing enterocolitis (NEC). The most common sites being affected are the distal ileum and proximal colon (due to the relatively poor blood supply to these regions and their

position in the GI tract, where bacterial overgrowth can easily occur) Distal jejunum and proximal ileum (Option A): The jejunum is less commonly affected than the ileum and colon. ■■■■■■■ Proximal duodenum and distal jejunum (Option C): NEC rarely involves the duodenum. The duodenum has a rich blood supply from both the celiac trunk and SMA, making it less susceptible to ischemic injury. ■■■■■■■ Sigmoid colon and rectum (Option D) : The rectum is usually spared in NEC due to better blood supply from the inferior mesenteric artery.

References:

Ghai Essentials of Pediatrics, 10th Edition, Page 162

↑ *Back to this question in Part A*

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Q17: A 28-week preterm baby is found to have recurrent apneas. Which combined approach reduces the need for mechanical ventilation and decreases the risk of bronchopulmonary dysplasia. (Q849973)

A. CPAP and caffeine therapy

B. Intubation and surfactant

C. Surfactant and CPAP

D. High-Flow Nasal Cannula and Caffeine therapy

Correct Answer: A. CPAP and caffeine therapy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: CPAP maintains alveolar inflation and reduces the need for invasive ventilation, thereby decreasing the risk of bronchopulmonary dysplasia (BPD). Caffeine therapy is the standard treatment for apnea of prematurity. It stimulates the central nervous system to reduce apnea episodes and improves respiratory drive. Benefits of Delivery Room CPAP Compared to intubation and surfactant administration, CPAP reduces the risk of bronchopulmonary dysplasia or chronic lung disease by 36 weeks of age. (Option B and C ruled out) Results in a decreased need for mechanical ventilation and surfactant therapy. Benefits of Caffeine Therapy Decreased need for supplemental oxygen and mechanical ventilation. Decreased risk of retinopathy of prematurity, bronchopulmonary dysplasia or chronic lung disease, and cerebral palsy The combination of CPAP and caffeine therapy has been shown in multiple studies to: Decrease frequency of apnea Facilitate earlier weaning from mechanical ventilation Reduce ventilator-induced lung injury Reduce incidence of BPD and other complications associated with invasive ventilation.■ High-Flow Nasal Cannula (Option D): Useful for some cases but generally less effective than CPAP

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 935, 936

↑ *Back to this question in Part A*

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Q18: A 28-year-old woman at 32 weeks of gestation undergoes a Doppler ultrasound of the middle cerebral artery (MCA). The results show increased diastolic velocity, and decreased pulsatility index (PI). What do these findings most likely indicate? (Q849972)

A. Normal fetal development

B. Brain-sparing effect

C. Cerebral edema

D. Cerebral vessel constriction

Correct Answer: B. Brain-sparing effect

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The increased diastolic velocity and decreased PI are characteristic of the brain-sparing effect. This phenomenon occurs in response to hypoxemia, where the fetus dilates cerebral vessels to increase blood flow to the brain and protect it from reduced oxygen supply. Middle Cerebral Artery (MCA) Doppler Findings Clinical Significance: Brain-Sparing Effect: (Option B) Observed in fetal growth restriction (FGR) Due to cerebral vasodilatation in response to hypoxemia (Option D) Abnormal MCA PI: (Option A) Suggests fetal compromise High diastolic flow and decreased PI are indicative of brain-sparing Abnormal MCA Doppler Implications: Brain-Sparing Effect: High diastolic flow, decreased PI Increased PI: Indicates worsening oxygen deficit and possible brain edema (Option C) Reversal in MCA Flow: Suggests cerebral edema

References:

DC Dutta’s Textbook of Obstetrics, 9th Edition, Page 99, 432

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9369342/

↑ *Back to this question in Part A*

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Q19: A 32-year-old pregnant woman with blood type: O-negative presents at 28 weeks of gestation. Fetal ultrasound reveals severe generalized edema, ascites, and hydrothorax in the fetus. The maternal indirect Coombs test is positive. The most

likely cause of the hydropic changes in this case can be due to? (Q849971)

A. Rh incompatibility

B. Hereditary Spherocytosis

C. G6PD deficiency

D. Thalassemia

Correct Answer: A. Rh incompatibility

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Given the maternal blood type (O-negative), the positive indirect Coombs test, and the presence of significant fetal edema and anemia, which are characteristic of immune-mediated hemolysis (Rh incompatibility) . Hydrops Fetalis Most serious form of Rh hemolytic disease (HDFN) Excessive destruction of fetal red cells leads to Severe anemia, Tissue anoxia, & Metabolic acidosis Increased risk for Rh-positive male fetuses (13 times more likely to become hydropic, 3 times more likely to die than female fetuses) Outcomes: Fetal death due to cardiac failure Stillbirth, maceration, or death shortly after birth if born alive Hereditary Spherocytosis (Option B): While this causes hemolysis and anemia, it is an inherited membrane defect. It rarely presents with such severe, lethal intrauterine hydrops compared to Rh isoimmunization. G6PD Deficiency (Option C): Hemolysis in G6PD deficiency is usually triggered by oxidative stress (drugs, infections, or fava beans) and typically presents as neonatal jaundice after birth, rather than fetal hydrops at 28 weeks. Thalassemia (Option D): Specifically, Alpha-Thalassemia Major (Hydrops Fetalis/Hb Bart's) can cause this exact fetal picture. However, Thalassemia is a genetic hemoglobinopathy and would not result in a positive maternal indirect Coombs test. The positive ICT is the "smoking gun" for an immunological cause like Rh incompatibility.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 968

DC Dutta’s Textbook of Obstetrics, 9th Edition, Page 449

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: A baby is delivered at 38 weeks gestation to a mother with a history of Rh incompatibility. The delivery was uneventful, but the neonatologist is concerned about the possibility of hemolytic disease due to the mother's sensitization status. The baby appears slightly jaundiced. Which of the following investigations is most appropriate to perform after birth? (Q849970)

A. Direct Coomb's test

B. MCA peak blood flow measurement via USG Dopp

C. Hemoglobin electrophoresis

D. Indirect Coomb's test

Correct Answer: A. Direct Coomb's test

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This test is appropriate after birth to assess the newborn’s condition and is used to detect antibodies that are bound to the surface of the baby's red blood cells, which is crucial for diagnosing hemolytic disease of the newborn (HDN). Erythroblastosis fetalis Investigations During Pregnancy: Determine the blood group (ABO and Rh) of the fetus: Check the Hb levels and hematocrit of the baby Non-invasive: USG Doppler (Middle cerebral artery peak blood flow) (Option B) Indirect Coomb's test in the mother (to check the sensitization status) (Option D) Investigations After Birth: Maternal & Neonatal ABO & Rh blood grouping Direct Coomb's test (usually positive for the baby) Anemia Cord blood bilirubin levels (Unconjugated) Peripheral smear (to check for evidence of hemolysis) Increased reticulocyte count Increased LDH

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 968

↑ *Back to this question in Part A*

@Neet_pg_bot

Q21: A 29-year-old Rh-negative woman, 30 weeks pregnant, presents for a routine follow-up. She has a history of a previous pregnancy complicated by Rh incompatibility but has been receiving appropriate prenatal care. Recent laboratory tests reveal a positive indirect Coombs test with elevated anti-Rh antibodies. The fetal ultrasound shows normal growth and no significant abnormalities. What is the most likely diagnosis for the fetus? (Q849969)

A. Mild Hemolytic Disease of Newborn

B. Severe Hemolytic Disease of Newborn

C. No Hemolytic Disease of Newborn

D. Severe Hemolytic Disease of Newborn with Normal Growth

Correct Answer: A. Mild Hemolytic Disease of Newborn

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical presentation is consistent with mild Hemolytic Disease of the Newborn (HDFN) Characterized by laboratory evidence of mild hemolysis (positive Coombs test and elevated anti-Rh antibodies) and normal fetal growth without significant symptoms or ultrasound abnormalities. Clinical features of Erythroblastosis fetalis (HDFN): Severity and Presentation: Mild Hemolysis: Laboratory evidence of hemolysis No significant clinical symptoms Moderate to Severe Hemolysis: Anemia: Hydrops Fetalis: (Option B) Excessive abnormal fluid in 2 or more fetal compartments Frequently leads to death in utero or shortly after birth Associated Symptoms: Severe anemia causing Hepatic congestion, RHF, Pulmonary edema, or bilateral pleural effusions, Petechiae, purpura, and thrombocytopenia Postnatal Manifestations: Jaundice Other Complications: Hypoglycemia Risk of severe respiratory distress and asphyxia

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 967

↑ *Back to this question in Part A*

@Neet_pg_bot

Q22: A 29-year-old woman, who is Rh-negative, presents for a routine prenatal visit at 30 weeks of gestation. She has a history of two previous pregnancies, the first was a full-term delivery without complications, and the second ended in a miscarriage at 12 weeks. Her current laboratory tests show a positive indirect Coombs test, and her fetal ultrasound reveals an enlarged liver and spleen. Which of the following mechanisms best explains the pathophysiology of the fetal condition? (Q849968)

A. IgG Antibodies Against Rh Antigen

B. IgM Antibodies Against Rh Antigen

C. IgG Antibodies Against ABO Antigens

D. Fetal Red Blood Cell Destruction Due to Maternal Hyperglycemia

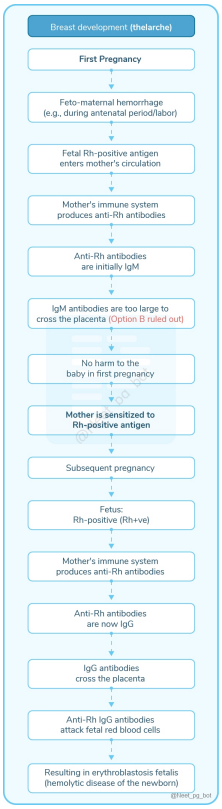
Correct Answer: A. IgG Antibodies Against Rh Antigen

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The fetus here is suffering from hemolytic disease of the newborn/Erythroblastosis fetalis due to Rh incompatibility. The pathophysiology here is due to IgG antibodies against Rh-positive, indicated by a positive indirect Coombs test Pathophysiology of Erythroblastosis IgM Antibodies Against Rh Antigen (Option B): IgM antibodies do not cross the placenta due to their larger size. IgG Antibodies Against ABO Antigens (Option C): While IgG antibodies against ABO antigens can cause hemolysis, ABO incompatibility typically causes milder

disease compared to Rh incompatibility Fetal Red Blood Cell Destruction Due to Maternal Hyperglycemia (Option D): Maternal hyperglycemia does not directly cause destruction of fetal red blood cells.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 967

DC Dutta’s Textbook of Obstetrics, 9th Edition, Page 312, 313

↑ *Back to this question in Part A*

@Neet_pg_bot

Q23: A newborn infant, diagnosed with jaundice, is undergoing phototherapy in the neonatal intensive care unit. Which of the following factors is most critical for maximizing the effectiveness of the phototherapy for this infant? (Q849967)

A. Increasing the distance between the baby and the phototherapy unit.

B. Using a phototherapy unit with a wavelength of 500-550 nm.

C. Ensuring that the baby's exposed surface area is maximized.

D. Using a phototherapy unit with traditional fluorescent lamps instead of LED lamps.

Correct Answer: C. Ensuring that the baby's exposed surface area is maximized.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A higher exposed surface area of the baby increases the effectiveness of phototherapy. Phototherapy Most Effective Wavelength of Light Used: 450-460 nm (Option B) The effectiveness of Phototherapy Depends Upon Lesser distance between the baby and the phototherapy unit increases effectiveness (Option A) Higher exposed surface area of the baby increases effectiveness (Option C) LED lamps > CFL lamps (Option D) Less interruption increases effectiveness Effectiveness does not depend on the skin pigmentation of the baby

References:

Ghai Essential Pediatrics, 10th Edition, Page 174

↑ *Back to this question in Part A*

@Neet_pg_bot

Q24: A 3-day-old neonate presents with severe jaundice. Despite initial phototherapy, the bilirubin levels remain extremely high. The infant is diagnosed with severe hemolytic disease due to Rh incompatibility. What is the most appropriate next step in management? (Q849966)

A. Continue phototherapy and monitor bilirubin levels.

B. Initiate intravenous immunoglobulin (IVIG) therapy.

C. Perform an exchange transfusion.

D. Prepare for surgical intervention.

Correct Answer: C. Perform an exchange transfusion.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Perform an exchange transfusion: This is the appropriate next step for extremely high bilirubin levels or when phototherapy fails, especially in cases of severe hemolytic disease such as Rh incompatibility. Treatment of Neonatal Jaundice Treatment Modality Description Indication Effectiveness/Safety Phototherapy (Option A) Exposure to specific blue light wavelengths(460-490 nm) to convert bilirubin into a water-soluble form.(aka lumirubin) First-line treatment for unconjugated hyperbilirubinemia. Effective for many infants; generally safe with few side effects. Exchange Transfusion (Option C) Gradual replacement of the infant's blood with donor blood to rapidly decrease bilirubin levels. Used for extremely high bilirubin or when phototherapy fails; severe hemolytic disease (e.g., Rh or ABO incompatibility). Effective for severe cases; reduces risk of kernicterus.

Intravenous Immunoglobulin (IVIG) (Option B) Reduces antibody production that leads to high bilirubin levels. For hemolytic jaundice, often used alongside phototherapy. Enhances the effectiveness of phototherapy. Conjugated Hyperbilirubinemia Management Addresses specific underlying medical or surgical conditions contributing to elevated bilirubin levels. (Option D) Complex; dependent on the underlying cause. Management depends on addressing the root cause.

References:

https://www.ncbi.nlm.nih.gov/books/NBK532930/

↑ *Back to this question in Part A*

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Q25: A neonate presents with jaundice and high bilirubin levels. The condition is associated with various neurological complications. Which of the following is a characteristic feature of kernicterus? (Q849965)

A. Developmental delays

B. Sensorineural hearing loss

C. Disordered executive function

D. Attention deficit/hyperactivity disorder (ADHD)

Correct Answer: B. Sensorineural hearing loss

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Sensorineural hearing loss is a characteristic feature of kernicterus (chronic bilirubin encephalopathy). Kernicterus (Chronic Bilirubin Encephalopathy) Definition : Severe condition from high bilirubin levels. Characteristics : Choreoathetoid cerebral palsy : Involuntary movements and abnormal muscle tone. Impaired upward gaze : Difficulty looking upwards. Sensorineural hearing loss : Hearing impairments. (Option B) Developmental delays (Option A) may occur in some children with severe brain damage, but it is not a defining or characteristic feature of kernicterus. Disordered executive function (Option C) is mainly related to frontal lobe activity . Kernicterus primarily affects the basal ganglia, brainstem, and auditory pathways ADHD (Option D) is a behavioral diagnosis seen later in childhood. It is influenced by multiple genetic and environmental factors.

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4651619/

↑ *Back to this question in Part A*

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Q26: A 2-day-old neonate is assessed for jaundice using Kramer's rule. The neonate's jaundice is noted to extend to the palms and soles. Based on Kramer's staging, how much is the approximate bilirubin level of this baby? (Q849964)

A. 5-7

B. 7-9

C. 11-13

D. 13-15 or more

Correct Answer: D. 13-15 or more

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Jaundice extending to the palms and soles corresponds to a score of 5 (indicates pathological jaundice and should be treated appropriately) → >15 mg/dL This is the highest score on Kramer's scale and indicates severe jaundice. Although Kramer Zone 5 typically corresponds to serum bilirubin levels >15 mg/dL, Option 4 ('13-15 or more') is the closest approximation provided. The inclusion of 'or more' accommodates the expected value, making it the most appropriate choice despite minor imprecision. Kramer's Rule for Neonatal Jaundice Assessment Kramer Zone Area of Jaundice Approx. Serum Bilirubin (mg/dL) Zone 0 No jaundice Zone 1 Head and neck ~5 Zone 2 Chest/(up to umbilicus) 5–10 Zone 3 Abdomen and thighs 10–12 Zone 4 Arms and lower legs 12–15 Zone 5 Palms and soles >15

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8414712/

↑ *Back to this question in Part A*

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Q27: A newborn is brought to the clinic on the 7 th day of life with mild jaundice. The baby is feeding well, and there are no signs of dehydration. The mother is exclusively breastfeeding, and there are no difficulties with latch or milk production. What is the most appropriate next step in management? (Q849963)

A. Continue exclusive breastfeeding without any intervention

B. Switch to formula feeding temporarily

C. Initiate phototherapy immediately

D. Advise stopping breastfeeding due to risk of worsening jaundice

Correct Answer: A. Continue exclusive breastfeeding without any intervention

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presentation suggests breast milk jaundice, which typically appears after the first 3-5 days of life in an otherwise healthy, well-fed baby. This condition usually requires no intervention, and breastfeeding should continue. Breastfeeding Jaundice vs Breast Milk Jaundice Characteristic Breastfeeding Jaundice Breast Milk Jaundice Cause Insufficient breast milk intake leading to dehydration and decreased bilirubin elimination. Substances in breast milk interfering with bilirubin breakdown. Onset Within the first week of life After 3-5 days of life Treatment Increase breastfeeding frequency, ensure proper latch and milk transfer. Usually no treatment needed; continue breastfeeding, may use formula supplementation or phototherapy in some cases. Commonality More common Less common Associated Issue Breastfeeding difficulties (e.g., latch issues) Substances(FFA and beta glucouronidase) in breast milk Switch to formula feeding temporarily (Option B): Switching to formula feeding is not usually necessary unless the bilirubin levels are significantly high and the jaundice persists. Initiate phototherapy immediately (Option C): Phototherapy is reserved for more severe cases where bilirubin levels are dangerously high, which is not indicated here. Advise stopping breastfeeding due to risk of worsening jaundice (Option D): Stopping breastfeeding is not recommended in cases of breast milk jaundice, as it does not pose a significant risk of worsening the condition.

References:

Ghai Essential Pediatrics, 10th Edition, Page 170-175

↑ *Back to this question in Part A*

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Q28: A newborn presents with yellowing of the skin on the face and sclera at 48 hours of age. The bilirubin levels are elevated but within the range expected for age. The jaundice gradually progresses to the trunk and extremities. Which of the following is the most appropriate management for this patient? (Q849962)

A. Immediate exchange transfusion

B. Administration of intravenous immunoglobulin (IVIG)

C. Initiation of phototherapy

D. Observation and reassurance

Correct Answer: D. Observation and reassurance

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Yellowish discoloration of skin and sclera and elevated bilirubin levels within 48 hours (after 24 hr of birth) of birth indicate physiological jaundice. Observation and reassurance are appropriate for physiological jaundice, which typically resolves within 1-2 weeks as the UDPGT enzyme matures by 1-2 weeks. Feature Physiological Jaundice Pathological Jaundice Timing Appears 24-72 hours after birth; peaks at 3-5 days; resolves by 1-2 weeks Appears within 24 hours of birth or persists beyond the expected timeframe Cause Elevated unconjugated bilirubin due to increased production and immature liver function Blood group incompatibility, infections, metabolic disorders, genetic conditions Clinical Presentation Yellowing of skin and sclera, starting from face, progressing to trunk and extremities Similar to physiological jaundice, but potentially more severe and may include other symptoms Treatment Usually self-resolving; observation and reassurance; phototherapy may be used if needed (Option D) Depends on the underlying cause; may include phototherapy, exchange transfusion, or specific treatments (Option A, B & C)

References:

Ghai Essentials of Pediatrics, 10th Edition, Page 170-175

↑ *Back to this question in Part A*

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Q29: A 10-day-old preterm infant, born at 30 weeks of gestation, presents with sudden abdominal distension and a bluish discoloration of the abdominal wall. The infant appears lethargic and is not feeding well. An abdominal X-ray is performed, which is given below. What Bell's stage of necrotizing enterocolitis (NEC) is most consistent with the radiographic finding? (Q849961)

A. Stage II a

B. Stage III a

C. Stage III b

D. Stage IV



Correct Answer: C. Stage III b

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given abdominal radiograph shows Pneumatosis intestinalis . Bell's Stage IIIb is characterized by advanced NEC with signs of bowel perforation, such as pneumoperitoneum seen on the X-ray. Modified Bell’s Staging is used in staging NEC: Stage Systemic signs Abdominal signs Radiologic signs Treatment I Suspected NEC IA Temperature instability Apnea Lethargy Abdominal distension Occult blood in stools Normal/ Ileus NPO IV antibiotics × 3 days IB similar to IA IA + Gross blood in stools similar to IA similar to IA II Definite NEC (Option A) IIA similar to IA I + Absent bowel sounds, Abdominal tenderness Ileus, Pneumatosis intestinalis NPO IV antibiotics x 7 to 10 days IIB similar to IA + Metabolic acidosis Thrombocytopenia IIA + Abdominal cellulitis Portal venous gas shadow NPO IV antibiotics × 14 days III Advanced NEC (Option B) IIIA similar to IIB + Hypotension Bradycardia DIC Neutropenia I + II + Signs of generalized peritonitis, Marked tenderness IIB + Ascites NPO IV antibiotics × 14 days Fluid boluses, Inotropes, Mechanical ventilation, Paracentesis IIIB similar to IIIA similar to IIIA IIIA + Pneumoperitoneum IIIA + Surgery Stage IV (Option D) does not exist in this classification system

References:

https://www.researchgate.net/figure/Modified-Bell-s-Staging-Criteria-for-Necrotizing-Enterocolitis-NEC_tbl1_273870645

↑ *Back to this question in Part A*

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• [01_Neonatology] 004 Neonatal Respiratory Disorders Perinatal Asphyxia

« Back to Folder Directory

[01_Neonatology] 004 Neonatal Respiratory Disorders Perinatal Asphyxia — Quick Jump

Q1 (p. 600)	*Q2 (p. 601)*	*Q3 (p. 602)*	*Q4 (p. 603)*	*Q5 (p. 604)*	*Q6 (p. 604)*
Q7 (p. 605)	*Q8 (p. 607)*	*Q9 (p. 608)*	*Q10 (p. 610)*	*Q11 (p. 610)*	*Q12 (p. 612)*
Q13 (p. 613)	*Q14 (p. 614)*	*Q15 (p. 616)*	*Q16 (p. 617)*		

Q1: A neonate born after an emergency c-section due to non-reassuring fetal heart tones was noted to have poor muscle tone, a heart rate of 70 bpm, and intermittent gasping respirations. Despite initial tactile stimulation, the infant becomes flaccid and apneic. Which of the following best describes the underlying pathophysiology? (Q850079)

A. Prolonged hypoxia causes progressive neuromuscular depression

B. Severe hypoxia causing pulmonary vasodilation

C. Acute hypoxia leads to metabolic alkalosis

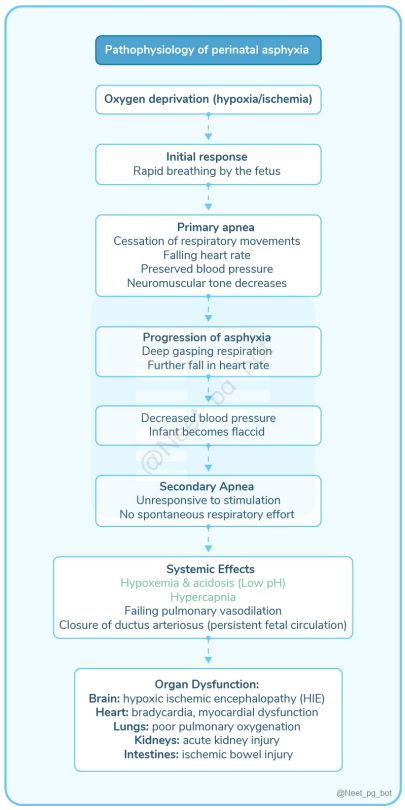
D. Persistent hypocapnia causes central respiratory depression

Correct Answer: A. Prolonged hypoxia causes progressive neuromuscular depression

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario points towards Perinatal asphyxia, where prolonged hypoxia leads to neuromuscular depression , manifesting as poor muscle tone, gasping respirations, and eventually progressing to flaccidity and apnea. Birth asphyxia or Perinatal asphyxia is defined as a condition resulting from impaired oxygen delivery to the fetus or neonate that leads to hypoxemia, hypercapnia, and metabolic acidosis , potentially causing significant cellular injury, especially to the brain, and multi-organ dysfunction. It is a leading cause of early neonatal mortality .



References:

Nelson Textbook of Pediatrics, 21st edition, pg-918

O.P. Ghai Essential Pediatrics, 9th edition, pg-161,162,119

↑ *Back to this question in Part A*

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Q2: A neonate delivered via emergency cesarean section presents with an Apgar score of 2 at 1 minute. Which of the following criteria is most indicative of severe birth asphyxia? (Q850080)

A. Persistent metabolic alkalosis with a high base deficit

B. Apgar score of 5 at 5 minutes and normal blood pH

C. Blood pH <7.0 on umbilical arterial blood gas with a high base deficit

D. Presence of mild hypotonia

Correct Answer: C. Blood pH <7.0 on umbilical arterial blood gas with a high base deficit

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Blood pH <7.0 on umbilical arterial blood gas with a high base deficit is a key indicator of severe birth asphyxia, reflecting severe metabolic acidosis and the impact of oxygen deprivation. Criteria for severe birth asphyxia: Criterion Description Apgar Score 0-3 at >5 minutes Blood Gas Analysis pH <7.0 on umbilical arterial blood sample indicates prolonged metabolic or mixed acidemia. Neurological Manifestations Includes seizures, coma, hypotonia, or hypoxic-ischemic encephalopathy (HIE) in the immediate neonatal period. Multiorgan Dysfunction Evidence of dysfunction in multiple organ systems in the immediate neonatal period.

References:

Nelson Textbook of Pediatrics, 21st edition, pg-923

O.P. Ghai Essential Pediatrics, 9th edition, pg-162

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A term newborn is diagnosed with moderate Hypoxic Ischemic Encephalopathy (HIE) after experiencing birth asphyxia. The infant is currently receiving supportive care. Which of the following is the most appropriate next step in the management of this infant? (Q850081)

A. Immediate administration of high-dose corticosteroids

B. Initiation of whole-body cooling therapy

C. Overhydration to prevent hypotension

D. Hyperventilation to reduce intracranial pressure

Correct Answer: B. Initiation of whole-body cooling therapy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Whole-body cooling (hypothermia) is the most appropriate next step for infants with moderate to severe HIE. It has been shown to reduce brain injury by slowing metabolic processes and is effective in improving neurodevelopmental outcomes in these infants. Management of HIE Supportive Care Oxygen Therapy: Ensure adequate oxygen levels. Fluid Management: Maintain blood flow and cerebral perfusion; avoid overhydration to prevent cerebral oedema. Temperature Control: Maintain normothermia; passive cooling is recommended for term infants with HIE. Blood Glucose Monitoring: Regular checks to prevent hypoglycemia. Infection Control: strict infection prevention measures. Specific Treatment Whole Body Cooling (Hypothermia): Effective in moderate to severe HIE, particularly for term infants Reduces brain damage by slowing metabolic processes. Temperature maintained 33.5 - 34.5 °C Immediate administration of high-dose corticosteroids (Option A) is not routinely used

in the management of HIE, and they may increase the risk of complications like infection and hyperglycemia. Overhydration to prevent hypotension (Option C) is avoided as it can worsen cerebral oedema. Fluid management should be carefully balanced to maintain adequate blood flow and cerebral perfusion without overhydrating the infant. Hyperventilation to reduce intracranial pressure (Option D) is not recommended as a standard treatment in HIE and can lead to complications such as cerebral vasoconstriction, which may worsen the injury.

References:

Nelson Textbook of Pediatrics, 21st edition, pg-920

O.P. Ghai Essential Pediatrics, 9th edition, pg-163

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 24-hour-old infant shows lethargy, hypotonia, intermittent seizures, and weak sucking reflex following a complicated delivery. According to the Sarnat classification, which stage of hypoxic-ischemic encephalopathy (HIE) does this infant most likely have? (Q850082)

A. Stage 1

B. Stage 2

C. Stage 3

D. Stage 4

Correct Answer: B. Stage 2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In this scenario, the infant's lethargy, hypotonia, intermittent seizures, and weak sucking reflexes align with Stage 2 of the Sarnat classification , indicating moderate HIE. Sarnat staging of HIE Criteria Stage 1 (Mild) Stage 2 (Moderate) Stage 3 (Severe) Level of Consciousness Alert Lethargic Comatose Tone Good muscle tone Hypotonia Severe hypotonia Seizures Few or none May have seizures Prolonged seizures Tendon reflexes Hyperactive Hyperactive Absent Myoclonus Present Present Absent Pupils Mydriasis Miosis Unequal, Poor light reflex Prognosis Generally good, minimal risk of long-term issues About 20% have adverse neurological outcomes 50% may die, others may have poor neurodevelopmental outcomes

References:

Nelson Textbook of Pediatrics, 21st edition, pg-920

O.P. Ghai Essential Pediatrics, 9th edition, pg-162,163

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A multigravida G2P1L1 delivers a baby at 37 weeks of gestation by cesarean section. On assessment, the baby was completely cyanosed having slow and irregular breathing with a heart rate of 76 bpm, and he was showing slight flexion on stimulation along with a slight frown when stimulated by an orogastric tube. Calculate the APGAR score for the baby. (Q850083)

A. 10

B. 4

C. 3

D. 7

Correct Answer: B. 4

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Completely cyanosed -0, slow and irregular breathing-1, HR of 76 bpm-1, slight flexion-1, slight frown-1 =4 APGAR score The APGAR score is an objective method of evaluating the newborn's condition. It is performed at 1 minute and again at 5 minutes after birth. Resuscitation must be initiated before the 1 minute score is assigned, therefore, it is not used to guide the resuscitation. The components, along with scores, are, 0 1 2 Appearance Completely blue or pale The body is pink, and the extremities are blue Completely pink Pulse rate Absent <100/min >100/min Grimace No response Grimaces only Coughs/sneezes Activity Limp and flaccid Some flexion present Flexed posture and actively moving limbs Respiratory effort None Slow and irregular Normal/strong Interpretation: Normal APGAR score is ≥7 Maximum score = 10; Minimum score = 0 Score for severe birth asphyxia = 0 - 3 Therefore, the APGAR score for the above case is 4. This indicates moderate distress at birth.

References:

O.P. Ghai Essential Pediatrics, 9th edition, pg 127

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A primigravida delivered a baby at 34 weeks of gestation. The baby was cyanosed and grunting, with a respiratory rate of 72 bpm. Which of the following scores can be used to assess this condition? (Q850084)

A. Downe's score

B. CRIB score

C. SNAP score

D. Silverman-Andersen score

Correct Answer: D. Silverman-Andersen score

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above scenario represents respiratory distress in a preterm neonate, in which the Silverman-Andersen score is used. Respiratory distress is characterised by tachypnea with lower chest retractions, grunting, and cyanosis. Silverman-Andersen score (for preterm neonates) 0 1 2 Upper chest retractions Chest and abdomen rise together with respiration Chest wall lags behind abdomen Chest wall and abdomen move in opposite directions (see-saw pattern) / paradoxical breathing. Lower chest retractions Absent Minimal Marked Xiphisternal retractions Absent Minimal Marked Nasal flare Absent Minimal Marked Grunt None Audible only with a stethoscope Audible without a stethoscope Interpretation: Maximum score is 10; Minimum score is 0 Normal score = 0-3 Severe respiratory distress in a preterm neonate = > 7 score Downe's score (for term neonates) 0 1 2 Cyanosis Absent Present in room air Present at FiO greater than or equal to 40% Air- entry Normal Decreased Barely audible Respiratory rate <60/min 60-80/min >80/min Grunt Absent Audible only with a stethoscope Audible without a stethoscope Retractions None Mild Severe Interpretations: Maximum score = 10; Minimum score = 0 Severe respiratory distress in a term baby = >7 score CRIB score (Option B) is the Clinical Risk Index for Babies (CRIB), used to predict mortality of neonates by comparing performance of NICUs. SNAP score (Option C) is the Score for Neonatal Acute Physiology (SNAP) that uses 34 parameters to predict morbidity and mortality for neonates.

References:

O.P. Ghai Essential Pediatrics, 10th edition, pg156, 157

↑ *Back to this question in Part A*

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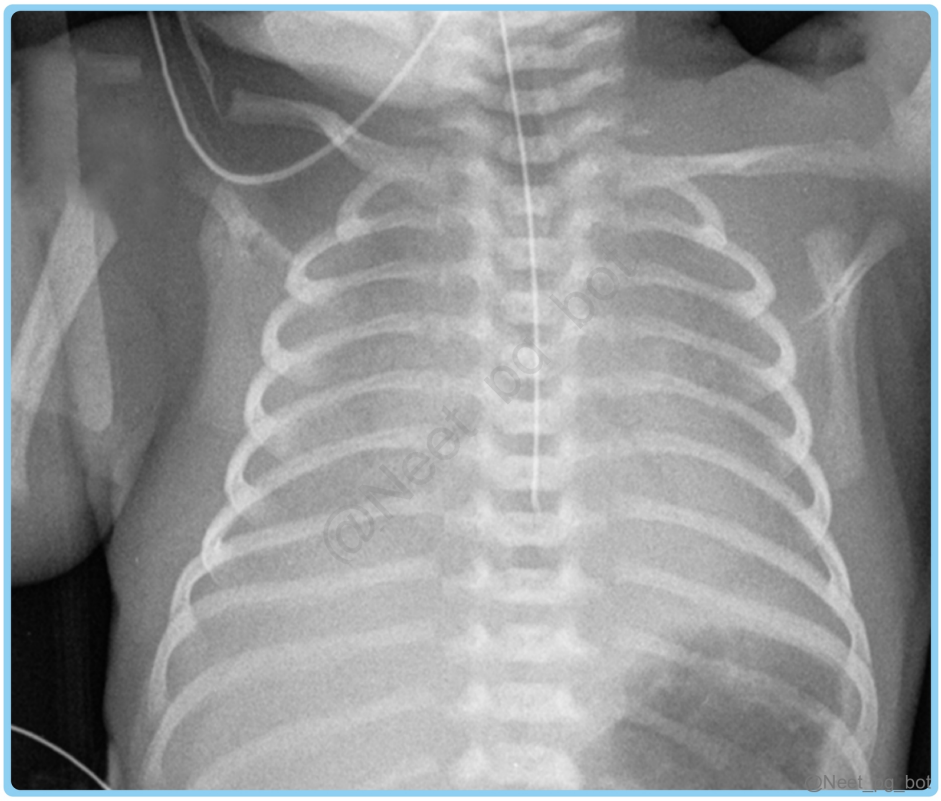
Q7: A primigravida with a complicated pregnancy underwent a cesarean section at 32 weeks of gestation. Soon after birth, the baby developed grunting, cyanosis, and a significantly elevated respiratory rate. A chest X-ray was performed immediately. Which of the following findings would not be seen on the given radiograph? (Q850085)

A. Ground glass haziness of lungs

B. Box-shaped heart

C. Presence of air bronchogram

D. Reticulogranular pattern

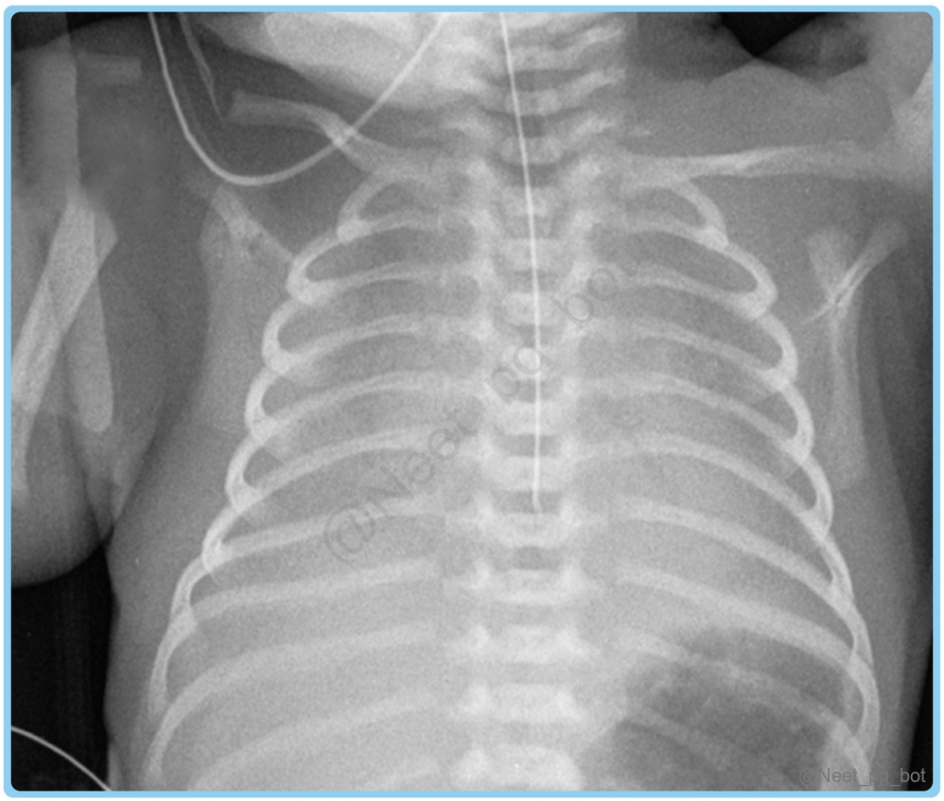


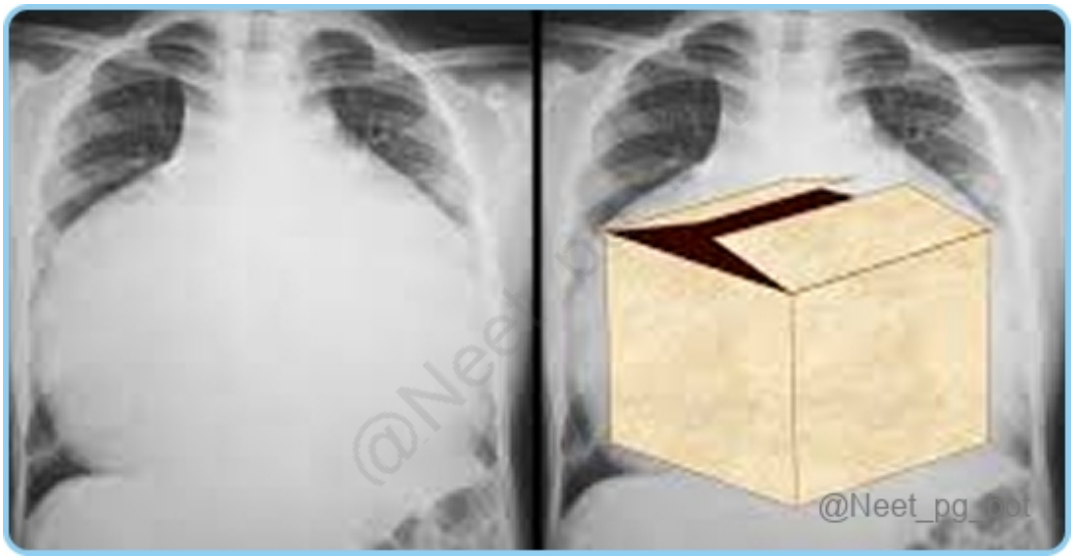
Correct Answer: B. Box-shaped heart

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most likely diagnosis in this scenario is Neonatal Respiratory Distress Syndrome (RDS), also known as hyaline membrane disease (HMD), a common condition in preterm infants (<34 weeks of gestation) caused by surfactant deficiency . Typical X-ray findings in RDS include: Ground glass haziness of lungs : Represents diffuse alveolar atelectasis, commonly seen in RDS. Presence of air bronchogram : Air-filled bronchi are visible against the hazy, collapsed alveoli, a classic feature of RDS.air bronchogram can be seen in parenchymal pathology of lung such as consolidation, pulmonary alveolar proteiniosis. Reticulogranular pattern: Another term for the ground-glass haziness, indicating the fine, granular pattern throughout the lungs characteristic of RDS. A box-shaped heart (Option B) is seen in the Ebstein anomaly; the heart appears box-shaped on X-ray due to the downward displacement of the tricuspid valve , resulting in right atrial enlargement and a distorted heart silhouette .





References:

O.P. Ghai Essential Pediatrics, 10th edition, pg 157, 158, 159.(Including image)

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: In the lab, amniotic fluid is mixed with 95% ethyl alcohol and then left after shaking it vigorously. After 15 minutes, a complete rim of bubbles is seen. Which of the following tests is described here ? (Q850086)

A. Phosphatidylglycerol test

B. Lamellar body count

C. Shake test

D. Amniotic fluid turbidity test

Correct Answer: C. Shake test

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The procedure is the Foam test or shake test for fetal lung maturity. Fetal lung maturity tests (detect the adequacy of surfactant in amniotic fluid): Shake test/ Foam test/ Bubble test/ Clemen's test (Option C) This is a bedside test, rapidly performed with a fair degree of accuracy. Amniotic fluid is mixed with 95% ethyl alcohol. Shake it vigorously for 10-15 minutes and then leave it for another 10-15 minutes. A complete ring of bubbles is seen at the meniscus, indicating a positive test for lung maturity. Lecithin: Sphingomyelin (L:S) ratio Estimation of pulmonary surfactant is done by lecithin/sphingomyelin (L/S) ratio. The ratio at 31-32 weeks is 1 and at 35 weeks it is 2. L:S ratio ≥ 2 indicates pulmonary maturity. Phosphatidylglycerol estimation test (Option A) The presence of phosphatidylglycerol (PG) in amniotic fluid reliably indicates lung maturation. It is tested by thin-layer chromatography. Lamellar body count (Option B) Lamellar body is the storage form of surfactant in Type 2 pneumocytes, which can be detected in amniotic fluid. Mature lung: >30,000 / microlitre Amniotic fluid turbidity test (Option D) During the 1st and 2nd trimester, amniotic fluid is yellow and clear. At term, it is turbid due to the presence of vernix caseosa , a white, waxy substance that covers and protects the fetal skin and contributes to the fluid's opacity.

References:

Dutta's Textbook of Obstetrics, 9th edition, pg 39, 100.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: Which of the following interventions is NOT typically used in the initial management of neonatal Respiratory Distress Syndrome? (Q850087)

A. Surfactant replacement therapy

B. Continuous positive airway pressure (CPAP)

C. Mechanical ventilation

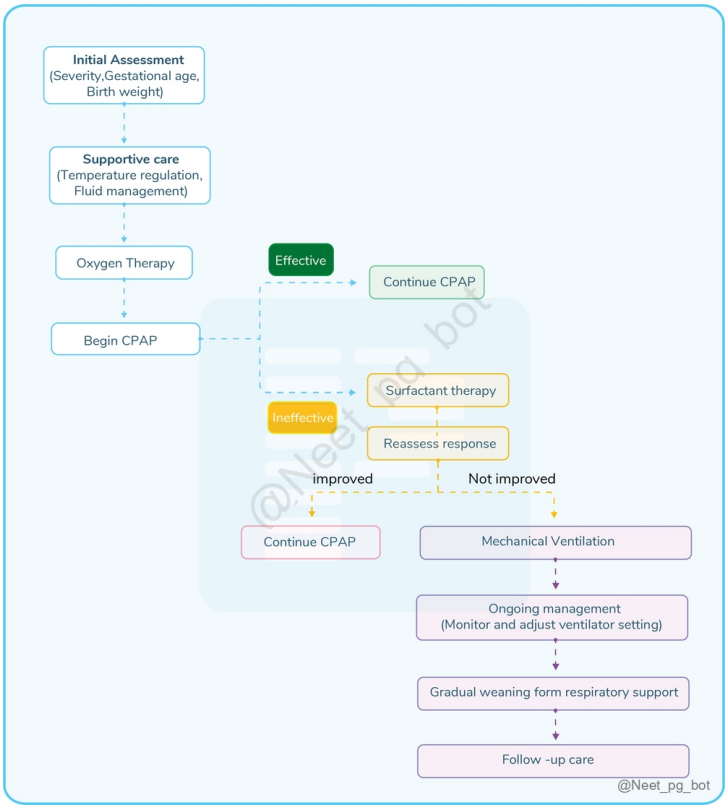
D. Prophylactic antibiotics

Correct Answer: D. Prophylactic antibiotics

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Prophylactic antibiotics are not used in the initial management of RDS and are only given if infection, such as sepsis or pneumonia, is suspected. Routine use is not recommended due to the risk of antibiotic resistance. Management of RDS: Surfactant replacement therapy (Option A) is crucial for neonatal RDS. It addresses the lack of surfactant in premature infants, reducing alveolar surface tension and improving lung compliance and oxygenation. Continuous positive airway pressure (CPAP) (Option B) is often used as a first-line treatment for RDS. It helps keep the airways open, improves oxygenation, and can reduce the need for mechanical ventilation. Mechanical ventilation (Option C): While not always the first choice, mechanical ventilation may be necessary for infants with severe RDS who don't respond adequately to CPAP or surfactant therapy.



References:

O.P. Ghai Essential Pediatrics, 10th edition, pg 165,166

Nelson Textbook of Pediatrics, 21st edition, pg 892, 932-936

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: At what gestational age range is the administration of antenatal corticosteroids typically recommended to reduce the risk of Respiratory Distress Syndrome(RDS) in preterm infants? (Q850088)

A. 20-24 weeks

B. 24-34 weeks

C. 34-37 weeks

D. 37-40 weeks

Correct Answer: B. 24-34 weeks

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Antenatal corticosteroids are a crucial intervention in preventing Respiratory Distress Syndrome(RDS) in preterm infants. The timing of this intervention is crucial for its effectiveness. Between 24 and 34 weeks, when fetal lungs are rapidly developing and the risk of RDS is highest, corticosteroids can significantly accelerate lung maturation. Treatment: Steroid of choice: Inj. Betamethasone, 12 mg I.M, 2 doses, 24 hrs apart (OR) Inj. Dexamethasone, 6 mg I.M, 4 doses, 12 hrs apart 20-24 weeks (Option A): This is generally too early for corticosteroid administration. At this stage, the fetus's lungs are not developed enough to benefit significantly from the treatment. Additionally, survival rates for infants born at this gestational age are very low. 34-37 weeks(Option C): While some benefit may still be seen in this late preterm period, the standard recommendation for routine administration typically ends at 34 weeks. After this point, the risk-benefit ratio becomes less favourable as the incidence of RDS naturally decreases. 37-40 weeks(Option D): This is considered full term. By this point, the lungs are usually mature enough that RDS is uncommon, and the potential risks of corticosteroid administration may outweigh the benefits.

References:

Ghai Essentials of Pediatrics, 10th edition, Page 166

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 39-week pregnant woman in active labour experiences spontaneous rupture of membranes, revealing thick, green amniotic fluid. After delivery, the newborn has poor respiratory efforts, cyanosis, and visible meconium staining on the skin. Which of the following is the most appropriate immediate management for this newborn?

(Q850089)

A. Immediate intubation and tracheal suctioning

B. Stimulation and provision of positive pressure ventilation

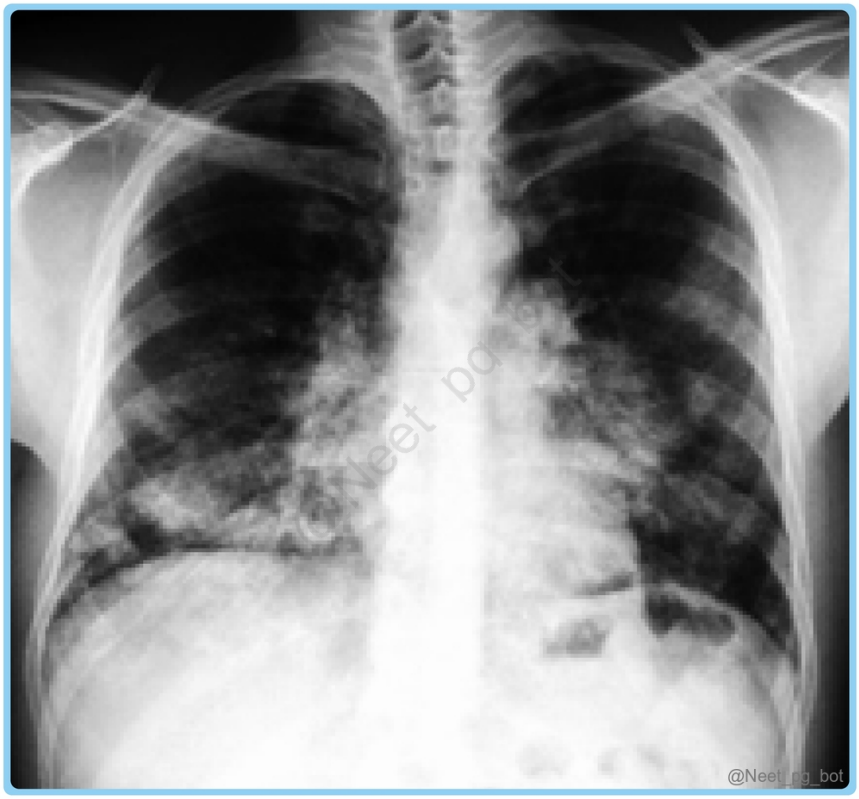
C. Administration of prophylactic antibiotics

D. Immediate administration of surfactant

Correct Answer: B. Stimulation and provision of positive pressure ventilation

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Current neonatal resuscitation guidelines no longer recommend routine intubation and tracheal suctioning for all meconium-stained infants (Option A ruled out) . Instead, the recommended approach is to provide stimulation and positive pressure ventilation (PPV) if the infant shows poor respiratory effort or has a low heart rate. Meconium Aspiration Syndrome (MAS): It occurs when a newborn inhales meconium-stained amniotic fluid, which can cause airway obstruction, inflammation, and infection. Clinical Presentation: Respiratory distress, tachypnea, cyanosis, decreased breath sounds, and meconium staining on the skin or umbilical cord. Diagnosis : Based on clinical signs, with chest X-rays showing patchy infiltrates, hyperinflation, flattened diaphragms, increased lung radiolucency, and areas of atelectasis due to airway obstruction by meconium, leading to inflammation and air trapping. Treatment: Supportive respiratory care (oxygen therapy, positive pressure ventilation , mechanical ventilation if needed). Surfactant administration for severe cases and managing complications. Surfactant administration (Option D) may be beneficial in severe cases, but it is not the initial step in management. Prophylactic antibiotics (Option C) are not indicated immediately unless there is evidence of infection; they may be considered later if risk factors are present.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 941

O.P. Ghai Essential Pediatrics, 10th Edition, Page 166

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: Which of the following is NOT typically associated with Transient Tachypnea of the Newborn (TTN)? (Q850090)

A. More common in infants delivered by cesarean section

B. Usually resolves within 24-72 hours

C. Persistent hypoxemia requiring prolonged mechanical ventilation

D. Delayed clearance of fetal lung fluid

Correct Answer: C. Persistent hypoxemia requiring prolonged mechanical ventilation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Persistent hypoxemia requiring prolonged mechanical ventilation is not typical of Transient tachypnea of newborns (TTN); it usually self-limits, resolves within days, and rarely needs extended ventilation. Transient tachypnea of the newborn (TTN): A temporary respiratory condition in newborns characterised by rapid breathing (tachypnea), typically occurring shortly after birth. Cause : Delayed clearance of fetal lung fluid after birth. This fluid retention in the lungs makes breathing harder for the newborn. (Option D) Risk factors: Cesarean delivery (Option A) , maternal asthma, male gender, late preterm or early term birth, and macrosomia (large baby). Symptoms : Fast breathing (usually >60 breaths per minute), grunting, nasal flaring, mild chest retractions, and cyanosis. The newborn may also exhibit decreased feeding due to respiratory effort. Onset is usually within a few hours after birth and typically resolves within 24-72 hours. The diagnosis is based on the clinical presentation, chest X-ray showing fluid in the lungs, and exclusion of other respiratory conditions. Treatment : Primarily supportive care, including oxygen supplementation if needed, monitoring of vital signs, and sometimes continuous positive airway pressure (CPAP). Antibiotics may be started initially but discontinued if infection is ruled out. Prognosis : Generally excellent. Most cases resolve within 24-72 hours, though some may take up to 5 days. There are usually no long-term complications. (Option B)

References:

Nelson Textbook of Pediatrics, 21st edition, pg 941

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 27-week gestational-age preterm infant in the NICU experiences persistent apnea lasting over 20 seconds despite gentle tactile stimulation and supplemental oxygen. Nasal continuous positive airway pressure (nCPAP) has been used but has not resolved the episodes. What is the most appropriate next step? (Q850091)

A. Continue nasal continuous positive airway pressure (nCPAP)

B. Administer intravenous caffeine citrate

C. Initiate doxapram infusion

D. Start low-dose theophylline

Correct Answer: B. Administer intravenous caffeine citrate

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Caffeine is the treatment of choice for recurrent or persistent apnea of prematurity that does not respond to initial measures like tactile stimulation or nCPAP. It increases central respiratory drive, lowers the threshold for response to hypercapnia, enhances diaphragmatic contractility, and prevents diaphragmatic fatigue. Management of Apnea of Prematurity: For mild and intermittent episodes: Gentle tactile stimulation or provision

of supplemental oxygen by nasal cannula is often sufficient. If apnea episodes are more frequent or prolonged, nasal continuous positive airway pressure (nCPAP) or heated humidified high-flow nasal cannula (HHHFNC) can be used to maintain airway patency. For recurrent or persistent apnea: Methylxanthines (e.g., caffeine) are preferred because they effectively stimulate respiratory drive and reduce the incidence and severity of apnea. Caffeine aids in extubation and lowers Bronchopulmonary dysplasia (BPD) risk with fewer side effects than theophylline. It is safe for oral or intravenous use with a wide therapeutic window and minimal need for serum monitoring. Continuing nCPAP (Option A) is beneficial for managing obstructive or mixed apnea by maintaining airway patency but is less effective for central apnea. Since the apnea persists despite nCPAP, additional pharmacological intervention is needed. Initiate doxapram infusion (Option C): Doxapram is a respiratory stimulant but is less commonly used due to side effects and is typically considered only if methylxanthines are ineffective. Start low-dose theophylline (Option D): Theophylline is another methylxanthine but is less preferred than caffeine due to a shorter half-life and higher risk of side effects d/t narrow therapeutic range (5-15 microgram), such as tachycardia and feeding intolerance.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 931

↑ *Back to this question in Part A*

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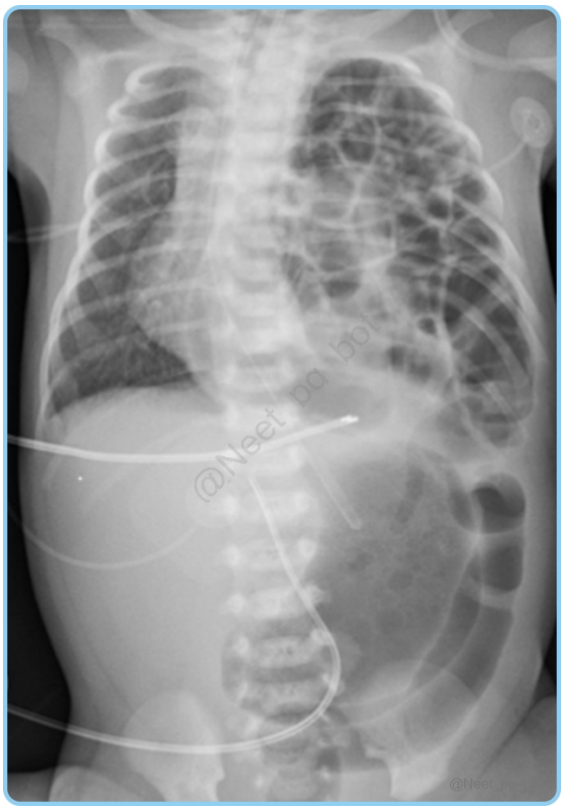
Q14: A day-old preterm infant is admitted with severe respiratory distress. Physical examination shows a scaphoid abdomen and a chest X-ray image is given below. Despite intensive care, the infant's condition deteriorates. Which of the following statements about the suspected condition is correct? (Q850092)

A. Bochdalek typically occurs on the right side.

B. Morgagni involves the posterior diaphragm.

C. Morgagni is associated with poor prognosis.

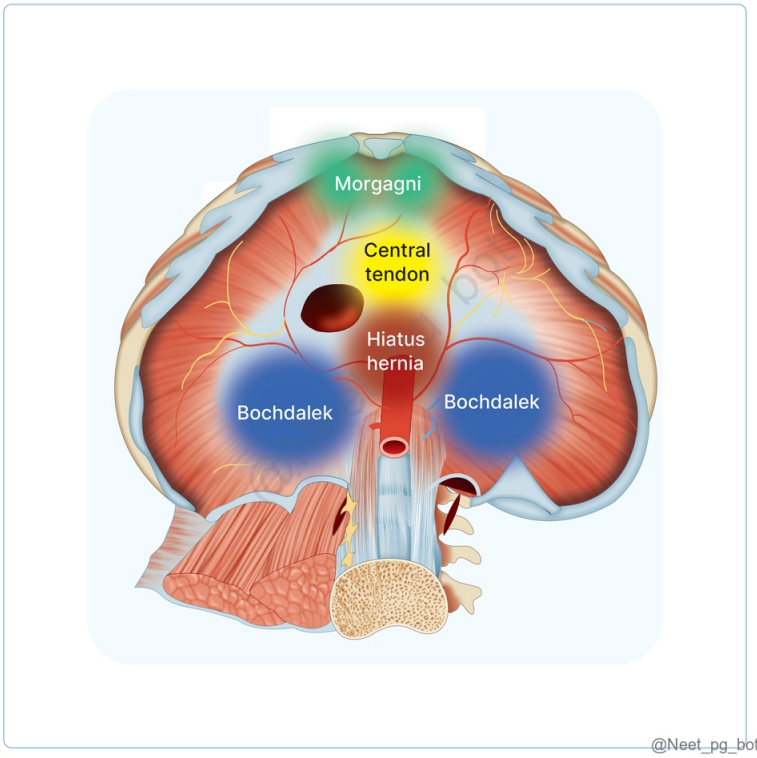
D. The condition is mostly sporadic.



Correct Answer: D. The condition is mostly sporadic.

- *Listen (English)*
- *Listen (Hindi)*

Explanation: The given clinical scenario of a preterm infant with severe respiratory distress with a scaphoid abdomen and x-ray showing bowel loops in the thorax points towards Congenital Diaphragmatic Hernia (CDH), which is mostly sporadic. Congenital Diaphragmatic Hernia: Defect in the fetal diaphragm leading to herniation of abdominal contents into the thorax, impairing lung growth. Types: Bochdalek Hernia (Defective Development of Pleuroperitoneal Membrane) Morgagni Hernia Features Bochdalek Hernia Morgagni Hernia Side Left-sided (Option A) Right-sided Location Posterolateral Anteromedial (Option B) Herniated Organs Small intestine, stomach Transverse colon, sometimes liver Common Symptoms Scaphoid abdomen Respiratory distress Mediastinal shift Mostly Asymptomatic and Incidental Diagnostic Features Pulmonary hypoplasia Pulmonary hypertension Less severe respiratory distress Association Polyhydramnios, abnormal LHR, and liver position Rarely detected prenatally; usually diagnosed later Management Variable Better prognosis (Option C) Diagnosis: Antenatal USG (16 - 24 weeks). Chest X-ray reveals bowel loops in the thorax, mediastinal shift, and pulmonary hypoplasia.



References:

Nelson Textbook of Pediatrics 21st Edition, Pg - 944

Sabiston's Textbook of Surgery, 21st Edition, Pg - 1848

↑ *Back to this question in Part A*

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Q15: A 2-day-old newborn diagnosed with congenital diaphragmatic hernia (CDH) presents with severe respiratory distress and is scheduled for urgent surgical intervention. Which of the following management strategies is not recommended in this setting? (Q850093)

A. Bag and mask ventilation

B. Placement of Endotracheal tube

C. Administration of extracorporeal membrane oxygenation

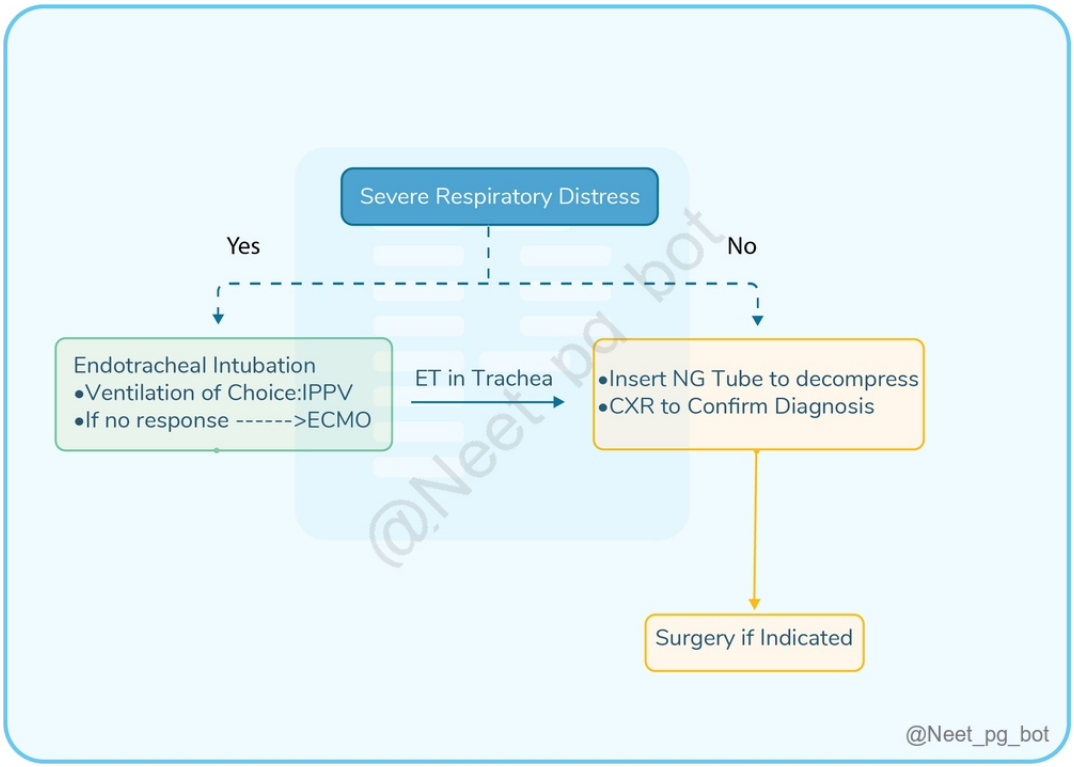
D. Nasogastric tube to decompress the stomach

Correct Answer: A. Bag and mask ventilation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Bag and Mask Ventilation is contraindicated in CDH patients due to the risk of worsening respiratory distress and increasing intrathoracic pressure, which can further impede lung expansion and exacerbate the hernia. Management of Congenital Diaphragmatic Hernia: Initial Stabilization: Airway Management: Immediate endotracheal intubation (ET) is critical . (Option B) ECMO: If there is no response to ET (Option C) Avoid excessive, mean airway pressure to prevent barotrauma Gastric Decompression: An orogastric tube is inserted to prevent gastric distention that worsens lung compression. (Option D) Bag and Mask Ventilation is Contraindicated in CDH Surgical Repair is done only after pulmonary stabilisation in CDH (Immediate surgery done in case of Traumatic Hernia)



References:

Nelson Textbook of Pediatrics 21st Edition, Pg - 945

Bailey & Love's Short Practice of Surgery, 28th edition, Pg - 271

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 3-day-old newborn with congenital diaphragmatic hernia is in NICU showing signs of severe respiratory distress. Despite intensive management, the infant's condition deteriorates and leads to death. What is the most common cause of death in CDH? (Q850094)

A. Perforation of Herniated bowel

B. Pulmonary hypoplasia

C. Pulmonary Embolism

D. All of the above

Correct Answer: B. Pulmonary hypoplasia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In congenital diaphragmatic hernia (CDH), a defect in the fetal diaphragm causes abdominal contents to herniate into the thorax, which inhibits lung growth. The most common cause of death is pulmonary hypoplasia and its associated pulmonary hypertension. Clinically , it manifests with severe respiratory distress, decreased breath sounds on the affected side, and a scaphoid abdomen due to herniated abdominal contents. Cyanosis and mediastinal shift toward the unaffected side are also common. Perforation of the herniated bowel (Option A) is a severe complication in CDH leading to peritonitis or sepsis but is less common than pulmonary complications as a cause of death. Pulmonary Embolism (Option C) is a severe condition that can occur due to congenital heart defects or hypercoagulable states, and it is less common in CDH compared to pulmonary hypoplasia.

References:

Nelson Textbook of Pediatrics 21st Edition, Pg - 946

https://www.ncbi.nlm.nih.gov/books/NBK556076/

Bailey & Love’s Short Practice of Surgery, 28th edition, Pg - 271

↑ *Back to this question in Part A*

@Neet_pg_bot

• [01_Neonatology] 005 Neonatal Resuscitation

« Back to Folder Directory

[01_Neonatology] 005 Neonatal Resuscitation — Quick Jump

Q1 (p. 619) *Q2 (p. 619)* *Q3 (p. 620)* *Q4 (p. 622)* *Q5 (p. 623)* *Q6 (p. 624)*
Q7 (p. 625) *Q8 (p. 626)* *Q9 (p. 627)* *Q10 (p. 628)* *Q11 (p. 629)* *Q12 (p. 630)*
Q13 (p. 631) *Q14 (p. 632)*

Q1: During neonatal resuscitation, If the HR is less than 100/min or apnea or gasping is present what measures would you take? (Q849980)

A. Start PPV by self-inflating the Bag and Mask

B. Check SpO2 and monitor ECG

C. Reassess after 30 seconds, if the HR is not less than 100/min then the baby gets post-resuscitation care

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: If HR <100/min or apnoea or gasping is present, then the following steps are followed: Start PPV by self-inflating the Bag and Mask (Option A) Check SpO2 and monitor ECG (Option B) Reassess after 30 seconds, if the HR is not less than 100/min then the baby gets post-resuscitation care (Option C) Baby with labored breathing and persistent cyanosis, improved by CPAP, also needs post-resuscitation care. Post resuscitation care: Baby is taken to nursery/NICU, continued monitoring the condition of baby, start IV fluids, oxygen if required, monitor the baby and treat them accordingly i.e by maintaining proper temperature, the glucose of baby.

References:

Ghai Essentials of Pediatrics, 8th Edition, Pages 125-132

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 24-year-old primigravida came for a routine antenatal check at 32 weeks of gestation. As the medical officer, which of the following is your responsibility during

the antenatal period? A. Antenatal counselling for the mother B. Team briefing and individual responsibility allocation C. Equipment check and preparation D. Proper history taking, i.e. prior history of preterm delivery or abortions (Q849978)

A. Only A & D are correct

B. Only B & C are correct

C. Only A & C are correct

D. All are correct

Correct Answer: D. All are correct

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In antenatal care, the medical officer plays a comprehensive role in ensuring both maternal and fetal wellbeing. Each of the listed options represents a valid and essential responsibility during the antenatal period: Antenatal counseling for the mother (Option A): Counselling on nutrition, rest, warning signs, birth preparedness, and family planning is a core component of ANC . Helps in early identification of risk factors and improves compliance with care. Team briefing and individual responsibility allocation (Option B): Although more emphasized in intrapartum care or emergencies , team readiness and role clarity is important throughout pregnancy , especially in high-risk cases. Promotes coordinated care and avoids delay in emergencies. Equipment check and preparation (Option C): Ensures availability of functional equipment for monitoring (BP apparatus, fetal Doppler, weighing scale, etc.) and emergency preparedness . Critical for centres offering delivery services or managing complications. ■■■ Proper history taking (e.g., prior preterm delivery or abortions) (Option D): A comprehensive history helps in risk stratification , planning investigations, and interventions. Past obstetric history is vital for predicting complications in the current pregnancy. Conclusion: Each of these tasks falls under the preventive, promotive, or preparatory functions of antenatal care.

References:

Ghai Essential Pediatrics, 8th Edition, Pages 125-132

↑ *Back to this question in Part A*

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Q3: A 27-year-old mother gave birth to a term male baby through normal vaginal delivery with a birth weight of 3 kg who did not cry immediately after birth. How will you resuscitate the baby? (Q849979)

A. Clear airway if required

B. Position the baby properly to ensure an open airway; the neck should be kept slightly extended and the mouth slightly open.

C. Stimulate the baby i.e. providing physical stimulation by rubbing the back of the baby or flicking the sole of the baby.

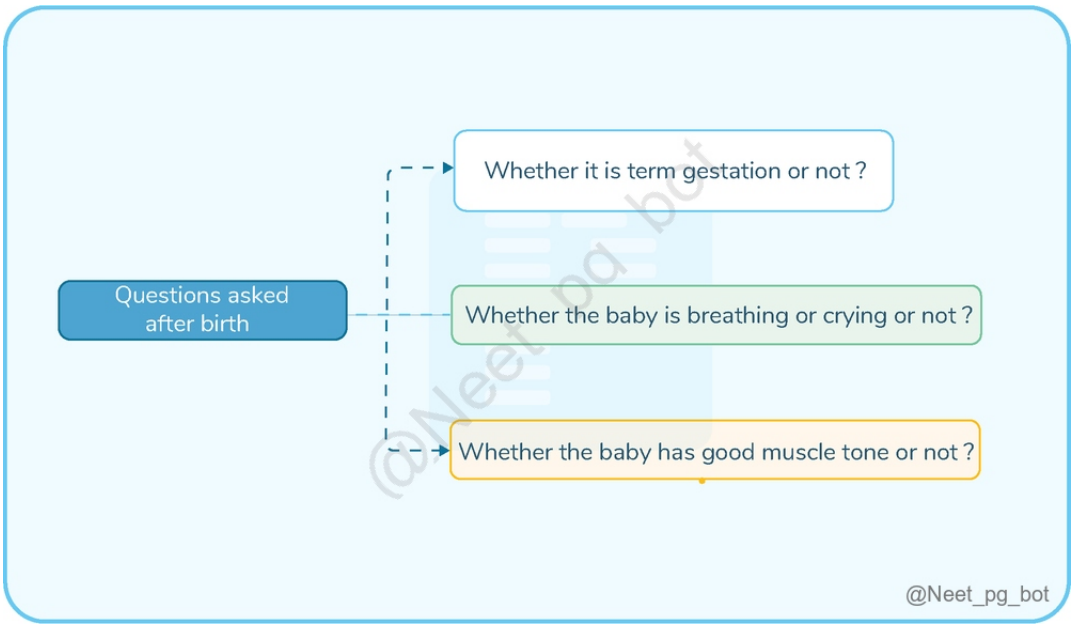
D. All of the above

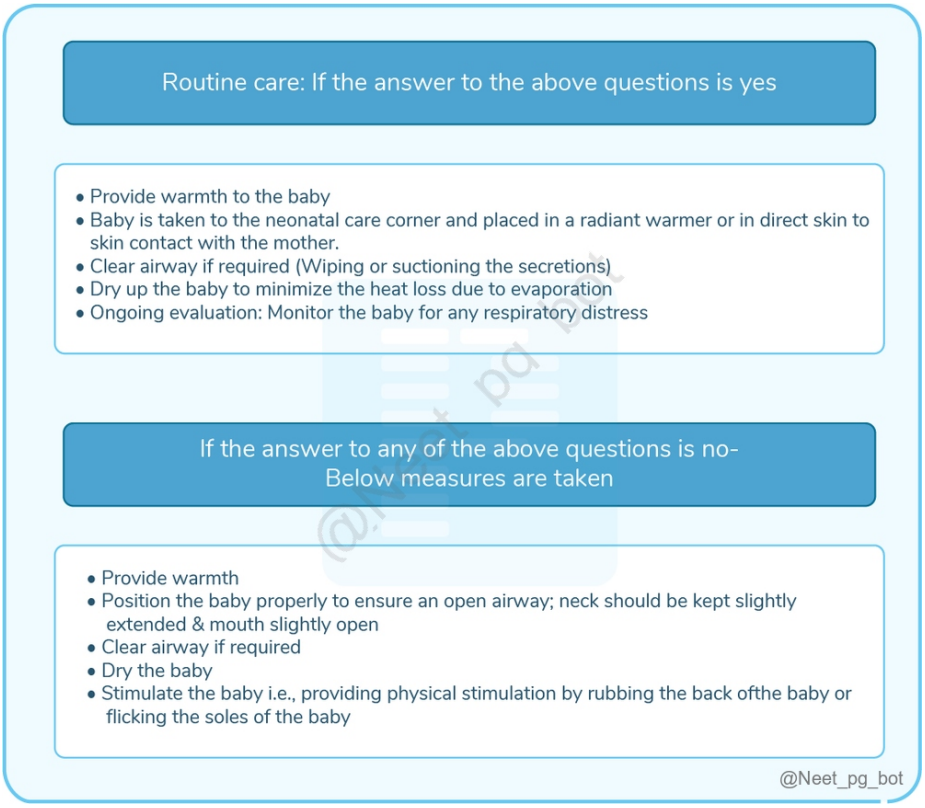
Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: After birth, as a component of neonatal resuscitation, the following questions are asked: The answer to these questions may be yes or no and the next steps would be as follows: Since in this scenario, the baby is not crying, the aforementioned steps in the table are followed.





References:

Ghai Essential Pediatrics, 8th Edition, Pages 125-132

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: During neonatal resuscitation, If the HR is less than 100/min despite PPV, the following steps are followed except: (Q849981)

A. Ensure, whether the positive pressure ventilation is given properly or not

B. Take ventilation corrective step

C. Intubation never done

D. If needed endotracheal intubation should be done.

Correct Answer: C. Intubation never done

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In case HR is less than 100/min despite PPV, you may intubate the baby or do endotracheal intubation. Ensure if the positive pressure ventilation is given properly or not by checking if the chest movement is happening with each breath given or not. (Option A) Ventilation corrective steps are used in Neonatal resuscitation to ensure the baby is getting adequate oxygen, clear airway obstruction, correct inadequate breathing efforts, prevent hypoxia, and support circulatory functions. (Option B) Ventilation corrective steps includes: The mask should cover the mouth and nose should fit well and provide an effective seal Ensure the Mask is of appropriate size The head of the baby should be slightly extended and the mouth of the baby should be kept slightly open When HR becomes less than 100/min if needed endotracheal intubation is done (Option D)

References:

Ghai Essential Pediatrics, 8th Edition, Pages 125-132

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: After delivery and resuscitation, a neonate was found to have HR <60 even after effective positive pressure ventilation and no respiratory efforts. What is the line of action? (Q849982)

A. Oxygen by mask

B. Start chest compression

C. Chest compression+adrenaline

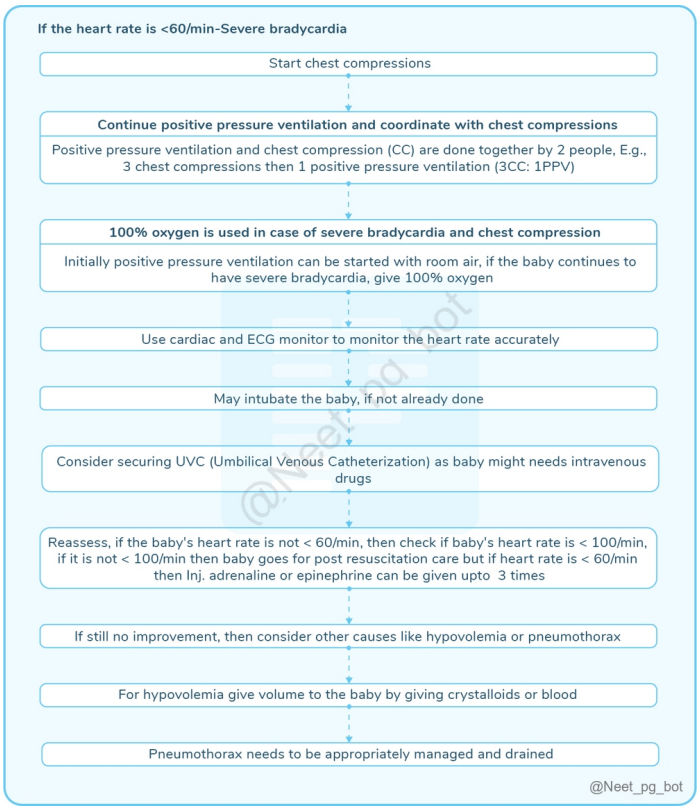
D. Adrenaline injection

Correct Answer: B. Start chest compression

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: After 1 min of effective PPV, if HR <60/min, chest compression is started If the HR is persistently below 60/min, give IV epinephrine.



References:

Ghai Essentials of Pediatrics, 8th Edition, Pages 125-132

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: What is the recommended dose of adrenaline for neonatal resuscitation in a preterm baby at NICU with HR persistently below 60/min? (Q849983)

A. 0.002mg/kg/dose

B. 0.02mg/kg/dose

C. 0.2mg/kg/dose

D. 2mg/kg/dose

Correct Answer: B. 0.02mg/kg/dose

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Dose of Inj.Adrenaline: 0.02mg/kg/dose or 0.2ml/kg/dose given in 1:10000 dilution up to three times in neonatal resuscitation The preferred route of administration: IV through umbilical venous catheterization. It can be given intratracheally if IV access is not available. Indications : Use of adrenaline is indicated if HR remains below 60/min despite adequate ventilation and chest compression for 30 seconds.

References:

Ghai Essential Pediatrics, 8th Edition, Page 132

https://secure.library.leicestershospitals.nhs.uk/PAGL/Shared%20Documents/Resuscitation%20at%20Birth%20UHL%20Neonatal%20Guideline.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: Which among the given statements is wrong regarding resuscitation of newborn? a) The recommended pressure of suction is 80 mmHg b) Correct order of suction: mouth followed by nose. c) The recommended pressure should never exceed >80 mmHg d) Correct order of suction: nose followed by mouth (Q849984)

A. a & b are wrong.

B. b & c are wrong

C. c & d are wrong.

D. a & d are wrong.

Correct Answer: C. c & d are wrong.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: s: Suction of airways: The correct order of suction: is mouth followed by nose. (Statement d ruled out) When suctioning the nose, vagal stimulation may induce the baby to take a deep breath, potentially resulting in aspiration, if oral secretions are present. The recommended pressure of suction is 80 mmHg (Statement a) It should never exceed >100 mmHg (Statement c ruled out)

References:

Ghai Essential Pediatrics, 8th Edition, Page 128

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: Which of the following is the wrong statement about PPV? (Q849985)

A. The reservoir bag and oxygen tubing may or may not be attached to the self-inflating bag

B. The function of the reservoir is to increase FiO2 delivered to the baby

C. The single most important step in neonatal resuscitation is effective positive pressure ventilation.

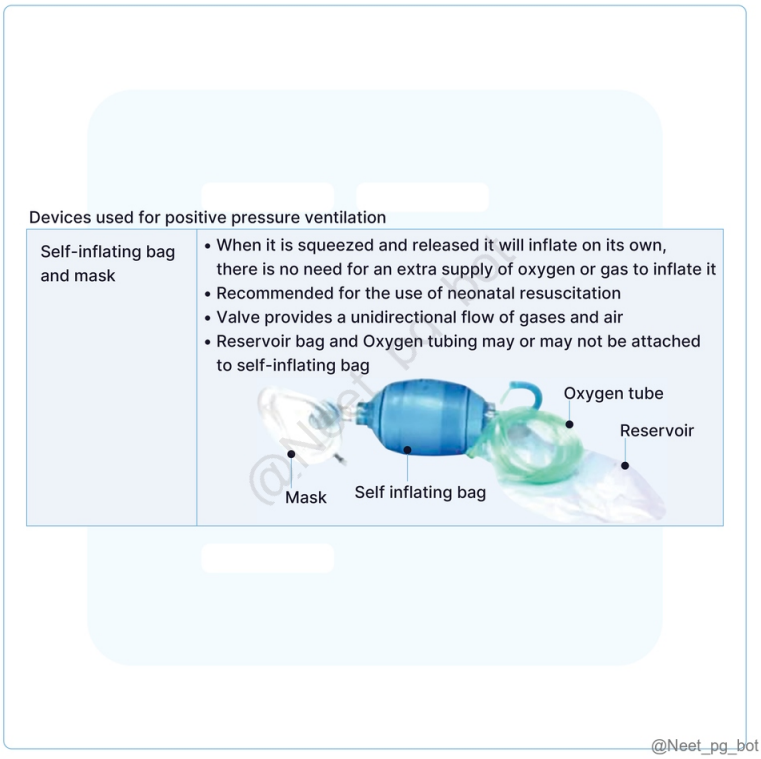
D. The rate of PPV should be 30-40/min

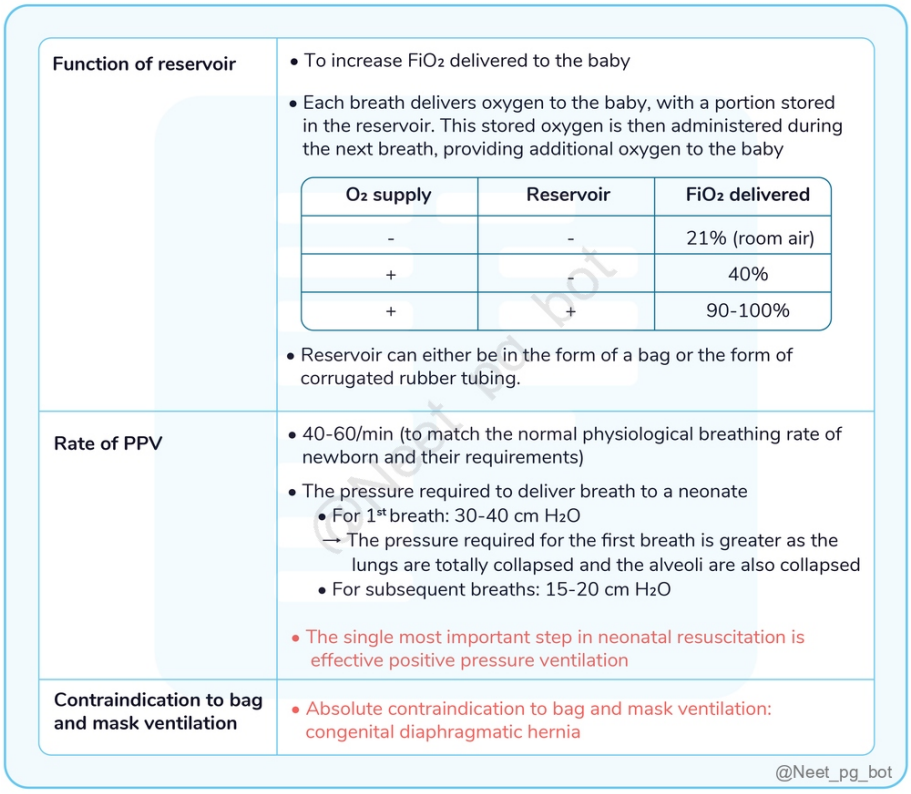
Correct Answer: D. The rate of PPV should be 30-40/min

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: To match the normal physiological breathing rate of newborns and their requirements the rate of PPV is 40-60/min. The reservoir bag and oxygen tubing may or may not be attached to the self-inflating bag. When it is squeezed and released it will inflate on its own, there is no need for an extra supply of oxygen or gas to inflate it. (Option A) The function of the reservoir is to increase FiO2 delivered to the baby. Each breath delivers oxygen to the baby, with a portion stored in the reservoir. (Option B) The single most important step in neonatal resuscitation is effective positive pressure ventilation. (Option C) The pressure required to deliver breath to a neonate for 1st breath: 30-40 cm H20





Function of reservoir	• To increase FiO_2 delivered to the baby • Each breath delivers oxygen to the baby, with a portion stored in the reservoir. This stored oxygen is then administered during the next breath, providing additional oxygen to the baby

O_2 supply	Reservoir	FiO_2 delivered
-	-	21% (room air)
+	-	40%
+	+	90-100%

• Reservoir can either be in the form of a bag or the form of corrugated rubber tubing.

Rate of PPV	• 40-60/min (to match the normal physiological breathing rate of newborn and their requirements)
	• The pressure required to deliver breath to a neonate
	  • For 1st breath: 30-40 cm H_2O
	  → The pressure required for the first breath is greater as the lungs are totally collapsed and the alveoli are also collapsed
	  • For subsequent breaths: 15-20 cm H_2O
	• The single most important step in neonatal resuscitation is effective positive pressure ventilation

Contraindication to bag and mask ventilation	• Absolute contraindication to bag and mask ventilation: congenital diaphragmatic hernia

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References:

Ghai Essential Pediatrics, 10th Edition, Page 123

↑ *Back to this question in Part A*

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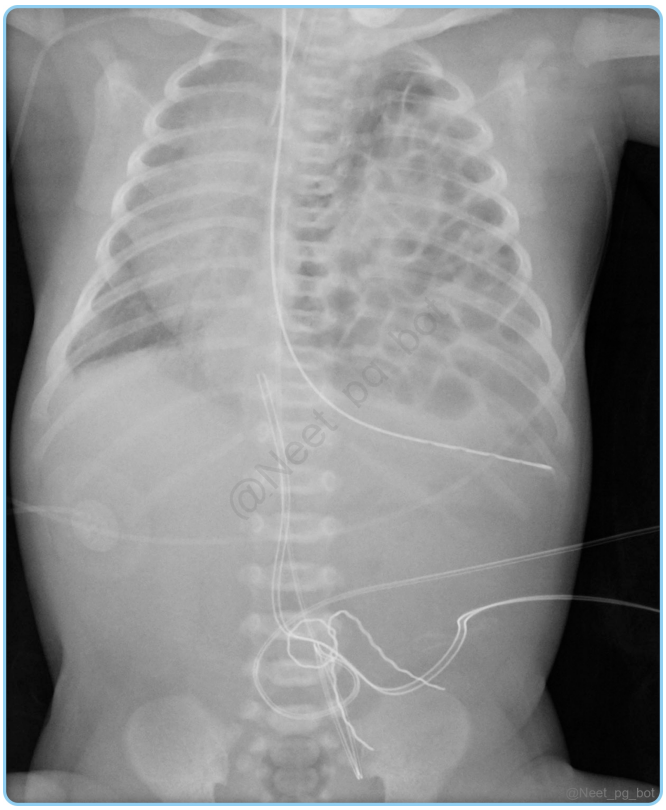
Q9: A 6-hour-old term baby shifted to emergency brought with severe respiratory distress. Chest X-ray is given below. Which of the initial clinical interventions should not be done on this patient? (Q849986)

A. Intubation and insertion of nasogastric tube

B. Bag and mask ventilation

C. Administration of fluids

D. Put the baby in a radiant warmer.



Correct Answer: B. Bag and mask ventilation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The described clinical presentation with a history of sudden noisy breathing and given X-ray is suggestive of congenital diaphragmatic hernia. Bag and Mask ventilation is contraindicated in congenital diaphragmatic hernia. During the Bag and mask ventilation, the mask envelops both the nose and mouth, directing air through both the trachea and esophagus. However, the air passing through the esophagus can result in an extension of bowel loops leading to a mediastinal shift and reduced space for the lungs to expand. Immediate steps of management include: Put the baby in a radiant warmer → Endotracheal intubation→ Placement of a nasogastric tube→ Administration of fluids X-ray findings in congenital diaphragmatic hernia : Mediastinal shift Bowel loops in the left hemithorax

References:

Ghai Essential Pediatrics, 10th Edition, Pages 127-128

↑ *Back to this question in Part A*

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Q10: All of the following are the key corrective actions to optimize ventilation during neonatal resuscitation except: (Q849987)

A. Ensure the mask is of appropriate size

B. The seal between mask and face should be tight

C. The mask should cover the mouth only

D. The head of the baby should be slightly extended and the mouth of the baby is kept slightly open

Correct Answer: C. The mask should cover the mouth only

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Ventilation corrective steps in Neonatal resuscitation are: The mask should cover the mouth and nose, fit well, and provide an effective seal Ensure the mask is of appropriate size (Option A) The seal between the mask and face should be tight (Option B) The head of the baby should be slightly extended and the mouth of the baby should be kept slightly open (Option D) MRSOPA- Mask re-apply, head reposition, suction, open airway, increase pressure, alternate airway or ET Tube

References:

Ghai Essential Pediatrics, 10th Edition, Pages 125-132

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: Tongue fasciculations are a feature of which among the following? (Q849988)

A. Myasthenia Gravis

B. Spinal Muscular Atrophy

C. Guillain-Barre syndrome

D. Duchenne’s Muscular Dystrophy

Correct Answer: B. Spinal Muscular Atrophy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Tongue fasciculations are fine, involuntary, "worm-like" rippling movements of the tongue muscle at rest. In neurology, they are a hallmark sign of a Lower Motor Neuron (LMN) lesion, specifically involving the hypoglossal nerve (Cranial Nerve XII) nucleus or its fibers. Spinal Muscular Atrophy (SMA): This is a genetic disorder characterized by the degeneration of the anterior horn cells in the spinal cord and the motor nuclei in the brainstem. Because it affects the motor neurons directly, it presents with classic LMN signs: profound weakness,

hypotonia (floppiness), absent reflexes, and fasciculations . The "Quivering" Tongue: In infants with SMA Type 1 (Werdnig-Hoffmann disease), the tongue is one of the best places to observe fasciculations because the limb muscles may be too weak or covered by subcutaneous fat to show them clearly. Differential Diagnosis of Tongue Fasciculations SMA Amyotrophic Lateral Sclerosis (ALS): The most common cause in adults. Bulbar Palsy: Damage to lower cranial nerves (IX, X, XI, XII). Syringobulbia: A fluid-filled cavity in the brainstem. Feature Myopathy (DMD) Junction (MG) Nerve/Neuron (SMA/ALS) Wasting Late Absent Early & Severe Fasciculations No No Yes (Pathognomonic) Reflexes Decreased Normal Absent (LMN) Sensory Loss No No No Myasthenia Gravis (Option A): This is a disorder of the neuromuscular junction . While it causes tongue weakness and "fatigability" (the voice getting weaker as the patient talks), it does not cause fasciculations because the motor neuron itself is healthy. Guillain-Barré Syndrome (GBS) (Option C): GBS is an acute demyelinating polyneuropathy. While it is an LMN-type paralysis (loss of reflexes and weakness), it primarily affects the peripheral nerves. Fasciculations are rare in GBS; the presentation is usually an ascending paralysis. Duchenne's Muscular Dystrophy (DMD) (Option D): This is a primary muscle disease (myopathy). In myopathies, the problem is in the muscle fibers themselves, not the nerves supplying them. Therefore, you see weakness and pseudohypertrophy (e.g., in the calves), but never fasciculations.

References:

https://medlineplus.gov/ency/article/003449.htm

Ghai Essential Pediatrics, 10th Edition, Page 123

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: As a part of neonatal resuscitation, you start chest compressions. For maximum effectiveness, what should be the depth of your compressions? (Q849989)

A. ■ of AP diameter of chest

B. ½ of AP diameter of chest

C. ■ of AP diameter of chest

D. ¼ of AP diameter of chest

Correct Answer: A. ■ of AP diameter of chest

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: For neonatal resuscitation, chest compressions should be delivered at a depth of approximately one-third of the anterior-posterior diameter of the chest. Site: In the middle, on the lower 1/3rd of the body of the sternum Just below the line, joining the two nipples. Depth: At least 1/3rd of the AP diameter of the chest Technique: Parameter 2-Thumb Encircling Technique (Preferred) 2-Finger Technique Who performs it? Usually 2 rescuers (but can be done by 1) Usually, a single rescuer Hand position Both thumbs are placed side-by-side on

lower third of sternum, and fingers encircle chest Two fingers (index + middle) placed on the lower third of the sternum Chest compression method Thumbs compress sternum while fingers support back Fingers press vertically on the sternum Generated pressure Higher intrathoracic pressure Lower pressure compared to 2-thumb Perfusion (Cardiac output) Better perfusion & coronary blood flow Less effective perfusion Preferred in NRP/AHA Yes (Technique of choice) Not preferred, used only when a single rescuer is alone

References:

Ghai Essentials of Pediatrics, 10th Edition, Pages 122-125

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: Which of the following is one of the primary benefits of delayed umbilical cord clamping in newborns? (Q849990)

A. It reduces the risk of maternal postpartum hemorrhage

B. It decreases the likelihood of neonatal jaundice

C. It prevents the need for neonatal resuscitation

D. It improves the newborn’s iron stores and reduces the risk of anemia

Correct Answer: D. It improves the newborn’s iron stores and reduces the risk of anemia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Umbilical cord clamping must be delayed for 1 to 2 minutes to allow the transfer of an additional amount of blood from the placenta to the infant. Components of delayed cord clamping include: Wait for at least 60 seconds before clamping the cord It is recommended for all stable-term as well as preterm neonates Advantage Disadvantage Lesser chances of anemia Lesser need for blood transfusion Lesser risk of shock or hypotension Lesser risk of necrotising enterocolitis Lesser risk of intraventricular haemorrhage in preterm infants Slightly increased risk of neonatal jaundice Delayed cord clamping provides several benefits for the newborn, but it does not play a direct role in reducing the risk of PPH in the mother. (Option A) Delayed cord clamping has no benefits in reducing the likelihood of neonatal jaundice. It may cause a slightly increased risk of neonatal jaundice. (Option B) Delayed cord clamping is not related to preventing the need for neonatal resuscitation. In cases requiring resuscitation early cord clamping is done. (Option C)

References:

Ghai Essentials of Pediatrics, 10th Edition, Page 133

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: Under which of the following conditions will neonatal resuscitation not be performed? (Q849991)

A. Anencephaly

B. Confirmed case of trisomy 13

C. Gestational age less than 22 weeks

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Neonatal resuscitation is not performed in the following circumstances: Anencephaly (Option A) is a severe neural tube defect where major parts of the brain and skull are rudimentary. The prognosis is very poor. Even with resuscitation, the underlying conditions of anencephaly cannot be corrected. Confirmed case of trisomy 13 (Option B): The resuscitation efforts may not significantly alter the overall outcome or improve the infant's quality of life. Gestational age less than 22 weeks (Option C) : At 22 weeks of gestation the infant's organs, especially the lungs, heart, and brain, are not sufficiently developed to sustain life.

References:

Ghai Essentials of Pediatrics, 10th Edition, Pages 121, 128

↑ *Back to this question in Part A*

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• [01_Neonatology] 006 Previous Year Questions

« Back to Folder Directory

[01_Neonatology] 006 Previous Year Questions — Quick Jump

Q1 (p. 633)	*Q2 (p. 634)*	*Q3 (p. 634)*	*Q4 (p. 635)*	*Q5 (p. 636)*	*Q6 (p. 637)*
Q7 (p. 638)	*Q8 (p. 640)*	*Q9 (p. 641)*	*Q10 (p. 642)*	*Q11 (p. 643)*	*Q12 (p. 645)*
Q13 (p. 646)	*Q14 (p. 646)*	*Q15 (p. 650)*	*Q16 (p. 650)*	*Q17 (p. 651)*	*Q18 (p. 652)*
Q19 (p. 653)	*Q20 (p. 654)*	*Q21 (p. 654)*	*Q22 (p. 655)*	*Q23 (p. 656)*	*Q24 (p. 658)*
Q25 (p. 660)	*Q26 (p. 660)*	*Q27 (p. 661)*	*Q28 (p. 662)*	*Q29 (p. 663)*	*Q30 (p. 664)*
Q31 (p. 666)	*Q32 (p. 666)*	*Q33 (p. 667)*	*Q34 (p. 668)*	*Q35 (p. 669)*	*Q36 (p. 670)*

Q1: What is a characteristic feature observed in physiological jaundice? (Q856723)

A. Increased indirect bilirubin, increased urobilinogen, absent bilirubin in urine

B. Increased direct bilirubin, increased urobilinogen, absent bilirubin in urine

C. Increased indirect bilirubin, absent urobilinogen, absent bilirubin in urine

D. Increased direct bilirubin, absent urobilinogen, absent bilirubin in urine

Correct Answer: A. Increased indirect bilirubin, increased urobilinogen, absent bilirubin in urine

Explanation: - Increased indirect bilirubin, increased urobilinogen, absent bilirubin in urine In physiological jaundice, indirect bilirubin and urobilinogen are raised, and there is no bilirubin in urine. Increased indirect bilirubin: Physiological jaundice is associated with increased levels of indirect (unconjugated) bilirubin in the blood. This occurs because newborns have an immature liver that is still developing its ability to process bilirubin efficiently. Increased urobilinogen: Physiological jaundice often leads to increased urobilinogen in the urine. Urobilinogen is a breakdown product of bilirubin and is usually elevated in cases of increased bilirubin production, as seen in jaundice. Absent bilirubin in urine : Bilirubin is usually present in the urine in cases of pathological jaundice. Feature Physiological Jaundice Pathological Jaundice Timing Appears 24-72 hours after birth; peaks at 3-5 days; resolves by 1-2 weeks Appears within 24 hours of birth or persists beyond the expected timeframe Cause Elevated unconjugated bilirubin due to increased production and immature liver function Blood group incompatibility, infections, metabolic disorders, genetic conditions Clinical Presentation Yellowing of skin and sclera, starting from the face, progressing to the trunk and extremities Similar to physiological jaundice, but potentially more severe and may include other symptoms Treatment Usually self-resolving; observation and reassurance; phototherapy may be used if needed (Option D) Depends on the underlying cause; may include phototherapy, exchange transfusion, or specific treatments Treatment Usually self-resolving; observation and reassurance; phototherapy may be used if needed

References:

Ghai Essential Pediatrics, 10th Edition, Page: 170-175.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: According to the neonatal resuscitation protocol, below what heart rate are chest compressions initiated? (Q858077)

A. 70

B. 60

C. 80

D. 100

Correct Answer: B. 60

Explanation: ompress chest three times One breath for ventilation Use 3:1 ratio (compression:ventilation) Complete cycle in 2 minutes Check femoral or carotid pulse periodically Evaluation Check heart rate after 60 seconds of CC HR below 60: Continue CC with PPV and medications HR 60 or above: Stop CC, continue PPV until HR >100 and spontaneous breathing Important Considerations Must always accompany with BMV (bag-mask ventilation) Only oxygenated blood should be circulated Ventilate between compressions Positive breath should follow every third CC Complications Broken ribs Liver laceration Pneumothorax

References:

Ghai's Essential Pediatrics, 10th Edition Pages 125-132

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A newborn baby presents with irritability and cyanosis which subsides on crying. On examination, you are unable to pass a nasogastric tube and no mist formation is noted on the laryngeal mirror test. Which of the following is the best next step in management? (Q857180)

A. Endotracheal intubation

B. Oropharyngeal airway

C. Oxygen inhalation

D. Epinephrine nebulization

Correct Answer: B. Oropharyngeal airway

Explanation: Oropharyngeal airway The patient's presentations are suggestive of bilateral choanal atresia and the next best step in management is establishing an oropharyngeal airway. Choanal atresia is the most common congenital anomaly of the nose characterized by the blockage of the nasal passages due to the complete or partial persistence of the buccopharyngeal membrane or failure of the oronasal membrane to rupture. Clinical features: Unilateral obstruction: Asymptomatic till the first respiratory infection Unilateral nasal discharge Persistent nasal obstruction Bilateral obstruction: Difficulty in mouth breathing Vigorous attempts to inspire (sucking in of lips) Cyanosis Crying relieves cyanosis Difficulty in feeding Cyanotic while feeding Management of choanal atresia: Establish an oropharyngeal airway keeping the mouth open or intubate An oropharyngeal airway tube or a feeding nipple with large holes is used Feeding by gavage till the ability to breathe and eat without assistance is gained Bilateral choanal atresia is managed by intubation and sometimes needs tracheotomy Transnasal repair is the treatment of choice and is done for neonates who are otherwise stable Options A, C, and D are incorrect.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 2180, 2181.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: Vitamin K supplementation is given to neonates to prevent: (Q857192)

A. Breast milk jaundice

B. Hemorrhagic disease of the newborn

C. Keratomalacia

D. Scurvy

Correct Answer: B. Hemorrhagic disease of the newborn

Explanation: Hemorrhagic disease of the newborn Vitamin K and Hemorrhagic disease of the newborn Vitamin K is essential for blood clotting, and its deficiency can lead to hemorrhagic disease of the newborn (VKDB). VKDB has three forms: early, late, and drug-induced. Early VKDB , occurring within the first 1-14 days of life, is typically seen in breastfed infants due to insufficient vitamin K at birth (very low placental transfer), as well as limited intake in the first days and the sterile newborn gut that lacks vitamin K production. Late VKDB usually develops between 2-12 weeks, mostly in breastfed infants, and can be exacerbated by malabsorption conditions like cystic fibrosis or liver disease. The third form results from maternal use of medications such as warfarin that affect vitamin K function. In older children and adults, vitamin K deficiency may arise from fat malabsorption disorders or the use of broad-spectrum antibiotics. Prophylaxis with vitamin K supplementation is critical to

preventing these conditions, especially in infants . Prevention of Early VKDB: Administer oral or parenteral vitamin K shortly after birth. Prevention of Late VKDB: A single intramuscular (IM) dose of 1 mg of vitamin K is most effective. Oral vitamin K does not effectively prevent late VKDB. VKDB due to Maternal Medications: Discontinue maternal medications before delivery, if possible. If discontinuation is not possible, administer vitamin K to the mother. Neonate should receive IM vitamin K immediately after birth. If coagulopathy persists, fresh frozen plasma (FFP) may be needed. High-risk children (e.g., malabsorption): Provide supplemental vitamin K. Monitor prothrombin time (PT) periodically. Breast milk jaundice (Option A) occurs due to substances in breast milk (FFA and beta glucouronidase) that decrease bilirubin conjugation or glucuronidase action. It usually requires no treatment. Keratomalacia (Option C) is an eye disorder that involves drying and clouding of the cornea due to vitamin A deficiency. Scurvy (Option D) is due to vitamin C deficiency.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 386.

↑ *Back to this question in Part A*

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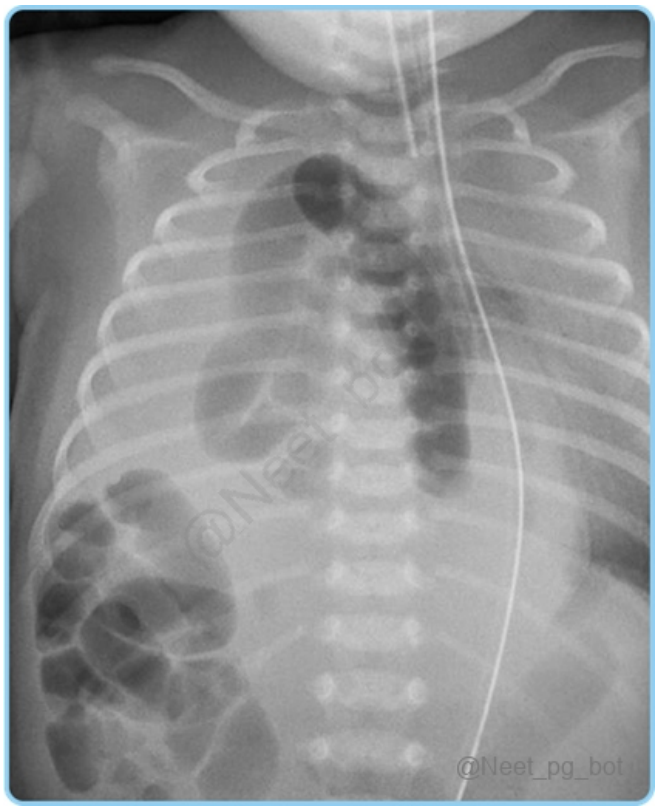
Q5: Identify the condition as shown below in the x-ray radiograph of a neonate? (Q857214)

A. Pneumomediastinum

B. Cystic fibrosis

C. Congenital diaphragmatic hernia

D. Bronchiolitis



Correct Answer: C. Congenital diaphragmatic hernia

Explanation: MO) shortly after birth. The survival rate for severely affected infants is low, and survivors often experience long-term respiratory, feeding, and developmental challenges. X-ray Findings: On a chest X-ray of a baby with CDH, the following findings may be observed: Displacement of abdominal organs into the thoracic cavity, such as the stomach, intestines, or liver. Decreased lung volume on the side of the hernia, with possible mediastinal shift to the opposite side. Hypoplastic lungs that appear smaller than normal on the affected side. Bowel loops or gas-filled structures within the chest, which can often be seen on the X-ray depending on the severity of the hernia. Pneumomediastinum (Option A) presents with extraluminal air within the mediastinum. Cystic fibrosis (Option B) presents with radiological features like hyperinflation, nonspecific peribronchial thickening, signs of bronchiectasis, nodular densities, patchy atelectasis, prominent hilar lymph nodes, etc. Bronchiolitis (Option D) has features like consolidation, peribronchial thickening, prominent bronchovascular markings, atelectasis, etc.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 894, 895, 2288.

↑ *Back to this question in Part A*

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Q6: Which is correct about ABO and Rh incompatibility leading to erythroblastosis fetalis? (Q857593)

A. Cytotoxic

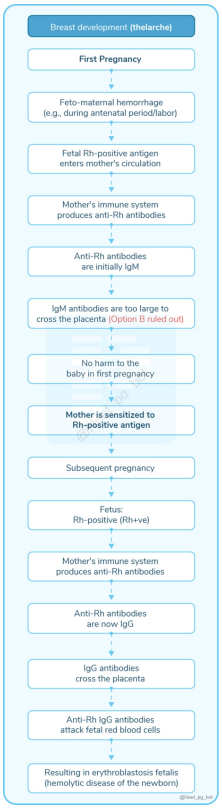
B. Cell-mediated hypersensitivity

C. Type III hypersensitivity reaction

D. Immune complex

Correct Answer: A. Cytotoxic

Explanation: : Type III reactions involve circulating antigen–antibody complexes depositing in tissues (e.g., SLE). In hemolytic disease of the newborn, antibodies directly attack fetal RBCs , so it is not a Type III reaction . Immune complex-mediated (Option D) reactions type III hypersensitivity involves the formation of antigen-antibody complexes that deposit in tissues and trigger inflammation and are not involved in erythroblastosis fetalis.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 967.

↑ *Back to this question in Part A*

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Q7: A 31-year-old lady with diabetes mellitus delivers a term neonate. Which of the following problems may be associated with the baby born to this lady? (Q857598)

A. Hyperglycemia

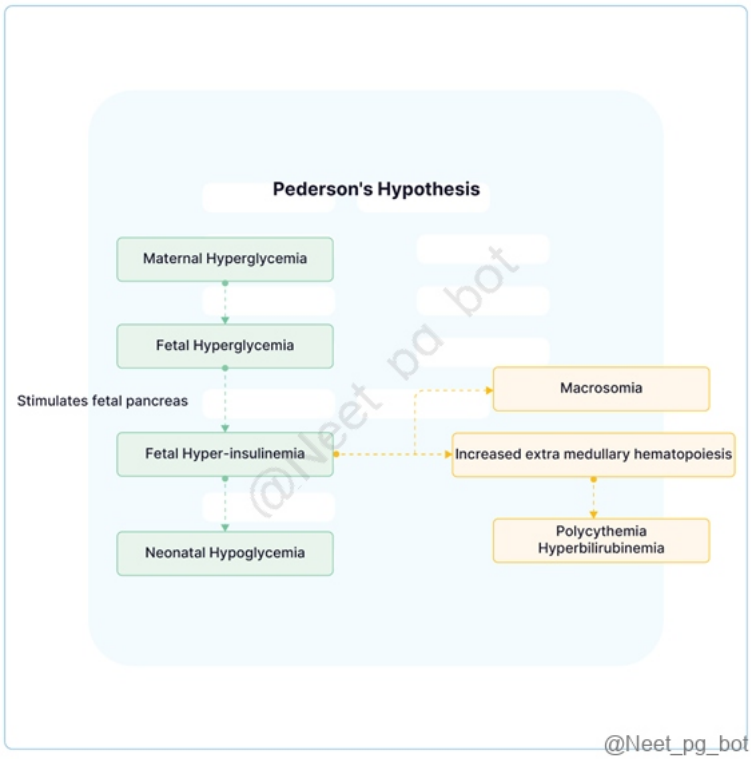
B. Tetralogy of Fallot

C. Hypercalcemia

D. Hypoglycemia

Correct Answer: D. Hypoglycemia

Explanation: iabetes is one of the most common endocrine disorders affecting women during pregnancy. Infants of diabetic mothers (IDM) have a higher incidence of congenital malformations, estimated to be between 2.5 and 12%, with an excess of cardiac problems. {{caption_text}} Pathogenesis: Problems in IDM: Macrosomia/Large for Date Baby Increased risk of birth trauma if forceps are used in obstructed labour. Increased chances of perinatal asphyxia in prolonged labour. Metabolic Hypoglycemia (vs Option A) Hypocalcemia (vs Option C) Hypomagnesemia Polycythemia Neonatal jaundice CVS The most common congenital abnormality in infants of diabetic mothers (IDM) is congenital heart disease (CHD). The most common congenital heart disease in IDM is ventricular septal defect (VSD). (vs Option B) The most specific congenital heart disease in IDM is the transposition of the great arteries (TGA). Respiratory System Respiratory distress syndrome or hyaline membrane disease due to delayed maturation of surfactant. CNS The most common congenital neurologic abnormality in IDM: Neural tube defects. Most specific neurologic abnormality in IDM: Sacral agenesis or caudal regression syndrome. Renal Renal vein thrombosis Renal agenesis Duplication of ureter Hydroureteronephrosis GI Duodenal atresia Lazy/small left colon syndrome Long Term Problems Blindness Obesity Nonketotic hypoglycemia Deafness



References:

Ghai Essential Pediatrics, 10th Edition, Page: 177.

↑ *Back to this question in Part A*

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Q8: Which of the following can lead to neonatal seizures? 1. Hypocalcemia 2. Hyponatremia 3. Hypomagnesemia 4. Hypoglycemia (Q855470)

A. 1, 2, 3 only

B. 1, 2, 3, and 4

C. 1, 3, 4 only

D. 2, 4 only

Correct Answer: B. 1, 2, 3, and 4

Explanation: Neonatal seizures can be caused due to metabolic disturbances that include hypoglycemia, hypocalcemia, hypomagnesemia, and hyponatremia. Hypoglycemia: Seen in small neonates and neonates born to

diabetic or pre-diabetic mothers. This causes neurologic disturbances, and their severity depends on the duration of hypoglycemia. Hypocalcemia: This is seen in two peaks. First peak: Seen in low-birthweight babies in the first 2-3 days of life. Second peak: Seen later in neonatal life, usually in large, full-term babies. The cause of hypocalcemia (second peak) is the consumption of milk that has higher amounts of phosphorus and magnesium than calcium hindering its absorption. Hyponatremia: Often causes seizures. It can be caused: Secondary to abnormal antidiuretic hormone secretion Due to water intoxication Hypomagnesemia: It is often found in association with hypocalcemia. Options A, C, and D are incorrect.

References:

Nelson Textbook of Pediatrics, 21st edition, Page: 3113.

↑ *Back to this question in Part A*

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Q9: Which of the following are components of kangaroo mother care? (Q856718)

A. Early discharge, skin-to-skin contact, prevent infection

B. Early discharge, skin-to-skin contact, exclusive breastfeeding

C. Skin-to-skin contact, exclusive breastfeeding, prevent infection

D. Early discharge, exclusive breastfeeding, prevent infection

Correct Answer: B. Early discharge, skin-to-skin contact, exclusive breastfeeding

Explanation: : KMC was first suggested in 1978 by Dr Edgar Rey in Bogota, Colombia, for the prevention of neonatal hypothermia in low birth weight/ premature newborns. The mother or any other caregiver can carry out Kangaroo Mother Care (KMC). Components: Kangaroo positioning: Skin-to-skin positioning of the newborn on the mother's chest. Kangaroo nutrition: Adequate nutrition through breastfeeding . Early discharge and ambulatory care. Studies suggest: It is as good as incubators, in terms of safety and thermal protection. Reduces severe morbidity. Promoted bonding between mother and child. It is indicated for all hemodynamically stable low birth weight babies . Short sessions of KMC can be initiated in babies on medical treatment like IV fluids or oxygen therapy. The initialization of KMC can vary depending on the birth weight of the baby. Positioning for KMC: The baby is placed between the mother's breasts in an upright position. The hips are abducted and flexed in the frog position, and the arms are also flexed. The abdomen of the baby should be at the level of the mother's epigastrium. In this position, the mother's breathing would stimulate the baby and prevent the development of apnea. The duration of KMC should be gradually increased from short sessions of more than one hour to 24 hours a day. KMC is not necessary once the baby attains 2500 g of weight or 37 weeks of gestation. Options A, C, and D are incorrect, as preventing infection is not a part of kangaroo mother care.



References:

Ghai Essential Pediatrics, 10th Edition, Page 153.

↑ *Back to this question in Part A*

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Q10: What is the amount of milk given to a term baby in the first 24 hours after delivery? (Q858049)

A. 40 ml/kg

B. 50 ml/kg

C. 60 ml/kg

D. 80 ml/kg

Correct Answer: C. 60 ml/kg

Explanation: ccount for the newborn's small stomach size Allow for the gradual increase in milk intake as the baby's digestive system continues to develop

References:

https://www.ncbi.nlm.nih.gov/books/NBK326679/

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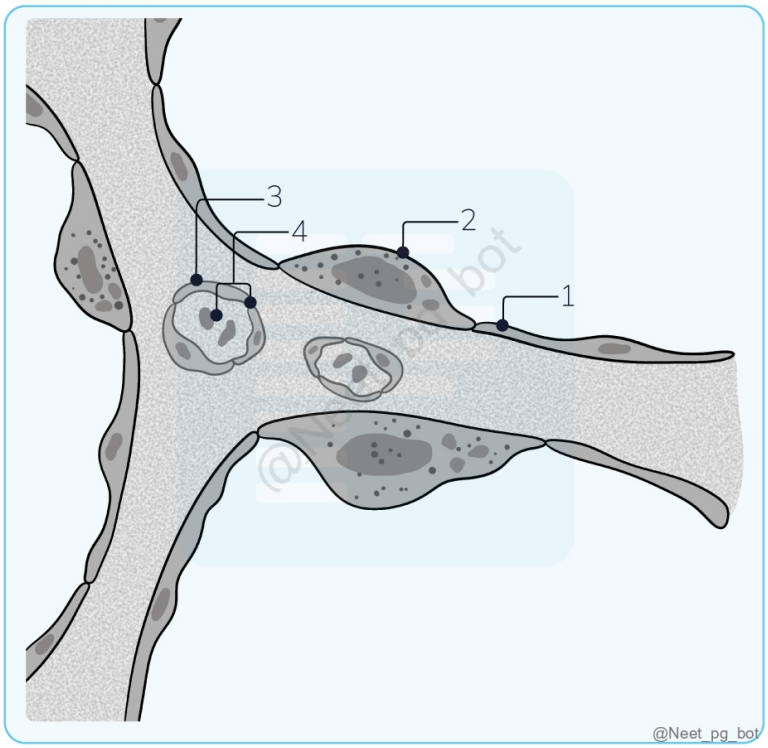
Q11: Which of the following marked structures is damaged in respiratory distress syndrome in newborns? (Q856727)

A. 1

B. 2

C. 3

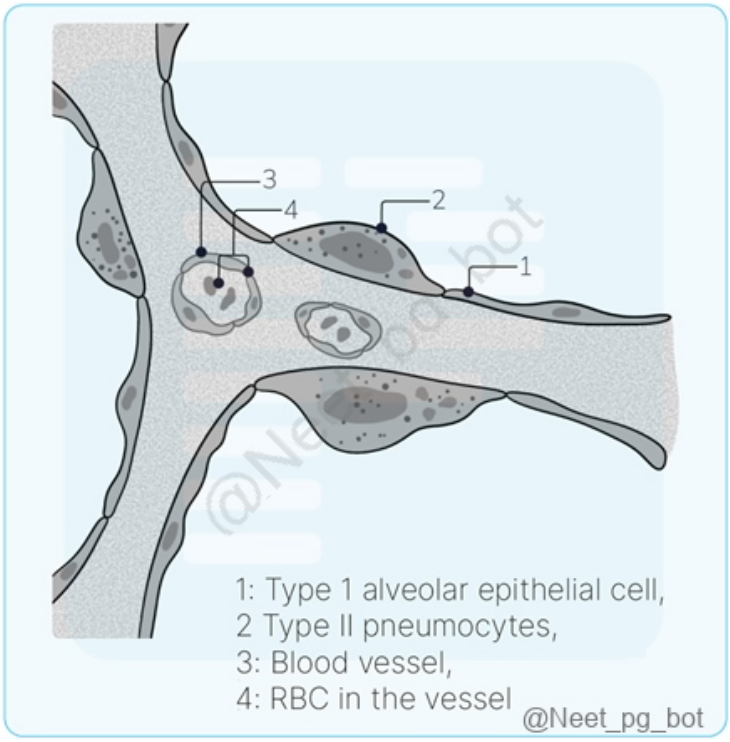
D. 4

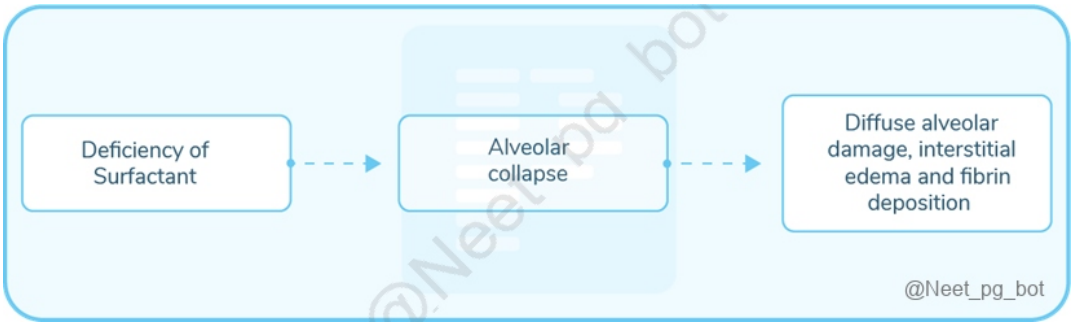


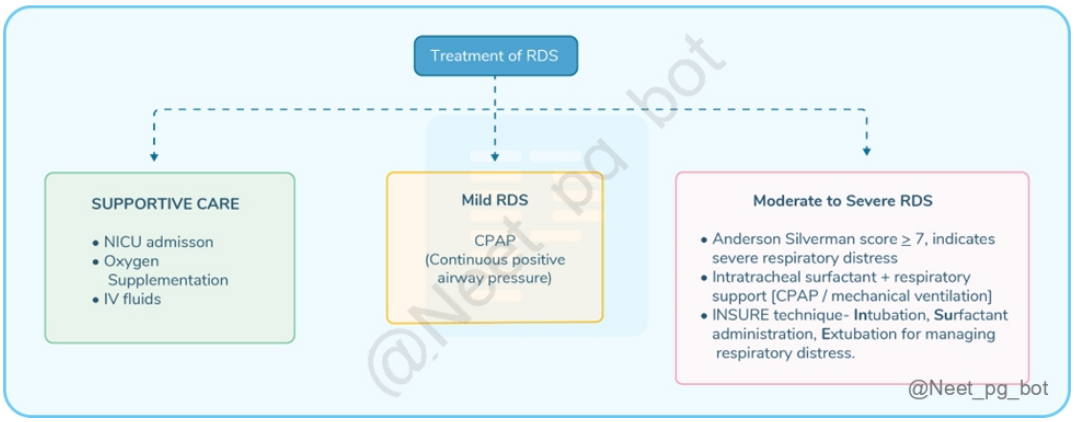
Correct Answer: B. 2

Explanation: istress Syndrome Pathophysiology: Surfactant, a lipoprotein produced by type II alveolar cells, lowers surface tension to prevent alveolar collapse at the end of expiration. Its production begins around 20 weeks of gestation and peaks at 35 weeks, so infants born before 35 weeks are at higher risk for RDS due to insufficient

surfactant. Without adequate surfactant, alveoli collapse during expiration, impairing gas exchange and causing tissue hypoxia. This results in increased pulmonary pressure, ischemic damage, and the formation of a hyaline membrane from protein transudation. Clinical Features: Respiratory distress within the first 6 hours of life is characterised by tachypnea, retractions, grunting, cyanosis, and decreased air entry. Management Neonates with this condition require admission to the neonatal intensive care unit, IV fluids, and appropriate respiratory support. Further management details are depicted in the table below 1 (Option A) is labelled as type I alveolar epithelial cells, which are responsible for gaseous exchange. 3 (Option C) is labelled as blood vessels. 4 (Option D) is labelled as RBC inside the blood vessel.







References:

O.P. Ghai Essential Pediatrics, 10th edition, Page: 157, 158, 159.

↑ *Back to this question in Part A*

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Q12: Phototherapy converts bilirubin to: (Q856448)

A. Stercobilin

B. Lumirubin

C. Biliverdin

D. Urobilin

Correct Answer: B. Lumirubin

Explanation: Phototherapy is used to reduce levels of bilirubin in the blood, particularly in cases of neonatal jaundice. This light interacts with bilirubin , converting it into lumirubin , which is excreted through the kidney without conjugation. Phototherapy: Most effective wavelength of light used: 450-460 nm Mechanisms by which phototherapy acts Photoisomerization Photoisomer of bilirubin forms excreted via bile Slow & reversible Structural Isomerization Bilirubin → Lumirubin → excreted through kidney without conjugation Faster & irreversible Most important mechanism by which phototherapy acts Photo-Oxidation Least important Effectiveness of phototherapy increases on: Lesser distance between baby and phototherapy unit Higher surface exposure area of the baby LED lamps > CFL lamps Less interruption Effectiveness does not depend on the skin pigmentation of the baby. Adverse Effects of Phototherapy: Bronze baby syndrome Dehydration Watery diarrhea Hypocalcemia Retinal toxicity Gonadal toxicity or mutations Impaired maternal-child bonding Stercobilin (Option A) is a breakdown product of bilirubin that gives stool its characteristic brown color. It is formed in the intestines after bilirubin is metabolized by gut bacteria. Biliverdin (Option C) is an intermediate compound in the breakdown of heme, which is eventually converted to bilirubin. Urobilin (Option D) is a breakdown product of bilirubin that is excreted in the urine. It is formed in the intestines from bilirubin by gut bacteria.

References:

Ghai Essential Pediatrics, 10th Edition, Page 174

↑ *Back to this question in Part A*

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Q13: What is the cause of the greenish-black color of the initial stool in a newborn? (Q854972)

A. Bilirubin

B. Biliverdin

C. Meconium

D. Gut flora of neonate

Correct Answer: C. Meconium

Explanation: The greenish-black color of the initial stool in a newborn is due to meconium . Meconium is a thick, sticky, tar-like substance composed of intestinal epithelial cells, mucus, bile pigments (including bilirubin and biliverdin), and amniotic fluid swallowed during intrauterine life. Meconium is the final mixed substance that gives the stool its color and characteristic composition Bilirubin (Option A): Bilirubin contributes to stool color but is yellowish; it is partially broken down into stercobilin and urobilin which gives the typical brown color to later stools, not the initial greenish-black meconium. Biliverdin (Option B): Biliverdin is a green pigment and a precursor in bile pigment metabolism but is present in smaller amounts in meconium. It contributes little directly to the stool's color compared to the complex mixture of meconium. Gut flora (Option D): At birth, the newborn's gut is nearly sterile, so gut flora do not influence the color of the first meconium stool.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1901

Williams Obstetrics, 26th edition, Page 132

↑ *Back to this question in Part A*

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Q14: What is the most likely diagnosis for a newborn who presents with protrusion of bowel loops through a defect in the abdominal wall located to the right side of the umbilicus? (Q854977)

A. Omphalocele

B. Umbilical hernia

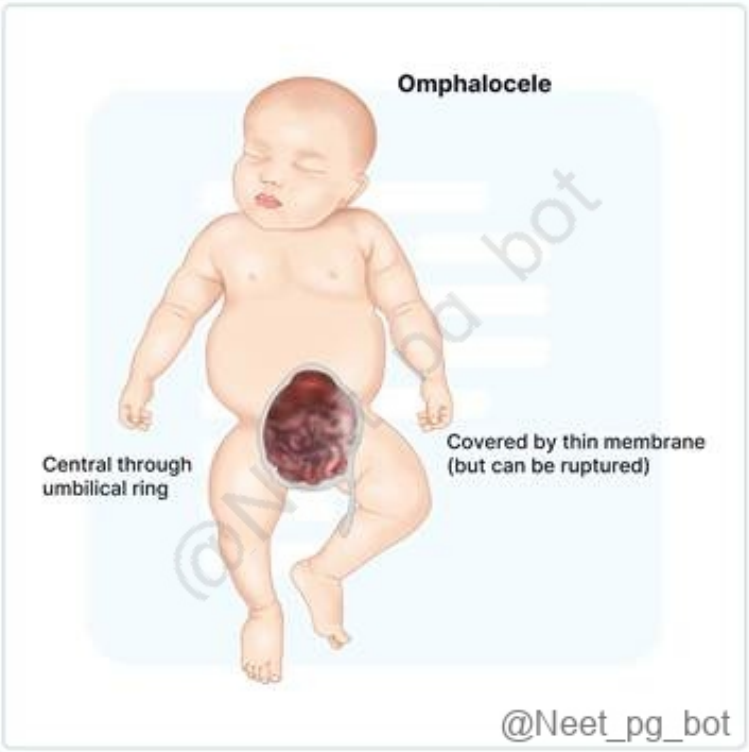
C. Gastroschisis

D. Ectopia vesicae

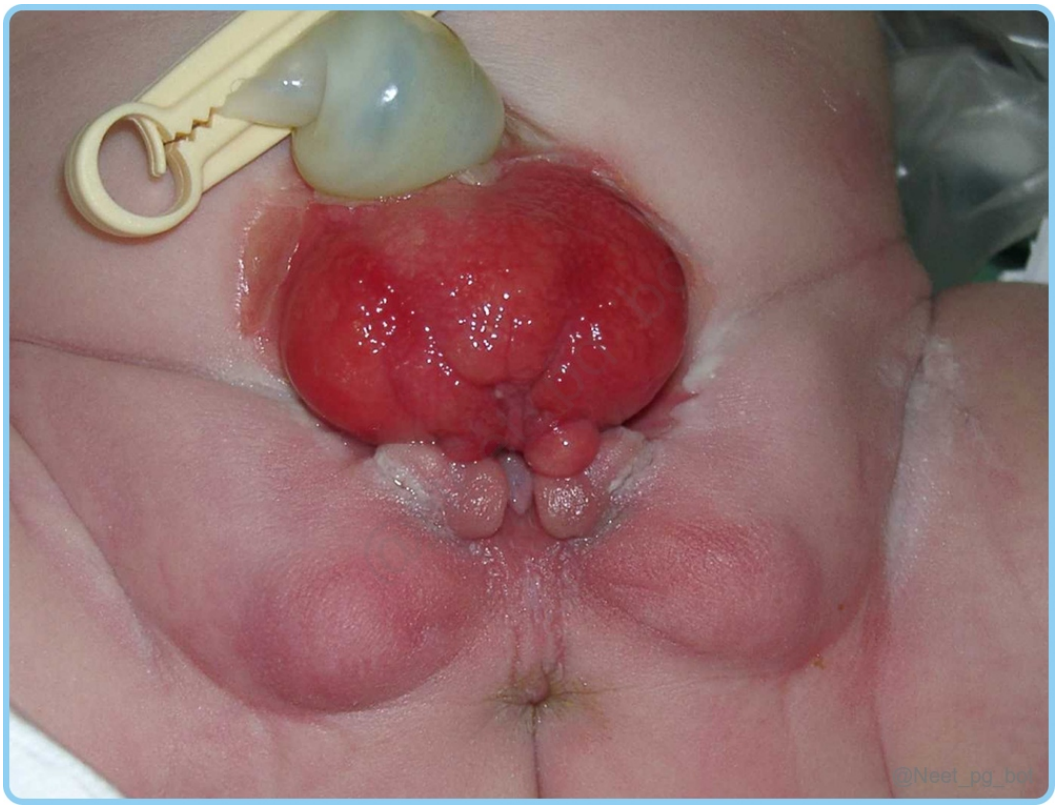
Correct Answer: C. Gastroschisis

Explanation: Gastroschisis is a congenital defect of the abdominal wall, typically to the right of the umbilicus . It involves evisceration of abdominal contents, such as bowel loops, without a covering sac. The exposed intestines are in direct contact with the amniotic fluid. Gastroschisis Omphalocele (Option A) Definition A congenital defect where the abdominal wall fails to close, leading to herniation of intestinal loops into the amniotic cavity. M/c in premature/SGA babies {{caption_text}} A congenital ventral body wall defect where portions of the midgut fail to return to the abdominal cavity after physiological herniation. Location of defect Right paraumbilical Central Sac Absent, bowel is exposed. Present (if not ruptured). Sac is made of amnion, Wharton's jelly and peritoneum Description Free intestinal loops. (Liver is not usually herniated) Firm mass including liver, intestine and/ other organs (like stomach, spleen) Umbilical cord Adjacent to the defect Attached to the sac Associated anomalies Associated anatomic defects are uncommon Associated abnormalities are common and include: Neural tube defect Cardiac abnormalities Chromosomal defect Detection Identified through fetal ultrasound. Elevated alpha-fetoprotein (AFP) levels in maternal serum and amniotic fluid. Elevated alpha-fetoprotein (AFP) concentrations in maternal serum and amniotic fluid, similar to gastroschisis. Complication Affected bowel loops may be damaged due to exposure to corrosive amniotic fluid. Risk of volvulus , where the bowel twists around itself, compromising blood supply. Feeding difficulties Failure to thrive Inguinal hernias Gastroesophageal reflux Occasionally esophagitis Prognosis Favorable High mortality rates Omphalocele (Option A) is a congenital abdominal wall defect in which abdominal contents herniate into the base of the umbilical cord and are covered by a sac . Omphalocele is typically centrally located. Umbilical hernia (Option B) is a protrusion of abdominal contents through a weakness or incomplete closure of the umbilical ring. It is not associated with evisceration of bowel loops to the right of the umbilicus. {{caption_text}} Ectopia vesicae (Option D) refers to the abnormal positioning of the urinary bladder, typically exposed on the abdominal wall due to a defect in the lower abdominal wall. {{caption_text}}


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Omphalocele
Central through umbilical ring
Covered by thin membrane (but can be ruptured)
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References:

Langman’s Medical embryology, 14th Edition, Page 100

https://www.ncbi.nlm.nih.gov/books/NBK519010/#

↑ *Back to this question in Part A*

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Q15: A baby assessed five minutes after birth is found to have a blue, absent pulse, minimal response to stimulation, slightly flexed arms and legs, and slow, irregular respiratory movement. What is the APGAR score for this newborn? (Q859915)

A. 2

B. 3

C. 4

D. 5

Correct Answer: B. 3

Explanation: APGAR score: The APGAR score is an objective method of evaluating the newborn's condition. It is performed at 1 minute and again at 5 minutes after birth. Resuscitation must be initiated before the 1 minute score is assigned, therefore, it is not used to guide the resuscitation. APGAR Score Score: 0 1 2 Appearance Completely blue or pale The body is pink, and the extremities are blue Completely pink Pulse rate Absent <100/min >100/min Grimace No response Grimaces only Coughs/sneezes Activity Limp and flaccid Some flexion present Flexed posture and actively moving limbs Respiratory effort None Slow and irregular Normal/strong Interpretation: Normal APGAR score is ≥7 Maximum score = 10; Minimum score = 0 Score for severe birth asphyxia = 0 - 3 Score Calculation for this case: Appearance: Cyanosed (score = 0) Pulse rate: Absent (score = 0) Grimace: Shows minimal response to stimulation (score = 1) Activity: Some flexion of extremities (score = 1) Respiratory effort: Slow and irregular (score = 1) Total Score: 0 + 0 + 1 + 1 + 1 = 3 The score of 3 indicates that the baby is undergoing severe birth asphyxia.

References:

OP Ghai Essential Paediatrics 10th Edition, Page 120-121

↑ *Back to this question in Part A*

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Q16: The mother of a premature newborn is concerned because the baby has not yet had a bowel movement containing meconium. How long is it safe to wait for the passage of meconium in this infant? (Q859927)

A. 12 hours

B. 48 hours

C. 24 hours

D. 72 hours

Correct Answer: B. 48 hours

Explanation: Meconium is the thick, sticky, greenish-black substance that makes up the first stool. In most cases, newborns pass meconium within the first 24 hours after birth. However, for preterm newborns, the passage of meconium may be delayed, and it is generally considered normal for preterm newborns to pass meconium till 24-48 hours after birth. Composition of Meconium: Bile (bile pigments and salts) Mucus Lanugo Denuded intestinal epithelial cells Amniotic fluid Water

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 867-869

↑ *Back to this question in Part A*

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Q17: A 1-day-old neonate has not passed urine since birth. What is the next step in management? (Q856060)

A. Continue breast feeding and observe

B. Admit to NICU

C. Start artificial feeding

D. Start intravenous fluids

Correct Answer: A. Continue breast feeding and observe

Explanation: ontinue breast feeding and observe If a healthy neonate has not urinated within 24 hours, the initial step is to continue breastfeeding and observe. First Urine in Newborns: The first urination typically occurs within 12-24 hours after birth. In the first 2 days, urine is concentrated and may contain urates, causing orange or pink stains on diapers. Urine retention or lack of urination beyond the first 24 hours requires medical evaluation. Delay in passage of urine is seen in: Posterior urethral valves (PUV) Urethral atresia Ureterocele Urogenital sinus anomaly in females Spina bifida Meconium: The first bowel movement is meconium, a sticky greenish-black substance. Meconium should ideally be passed within 48 hours after birth. Delayed passage of meconium could indicate intestinal blockage or other birth defects. Delay in passage of first stool (Meconium) is seen in: Meconium plug syndrome Hirschsprung disease Imperforate anus Hypothyroidism Sepsis Admit to NICU (Option B):

Admission to the NICU is warranted only if the neonate continues to not pass urine beyond 24 hours or develops other concerning symptoms such as dehydration or systemic illness. Start artificial feeding (Option C): Artificial feeding is indicated only if breastfeeding is insufficient or not possible, such as in cases where the mother cannot breastfeed or the neonate has difficulty latching or feeding effectively. Start intravenous fluids (Option D): IV fluids are necessary only if the neonate shows signs of dehydration or if there is a suspicion of an underlying medical condition requiring immediate intervention.

References:

Campbell Walsh Urology, 12th Edition, Page 384

https://www.msdmanuals.com/home/children-s-health-issues/care-of-newborns-and-infants/first-few-days-after-birth#Skin_v84059324

https://www.niddk.nih.gov/-/media/Files/Urologic-Diseases/UrineBlockage_508.pdf

↑ *Back to this question in Part A*

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Q18: Which of the following children are considered at-risk babies? Baby with a birth weight of 2.5 kg Baby on artificial feeding Baby of working mother/single parent Baby with weight <85% of expected weight Birth order of 3 or more (Q856098)

A. 2, 3

B. 1, 2, 3, 4

C. 4, 5

D. 1, 4

Correct Answer: A. 2, 3

Explanation: t-Risk Infants: Identifying and providing special care to "at-risk" infants is crucial to reduce perinatal, neonatal, and infant mortality. Criteria for Identification: Birth weight <2.5 kg (1) Twins Birth order 5 or more (5) Artificial feeding (2) Weight below 70% of expected weight (4) Failure to gain weight during three successive months Children with protein-energy malnutrition (PEM) or diarrhea. Working mother or single parent (3) These criteria help in prioritizing infants who require intensive care and monitoring.

References:

Park’s Textbook of Preventive and Social Medicine, 27th Edition, Page 611

↑ *Back to this question in Part A*

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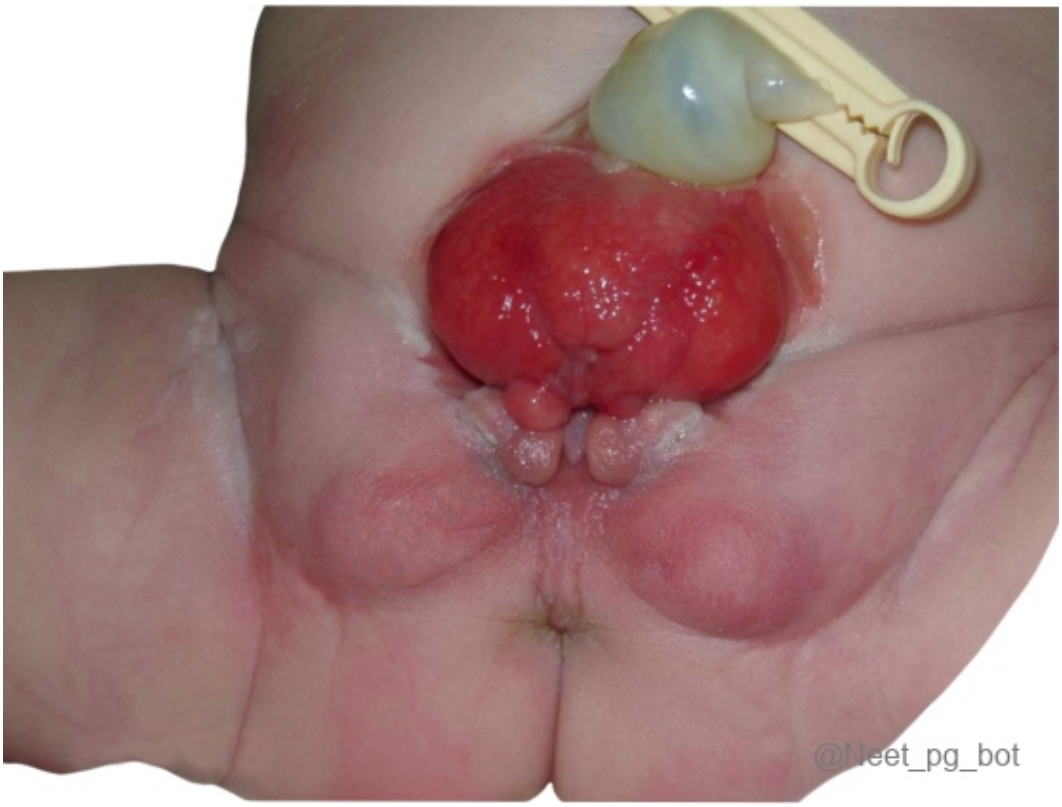
Q19: Which neonatal anomaly is depicted in the image? (Q844171)

A. Omphalocele

B. Gastroschisis

C. Patent vitello intestinal duct

D. Exstrophy bladder



Correct Answer: D. Exstrophy bladder

Explanation: Correct Option D - Exstrophy bladder: Exstrophy bladder is characterized by the exposure of the bladder outside the body due to a defect in the lower abdominal wall. This anomaly results in a visible protrusion of the bladder, which is a key feature differentiating it from other conditions such as omphalocele, gastroschisis, and patent vitello intestinal duct. Incorrect Options: Option A - Omphalocele : This is a congenital defect where the abdominal organs herniate into the base of the umbilical cord due to a defect in the abdominal wall. It is covered by a translucent sac, which is a distinguishing feature. Option B - Gastroschisis : This is a defect in the abdominal wall where the intestines protrude outside the body through a hole next to the umbilicus. Unlike omphalocele, gastroschisis does not have a protective sac covering the exposed organs. Option C - Patent vitello intestinal duct : This anomaly occurs when the duct that connects the fetal intestine to the yolk sac fails to close properly, leading to the formation of a persistent connection between the umbilicus and the intestine, which may result in a small cyst or opening near the umbilicus.

↑ *Back to this question in Part A*

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Q20: Which of the following is considered harmful to a newborn baby in the immediate postnatal period? (Q866760)

A. Cleaning the eyes with a wet sterile swab

B. Giving a bath immediately after birth

C. Initiating breastfeeding within 1 hour

D. Placing the baby on the mother's chest

Correct Answer: B. Giving a bath immediately after birth

Explanation: Bathing a newborn immediately after birth is harmful because it: Causes hypothermia due to rapid heat loss Delays skin-to-skin contact and early initiation of breastfeeding Increases the risk of respiratory distress in a cold-stressed baby Removes the vernix caseosa , which has protective antimicrobial and moisturizing properties WHO recommends delaying the first bath for at least 24 hours after birth (or at least 6 hours if cultural reasons necessitate earlier bathing). Incorrect Options: Cleaning the eyes with a wet sterile swab (Option A): Safe and part of immediate newborn care to prevent infection. Initiating breastfeeding within 1 hour (Option C): Beneficial for immunity, bonding, and reducing neonatal mortality. Placing the baby on the mother's chest (Option D): Encourages warmth, bonding, and early feeding.

↑ *Back to this question in Part A*

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Q21: A newborn baby delivered at 33 weeks of gestation was brought to the OPD with complaints of shortness of breath. The chest x-ray is as shown below. What is the most likely diagnosis? (Q865397)

A. Respiratory distress syndrome

B. Transient tachypnoea of the newborn

C. Meconium Aspiration Syndrome

D. Neonatal pneumonia



Correct Answer: A. Respiratory distress syndrome

Explanation: Correct answer- Option a) Respiratory distress syndrome Low lung volumes: The lungs may appear smaller than normal, and the diaphragm may be elevated, giving a "bell-shaped" thorax. This is because the alveoli have collapsed. Diffuse, bilateral and symmetrical granular opacities (ground-glass appearance): This is the most characteristic finding. It's due to the widespread collapse of the alveoli and atelectasis, making the lung fields appear hazy or finely granular. Air bronchograms: These are visible air-filled bronchi outlined by the surrounding collapsed, opaque lung tissue. They appear as dark, branching structures against the lighter, hazy background. Transient Tachypnoea of the Newborn (TTN): (Option B ruled out) X-ray: Prominent perihilar streaking, increased vascular markings, fluid in the fissures, mild cardiomegaly, hyperinflation. Lungs often clear within 24-48 hours. Meconium Aspiration Syndrome (MAS): (Option C ruled out) X-ray: Patchy, streaky infiltrates, coarse nodular densities, hyperinflation (due to air trapping), possible pleural effusions or pneumothorax/pneumomediastinum. Neonatal Pneumonia: (Option D ruled out) X-ray: Highly variable; can range from diffuse granular infiltrates (similar to RDS) to focal consolidation, pleural effusions, or hyperinflation. May be unilateral or bilateral.

References:

O.P. Ghai Essential Pediatrics, 10th edition, Page 157, 158, 159

↑ *Back to this question in Part A*

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Q22: Which of the following best explains the mechanism of breast milk jaundice? (Q865435)

A. Increased bilirubin production due to red blood cell breakdown

B. Inhibition of bilirubin conjugation by substances such as non-esterified fatty acids and beta-glucuronidase, in breast milk

C. Hepatocellular injury caused by maternal hormones

D. Decreased intestinal absorption of bilirubin

Correct Answer: B. Inhibition of bilirubin conjugation by substances such as non-esterified fatty acids and beta-glucuronidase, in breast milk

Explanation: Breast milk jaundice is a type of prolonged unconjugated hyperbilirubinemia that typically appears after the first week of life in otherwise healthy, exclusively breastfed infants. The exact mechanism is not fully understood, but it's believed that certain factors in breast milk interfere with the normal processing and excretion of bilirubin. Beta-glucuronidase is an enzyme present in breast milk that can deconjugate bilirubin in the infant's intestine. This deconjugated bilirubin can then be reabsorbed into the bloodstream (enterohepatic circulation), leading to elevated bilirubin levels. Non-esterified fatty acids (also called free fatty acids), which are released from breast milk triglycerides by the action of lipase, can also inhibit the enzyme in the liver (glucuronyl transferase) responsible for conjugating bilirubin. Conjugation is a crucial step for bilirubin to be excreted from the body. Other Options ruled out Increased bilirubin production due to red blood cell breakdown (Option A ruled out) : This is the primary mechanism for physiologic jaundice (which occurs in the first few days of life) and hemolytic jaundice (due to conditions like ABO incompatibility). While newborns naturally have increased RBC breakdown, breast milk jaundice specifically refers to the prolonged jaundice due to breast milk factors, not primarily increased production. Hepatocellular injury caused by maternal hormones (Option C ruled out) : While some early theories suggested certain maternal hormones (like pregnane-3α,20β-diol) in breast milk might play a role, this mechanism is not as strongly supported or understood as the role of beta-glucuronidase and free fatty acids. Hepatocellular injury is also not the defining feature of breast milk jaundice. Decreased intestinal absorption of bilirubin (Option D ruled out) : This is the opposite of what happens. Breast milk jaundice is thought to involve increased enterohepatic circulation, meaning more bilirubin is reabsorbed from the intestine, not less.

References:

O.P Ghai Essentials of Pediatrics, 10th Edition, Page 170

↑ *Back to this question in Part A*

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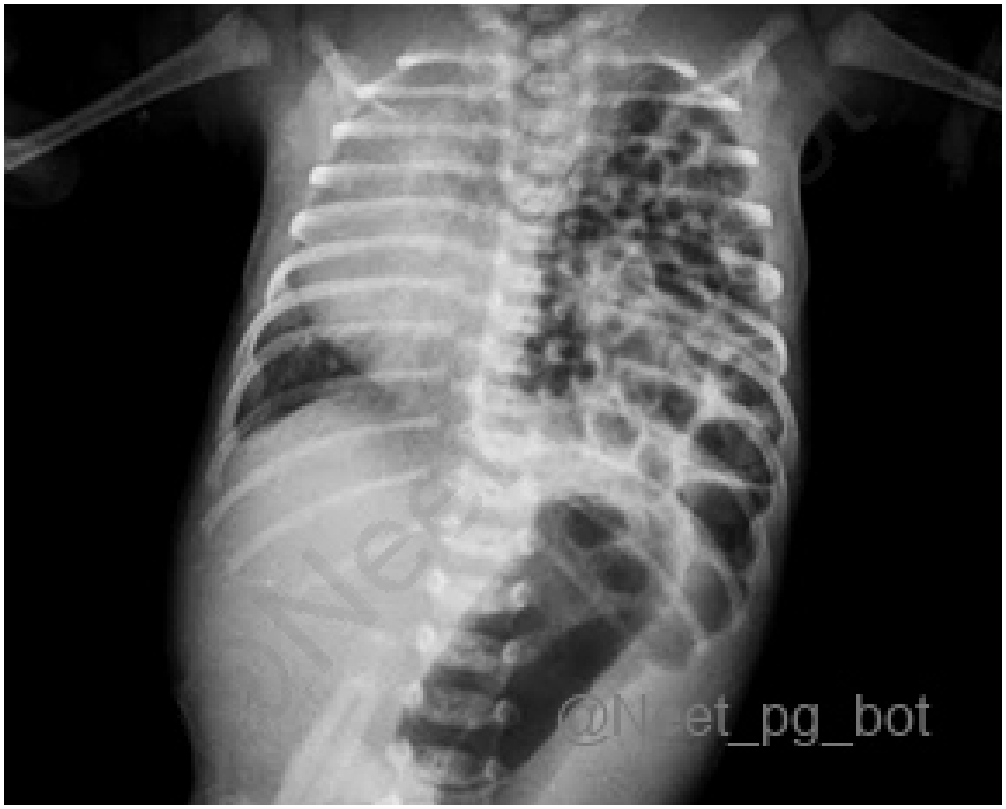
Q23: A 24-hour-old baby with severe respiratory distress was admitted to the ICU. A chest X-ray of the neonate is given. What is the most probable diagnosis? (Q866396)

A. Congenital Pulmonary Airway Malformation (CPAM)

B. Congenital Diaphragmatic Hernia (CDH)

C. Congenital lobar emphysema

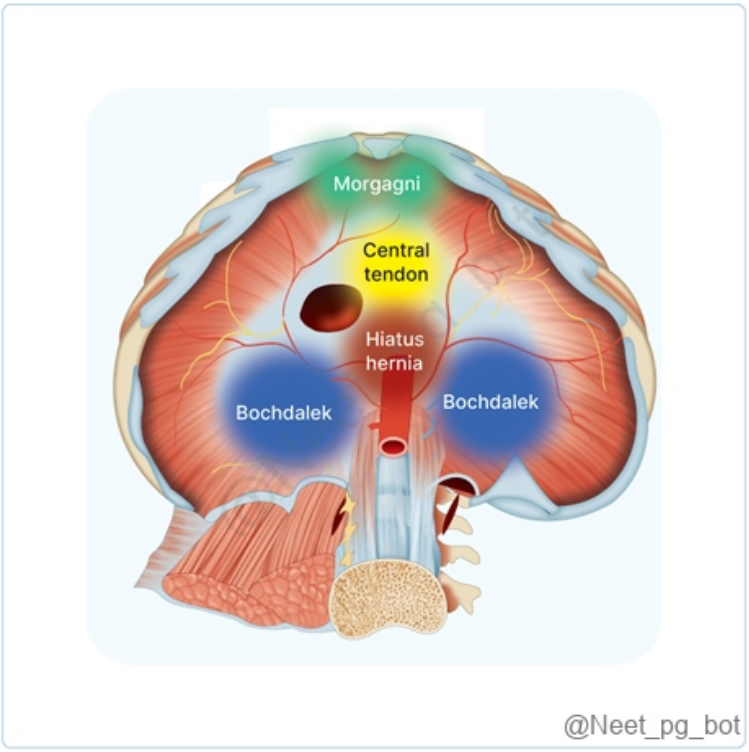
D. Neonatal pneumonia



Correct Answer: B. Congenital Diaphragmatic Hernia (CDH)

Explanation: Congenital diaphragmatic hernia The X-ray shows multiple air-filled bowel loops within the left hemithorax with a mediastinal shift to the right and absence of the normal diaphragmatic contour on that side suggestive of Congenital Diaphragmatic Hernia (CDH) Congenital Diaphragmatic Hernia (CDH) Definition: Developmental defect in the diaphragm → abdominal viscera herniate into the thoracic cavity. Most common type: Bochdalek hernia (posterolateral defect, usually left-sided, ~85%). Embryology/Anatomy: Failure of closure of the pleuroperitoneal canal by the pleuroperitoneal membrane during the 8th–10th week of gestation. Pathophysiology: Herniation compresses the developing lung → pulmonary hypoplasia + pulmonary hypertension → severe respiratory distress soon after birth. Congenital Diaphragmatic Hernia (CDH) Congenital Pulmonary Airway Malformation (CPAM) Congenital Lobar Emphysema (CLE) Neonatal Pneumonia Key Pathology Defect in diaphragm → bowel loops in thorax Hamartomatous overgrowth of terminal bronchioles Overinflation of a lobe due to bronchial cartilage defect or obstruction Infection (often GBS) CXR Findings Multiple air-filled bowel loops in thoracic cavity, mediastinal shift, absent diaphragmatic outline, scaphoid abdomen Multicystic mass with varying cyst sizes; does not connect to abdomen Hyperlucent overexpanded lobe, mediastinal shift, no cysts or bowel gas Diffuse or focal consolidation, ground-glass opacity, air bronchograms Onset At birth At birth or later At birth or delayed Variable Location Usually left posterolateral (Bochdalek) Single lobe Most often left upper lobe Any lobe CPAM (Option A) : Cystic lesions within lung, but not organized bowel gas pattern with clear

loops. Congenital lobar emphysema (Option C): Overinflated lobe, no bowel loops or diaphragmatic defect. Neonatal pneumonia (Option D): Diffuse or focal opacities, no bowel gas in thorax.



References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q24: A newborn is noted to have constriction rings around the fingers and indentations over the superior aspect of the knee at birth. What is the most likely diagnosis? (Q866403)

A. Congenital Constriction Band

B. Amniotic Band Syndrome

C. Congenital Talipes Equinovarus

D. Arthrogryposis Multiplex Congenita





Correct Answer: B. Amniotic Band Syndrome

Explanation: Amniotic band syndrome Amniotic Band Syndrome (ABS) occurs due to rupture of the amniotic sac during pregnancy, leading to fibrous strands that entangle fetal parts. These bands can wrap around limbs, fingers,

or toes, causing constriction rings, distal swelling, or even amputations in severe cases. Lesions are typically asymmetric and not related to underlying bone or joint pathology. It is associated with oligohydramnios. Congenital Constriction Band (Option A): Iisolated limb constrictions without other ABS manifestations. Congenital Talipes Equinovarus (Option C): Structural deformity of the foot (clubfoot) with plantar flexion, inversion, and adduction, not constriction rings. Arthrogryposis Multiplex Congenita (Option D): A condition with multiple joint contractures due to decreased fetal movement, not constriction bands.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q25: A 3-year-old child is brought to the emergency department in an unresponsive state and not breathing properly after consuming peanuts. What is the most appropriate immediate management? (Q866408)

A. Abdominal thrusts

B. Back slaps

C. Chest compressions

D. Endotracheal intubation

Correct Answer: C. Chest compressions

Explanation: A 3-year-old , unresponsive , and not breathing after choking → indicates complete airway obstruction leading to cardiorespiratory arrest . According to pediatric basic life support (BLS) guidelines: If unresponsive → Start CPR immediately with chest compressions, even before attempting to ventilate. Compressions can help generate intrathoracic pressure to dislodge the foreign body. Between compressions, open the airway and look for an object — remove only if visible. Abdominal thrusts (Heimlich) are for responsive children >1 year. In unresponsive patients, chest compressions are preferred to avoid delays and provide circulatory support. Abdominal thrusts (Option A): Only for responsive children >1 year. Not done in unresponsive cases. Back slaps (Option B): Used in infants (<1 year) who are responsive with choking. Not for unresponsive cases. Endotracheal intubation (Option D): Not first-line; obstruction must be relieved first. Attempting intubation before clearing the airway is ineffective and wastes precious time.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q26: A 3-month-old child was brought with watery eyes and photophobia. All of the following conditions can be the cause of these symptoms, except? (Q853242)

A. Congenital glaucoma

B. Congenital nasolacrimal duct obstruction

C. Congenital entropion

D. Herpes simplex keratitis

Correct Answer: B. Congenital nasolacrimal duct obstruction

Explanation: Symptoms in the stem: Watery eyes (epiphora) Photophobia In a 3 -month-old , the key is photophobia — this suggests corneal irritation or raised intraocular pressure . Congenital nasolacrimal duct (NLD) blockage causes epiphora (watery eyes) but NO photophobia , since cornea is unaffected. Congenital glaucoma (Option A): Classic triad: epiphora, photophobia, blepharospasm . Due to increased IOP causing corneal edema. Causes watery eyes + photophobia. Congenital entropion (Option C): Inward turning of eyelids → lashes rub cornea → epiphora + photophobia . Herpes simplex keratitis (Option D): Even in infants, this viral infection of the cornea can cause significant inflammation and ulceration. The corneal irritation results in redness, pain, watery eyes, and severe photophobia

References:

Parson’s diseases of the eye, 22nd edition, Pages 420, 1052 Comprehensive ophthalmology by AK Khurana, 7th edition, Page 386, 387

↑ *Back to this question in Part A*

@Neet_pg_bot

Q27: Which of the following are the components of Downe’s score? Respiratory rate Feeding Grunting Cyanosis (Q853244)

A. 1,2,3

B. 1,3,4

C. 2,3,4

D. 1,2,4

Correct Answer: B. 1,3,4

Explanation: Downe’s score is used to quantify respiratory distress in the term neonate. Respiratory rate , grunting, and cyanosis are components of Downe’s score. Scoring is done every half an hour and charted. Feeding (Options

A, C and D) is not a component of Downe's score. Components of Downe’s score Downe’s score (for term neonates) 0 1 2 Cyanosis Absent Present in room air Present at FiO ≥ 40% Air entry Normal Decreased Barely audible Respiratory rate <60/min 60-80/min >80/min Grunt Absent Audible only with a stethoscope Audible without a stethoscope Retractions None Mild Severe Interpretations: Maximum score = 10; Minimum score = 0 Severe respiratory distress in a term baby 7 score

References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC4922755/\ O.P. Ghai Essential Pediatrics, 10th edition, Page 156, 157

↑ *Back to this question in Part A*

@Neet_pg_bot

Q28: A newborn, born to a diabetic mother, presents after 24 hours of life with a blood glucose level of <35 mg/dL. The baby is symptomatic. What is the next best step in management? (Q866746)

A. Administer IV bolus of Hartmann solution

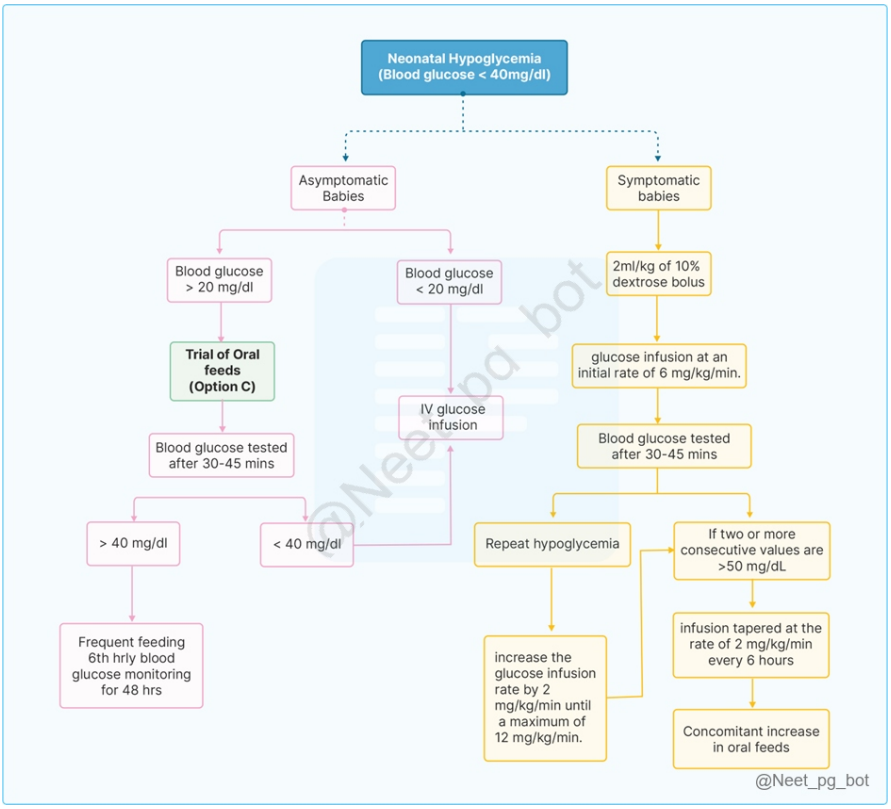
B. Recheck blood glucose after 20 minutes

C. Administer IV glucose and recheck blood glucose after 20 minutes

D. Start oral feeds and observe

Correct Answer: C. Administer IV glucose and recheck blood glucose after 20 minutes

Explanation: In a symptomatic newborn with blood glucose <35 mg/dL, immediate correction is necessary to prevent seizures and brain injury. The standard approach is: Give an IV bolus of 10% dextrose (2 mL/kg) Follow with a continuous glucose infusion (usually 6–8 mg/kg/min) Recheck glucose after 20–30 minutes to ensure correction This is particularly important in infants of diabetic mothers, who are at high risk for hypoglycemia due to persistent fetal hyperinsulinism after birth. Management of Hypoglycemia in neonates: Administer IV bolus of Hartmann solution (Option A): Does not contain glucose; ineffective for treating hypoglycemia. Recheck blood glucose after 20 minutes (Option B): Delaying treatment in a symptomatic neonate risks neurological injury. Start oral feeds and observe (Option D): Only appropriate for asymptomatic mild hypoglycemia; symptomatic cases require IV therapy.



References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q29: Which of the following is the most common type of congenital diaphragmatic hernia? (Q844222)

A. Hiatal Hernia

B. Morgagni Hernia

C. Bochdalek Hernia

D. Umbilical Hernia

Correct Answer: C. Bochdalek Hernia

Explanation: Correct Option C - Bochdalek Hernia: This is the most common type of congenital diaphragmatic hernia, typically occurring on the left posterolateral side of the diaphragm. It results from a failure of the

pleuroperitoneal membrane to close during fetal development, allowing abdominal organs to herniate into the chest cavity, which can severely affect lung development. Incorrect Options: Option A - Hiatal Hernia: This type of hernia occurs when a part of the stomach pushes up through the diaphragm into the chest cavity. While common in adults, it is not a congenital diaphragmatic hernia and is less relevant in neonates. Option B - Morgagni Hernia: This is a rare type of congenital diaphragmatic hernia that occurs through the foramina of Morgagni, located in the anterior part of the diaphragm. It is less common than Bochdalek hernia. Option D - Umbilical Hernia: This is a hernia that occurs when part of the intestine protrudes through the abdominal wall near the navel. It is common in infants but is not considered a congenital diaphragmatic hernia.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q30: Identify the condition in a neonate with the swelling of the head shown in the image below at a few weeks of life? (Q860537)

A. Caput succedaneum

B. Cephalhematoma

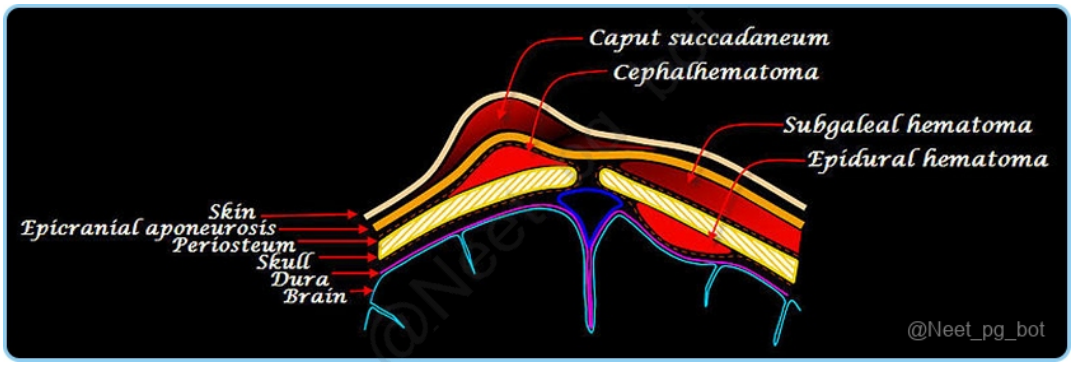
C. Subgaleal bleed

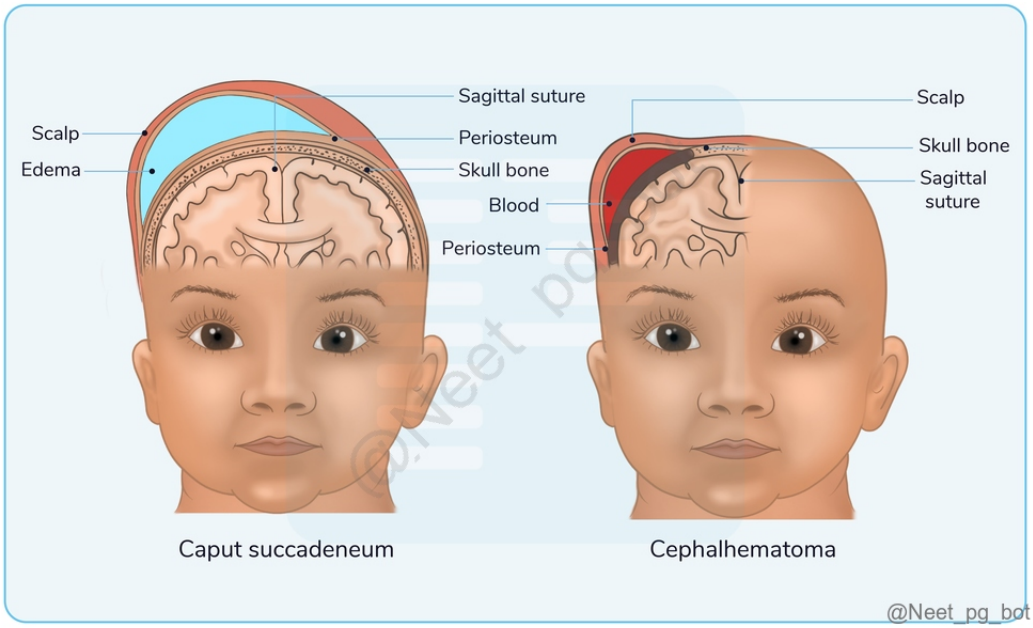
D. Encephalocele



Correct Answer: B. Cephalhematoma

Explanation: The clinical picture resembles a cephalhematoma , which is a subperiosteal hemorrhage occurring in neonates . This condition is characterized by a well-circumscribed swelling that develops within the first few hours after birth. The hemorrhage is limited by the suture lines due to the tight adherence of the periosteum at these locations. [1] [2] {{caption_text}} Feature Caput succedaneum (Option A) Cephalhematoma (Option B) Subgaleal hemorrhage (Option C) Location At point of contact; can extend across sutures Usually over parietal bones; does not cross sutures Beneath epicranial aponeurosis; may extend to orbits, nape of neck Characteristic findings Vaguely demarcated; pitting edema that shifts with gravity Distinct margins; initially firm, more fluctuant after 48 h Firm to fluctuant; ill-defined borders; may have crepitus or fluid waves Timing Maximal size and firmness at birth; resolves in 48-72 h Increases after birth for 12-24 h; resolution over 2-3 wk Progressive after birth; resolution over 2-3 wk Volume of blood Minimal Rarely severe May be massive, especially if there is an associated coagulopathy Association - Linear skull fracture (5-25%); hyperbilirubinemia - Encephalocele (Option D): This is a congenital condition where meninges and/or brain tissue protrude through a defect in the skull, typically occurring in the midline. It's present at birth and doesn't develop in the postnatal period.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 914

↑ *Back to this question in Part A*

@Neet_pg_bot

Q31: Which of the following are the components of Downe’s score? Respiratory rate Feeding Grunting Cyanosis (Q840087)

A. 1,2,3

B. 1,3,4

C. 2,3,4

D. 1,2,4

Correct Answer: B. 1,3,4

Explanation: Correct option B - 1,3,4: Downe’s score is used to quantify respiratory distress in a term neonate. Respiratory rate, grunting and cyanosis are components of Downe’s score. Incorrect options: Options A, C & D are incorrect as feeding is not a component of Downe's score.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q32: Which of the following primitive reflexes do not disappear? (Q860290)

A. Rooting reflex

B. Parachute reflex

C. Moro's reflex

D. Palmar grasp reflex

Correct Answer: B. Parachute reflex

Explanation: The parachute reflex is unique among primitive reflexes because it: Appears at 7-8 months of age Persists throughout life and never disappears It is elicited when a baby is held in ventral suspension and suddenly dropped, causing the baby to spread its upper and lower limbs to avoid falling on the face Name of the reflex

Appears at (weeks of gestation) Disappears at (Postnatal age) Rooting Reflex (Option A) 32 weeks 1 month Moro's Reflex (Option C) 28-37 weeks 3-6months Palmar/Plantar Grasp Reflex (Option D) 28 weeks 4 months ATNR (Asymmetric Tonic Neck Reflex) 35 weeks 3 months STNR (symmetric tonic neck reflex) 6-9 months 9-11 months Parachute reflex 8-9 months Landau reflex 3 months 1 year Neck righting reflex Birth 5 years of age

References:

GhaiEssential Paediatrics, 10th edition, Page 138

Nelson Textbook of Pediatrics, 21st Edition, Page 870

Primitive Reflexes - StatPearls - NCBI Bookshelf

STNR

↑ *Back to this question in Part A*

@Neet_pg_bot

Q33: A 3.5 kg term neonate born to a mother with eclampsia did not cry at birth. Which of the following is the criterion for perinatal asphyxia? (Q857392)

A. APGAR persists at 4-7 for >5 minutes

B. Cord pH <7.2

C. Hypocalcemia

D. Hypotonia

Correct Answer: D. Hypotonia

Explanation: The essential criterion for diagnosing perinatal asphyxia among the given options is hypotonia. Perinatal Asphyxia Definition: Inability to initiate or sustain breathing → damage to brain (HIE). It often results in lactic acidosis and hypercarbia. Essential Criteria for Diagnosis: Umbilical Arterial Blood pH <7.0: Metabolic or mixed acidemia (severe acidosis) indicates oxygen deprivation during birth. The cutoff for perinatal asphyxia is a pH <7.0, not <7.2 (Ruled out Option B) APGAR Score: An APGAR score of 0-3 persisting for >5 minutes is a significant marker of perinatal asphyxia. A score of 4-7 for >5 minutes is not diagnostic. (Ruled out Option A) Neurological Manifestations: Hypotonia (floppiness) , seizures, coma, or hypoxic-ischemic encephalopathy (HIE) are critical indicators of neurological dysfunction caused by asphyxia. Multiorgan Dysfunction: Asphyxia can lead to dysfunction in multiple organs, including the brain, heart, kidneys, and liver. Hypocalcemia (Option C): Hypocalcemia is a secondary complication of perinatal asphyxia but is not included in its diagnostic criteria.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 161, 162.

↑ *Back to this question in Part A*

Q34: One-day-old term neonate presented with respiratory distress, tachypnea, SpO2-80%, and scaphoid abdomen. Which of the following cannot be used in resuscitation? (Q857397)

A. Positive pressure ventilation

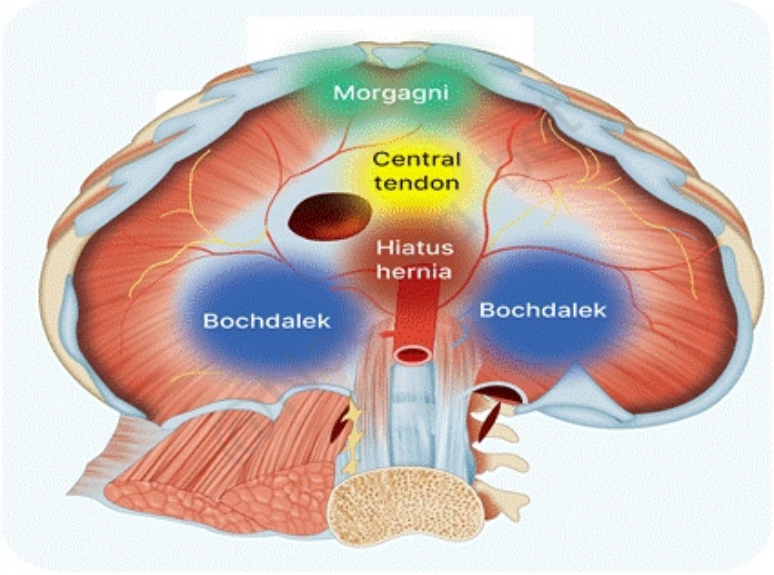
B. Endotracheal intubation

C. Bag and mask ventilation

D. Oxygen supplementation

Correct Answer: C. Bag and mask ventilation

Explanation: The clinical scenario describes a one-day-old term neonate with respiratory distress, tachypnea, SpO2 of 80%, and a scaphoid abdomen —suggestive of congenital diaphragmatic hernia (CDH). Why Bag and Mask Ventilation Should Be Avoided In CDH, the presence of abdominal contents in the chest cavity severely restricts lung development, leading to pulmonary hypoplasia and respiratory failure. Bag and mask ventilation is contraindicated in such cases because it can increase abdominal distension, which can further compromise lung expansion and worsen the already compromised pulmonary function. It also raises the risk of gastric insufflation. Congenital Diaphragmatic Hernia (CDH) Etiology Failure of closure of the pleuroperitoneal canal during fetal development (normally by 8-10 weeks gestation). Prevalence of Sides Left-sided hernias are more common (80%). Common Hernia Sites 1. Foramen of Morgagni : Hernia in the anteromedial part of the diaphragm (defect between sternal and costal attachments), often involving the transverse colon. 2. Foramen of Bochdalek : Hernia through the dome of the diaphragm posterolaterally. Pathophysiology Pulmonary hypoplasia (bilateral), leading to smaller bronchi, reduced bronchial branching, and less alveolar surface area. May cause pulmonary hypertension due to thickened arteriolar smooth muscle. Clinical Features Respiratory distress at birth Grunting respiration Chest retractions Dyspnea Cyanosis Scaphoid abdomen Decreased breath sounds with bowel sounds heard over the chest Shifting of heart sounds to the right (for left-sided CDH). Associated Complications Pulmonary hypoplasia, pulmonary hypertension, increased systemic vasoactive factors. Diagnosis Clinical evaluation (respiratory distress, scaphoid abdomen, etc.), imaging (X-ray, ultrasound, or CT scan). Management Immediate resuscitation and stabilization, surgical repair of the diaphragm defect. Contraindication Bag and mask ventilation is contraindicated due to risk of insufflation of abdominal contents into the chest cavity. Intubation is preferred. Positive pressure ventilation (Option A): It may be used, but only with caution and under appropriate guidance. Endotracheal intubation is preferable for securing the airway in these babies. Endotracheal intubation (Option B): This is a standard practice for airway management and is essential for controlling ventilation in neonates with respiratory distress due to CDH. Oxygen supplementation (Option D): This is routinely used to manage hypoxia in neonates with CDH, improving oxygenation.



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References:

Nelson Textbook of Pediatrics, 21st Edition, Page:944-947.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q35: Which of the following is not an indicator of fetal lung maturity? (Q857412)

A. Lecithin-sphingomyelin ratio > 2.5

B. Positive shake test

C. Increased phosphatidylglycerol

D. Nile blue test showing >50% of blue cells

Correct Answer: D. Nile blue test showing >50% of blue cells

Explanation: The Nile blue test assesses general fetal maturity by staining exfoliated skin cells, whereas markers like the L/S ratio, shake test, and phosphatidylglycerol specifically evaluate fetal lung maturity. Tests for fetal lung maturity Test Description Interpretation Lecithin-sphingomyelin (L/S) ratio Measures the ratio of lecithin to sphingomyelin in amniotic fluid. Lecithin increases with lung maturity, while sphingomyelin remains stable. A

ratio >2 indicates fetal lung maturity. (Option A ruled out) Shake Test (Bubble Test, Clement's Test) Amniotic fluid is mixed with 95% ethanol and shaken. Observed for bubbles at the meniscus after 15 minutes. A complete ring of bubbles suggests fetal lung maturity. (Option B ruled out) Phosphatidylglycerol (PG) Marker of lung maturity Typically appears in amniotic fluid after 35 weeks of gestation. Presence of PG indicates fetal lung maturity. (Option C ruled out) Nile Blue Test Uses 0.1% Nile blue sulfate to stain desquamated fetal cells in amniotic fluid. Observes for color changes in stained cells. >50% orange-stained cells indicate fetal maturity. >50% blue cells indicates fetal immaturity , not lung maturity .

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 934.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q36: In a baby born with meconium-stained liquor, which of the following are recommended as per Neonatal Resuscitation guidelines? 1. Intrapartum suction of nose and mouth before delivery of shoulder 2. Intratracheal suction in case of non-vigorous baby 3. Gentle suction of nose and mouth in case of vigorous baby 4. PPV in case of non-vigorous baby after early steps (Q854716)

A. 1, 2, 3, 4

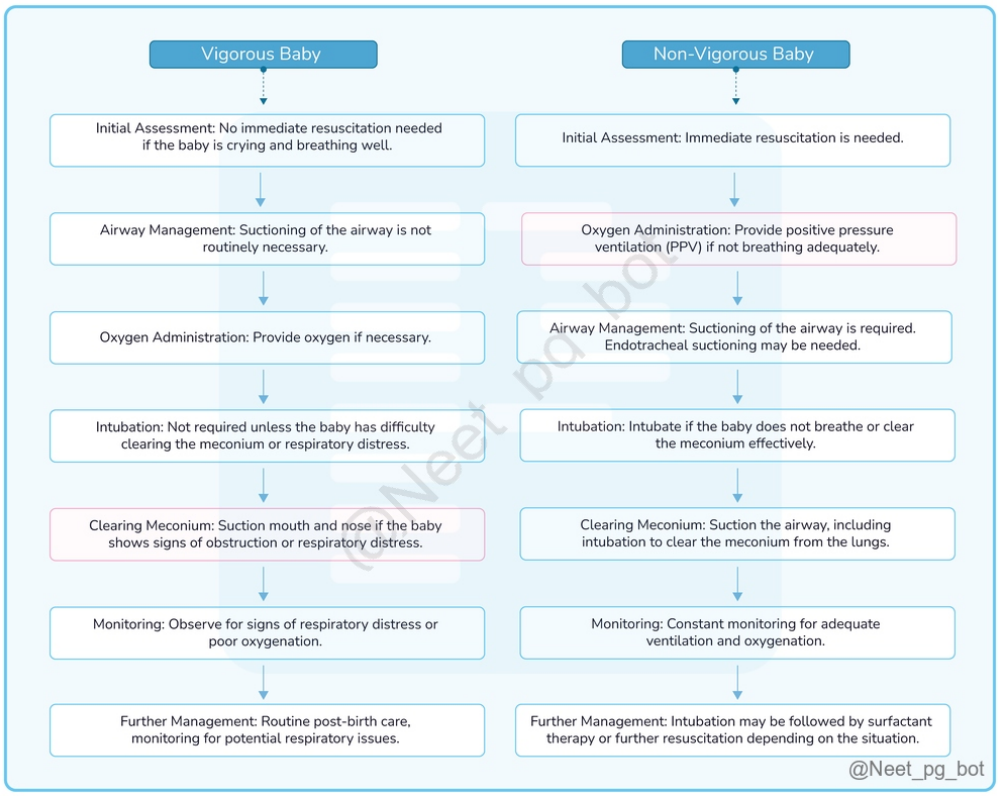
B. 2, 4

C. 3, 4

D. 1, 3, 4

Correct Answer: C. 3, 4

Explanation: For a baby born with meconium-stained liquor, the management approach is based on whether the baby is vigorous or non-vigorous. Statement 3 (Gentle suction of nose and mouth in case of vigorous baby): If the baby is vigorous (good tone, good breathing), gentle suction of the nose and mouth is done. The baby can then be kept with the mother for bonding. Statement 4 (PPV in case of non-vigorous baby after early steps): If the baby is non-vigorous (poor tone, no or poor breathing), the initial steps of resuscitation are performed, and positive pressure ventilation (PPV) is administered if the baby does not respond to initial stimulation. Statement 1 (Intrapartum suction of nose and mouth before delivery of shoulder): This step is not recommended according to the guidelines. Routine suctioning before the delivery of the shoulder may not prevent meconium aspiration syndrome and is not part of the recommended procedure. Statement 2 (Intratracheal suction in case of non-vigorous baby): Routine tracheal suctioning is also not recommended for a non-vigorous baby. Only when the baby shows signs of airway obstruction or if they do not improve after PPV should further suctioning or intervention be considered.



References:

Ghai Essential Pediatrics, 10th Edition, Page: 128,129

Nelson Textbook of Pediatrics, 21st Edition, Page: 925-927

↑ *Back to this question in Part A*

@Neet_pg_bot

• [02_Growth] 007 Growth

« Back to Folder Directory

[02_Growth] 007 Growth — Quick Jump

Q1 (p. 672)	*Q2 (p. 674)*	*Q3 (p. 675)*	*Q4 (p. 676)*	*Q5 (p. 677)*	*Q6 (p. 681)*
Q7 (p. 682)	*Q8 (p. 683)*	*Q9 (p. 684)*	*Q10 (p. 685)*	*Q11 (p. 686)*	*Q12 (p. 688)*
Q13 (p. 689)	*Q14 (p. 690)*	*Q15 (p. 691)*	*Q16 (p. 692)*	*Q17 (p. 693)*	*Q18 (p. 693)*
Q19 (p. 694)	*Q20 (p. 695)*	*Q21 (p. 696)*	*Q22 (p. 696)*	*Q23 (p. 697)*	*Q24 (p. 698)*
Q25 (p. 699)	*Q26 (p. 700)*	*Q27 (p. 701)*	*Q28 (p. 704)*	*Q29 (p. 707)*	

Q1: A 2-year-old child presents for evaluation with an abnormal head shape and a distinctive hand deformity as shown in the image. The child's head exhibits early closure of cranial sutures, leading to an unusually shaped skull. Based on these clinical features, which of the following conditions is the most likely diagnosis? {{caption_text}} (Q849831)

A. Crouzon syndrome

B. Apert syndrome

C. Pfeiffer syndrome

D. Carpenter syndrome



Correct Answer: B. Apert syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Apert syndrome is a genetic condition that involves both craniosynostosis and a characteristic "mitten hand" deformity. Apert syndrome is usually a sporadic condition, although autosomal dominant inheritance can occur. It is associated with premature fusion of multiple sutures, including the coronal, sagittal, squamosal, and lambdoid sutures. Apert syndrome is characterized by syndactyly of the 2nd, 3rd, and 4th fingers, which may be joined to the thumb and the 5th finger known as mitten hand deformity . Similar abnormalities often occur in the feet. All patients have progressive calcification and fusion of the bones of the hands, feet, and cervical spine. {{caption_text}} Deformities associated with craniosynostosis Crouzon syndrome (Option A) Crouzon syndrome is characterized by premature craniosynostosis and is inherited as an autosomal dominant trait. Most often the head is compressed back-to-front diameter or brachycephaly resulting from bilateral closure of the coronal sutures. The orbits are underdeveloped, and ocular proptosis is prominent. Hypoplasia of the maxilla and orbital hypertelorism are typical facial features. Pfeiffer syndrome (Option C) Pfeiffer syndrome is most often associated with turricephaly. The eyes are prominent and widely spaced, and the thumbs and great toes are short and broad. Partial soft tissue syndactyly may be evident. Carpenter syndrome (Option D) Carpenter syndrome is inherited as an autosomal recessive condition, and the many fusions of sutures tend to produce the kleeblattscha■del skull deformity. Soft tissue syndactyly of the hands and feet is always present, and intellectual disability is common.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3081

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: Arrange the following in the correct sequence of eruption for primary and permanent teeth. 1. Primary lateral incisors 2. Primary central incisors 3. Permanent first premolar 4. Primary second molar 5. Permanent first molar 6. Primary canine (Q849819)

A. 2>3>1>4>5>6

B. 1>3>2>4>6>5

C. 2>1>6>4>5>3

D. 1>2>4>6>5>3

Correct Answer: C. 2>1>6>4>5>3

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The correct sequence of dentition is Primary central incisors > Primary lateral incisors > Primary canine > Primary second molar > Permanent first molar > Permanent first premolar Tooth Average Eruption Age

Primary central incisor 6–10 months Primary lateral incisor 9–13 months Primary canine 16–20 months Primary second molar 20–30 months Permanent first molar 6–7 years Permanent first premolar 10–11 years Primary (Deciduous) Dentition: Tooth Type Eruption Age Central Incisors 6–10 months Lateral Incisors 9–13 months First Molars 13–19 months Canines (Cuspids) 16–20 months Second Molars 20–30 months Full primary dentition Completed by ~2½–3 years Total number of teeth : 20 Quadrant formula : ICPM = 2102 Permanent (Secondary) Dentition Tooth Type Eruption Age First Molars 6–7 years Central Incisors 6–8 years Lateral Incisors 7–9 years First Premolars 10–11 years Second Premolars 10–12 years Canines (Cuspids) 9–13 years Second Molars 11–13 years Third Molars (Wisdom Teeth) 17–21 years Total number of teeth : 28–32 Quadrant formula : ICPM = 2123

References:

Ghai's Essential Paediatrics, 10th Edition, Page 11.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: At what age does the anterior fontanelle typically close in infants? (Q849833)

A. 2 months

B. 6 months

C. 12 months

D. 18 months

Correct Answer: D. 18 months

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The average time of closure of the anterior fontanelle is 18 months, but the fontanel can close normally as early as 9 months. An infant has two fontanelles at birth: a diamond-shaped anterior fontanel at the junction of the frontal and parietal bones that is open at birth, and a triangular posterior fontanel at the junction of the parietal and occipital bones that can admit the tip of a finger or may be closed at birth. If the posterior fontanelle is open at birth, it should close over the ensuing 6-8 weeks; its persistence suggests underlying hydrocephalus or congenital hypothyroidism. The anterior fontanelle varies greatly in size, but it usually measures approximately 2 × 2 cm. The average time of closure is 18 months, but the fontanel can close normally as early as 9 months. A very small or absent anterior fontanel at birth might indicate craniosynostosis or microcephaly, whereas a very large fontanel can signify a variety of problems.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3054

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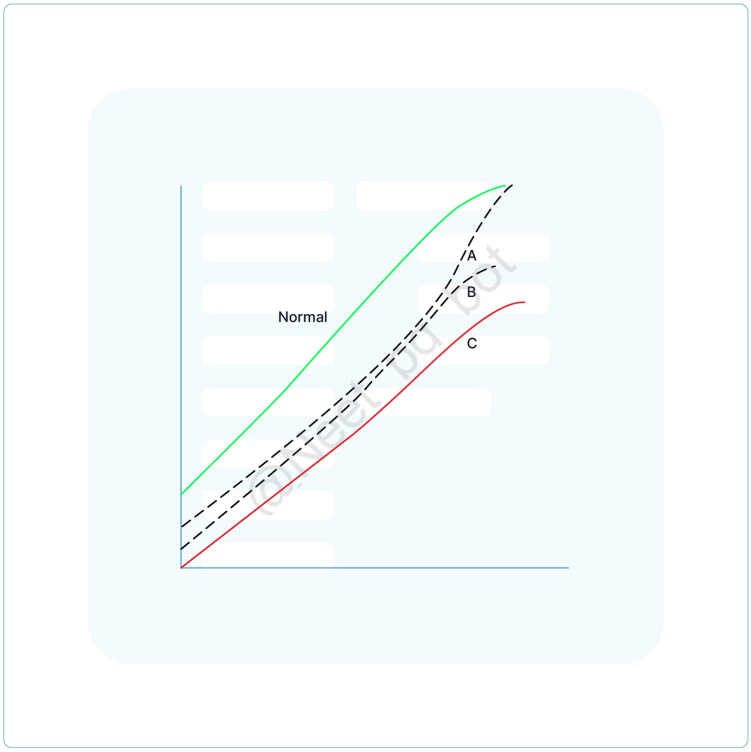
Q4: Match the following graphical representations with their respective cause of short stature. i) Familial short stature ii) Constitutional delay iii) Pre-natal onset pathologic short stature (Q849832)

A. i-A, ii-B, iii-C

B. i-B, ii-A, iii-C

C. i-C, ii-B, iii-A

D. i-A, ii-C, iii-B



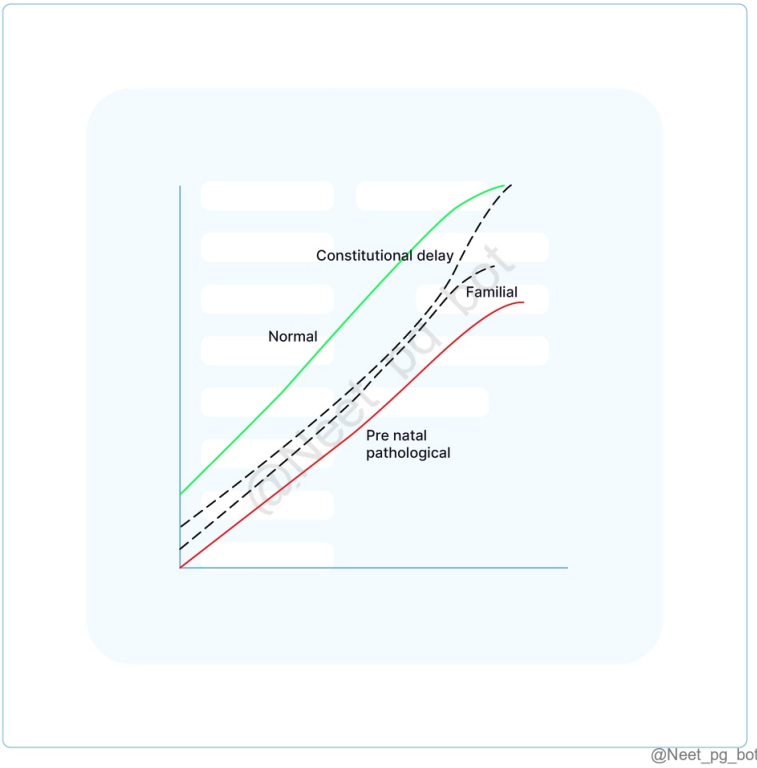
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Correct Answer: B. i-B, ii-A, iii-C

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Difference between familial and constitutional short stature: Features Familial short stature Constitutional delay in growth Sex Both equally affected More common in boys Length at birth Normal Normal (starts falling < 5th centile in 1st 3 years of life) Family history Short stature Delayed puberty Parents stature Short (one or both) Average Height velocity Normal Normal Puberty Normal Delayed Bone age (BA) and chronological

age (CA) BA = CA > height age CA > BA = height age Final height Short, but normal for target height Normal Prenatal onset pathological short stature presents as short stature at birth continuing to short stature at adulthood if untreated.



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References:

Ghai Essential paediatrics, 9th edition, Pages 31, 33.

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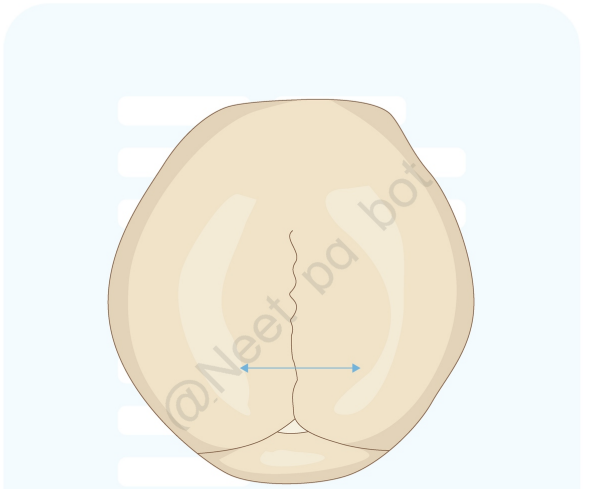
Q5: Match the following. A. 1. Scaphocephaly B. 2. Plagiocephaly C. 3. Brachycephaly D. 4. Trigonocephaly (Q849830)

A. A-3, B-2, C-4, D-1

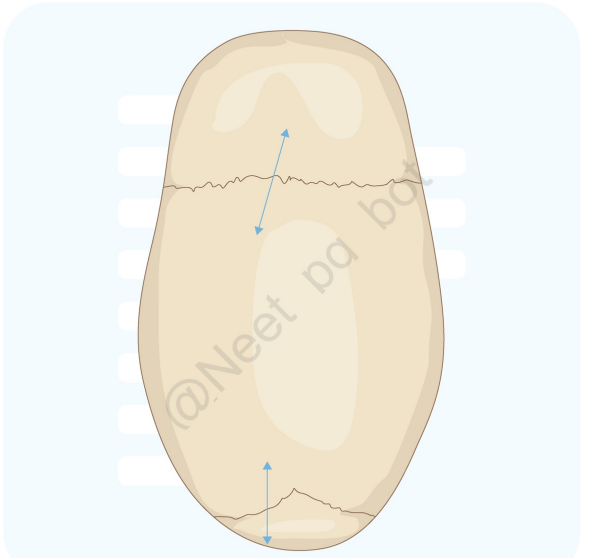
B. A-2, B-3, C-4, D-1

C. A-3, B-1, C-4, D-2

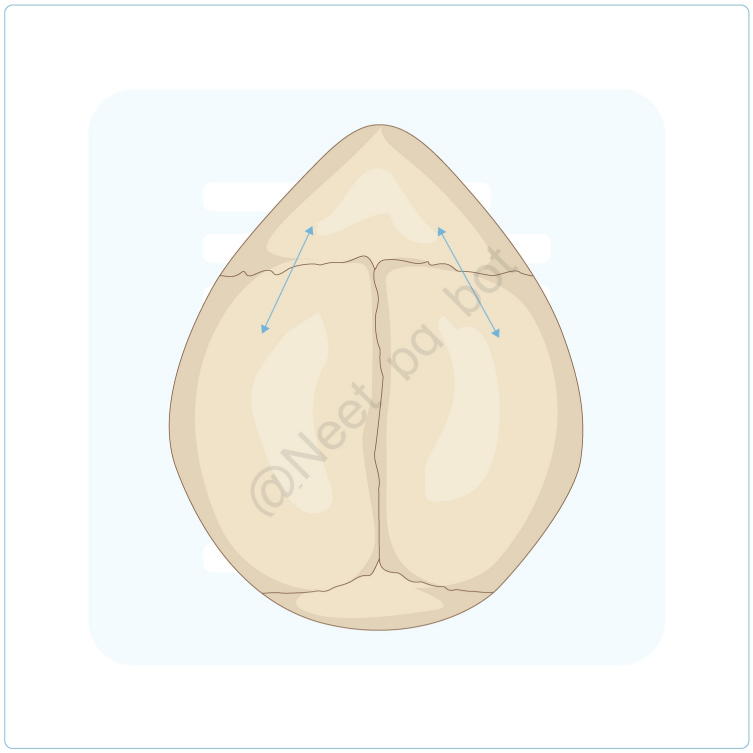
D. A-1, B-4, C-3, D-2

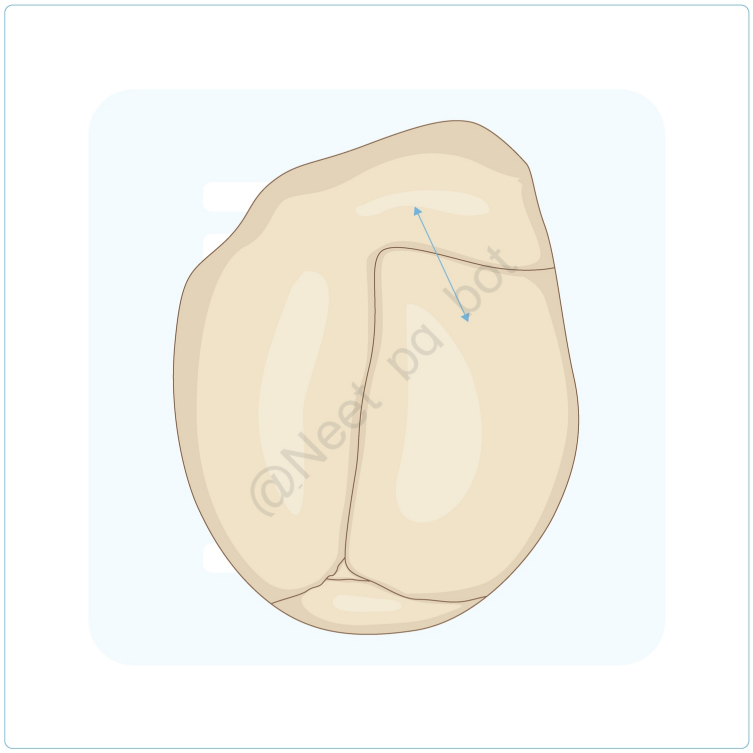


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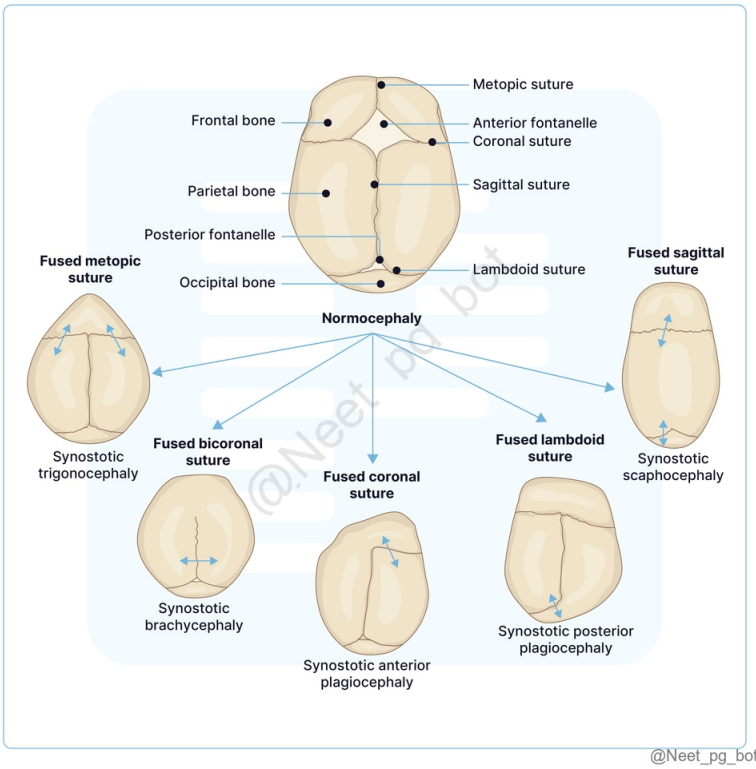


Correct Answer: C. A-3, B-1, C-4, D-2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above images illustrate the different types of craniosynostosis. Craniosynostosis occurs when one or more skull sutures close prematurely, potentially leading to varying impacts on a child's neurodevelopment depending on the number of sutures affected and the severity of complications. Posterior fontanelle: This smaller fontanelle at the back of the head usually closes within 2 months of birth. Anterior fontanelle: This larger fontanelle at the top of the head usually closes between 7 and 18 months. Scaphocephaly or dolichocephaly (premature fusion of the sagittal suture): These patients have a long, narrow-shaped head with a higher anteroposterior diameter. Anterior plagiocephaly (premature fusion of 1 coronal suture): The forehead appears flat on the affected side, Harlequin sign (high supraorbital margins seen in radiographs), frontal bossing on the unaffected side, and nasal deviation towards the normal side. Posterior plagiocephaly (premature fusion of 1 lambdoid suture): Frontal and occipital bossing, ipsilateral ear moved downward, from above the head looks like a trapeze. Trigonocephaly (premature fusion of the metopic suture): The forehead is narrow and pointed; the head has a triangular shape viewed from above, hypotelorism. Brachycephaly (bi-coronal premature fusion): Short skull, forehead, and occiput flattened but the frontal bone is long (vertically) and prominent, hypertelorism, and Harlequin malformation.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 994

https://www.ncbi.nlm.nih.gov/books/NBK544366/

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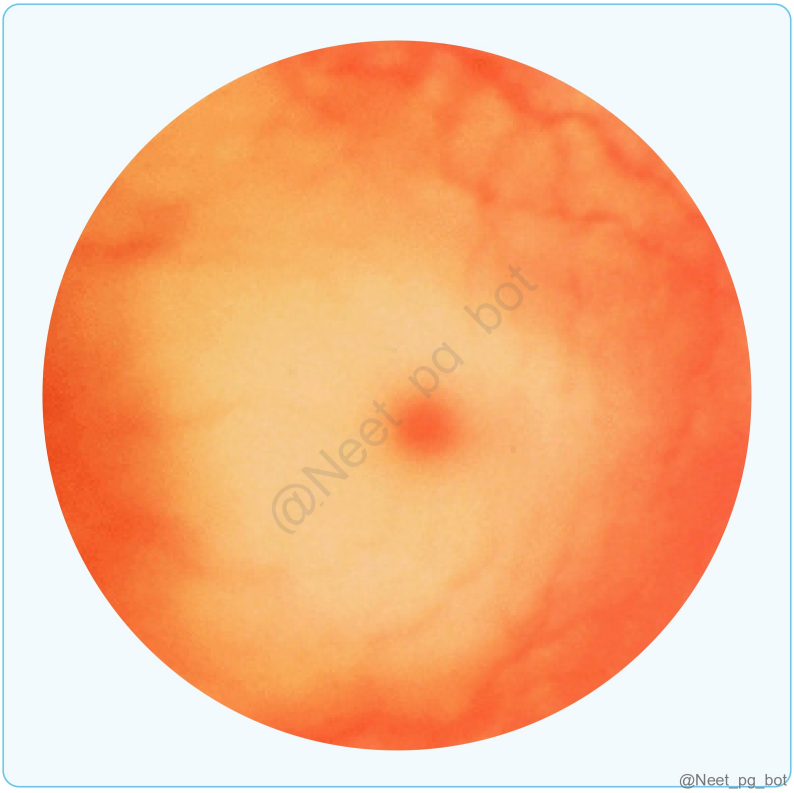
Q6: A one-year-old child presents with macrocephaly, developmental delay, a significant reduction in motor skills, poor muscle tone, and a low IQ. At birth the child was normal. Fundoscopy reveals the following. What is the most likely diagnosis? (Q849829)

A. Tay-Sachs disease

B. Infantile Hydrocephalus

C. Congenital brain malformation

D. Rett syndrome



Correct Answer: A. Tay-Sachs disease

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A one-year-old child with macrocephaly, developmental delay, a significant reduction in motor skills, poor muscle tone, and a low IQ with cherry red spot on fundoscopy suggest as diagnosis of Tay-Sachs diesase. Tay-Sachs disease is a rare, inherited disorder that affects the nervous system. It is caused by a deficiency in an enzyme called Hexosaminidase A (Hex-A). This enzyme is crucial for breaking down a type of fat called GM2 ganglioside, which accumulates in the nerve cells of the brain and spinal cord when the enzyme is deficient.

Macrocephaly is a notable feature in the early stages of Tay-Sachs disease. Other common clinical features of Tay-Sachs disease include: Developmental Delays Neurological Decline: Symptoms include irritability, muscle weakness, and a decreased response to stimuli. Visual Impairments : The disease can lead to a "cherry-red spot" in the retina, visible upon eye examination. The onset of Tay-Sachs disease typically occurs between 3 to 6 months of age. Infantile Hydrocephalus (Option B): This condition involves an excess accumulation of cerebrospinal fluid in the brain, which also causes macrocephaly. However, hydrocephalus is often accompanied by other signs such as vomiting, irritability, and an abnormal examination of cerebrospinal fluid via imaging studies. Congenital Brain Malformation (Option C): This may present with developmental delays and abnormal head size since birth and is usually identified through imaging studies showing structural brain anomalies. Rett Syndrome (Option D) : This is a genetic disorder primarily affecting females, characterized by normal early development followed by a period of regression with loss of motor skills and purposeful hand movements. While macrocephaly can be observed in Rett syndrome, it typically presents with a pattern of regression and other specific clinical features like repetitive hand movements and loss of communication skills.

References:

Ghai Essential paediatrics, 9th edition, Pages 31, 32, 33, 578, 658.

↑ *Back to this question in Part A*

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Q7: Which of the following conditions is not a cause of acquired microcephaly? (Q849828)

A. Seckel Syndrome

B. Down Syndrome

C. Rett Syndrome

D. Angelman Syndrome

Correct Answer: B. Down Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Down Syndrome is a genetic condition resulting from trisomy 21. It is a primary genetic condition that presents with microcephaly among other features. Acquired (Secondary) causes of Microcephaly Congenital Infections Zika Virus Small size, ocular anomalies. Cytomegalovirus Growth retardation, neurological issues. Rubella Growth retardation, heart disease, cataracts. Toxoplasmosis Neurological symptoms, hydrocephalus. Drugs and Other Causes Fetal Alcohol Syndrome Facial abnormalities, heart disease. Fetal Hydantoin Syndrome (Phenytoin exposure) Growth delay, cleft lip/palate, cardiac defects (VSD) Radiation Exposure Severe effects if exposed before 15 weeks gestation. Malnutrition and Hypoxia Variable effects, including neuronal heterotopias and atrophy. Metabolic conditions Phenylketonuria Niemann pick disease Gaucher's disease Musty odor urine. Cherry red spots are seen in macula and Sphingomyelin deposition. Glucocerebrosidase deficiency, Erlenmeyer

flask deformity Syndromes Rett syndrome (Option C) Angelman Syndrome (Option D) Seckel syndrome (Option A) X-linked dominant, Development regression Bird-headed dwarfism, Bead like nose

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3073-3075

Ghai Essential paediatrics, 10th edition, Page 574.

↑ *Back to this question in Part A*

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Q8: A newborn is evaluated and has a head circumference < -2 SD of the mean for age and sex. The baby's head circumference is consistently below this threshold on repeated measurements, No additional findings of developmental delay or neurological impairment. Which of the following is the most appropriate condition for this baby? (Q849827)

A. Microcephaly is probably due to Seckel syndrome.

B. Microcephaly is probably due to the Zika virus in the antenatal period.

C. Normal variation of head size.

D. Microcephaly due to Down's Syndrome.

Correct Answer: C. Normal variation of head size.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A head circumference below -2SD without other abnormal findings can be a normal variation in head size. Not all cases of microcephaly are due to pathological conditions; some variations in head size are within the normal range for the population. Microcephaly : Occipitofrontal circumference <-2 SD for the mean for age, gender, and sex. Severe microcephaly : Occipitofrontal circumference < –3 SD for the mean for age, gender, and sex. Classification Causes Primary (Genetic Causes) Familial (autosomal recessive) Autosomal dominant Syndromic associations (e.g., Down Syndrome (Option D) , Edwards Syndrome, Cri-du-Chat Syndrome). Secondary (Nongenetic) Congenital infections (Zika Virus (Option B) , Cytomegalovirus, Rubella, Toxoplasmosis) Drugs (Fetal Alcohol Syndrome, Fetal Hydantoin Syndrome), and Environmental factors (Radiation, Malnutrition, Hypoxic-Ischemic Encephalopathy). Metabolic disorders (Phenylketonuria, Lysosomal storage disorders) Acquired Causes Postnatal factors (Severe Hypoglycemia, Rett Syndrome, HIV Infection, Seckel Syndrome (Option A)).

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3073-3075.

Ghai Essential paediatrics, 10th edition, Page 574.

↑ *Back to this question in Part A*

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Q9: A 4-year-old child presents with developmental delays and a recent diagnosis of homocystinuria. Physical examination reveals tall stature, dislocated lens, and a history of recurrent thrombotic events. Genetic testing and biochemical analysis confirm the diagnosis. Which amino acid is most closely linked to the metabolic pathway involved in the development of homocystinuria? (Q849826)

A. Methionine

B. Phenylalanine

C. Tryptophan

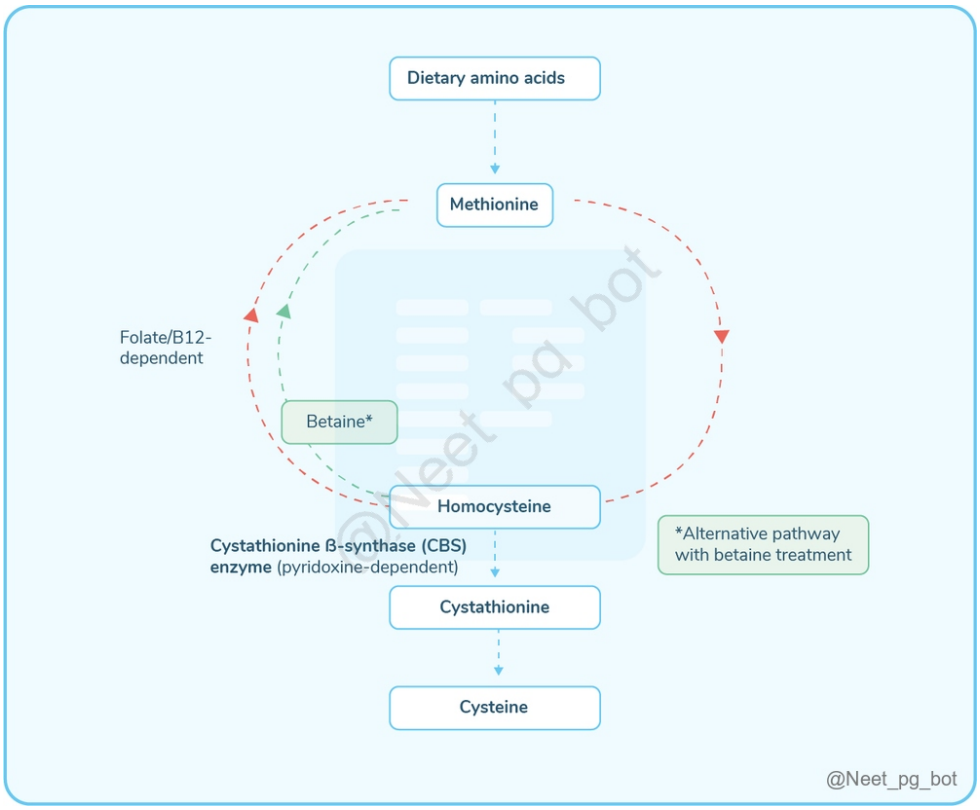
D. Valine

Correct Answer: A. Methionine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Homocystinuria is primarily caused by a deficiency in cystathionine beta-synthase, an enzyme crucial in the metabolism of the amino acid methionine. Phenylalanine (Option B) is an essential amino acid involved in phenylketonuria (PKU) PKU results from a deficiency in phenylalanine hydroxylase, leading to elevated phenylalanine levels. Tryptophan (Option C) is an essential amino acid related to disorders like Hartnup disorder and pellagra (niacin deficiency). Valine (Option D) is an essential amino acid involved in maple syrup urine disease (MSUD) when deficient or improperly metabolized.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 703-706

Ghai Essential paediatrics, 10th edition, Pages 684, 685

↑ *Back to this question in Part A*

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Q10: Which of the following statements regarding the causes and characteristics of tall stature in children are correct? Tall stature is defined as a height >2SD above the mean for age and gender. Constitutional acceleration of growth (CAG) is characterized by tall stature, normal growth velocity, and advanced bone age, and results in a final height within the mid-parental range. Tall stature is defined as a height >3SD above the mean for age and gender. Obesity-related tall stature is associated with advanced bone age and early onset of puberty, which may limit the increase in final height. Klinefelter syndrome presents with disproportionately tall stature, small testes, and behavioral issues. Marfan syndrome, caused by mutations in the FBN1 gene, features tall stature, lens dislocation, and aortic root dilation. (Q849825)

A. 1,2,4,6.

B. 1,2,3,4.

C. 1,2,4,5,6.

D. 1,4,5,6.

Correct Answer: C. 1,2,4,5,6.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Tall stature Definition: Tall stature in children is defined as a height >2SD (Statement 1) above the mean for their age and gender. Physiological Tall Stature: Familial Tall stature: Height runs in families. Constitutional Acceleration of Growth (CAG): Characterized by tall stature, normal growth velocity, advanced bone age, and usually results in a final height within the mid-parental range. (Statement 2) Obesity: Increase in height due to elevated insulin and IGF-1 levels, but advanced bone age and early puberty may limit final height increase. (Statement 4) Syndromic Causes: Klinefelter Syndrome (47, XXY): Features disproportionately tall stature, behavioral issues, delayed puberty, small testes, and gynecomastia. (Statement 5) Marfan Syndrome: Caused by mutations in the FBN1 gene (Statement 6) ; associated with tall stature, lens dislocation (ectopia lentis), and aortic root enlargement. Homocystinuria: Similar to Marfan syndrome; includes risks of thromboembolism and psychiatric problems; diagnosed by elevated plasma homocysteine levels. Overgrowth Syndromes (e.g., Sotos Syndrome): Features include a large head, dysmorphic facial traits, and developmental or learning delays. Endocrine Causes: Growth Hormone Excess: Rare; typically due to a GH-secreting pituitary adenoma. Hyperthyroidism: This leads to increased height. Precocious Puberty: Results in initial tall stature but leads to reduced final height due to early closure of growth plates. Sex Steroid Deficiency: In adolescents with hypogonadotropic hypogonadism; results in tall stature with long legs and a low upper segment ratio due to delayed epiphyseal fusion. Management Reassurance and

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 154-157.

Ghai Essential paediatrics, 10th edition, Pages 20, 21.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 6-year-old girl is brought to the clinic with a history of frequent bone fractures occurring with minimal trauma. Physical examination reveals a blue sclera, hearing, and dental abnormalities. Which of the following statements best explains the underlying pathophysiology of the patient's condition? (Q849824)

A. Mutation affects collagen type II, leading to bone fractures.

B. Mutation affects collagen type III, resulting in blue sclera.

C. Mutation affects collagen type I, affecting bones and contributing to their fragility.

D. Mutation affects collagen type IV, resulting in dental abnormalities.

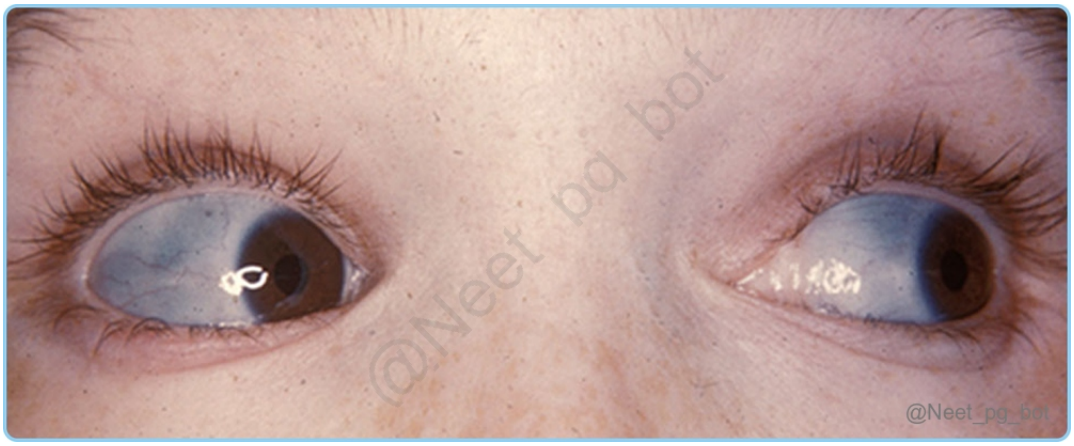
Correct Answer: C. Mutation affects collagen type I, affecting bones and contributing to their fragility.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The COL1A1 gene encodes for collagen type I, which is crucial for bone strength and structure. Mutations in this gene lead to Osteogenesis Imperfecta , characterized by fragile bones, blue sclera, and dental issues. Osteogenesis Imperfecta (OI) Definition Osteogenesis Imperfecta (OI), or brittle bone disease, is a genetic disorder causing fragile bones prone to fractures. Etiology Osteogenesis imperfecta arises from defects in type I collagen, crucial for bone and connective tissue strength. Mutations Common mutations occur in the COL1A1 or COL1A2 genes, affecting collagen quantity or quality. Less frequent forms result from mutations affecting collagen modification or assembly processes. Mutations in genes like TMEM380, WNT1, and SPARC affect the development of bone-forming cells, contributing to OI. Clinical Features Fractures: Frequent fractures from minor trauma or spontaneously. Severity and frequency vary widely. {{caption_text}} Blue Sclerae {{caption_text}} Dentinogenesis Imperfecta: Teeth are brittle, discolored, and prone to breakage due to improper dentin formation. Hearing Loss: Conductive hearing loss results from abnormalities in the middle ear bones. Mutation affects collagen type II, leading to bone fractures (Option A): Type 2 collagen defects affect cartilage Mutation affects collagen type III, resulting in the blue sclera (Option B): Type 3 collagen defects affect the blood vessels. Mutation affects collagen type IV, resulting in dental abnormalities (Option D): Type 4 collagen defects affect the basement membrane.





References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3736 - 3740.

↑ *Back to this question in Part A*

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Q12: A 7-year-old boy presents with short stature and disproportionate body proportions. His parents are concerned about his height, which falls well below the 3rd percentile for his age. The child has a normal-sized trunk but exhibits a

disproportionately large head and short limbs. X-ray findings show shortening of the long bones and normal bone mineralization. Genetic testing reveals a specific FGFR3 mutation. What is the most likely diagnosis for this child's short stature? (Q849823)

A. Achondroplasia

B. Turner Syndrome

C. Growth hormone deficiency

D. Hypothyroidism

Correct Answer: A. Achondroplasia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Disproportionate short limb dwarfism along with normal bone mineralization and specific FGFR3 genetic mutation is likely to be achondroplasia. Achondroplasia is characterized by disproportionate short stature, with a normal-sized trunk and shortened long bones. The genetic mutation commonly associated with achondroplasia is in the FGFR3 gene. Achondroplasia is usually diagnosed through physical examination and confirmed with genetic testing to identify mutations in the FGFR3 gene. Management focuses on addressing associated health issues and improving quality of life. This includes regular monitoring for complications like spinal problems or ear infections, physical therapy to enhance mobility and strength, and sometimes surgical interventions to address skeletal deformities. Growth hormone therapy is not effective for achondroplasia. Turner Syndrome (Option A) Short stature with additional features like a webbed neck and low-set ears; affects females and involves a missing X chromosome. Growth Hormone Deficiency (Option C) causes proportionate short stature, not disproportionate; treated with growth hormone therapy, which is ineffective for achondroplasia. Hypothyroidism (Option D) causes growth delays but with other symptoms like dry skin and fatigue; does not lead to disproportionate body proportions.

References:

Ghai Essential paediatrics, 9th edition, Pages 31, 32, 34

Essential Orthopaedics- J Maheshwari, 4th edition, Page 306

↑ *Back to this question in Part A*

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Q13: A 10-year-old boy presents with short stature and delayed bone age. His growth velocity has been consistently below the 3rd percentile. After thorough evaluation, growth hormone deficiency (GHD) is diagnosed. What is the expected relationship between the Upper and Lower segments of his body? (Q849822)

A. US > LS

B. US = LS

C. US < LS

D. None of the above

Correct Answer: B. US = LS

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Growth hormone deficiency is a type of proportionate short stature and hence usually Upper segment = Lower Segment (Proportionately to normal individuals). Short stature in growth hormone deficiency (GHD) occurs because growth hormone (GH) is crucial for normal growth and development. GH stimulates the liver to produce insulin-like growth factor 1 (IGF-1), which in turn promotes the growth of bones and tissues. In GHD, this process is impaired, leading to reduced growth velocity and shorter height compared to peers. Children with GHD often present with significantly delayed bone age, meaning their skeletal development lags behind their chronological age. Early diagnosis and treatment with recombinant human growth hormone can help normalize growth patterns and improve final height outcomes. Other causes of proportionate short stature include Genetic syndromes: Noonan syndrome, Prader-Willi syndrome, and 3M syndrome, Environmental pollutants: lead, cadmium, hexachlorobenzene, and polychlorinated biphenyl Family history Option Statement Why Incorrect? Typical Conditions US > LS (Option A) Upper segment greater than lower segment This indicates disproportionate short stature due to short limbs , which is not seen in GHD Achondroplasia, Hypothyroidism, Turner syndrome US < LS (Option C) Lower segment greater than upper segment This suggests spinal/truncal shortening , not seen in GHD Spondyloepiphyseal dysplasia, Morquio syndrome None of the above (Option D) None of the relationships apply Incorrect because US = LS is the correct relationship in GHD —

References:

Ghai Essential paediatrics, 9th edition, Page 34, 506

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: What will the expected adult height of a male child be if the adult height of the mother is 168 cm and the adult height of the father is 182 cm? (Q849821)

A. 175 cm

B. 176.5 cm

C. 181.5 cm

D. 180 cm

Correct Answer: C. 181.5 cm

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Parents' height significantly affects the child's height. Mid-parental height (MPH) gives an approximate estimate of the child's genetic potential. The formula for mid-parental height for males is MPH = [(Maternal + Paternal height in cm) / 2] + 6.5 For this case scenario, it becomes, MPH = [(168 + 182) / 2] + 6.5 = 350/2 + 6.5 = 175 + 6.5 = 181.5 cm In the case of a female child, the formula becomes, MPH in males = [(Maternal + Paternal height in cm) / 2] + 6.5 MPH in females = [(Maternal + Paternal height in cm) / 2] - 6.5

References:

Ghai Essential Paediatrics, 10th Edition, Page 17

↑ *Back to this question in Part A*

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Q15: A concerned mother brings her 2-year-old child, worried about the child's short stature. On examination, it is found that the child's bone age matches the chronological age but the height falls more than 2 standard deviations below the average for the child's age. The child has no other developmental anomalies, and both parents are of short stature. What is the most likely cause of the short stature in this child? (Q849820)

A. Familial short stature

B. Growth hormone deficiency

C. Turner syndrome

D. Cushing syndrome

Correct Answer: A. Familial short stature

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Familial short stature: This is consistent with the child's height being below 2 SD, especially given that her parents are also short, suggesting genetic factors rather than a medical condition. Familial short stature (FSS) is when a child's height is below average due to genetic factors, specifically the height of their parents. Genetics: Short stature runs in the family. Growth Pattern: Normal growth rate but consistently below the average height percentile. Development: Normal development with no underlying health issues. Final Height: Typically

reaches a final height consistent with genetic potential but remains lower than average normal height. Diagnosis: Based on family history and growth patterns, after ruling out other causes of short stature. Growth hormone deficiency (Option B) & Cushing syndrome (Option D) : These typically present with a significantly lower height percentile and delayed growth velocity, not usually seen with normal development and no other abnormalities. Turner syndrome (Option C) This condition usually presents with specific physical features and typically becomes more apparent with delayed puberty, not commonly diagnosed in a 2-year-old with normal growth and development.

References:

Ghai Essential paediatrics, 10th edition, Pages 31, 33.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: Which of the following best defines the time limit used to describe the term "embryo" in human development? (Q849805)

A. 0 to 2 weeks

B. 0 to 8 weeks

C. 9 weeks to birth

D. None of the above

Correct Answer: B. 0 to 8 weeks

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In human development, the term "embryo" is used to describe the early stage of development from fertilization from 3rd week until the end of the 8th week of gestation. Growth phases Growth Phase Age Range Zygote Product of conception Embryo 1st 8 weeks Fetus 9 weeks to birth (Option C) Perinatal period 22 weeks to 7 days Newborn 0 to 28 days Infant 0-12 months(1st year of life) Toddler 1-3 years Preschool 3-6 years Adolescence 10-19 years

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 126-128,137,143,146,1014.

Ghai Essential paediatrics, 10th edition, Page 6

https://www.ncbi.nlm.nih.gov/books/NBK567767/#:~:text=Toddler%20(%20one%20to%20five%20years,Adulthood

↑ *Back to this question in Part A*

Q17: Which of the following conditions are most likely to be associated with delayed dentition? Rickets Cleidocranial dysostosis Pierre Robin sequence Down syndrome (Q849818)

A. 1, 3, 4

B. 3, 4

C. 1, 2, 3

D. 1, 2, 4

Correct Answer: D. 1, 2, 4

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Delayed dentition refers to the condition where no teeth erupt by the age of 13 months Typically, primary teeth begin to erupt around 6 months of age. Causes of Delayed Dentition (Mnemonic - FRIED Chop) Category Condition Causes Familial Familial/Hereditary Normal variant No systemic disease Normal growth and development otherwise Rickets Nutritional rickets (Vit D deficiency) Defective mineralization of bone and teeth Delayed eruption of teeth Enamel hypoplasia may be present Associated with widened wrists, bow legs Idiopathic / Incontinentia pigmenti Idiopathic delay No identifiable cause Otherwise normal child Incontinentia pigmenti Ectodermal defect Abnormal tooth development Endocrine causes Congenital Hypothyroidism Slowed overall growth Delayed bone age Delayed eruption of teeth Large tongue (macroglossia) Congenital Hypopituitarism (GH deficiency) Reduced growth velocity Delayed skeletal maturation Delayed dentition Congenital Hypoparathyroidism Defective calcium metabolism Abnormal tooth mineralization Delayed eruption Down Syndrome (Trisomy 21) Generalized developmental delay Delayed bone age Delayed eruption of both primary and permanent teeth Cleidocranial dysostosis Cleidocranial dysplasia Delayed closure of fontanelles Multiple supernumerary teeth Failure of eruption of permanent teeth Retained primary teeth common Natal Teeth (Mnemonic - PEES) P ierre Robin sequence E llis van Creveld syndrome E pidermolysis bullosa S otos syndrome

References:

Ghai Essentials of Paediatrics, 10th edition, Page 9

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1071315/

↑ *Back to this question in Part A*

Q18: A 2-month-old infant is being evaluated for growth parameters. The pediatrician needs to measure the chest circumference accurately. What is the most appropriate position for this measurement? (Q849817)

A. At the end of the expiration

B. Midway between inspiration and expiration

C. At the end of deep inspiration

D. At the level of nipples, irrespective of the inspiratory or expiratory phase

Correct Answer: B. Midway between inspiration and expiration

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The chest circumference is measured at the level of nipples, midway between inspiration and expiration . At birth, head circumference (HC) > chest circumference (CC) By 9 months to 1 year, HC = CC In a normal child beyond 1 year of age, CC > HC Causes of reduced chest circumference: Skeletal dysplasias, pectus excavatum, malnutrition, Asphyxiating thoracic dystrophy. Causes of increased chest circumference: Pectus carinatum, obesity, asthma

References:

Ghai Essential paediatrics, 10th edition, Pages 11,12

↑ *Back to this question in Part A*

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Q19: If the head circumference of a newborn is 35 cm, what would be the expected measurement at 1 year of age? (Q849816)

A. 41 cm

B. 44 cm

C. 47 cm

D. 50 cm

Correct Answer: C. 47 cm

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The head circumference (HC) at one year is 47 cm. Period Rate of increase in Head Circumference 0-3 months 2 cm/month 3-6 months 1 cm/month 6-12 months 0.5 cm/month 1-3 years 0.2 cm/month Considering the above calculations, HC at 1 year = 35 cm + (2 cm x 3 months) + (1 cm x 3 months) + (0.5 cm x 6 months) = 35 + 6 + 3 + 3 = 47 cm

References:

Ghai Essential paediatrics, 10th edition, Page 12

↑ *Back to this question in Part A*

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Q20: A 6-year-old child presents after a road traffic accident, and accurate height measurement using a stadiometer is not possible. Which of the following methods is most appropriate for estimating the child's height? (Q849815)

A. Using the child's arm span

B. Estimating height based on parental height

C. Head circumference

D. Mid-upper arm circumference

Correct Answer: A. Using the child's arm span

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In situations where direct height measurement using a stadiometer is challenging, using the arm span is a common and reliable alternative. Ideally, height is measured using an infantometer in children <2 years of age, and a stadiometer is used in children >2 years of age. In conditions such as scoliosis where a stadiometer cannot be used, alternatives such as arm span and upper segment to lower segment (US:LS) ratio are some of the reliable alternatives. Arm span Measured on arms outstretched at 90 degrees to the body from the tip of the middle finger of one hand to the tip of the middle finger of the other hand. Arm span is shorter than the length by 2.5 cm at birth, equals height at 11 years, and after that is slightly (usually, <1 cm) greater than height. Estimating height based on parental height (Option B) often refers to predicting a child's health using a 'mid-parental height' formula, which is more of a long-term growth prediction rather than an accurate method for determining the current height. Head circumference (Option C) primarily reflects brain development, particularly in infants and young children. It does not provide an accurate estimate of overall height. Mid-upper arm circumference (Option D) indicates the nutritional status of a child and is not used in assessing the child's height. Height estimation does not correlate with circumferential measurements like MUAC.

References:

Ghai Essential paediatrics, 10th edition, Pages 10,11.

↑ *Back to this question in Part A*

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Q21: At what age is a child's height typically around half of their predicted adult height? (Q849814)

A. 1 Year

B. 2 Years

C. 9 months

D. 4 Years

Correct Answer: B. 2 Years

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Generally, a child's height at age 2 years is half of their predicted adult height. This milestone is often used as a reference point in pediatrics to estimate the future growth potential of the child. Normal length at birth: 50cm. In the first year, there is an increase of 25cm, so at 1 year the height is 75cm. In the second year there is an increase of 10-15cm, so at 2 years the height is 85-90cm. There is a steady increase of 6cm/year till 12 years. Height doubles by 4 years Height triples by 12 years Half of adult height in a normal child (80-85cm) is achieved by 2 years (18-24 months). AGE LENGTH At birth 50cm By 3 months 60cm By 9 months (Option C) 70cm By 1 year (Option A) 75cm At 2 years 90cm At 4-4.5 years (Option D) 100cm

References:

Ghai Essential paediatrics, 10th edition, Page 12

↑ *Back to this question in Part A*

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Q22: A 6-year-old girl is brought to the pediatric clinic for a routine check-up. The pediatrician wants to estimate her weight. What will be the estimated weight of this 6-year-old girl? (Q849813)

A. 12 kg

B. 16 kg

C. 20 kg

D. 24 kg

Correct Answer: C. 20 kg

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The formula for estimating the weight of a child is given by: Weight (kg) = 2 × (age in years) + 8 For a 6-year-old girl: Weight = 2 × 6 + 8 = 12 + 8 = 20 kg Thus, according to this formula, the estimated weight for this 6-year-old girl is 20 kg. Weech's formula to estimate the expected weight and height of children using age as a variable: For <1 year x+9 ÷ 2 (Where x is age in months) For 1-6 years 2x + 8 (Where x is age in years) For 7-12 years 7x - 5 ÷ 2 (Where x is age in years)

References:

https://www.pedgen.org.in/growth.php

https://journals.lww.com/njcp/fulltext/2020/23090/comparison_of_age_based_weight_estimation_with.8.aspx

↑ *Back to this question in Part A*

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Q23: In the pediatric population, which aspect of growth is most closely correlated with the maturation of the gonads? (Q849812)

A. Skeletal growth

B. Height velocity

C. Weight gain

D. Head circumference

Correct Answer: A. Skeletal growth

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The degree of skeletal maturation closely correlates with the degree of sexual maturation. During puberty, the hormonal changes associated with gonadal maturation trigger growth spurts and skeletal changes, such as the advancement of bone age and the closure of growth plates. Skeletal growth is a continuous process occurring throughout childhood and adolescence. It is steady until the pubertal growth spurt, when it accelerates and subsequently slows considerably. The skeleton matures once the epiphysis or growth plates at the end of long bones fuse to the shaft or diaphysis. This occurs by about 18 years in girls and 20-22 years in boys. Height velocity (Option B) is influenced by many non-gonadal factors like: Growth hormone (GH) Nutrition Chronic illness

Thyroid status Genetic potential Weight gain (Option C) is not a reliable indicator of gonadal maturation. Head circumference (Option D): Head circumference mainly reflects brain growth, which is largely completed by 5–6 years of age. It has no direct correlation with puberty or gonadal maturation.

References:

Ghai Essential of Pediatrics, 10th edition, Page 7

↑ *Back to this question in Part A*

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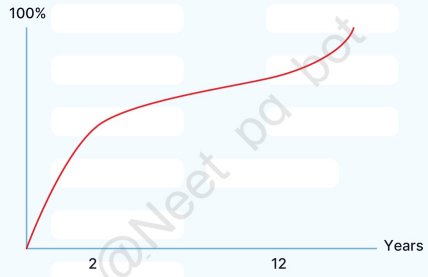
Q24: A 12-year-old child's growth chart shows a distinctive pattern in the graph depicting their growth over time as shown in the image below. In this clinical scenario, what does the graph primarily indicate about the child's growth patterns? (Q849811)

A. Gonadal development

B. Somatic growth

C. Brain growth

D. Lymphoid growth



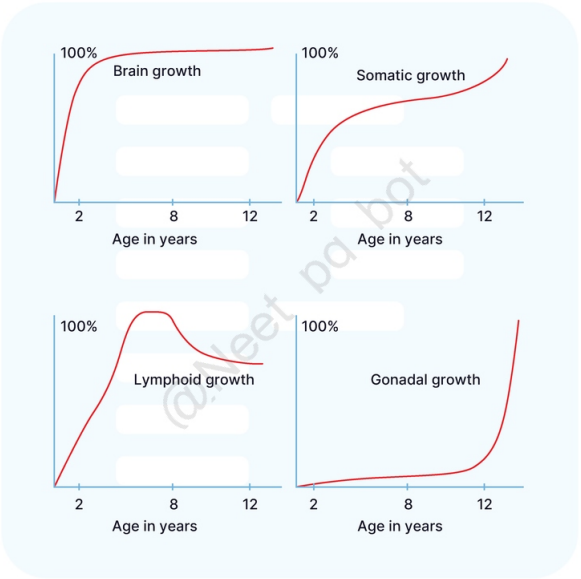
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Correct Answer: B. Somatic growth

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In this clinical scenario, the sigmoid (S-shaped) curve primarily indicates the pattern of somatic growth , which refers to the child's height growth during childhood and adolescence.



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References:

Ghai Essential Pediatrics, 10th Edition, Page 6,7

↑ *Back to this question in Part A*

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Q25: A 4-year-old child presents for a routine checkup. The pediatrician reviews the child's health and plots the following parameters on the growth chart. Which of the following parameters is not typically represented on the WHO growth chart? (Q849810)

A. Weight for length

B. Skin fold thickness

C. Mid arm circumference

D. None of the above

Correct Answer: D. None of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The WHO growth chart is a standard tool used for monitoring child growth and development. It includes: Weight for age Height for age Weight for height (Option A) Head circumference for age Mid-arm circumference for age (Option C) BMI for age Skin fold thickness for age (Option B) Major motor milestones

References:

Ghai Essential paediatrics, 10th edition, Pages 12-16. https://www.who.int/tools/child-growth-standards/standards

↑ *Back to this question in Part A*

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Q26: A 4-year-old boy is brought to the clinic for a routine check-up. The pediatrician uses the Growth Charts to assess growth patterns. Which of the following charts is used in this patient? (Q849809)

A. IAP Growth charts

B. Centers for Disease Control and Prevention (CDC) Growth Charts

C. National Center for Health Statistics (NCHS) Growth Charts

D. WHO Growth Charts

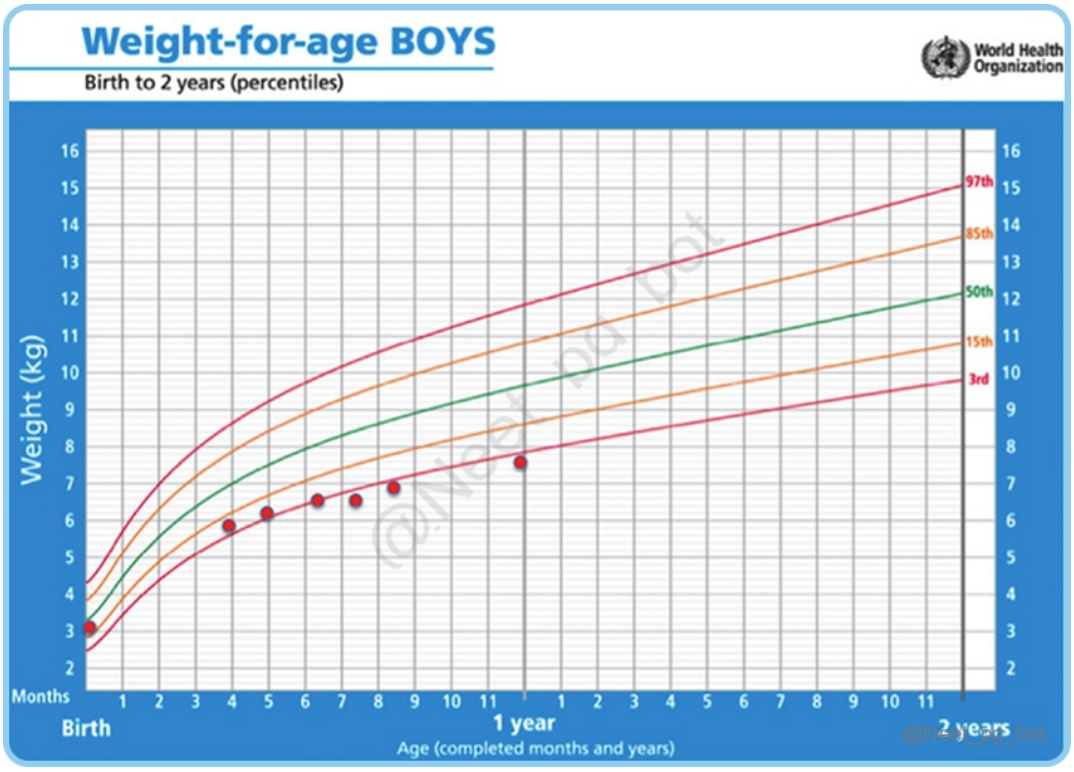
Correct Answer: D. WHO Growth Charts

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: WHO Growth Charts Designed specifically for tracking the growth and development of children under 5 years of age globally. Growth charts are derived from the Multicentre Growth Reference Study (MGRS) carried out by the WHO. This study was a community-based, multi-country initiative that took place in Brazil, Ghana, India, Norway, Oman, and the United States. Features: Provide accurate references for weight, length, and head circumference, reflecting normal growth patterns in children. {{caption_text}} IAP growth charts (Option A) are used most commonly for children aged 5 years and above. Centers for Disease Control and Prevention (CDC) Growth Charts (Option B) are commonly used in the United States, they are generally more suitable for children

aged 2 years and older. They do not specifically focus on the under-5 age group as comprehensively. National Center for Health Statistics (NCHS) Growth Charts (Option C) are older and have been replaced by the CDC charts for children aged 2 years and older in the U.S. They are less commonly used for under-5.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 138

Ghai Essential of Paediatrics, 10th edition, Pages 12-16

↑ *Back to this question in Part A*

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Q27: Arrange the following pubertal changes in females in the correct sequence from the first to the last: Pubarche Thelarche Growth Spurt Menarche (Q849808)

A. 1, 2, 3, 4

B. 2, 1, 3, 4

C. 1, 3, 2, 4

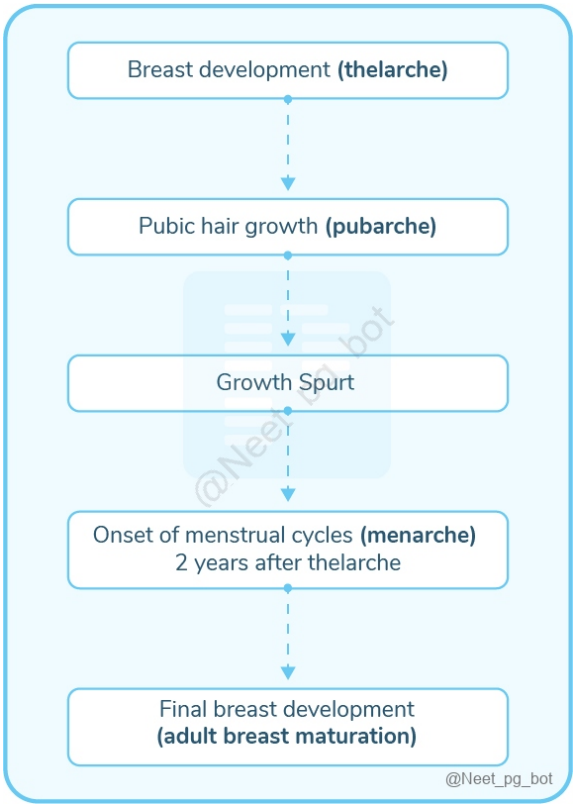
D. 2, 3, 1, 4

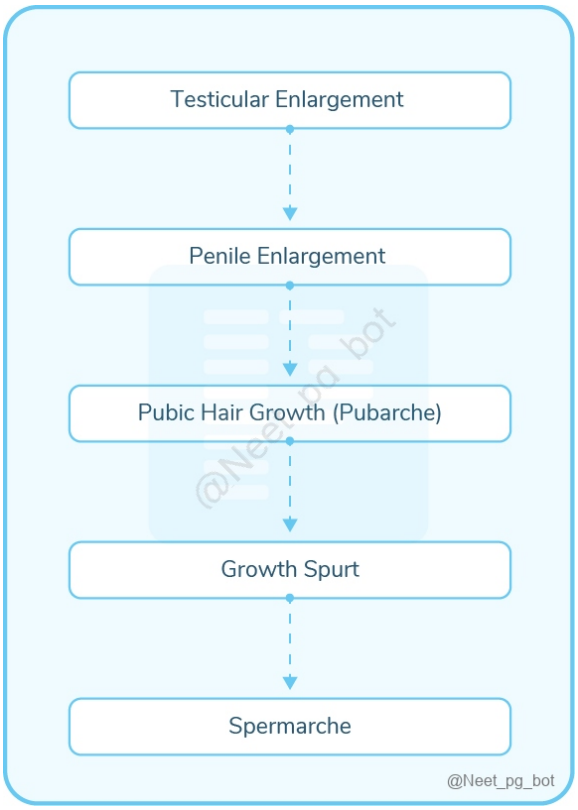
Correct Answer: B. 2, 1, 3, 4

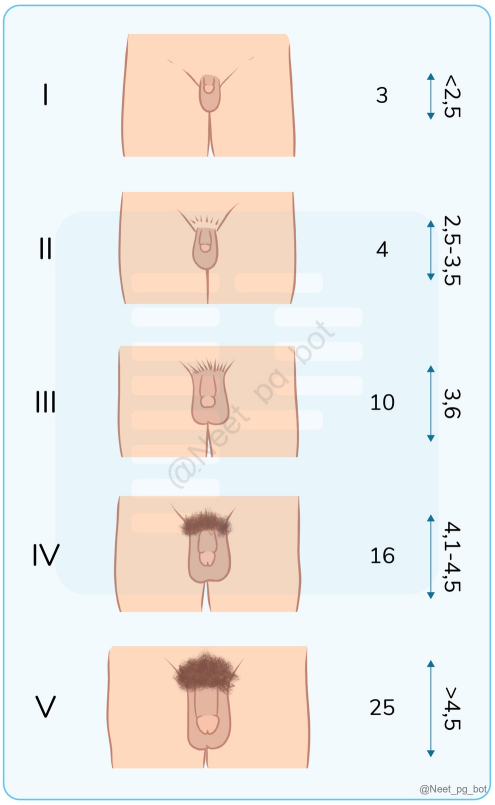
■ *Listen (English)*

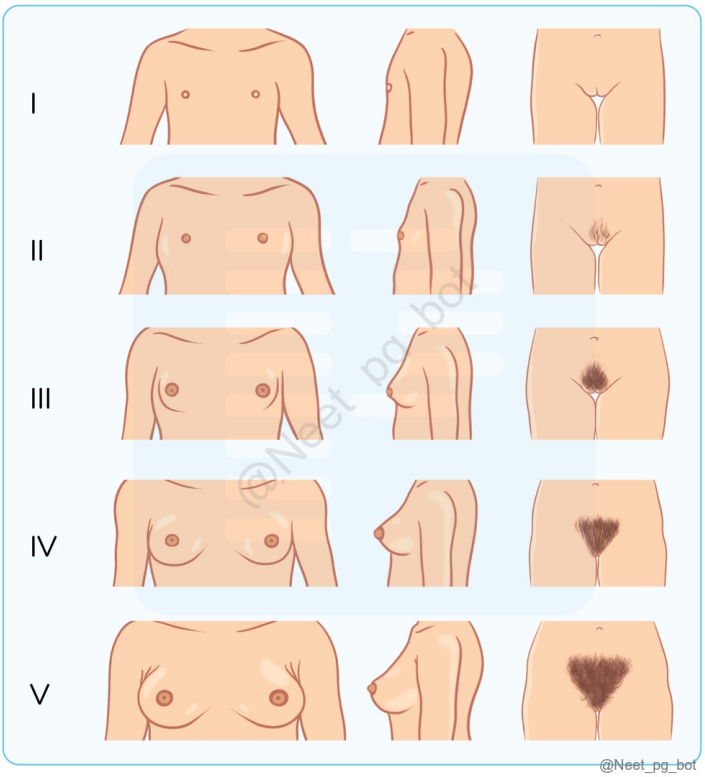
■ *Listen (Hindi)*

Explanation: Girls Boys Onset of Puberty Age: Around 10 years (range 8-12 years) Duration: 3-5 years Onset of Puberty Age: Around 11.5 years (range 9-14 years) Sequence of Pubertal Changes Sequence of Pubertal Changes Tanner staging It is used to assess the stages of physical development during puberty. It provides a standardized method to describe and track the progress of pubertal changes {{caption_text}} {{caption_text}}




Testicular Enlargement
Penile Enlargement
Pubic Hair Growth (Pubarche)
Growth Spurt
Spermarche
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I
3
<2,5
II
4
2,5-3,5
III
10
3,6
IV
16
4,1-4,5
V
25
>4,5
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References:

Ghai Essential paediatrics, 10th edition, Pages 551,552, 48,49

↑ *Back to this question in Part A*

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Q28: A 7-year-old child is brought to the pediatric clinic for a routine check-up. Parents are concerned about her weight gain and overall growth. The pediatrician decides to assess nutritional status and body fat distribution by assessing skin fold thickness to determine if any concerns need to be addressed. Which of the following instruments is best used? (Q849807)

A. Harpenden caliper

B. Shakir Tape

C. Salter scale

D. Infantometer

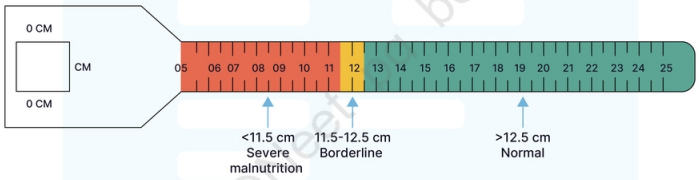
Correct Answer: A. Harpenden caliper

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The best method used to assess skin fold thickness, to assess the nutritional status of a child, is the Harpenden caliper. Description An instrument designed to measure skin fold thickness. Consists of two arms with a calibrated scale to gauge skinfold depth. Measurement Sites Commonly used on sites such as the triceps, subscapular, supra iliac, and thigh. Purpose Assess Nutritional Status: Measures subcutaneous fat to estimate body fat percentage. Monitor Growth: Helps in tracking growth and nutritional changes over time. Interpretation Increased Skin Fold Thickness: Often indicates higher body fat and potential overnutrition. Decreased Skin Fold Thickness: Signify reduced body fat, malnutrition, or undernutrition. Comparison to Norms: Results are compared to standard charts or norms for age and sex to assess body fat levels and nutritional status. {{caption_text}} Shakir tape (Option B) is used to measure various body circumferences, such as waist, hip, and chest, to assess growth, nutritional status, and body composition, not skin fold thickness. Salters scale (Option C) is used to Monitor Growth and assess Nutritional Status by measuring body weight, which can indicate undernutrition, overnutrition, or other health conditions. Body fat distribution is not assessed by this method. Infantometer (Option D) is used to monitor Growth by measuring their length and assess Developmental Milestones by evaluating whether an infant's length is within the expected range for their age.

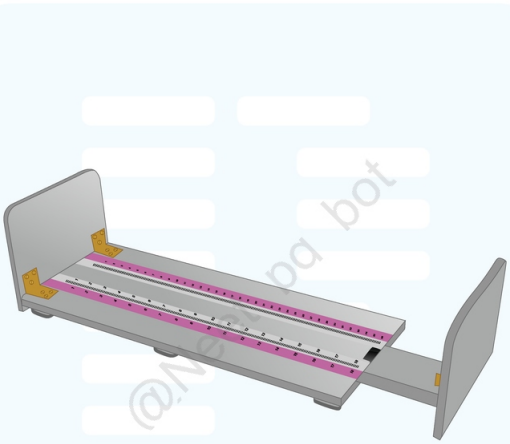




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References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 341-342

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8065383/

↑ *Back to this question in Part A*

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Q29: Which of the following is not assessed by measuring MUAC (Middle upper arm circumference)? (Q849806)

A. Body fat reserves

B. Nutritional status

C. Dehydration

D. Growth monitoring

Correct Answer: C. Dehydration

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: MUAC does not assess dehydration; it primarily evaluates body fat reserves, nutritional status, and growth monitoring. Mid-Upper Arm Circumference (MUAC) Measurement Location Measured at the midpoint of the upper arm between the shoulder and the elbow. Purpose To assess nutritional status and growth by evaluating body fat and muscle mass, particularly to identify malnutrition or undernutrition in children (6-59 months). Applications Useful for monitoring growth, detecting malnutrition, and assessing body fat reserves. Advantages Provides a quick, straightforward, and effective indicator of nutritional health without needing specialized equipment. Interpretation <11.5cm - Severe acute malnutrition. 11.5 cm -12.5cm - Moderate acute malnutrition.

References:

Ghai Essential paediatrics, 10th edition, Pages 88, 89

↑ *Back to this question in Part A*

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• [02_Growth] 008 Previous Year Questions

« Back to Folder Directory

[02_Growth] 008 Previous Year Questions — Quick Jump

Q1 (p. 709)	*Q2 (p. 709)*	*Q3 (p. 711)*	*Q4 (p. 711)*	*Q5 (p. 712)*	*Q6 (p. 714)*
Q7 (p. 715)	*Q8 (p. 716)*	*Q9 (p. 717)*	*Q10 (p. 718)*	*Q11 (p. 718)*	*Q12 (p. 719)*

Q1: A 10 year old child presented to the clinic with complaints of recurrent infection. Physical examination shows low height for age and Z line score is <-2SD. The parents also have a history of incorrect feeding method. What is the appropriate term for the above mentioned condition? (Q820479)

A. Stunting

B. Wasting

C. Malnutrition

D. Kwashiorkor

Correct Answer: A. Stunting

Explanation: Correct Option A - Stunting: This is the correct answer. Stunting, or chronic malnutrition, is defined as low height-for-age. This condition is a result of long-term nutritional deprivation, often exacerbated by recurrent infections. A Z-score of less than -2 standard deviations (SD) below the median of the World Health Organization's child growth standards is indicative of stunting. The history of incorrect feeding method provided by the parents further supports this diagnosis. Incorrect Options: Option B - Wasting: Wasting, or acute malnutrition, is defined as low weight-for-height. It's a sign of recent and severe weight loss, which does not seem to be the case with the child described in the question. Option C - Malnutrition: While the child is indeed malnourished, this term is broad and doesn't specify the type of malnutrition. In this case, the child's low height-for-age and Z-score of <-2SD indicate stunting, a specific form of malnutrition. Option D - Kwashiorkor: Kwashiorkor is a form of severe malnutrition characterized by edema (swelling), discolored hair, and dermatosis. It's typically caused by a diet high in carbohydrates but deficient in protein. The question does not provide any information suggesting the child has these symptoms.

↑ *Back to this question in Part A*

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Q2: At which of the following ages does maximum brain growth occur? (Q844231)

A. 1 year

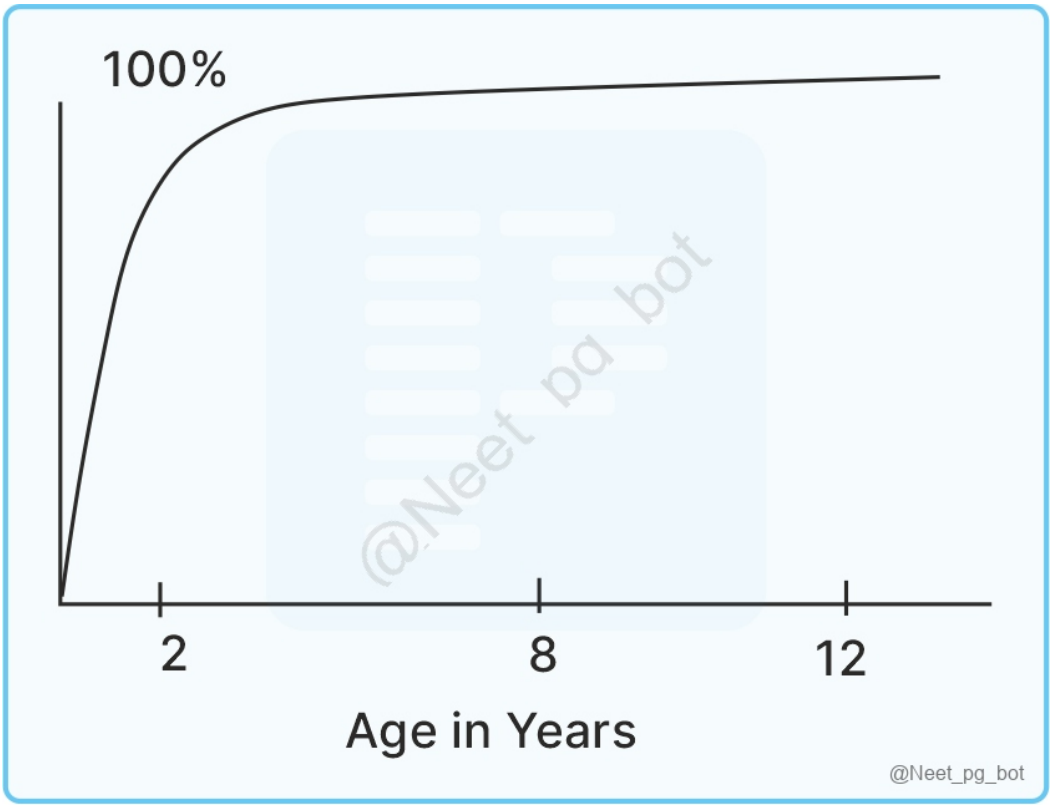
B. 2 years

C. 3 years

D. 4 years

Correct Answer: A. 1 year

Explanation: Correct Option: A) 1 year: The first year of life is marked by the most rapid brain growth. By the end of the first year, the brain reaches about 60% of its adult size. This period is critical for neurodevelopment, with significant increases in brain volume and neural connections. Maximum brain growth takes place in the first 2 years, after which the growth is stagnant. Incorrect options: Option B - 2 years : Brain growth continues, but the rate slows down after the first year. By 2 years of age, the brain is approximately 75% of its adult size, but the most intense phase of growth has already occurred. Option C - 3 years : By 3 years, the brain is about 80-85% of its adult size. Growth is still significant, but it is not as rapid as during the first year. Option D - 4 years : The brain's growth rate further decreases, reaching around 90% of its adult size by this age. Most brain development in terms of structure is completed, but functional maturation continues.



References:

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↑ *Back to this question in Part A*

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Q3: While evaluating a 3-year-old with short stature, height is measured at 90cm and the lower segment is 45 cm. What is the likely diagnosis? (Q852540)

A. Achondroplasia

B. Congenital hypothyroidism

C. Rickets

D. Spondyloepiphyseal dysplasia

Correct Answer: D. Spondyloepiphyseal dysplasia

Explanation: In the given scenario, the upper segment: lower segment ratio of the child is 1:1, signifying upper segment short stature which is seen in spondyloepiphyseal dysplasia. The normal US: LS ratio for a 3-year-old child is 1.3:1. Here the height of the child is 90cm with LS = 45cm. Hence the US = 45cm. US: LS = 1:1. This means that the upper segment is shorter than normal. Spondyloepiphyseal dysplasia causes short-trunk dwarfism involving the vertebrae and proximal epiphyseal centres. The distal epiphyses are spared in this condition. Proportionate Short Stature Conditions Causing Short Stature with US > LS Conditions Causing Short Stature with US < LS Growth hormone deficiency Genetic syndromes: Noonan syndrome, Prader-Willi syndrome, 3M syndrome Environmental pollutants: Lead, calcium, hexachlorobenzene, polychlorinated biphenyl Family history Achondroplasia (Option A) Congenital hypothyroidism (Option B) Rickets (Option C) Osteogenesis imperfecta Spondyliepiphyseal dysplasia (Option D) Mucopolysaccharidosis Caries spine/ Potts' disease Hemivertebrae/ Butterfly vertebra (Mnemonic - S hort M an C limbs H igh)

References:

O.P. Ghai Essential Pediatrics, 9th Edition, Page 34, 506 https://www.ncbi.nlm.nih.gov/books/NBK556031/ https://www.ncbi.nlm.nih.gov/books/NBK563282

↑ *Back to this question in Part A*

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Q4: Which of the following is the best sign to indicate adequate growth in an infant with a birth weight of 2.8 kg? (Q855497)

A. Increase in length of 25 cm in the first year

B. Weight gain of 300 grams per month till 1 year

C. Anterior fontanelle closure by 6 months of age

D. Weight under the 75th percentile and height under the 25th percentile

Correct Answer: A. Increase in length of 25 cm in the first year

Explanation: The best indicator of adequate growth in an infant is an increase in length of 25 cm in the first year. Normal length at birth: 50cm. In the first year, there is an increase of 25cm , so at 1 year the height is 75cm. In the second year there is an increase of 10-15cm, so at 2 years the height is 85-90cm. There is a steady increase of 6cm/year till 12 years. Height doubles by 4 years Height triples by 12 years Half of adult height in a normal child (80-85cm) is achieved by 2 years (18-24 months). Age Length At birth 50cm By 3 months 60cm By 9 months 70cm By 1 year 75cm At 2 years 90cm At 4-4.5 years 100cm Weech's formula to estimate the expected weight and height of children using age as a variable. For <1 year : x + 9 ÷ 2 (Where x is age in months) For 1-6 years : 2x + 8 (Where x is age in years) For 7-12 years : 7x - 5 ÷ 2 (Where x is age in years) Weight gain of 300 grams per month till 1 year (Option B): In the first few months, weight gain typically varies from 20-40 grams per day, and after 4 months, it increases to approximately 400 grams per month, with doubling at 5 months and tripling by 1 year. Anterior fontanelle closure by 6 months of age (Option C): The anterior fontanelle typically closes between 9 and 18 months, not by 6 months, making it an unreliable indicator for growth. Weight under the 75th percentile and height under the 25th percentile (Option D): Percentiles are used to compare an infant's growth measurements with a reference population. However, being under the 75th percentile for weight and under the 25th percentile for height does not guarantee adequate growth.

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 12https://www.pedgen.org.in/growth.php

https://journals.lww.com/njcp/fulltext/2020/23090/comparison_of_age_based_weight_estimation_with.8.aspx

↑ *Back to this question in Part A*

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Q5: Which alternative method can be used for the procedure shown in the image below? (Q855726)

A. Head circumference

B. Arm span

C. Crown-rump length

D. Knee height



Correct Answer: B. Arm span

Explanation: Arm span The procedure shown in the image is height measurement in a child with a stadiometer . The alternative method for the procedure shown is arm span . Ideally, height is measured using an infantometer in children <2 years of age, and a stadiometer is used in children >2 years of age. In conditions such as scoliosis where a stadiometer cannot be used, alternatives such as arm span and upper segment to lower segment (US:LS) ratio are some of the reliable alternatives. Arm span: Measured on arms outstretched at 90 degrees to the body from the tip of the middle finger of one hand to the tip of the middle finger of the other hand. Arm span is shorter than the length by 2.5 cm at birth, equals height at 11 years, and after that is slightly (usually, <1 cm) greater than height. Head circumference (Option A) used to monitor the growth of the brain and skull in children up to 2 years of age. It is measured along the supraorbital ridge in the front and the occipital prominence at the back using a flexible tape. While it reflects brain growth, it does not provide an accurate estimation of height, making it unsuitable for this purpose. Crown-rump length (Option C) is a prenatal measurement used during early pregnancy to assess fetal growth and estimate gestational age, typically from 6-8 weeks of gestation . This measurement is specific to fetuses and cannot be applied to children for height estimation. Knee height (Option D) is used to estimate height in individuals who cannot stand, such as bedridden or wheelchair-bound adults. It involves measuring the distance from the sole of the foot to the femoral condyle.

References:

Reference: O.P. Ghai Essential Pediatrics, 10th Edition, Page 10,11.

↑ *Back to this question in Part A*

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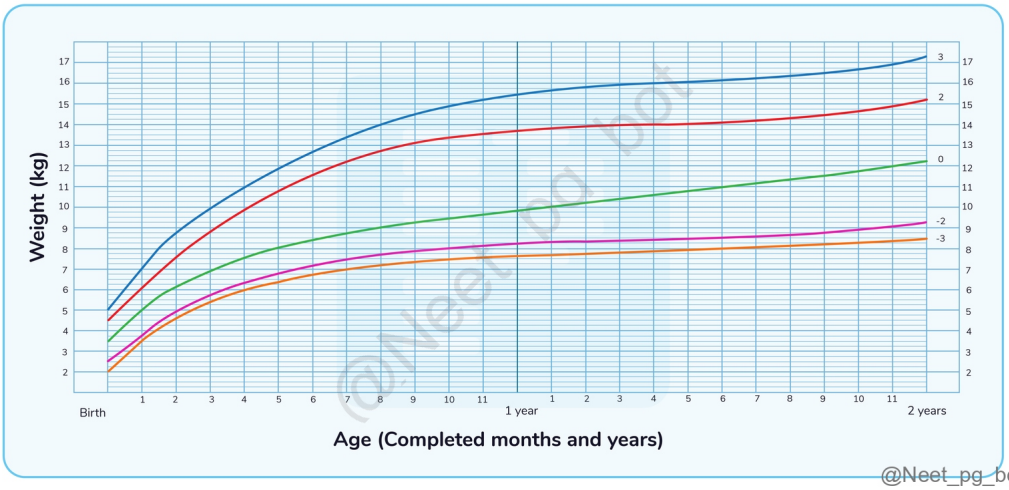
Q6: A 16-month-old boy weighs 8 kg. A WHO growth chart (weight-for-age) is provided below. What is the most appropriate advice for this child? (Q856176)

A. No malnutrition - assure the mother

B. Mild malnutrition - home treatment

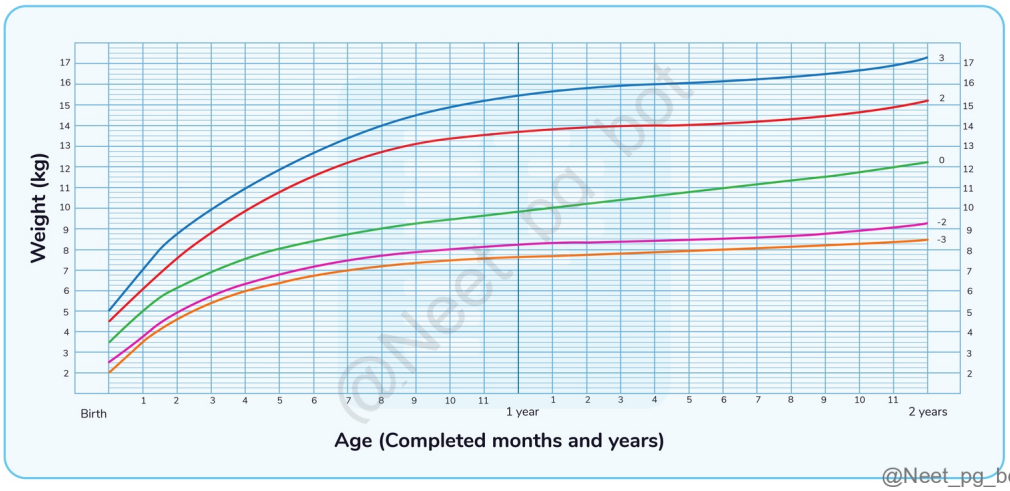
C. Severe malnutrition - refer to nutrition rehabilitation centre

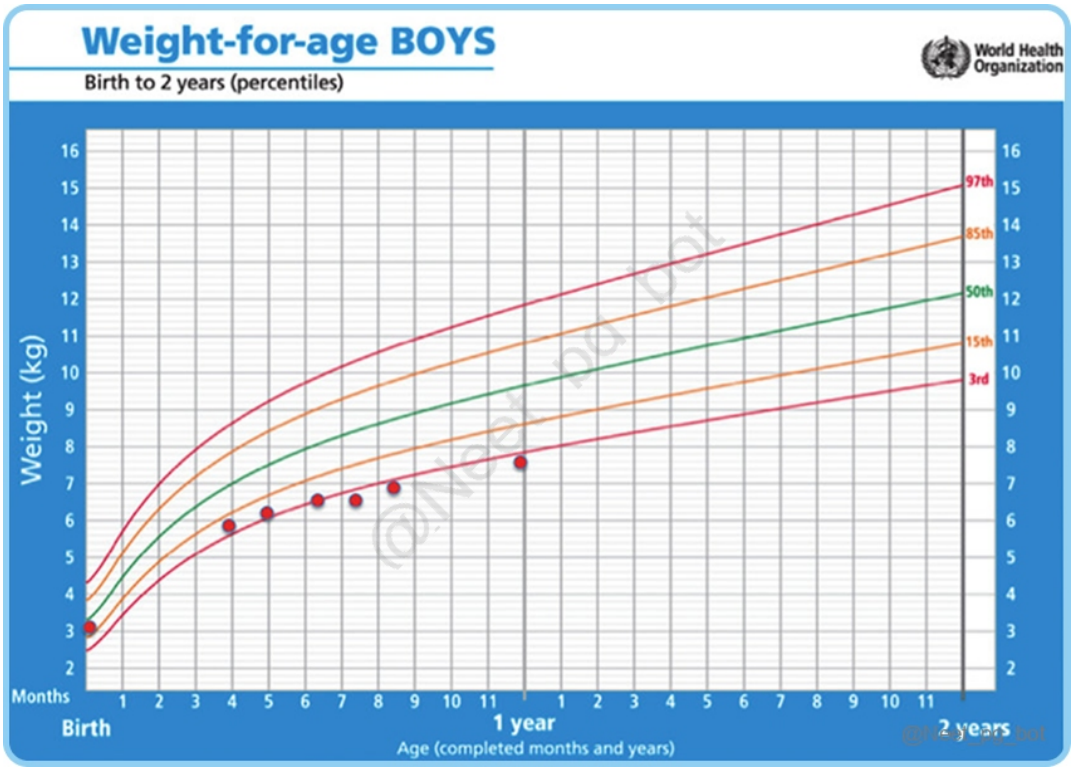
D. Moderate malnutrition - teach the mother how to feed



Correct Answer: D. Moderate malnutrition - teach the mother how to feed

Explanation: Moderate malnutrition - teach the mother how to feed The child's weight for age falls between -2 SD and -3 SD on the growth chart (Moderately underweight). This child's weight is below the average range for his age, indicating some degree of malnutrition. However, it is not severe enough to warrant immediate referral to a nutrition rehabilitation center. Instead, the focus should be on educating the mother or caregiver on proper feeding practices and providing guidance on improving the child's nutritional intake. This may involve promoting a balanced diet, ensuring adequate calorie and nutrient intake, and addressing any feeding difficulties or challenges. WHO Growth Charts Designed specifically to track the growth and development of children under 5 years of age globally. Growth charts are derived from the Multicentre Growth Reference Study (MGRS) carried out by the WHO. This study was a community-based, multi-country initiative that took place in Brazil, Ghana, India, Norway, Oman, and the United States. Features: Provide accurate references for weight, length, and head circumference, reflecting normal growth patterns in children. Percentile Curves : The growth chart displays curves representing percentiles (3rd, 15th, 50th, 85th, and 97th). 3rd Percentile: Lower end of normal growth. 50th Percentile: Median or average growth. 97th Percentile: Higher end of normal growth. {{caption_text}}





References:

Nelson's textbook of pediatrics, 21st edition, Pages 138, 333, 334, 336

Ghai Essential paediatrics 10th edition, Page 12-16

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: Which is the first primary tooth to erupt? (Q857574)

A. Upper central incisor

B. Lower central incisor

C. Upper canine

D. Lower canine

Correct Answer: B. Lower central incisor

Explanation: Lower central incisor The first primary tooth to erupt is the lower central incisor . Primary Dentition Time of eruption Lower central incisor 6 months Upper central incisor (Option A) 7 months Upper lateral incisor 8 months Lower lateral incisor 9 months 1st Molar 1 year Canine (Option C & D) 1.5 years 2nd Molar 2 years

References:

Ghai Essential Paediatrics, 9th Edition, Page: 11.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A child is brought to the paediatrician with short stature. On evaluation, growth hormone levels are found to be high and insulin-like growth factor (IGF-1) levels are low. Which among the following could be the abnormality here? (Q857601)

A. GH deficiency

B. GHRH deficiency

C. GH receptor anomaly

D. IGF-1 deficiency

Correct Answer: C. GH receptor anomaly

Explanation: - GH receptor anomaly The raised levels of growth hormone and low levels of IGF-1 suggest growth hormone insensitivity which is due to GH receptor anomaly. GH stimulates the liver to produce insulin-like growth factor 1 (IGF-1), which in turn promotes the growth of bones and tissues. If there is a GH-receptor anomaly in the liver, leads to GH insensitivity. Hene, IGF-1 is not sufficiently produced lowering its concentration in the body. Growth Hormone Receptor anomalies: Laron syndrome: Mutation of the GH receptor leading to growth hormone insensitivity. The GH receptor has an extracellular, transmembrane, and intracellular domain. Mutation of the extracellular domain Affects the binding of the hormone GH-binding protein activity is low Mutation of the transmembrane domain: Affects the anchoring of the receptor to the plasma membrane Normal or

high GH-binding protein Mutation of the intracellular domain: Interferes with JAK/STAT signalling GH deficiency (Option A) : If the child had GH deficiency, both GH and IGF-1 levels would typically be low. GHRH deficiency (Option B) : Growth hormone-releasing hormone (GHRH) deficiency would typically lead to low GH secretion because GHRH stimulates the release of GH. IGF-1 deficiency (Option D) : Low IGF-1 levels can cause short stature, but the presence of high GH levels suggests that the issue lies not in the production of IGF-1 but in the action of GH itself.

References:

Nelson Textbook of Pediatrics, 21st edition, Page: 2883, 2884.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 6-year-old child is brought for evaluation of short stature. His height is comparable with his parent's height and his bone age corresponds to his chronological age. What is the diagnosis? (Q858070)

A. Familial short stature

B. Constitutional delay

C. Undernutrition

D. Growth hormone deficiency

Correct Answer: A. Familial short stature

Explanation: Familial short stature The clinical presentation indicates familial short stature, which is characterized by height below the 3rd percentile for age and sex but is normal according to the child's genetic potential , as determined by parental heights. Key features supporting this diagnosis include bone age matching chronological age and height being consistent with parental heights, suggesting genetic rather than pathological short stature . Characteristics of Familial Short Stature: Child's height is <3rd percentile of expected according to age & sex, but is normal as per his target height Child has normal puberty Family history of short stature Bone age = chronological age Constitutional delay (Option B): In constitutional growth delay, the child presents with delayed bone age and delayed puberty, unlike this case where bone age matches chronological age. Most of these children tend to eventually grow to approximately the same height as their parents. Undernutrition (Option C): Undernutrition shows evidence of poor weight gain and delayed bone age, which are absent in this case. Nutritional deficiency would affect both growth and skeletal maturation, leading to discrepancy between bone age and chronological age. Growth hormone deficiency (Option D): Growth hormone deficiency, also known as dwarfism or pituitary dwarfism, typically presents with severe growth failure, delayed bone age, and height that is significantly below parental heights.

References:

Ghai Essential Paediatrics, 10th Edition, Page 18-21

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: Gonadal growth corresponds with _____. (Q858072)

A. Brain

B. Skeletal system

C. Lymphoid growth

D. Dental growth

Correct Answer: B. Skeletal system

Explanation: follows its own distinct timeline with two separate periods of development - primary and permanent dentition. This pattern does not correspond with gonadal development patterns.

References:

Ghai Essential Pediatrics 10th Edition, Page 6-7

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 3-year-old child is brought to the OPD for a regular check-up. His growth chart shows a BMI between the 85th and 95th percentile . Which of the following categories would you place him in? (Q793757)

A. Moderate wasting

B. Severe acute malnutrition

C. Overweight

D. Obese

Correct Answer: C. Overweight

Explanation: Correct Option C - Overweight: In children, BMI is calculated using age, sex, height, and weight, and the result is plotted on a growth chart to determine the child's BMI percentile. BMI percentiles in children are classified as follows: Underweight: Less than 5th percentile Healthy weight: 5th percentile to less than 85th percentile Overweight: 85th percentile to less than 95th percentile Obese: Equal to or greater than 95th percentile In this case, the child's BMI falls between 85th and 95th percentile, which places him in the overweight category. This means that the child's weight is higher than what is considered healthy for his age, sex, and height. Incorrect Options: Options A, B and D: The BMI in the given clinical scenario does not fit into any of these categories.

References:

Prepladder Notes

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A mother expresses concern about her child's unwillingness to eat properly . Her 15-month-old son's length falls 2 standard deviations below the median for his age . What is the most probable medical condition ? (Q793765)

A. Acute malnutrition

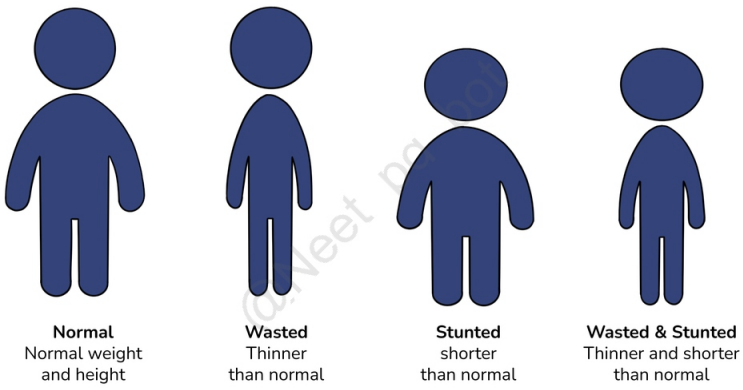
B. Severe wasting

C. Moderately underweight

D. Moderate stunting

Correct Answer: D. Moderate stunting

Explanation: Correct Option D - Moderate stunting: Stunting is defined as a length-for-age more than two standard deviations below the WHO Child Growth Standards median. This indicates that the child has not grown adequately in height and is considered short for age. In this case, the child's length-for-age is ≤ -2 SD below the median, which indicates moderate stunting. The reluctance to take feeds appropriately may be one reason for the child's stunted growth. Poor nutrition, frequent infections, and inadequate stimulation can also contribute to stunting. Stunting is associated with impaired cognitive development, poor school performance, and reduced economic productivity in adulthood Incorrect Options: Option A - Acute malnutrition: Acute malnutrition refers to a recent and severe deficiency of energy, protein, and other nutrients that can lead to wasting and/or edema. The child in this scenario is not showing signs of acute malnutrition. Option B - Severe wasting: Severe wasting is defined as a weight-for-height greater than three standard deviations below the WHO Child Growth Standards median. The child's weight is not provided in the scenario. Option C - Moderately underweight: Moderately underweight is defined as a weight-for-age greater than two standard deviations below the WHO Child Growth Standards median. The child's weight is not provided in the scenario.



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References:

Nelson Textbook of Pediatrics 21st Edition

↑ *Back to this question in Part A*

@Neet_pg_bot

• [03_Developmental and Behavioral Disorders] 009 Previous Year Questions

« Back to Folder Directory

[03_Developmental and Behavioral Disorders] 009 Previous Year Questions — Quick Jump

Q1 (p. 721) *Q2 (p. 721)* *Q3 (p. 722)* *Q4 (p. 723)*

Q1: A 12-year-old child presents with short stature. On evaluation, the bone age is found to be less than the chronological age. There are no dysmorphic features, and the child is otherwise healthy. What is the most likely diagnosis? (Q866745)

A. Constitutional delay of growth and puberty

B. Familial short stature

C. Achondroplasia

D. Chondrodysplasia

Correct Answer: A. Constitutional delay of growth and puberty

Explanation: Constitutional delay of growth and puberty (CDGP) is the most common cause of short stature in otherwise healthy children. It is characterized by: Normal birth length and weight Slowing of growth velocity during early childhood Bone age delayed compared to chronological age No dysmorphic features Normal growth potential — eventual catch-up and normal adult height Often a family history of “late bloomers” Incorrect Options: Familial short stature (Option B): Bone age is typically equal to chronological age; height is short but consistent with genetic potential. Achondroplasia (Option C): Disproportionate short stature with rhizomelia (short limbs), frontal bossing, and characteristic facies. Chondrodysplasia (Option D): A group of genetic disorders causing disproportionate short stature and skeletal abnormalities, usually evident early and with bone deformities.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: An 8-year-old child presents with enuresis (bedwetting). The parents mention the child had a fall from bed once, but has no other significant medical history. There are no signs of urinary tract infection or neurological deficits. What is the best next step in management? (Q866756)

A. Behavioral modification

B. Start anticholinergic drugs

C. Prescribe oxybutynin

D. Start desmopressin therapy

Correct Answer: A. Behavioral modification

Explanation: In an 8-year-old with primary nocturnal enuresis (bedwetting since birth) and no evidence of urinary tract infection, neurological abnormality, or daytime symptoms, the first-line management is non-pharmacological behavioral measures . These include: Limiting evening fluid intake Scheduled voiding before bedtime Positive reinforcement and reward systems Enuresis alarms if behavioral methods alone are insufficient Pharmacological therapy like desmopressin or oxybutynin is reserved for cases where behavioral measures fail, or when there is a need for rapid short-term control (e.g., sleepovers, camps). Incorrect Options: Start anticholinergic drugs (Option B): Used mainly for urge incontinence or overactive bladder, not first-line for primary nocturnal enuresis. Prescribe oxybutynin (Option C): An anticholinergic; indicated for detrusor overactivity, not for initial management of simple nocturnal enuresis. Start desmopressin therapy (Option D): Mimics ADH to reduce urine production at night; second-line after behavioral measures fail.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: At what age does a child reach half of their adult height? (Q855475)

A. 12-18 months

B. 20-24 months

C. 32-36 months

D. 40-48 months

Correct Answer: B. 20-24 months

Explanation: Generally, a child's height at age 2 (20-24 months) years is half of their predicted adult height. This milestone is often used as a reference point in paediatrics to estimate the future growth potential of the child. Normal length at birth: 50cm. In the first year, there is an increase of 25cm, so at 1 year, the height is 75cm. In the second year, there is an increase of 10-15cm, so at 2 years, the height is 85-90cm. There is a steady increase of 6cm/year till 12 years. Height doubles by 4 years Height triples by 12 years Half of adult height in a normal child (80-85cm) is achieved by 2 years (18-24 months). AGE LENGTH/ HEIGHT At birth 50 cm By 3 months 60 cm By 9 months (Option C) 70 cm By 1 year (Option A) 75 cm At 2 years 90 cm At 4-4.5 years (Option D) 100 cm

References:

Ghai Essential pediatrics, 10th edition, Page: 12.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A child with an IQ of 55 comes under: (Q859482)

A. Mild intellectual disability

B. Moderate intellectual disability

C. Severe intellectual disability

D. Profound intellectual disability

Correct Answer: A. Mild intellectual disability

Explanation: Mild intellectual disability: Intellectual disability: IQ < 70 IQ = (Mental age / Chronological age) x 100 Mild intellectual disability: IQ 51-70 IQ level IQ range Mild intellectual disability 51-70 Moderate intellectual disability 36-50 Severe intellectual disability 21-35 Profound intellectual disability 0-20

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 283

↑ *Back to this question in Part A*

@Neet_pg_bot

• [04_Immunization] 010 Immunization And Vaccines

« Back to Folder Directory

[04_Immunization] 010 Immunization And Vaccines — Quick Jump

Q1 (p. 724)	*Q2 (p. 725)*	*Q3 (p. 726)*	*Q4 (p. 728)*	*Q5 (p. 729)*	*Q6 (p. 733)*
Q7 (p. 734)	*Q8 (p. 735)*	*Q9 (p. 736)*	*Q10 (p. 738)*	*Q11 (p. 739)*	*Q12 (p. 740)*
Q13 (p. 741)	*Q14 (p. 742)*	*Q15 (p. 742)*	*Q16 (p. 743)*	*Q17 (p. 744)*	*Q18 (p. 745)*
Q19 (p. 746)	*Q20 (p. 747)*	*Q21 (p. 750)*	*Q22 (p. 750)*	*Q23 (p. 752)*	

Q1: A 16-month-old child is visiting the clinic for a routine check-up. The child's parents enquire about starting the varicella vaccination series. The child is healthy and has no known allergies or medical conditions. Which of the following vaccination schedules is most appropriate for this child? (Q850036)

A. Administer the varicella vaccine today and schedule the second dose 23 months later.

B. Administer the varicella vaccine today and schedule the second dose 3-6 months later.

C. Administer the varicella vaccine today and schedule the second dose 2 weeks later.

D. Administer the varicella vaccine today and schedule the second dose 1 month later.

Correct Answer: B. Administer the varicella vaccine today and schedule the second dose 3-6 months later.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The appropriate vaccination schedule for a 16-month-old child is the second dose correctly scheduled 3-6 months after the first dose. VARICELLA VACCINE About Vaccine Live-attenuated vaccine Oka strain Dose, Route & Site 0.5 mL, Subcutaneously Anterolateral thigh or upper arm National Program Not included IAP 2021 All children, especially high-risk categories; those exposed to varicella, and exposed unvaccinated adolescents/adults. The first dose is taken at 15-18 months (minimum age 12 months). Second dose 3-6 months later. Catch Up Administer two doses ≥3 months apart (≥4 weeks apart if over 13 years old) for those without proof of immunity. Post-exposure prophylaxis When administered for PEP within 72 hours of contact , a single dose of the vaccine offers only about 70% protective efficacy. Adverse Reactions Fever, rash, local pain or redness. Mild rash after 2-3 weeks (5%). C/I The IAP advises against administering the MMR-V vaccine to children under 2 years old. Anaphylaxis after the previous dose Immunodeficiency Active leukaemia or lymphoma During immunosuppressive therapy Precautions Moderate to severe illness Thrombocytopenia Recent receipt of blood products or immunoglobulins Therapy with aspirin Storage Freeze-dried, lyophilized; Store at 2-8°C; Protect from light. Use within 30 minutes of reconstitution.

References:

Ghai Essential Pediatrics, 10th Edition, Pages 204, 205

Nelson Textbook of Pediatrics, 21st edition, Pages 1350, 1353, 1357, 1358

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: Which of the following statements about the BCG vaccine is FALSE? (Q850028)

A. Provides 0-80% protection against TB

B. Leaves a characteristic scar 6-12 months after injection

C. Can be given until age 5 according to IAP 2021 guidelines

D. Loses potency rapidly once reconstituted and should be discarded after 4 hours

Correct Answer: B. Leaves a characteristic scar 6-12 months after injection

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Typical sequence: Papule → ulcer → crust → scar by ~6-12 weeks (not months) Aspect Details About BCG The BCG vaccine contains a live attenuated M. bovis Calmette-Guérin strain. In India, the Copenhagen (Danish 1331) strain is used. Available as a lyophilized powder in vacuum-sealed dark multidose vials . When reconstituted with sterile normal saline, each 0.1 mL dose contains 0.1-0.4 million live bacilli. It remains stable in lyophilized form at 2- 8°C for one year but loses potency rapidly once reconstituted and thus discarded after 4 hours. (Option D ruled out) Dose, Route, Site Infants under one year of age: 0.05 mL Children over one year and adults: 0.1 mL Intradermal at Left upper arm at insertion of deltoid. Protective Efficacy Provides 0–80% protection (Option A ruled out) Protection varies widely depending on geography More effective against severe childhood TB (meningitis, miliary TB) National Program At birth, catch up until 1 year (if missed). IAP 2021 At birth, catch up until 5 years. (Option C ruled out) Injection and Reaction Initial Reaction: A 5-7 mm wheal forms. One Week: Bacilli multiply, forming a 4-8 mm papule . 3-6 Weeks: The papule ulcerates . 6-12 Weeks: The ulcer heals with scarring . Adverse Reactions Local ulceration; discharging sinus; axillary lymphadenitis; If immunodeficient, disseminated infection, osteomyelitis; scrofuloderma. Contraindications Cellular immunodeficiency; Symptomatic HIV. Storage 2-8°C; sensitive to heat and light; Discard reconstituted vaccine after 4 hours.

References:

Ghai Essential Pediatrics, 10th Edition, Pages 190-192

Nelson Textbook of Pediatrics, 21st edition, Page 1350

www.seruminstitute.com/product_diphtheriatetanus_bcg.php

medicalguidelines.msf.org/en/viewport/EssDr/english/tuberculosis-vaccine-bcg-vaccine-16687712.html

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A nurse at a Primary Health Center (PHC) is preparing vaccines for an outreach program. She needs to prioritize handling the most heat-sensitive vaccines to prevent them from losing potency. Which of the following vaccines is the most sensitive to heat? (Q850039)

A. BCG before reconstitution

B. BCG after reconstitution

C. Hepatitis B

D. Pentavalent (Penta) vaccine

Correct Answer: B. BCG after reconstitution

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Amber coloured vials BCG vaccine should be packed in amber glass ampoules to protect it from ultraviolet and fluorescent light. BCG before reconstitution (Option A) : BCG before reconstitution is less heat-sensitive compared to after reconstitution. Hepatitis B (Option C) : The Hepatitis B vaccine is relatively heat-stable, though sensitive to freezing. Pentavalent (Penta) vaccine(Option D) : The Pentavalent vaccine is more sensitive to freezing than heat.



@Neet_pg_bot

Vaccine	Exposure to heat / light	Exposure to cold
Heat and light sensitive vaccines		
OPV	Sensitive to heat	Not damaged by freezing
Measles / MR	Sensitive to heat and light	Not damaged by freezing
BCG, RVV and JE	Relatively heat stable, but sensitive to light	Not damaged by freezing
Freeze sensitive vaccines		
HepB / Penta / PCV	Relatively heat stable	Freezes at -0.5°C (Should not be frozen)
IPV, DPT and TT	Relatively heat stable	Freezes at -3°C (Should not be frozen)
At the PHC level, all vaccines are kept in the ILR for a period of one month at temperature of +2°C to +8°C		

Vaccines sensitive to heat

Most
- BCG (after reconstitution)
- OPV
- IPV
- Measles, MR
- Rotavirus
- JE
- DPT
- BCG (before reconstitution)
- TT,
- Penta, HepB, PCV

Least

Vaccines sensitive to freezing

Most
- HepB
- PCV
- Penta
- IPV
- DPT
- TT

Least

@Neet_pg_bot

References:

www.indianpediatrics.net/apr2003/apr-311-319.htm#

nhm.gov.in/New_Updates_2018/NHM_Components/Immunization/Guildelines_for_immunization/Immunization_Handbook_for_Health_Workers-English.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A nurse is inspecting vaccines in a clinic before administering them to children. She notices that one of the vials of hepatitis B vaccine appears suspicious. To ensure the vaccine's integrity, she performs a shake test. After vigorous shaking, she observes that the vaccine in the vial has a sediment that settles at the bottom, unlike another vial she shakes which remains uniformly cloudy. Based on the results of the shake test, which of the following actions should the nurse take? (Q850038)

A. Administer the vaccine with the sediment as it is still safe to use.

B. Administer the uniformly cloudy vaccine as it is not damaged by freezing.

C. Discard both vials as they show signs of potential damage.

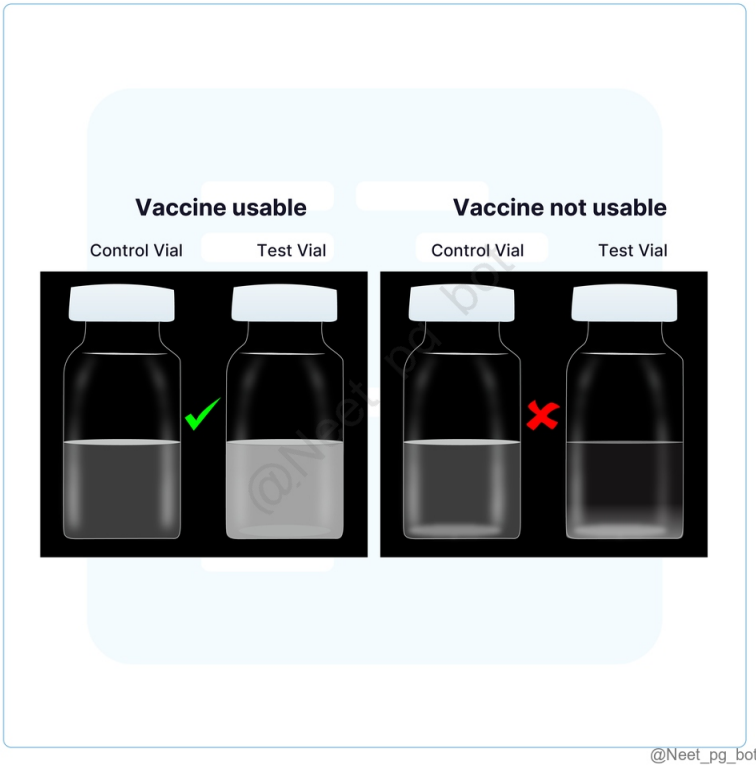
D. Use the vial with the sediment as a control and proceed with the uniformly cloudy vaccine.

Correct Answer: B. Administer the uniformly cloudy vaccine as it is not damaged by freezing.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The uniformly cloudy appearance shows that the vaccine has not been damaged by freezing and is safe to use. Control and Test Vials Freeze-sensitive vaccines are shaken and assessed. Test Vial (Frozen) : Sediment settles at the bottom after vigorous shaking; indicating freezing damage. Control Vial (Frozen) : Used to compare the sedimentation rate with the suspected frozen test vials. Test Vial (Non-Frozen) : Uniformly cloudy appearance; indicates the vaccine is undamaged by freezing. Administer the vaccine with the sediment as it is still safe to use (Option A) : Sediment settling at the bottom indicates the vaccine has been damaged by freezing and should not be used. Discard both vials as they show signs of potential damage (Option C) : Only the vial with sediment should be discarded; the uniformly cloudy vial is safe. Use the vial with the sediment as a control and proceed with the uniformly cloudy vaccine(Option D) : While the sedimented vial can serve as a control for the shake test, it should not be used for vaccination.



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References:

Ghai Essential Pediatrics, 10th Edition, Page 214

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: Which of the following Vaccine Vial Monitors (VVMs) indicates that the vaccine is safe to use? 1. 2. 3. 4. (Q850037)

A. Only 4

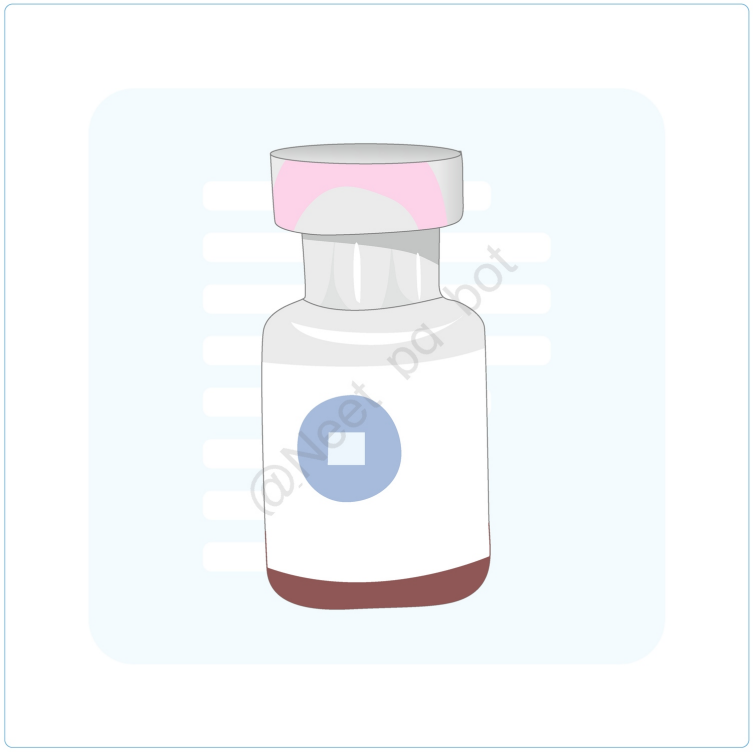
B. 1 & 2

C. 3 & 4

D. Only 3



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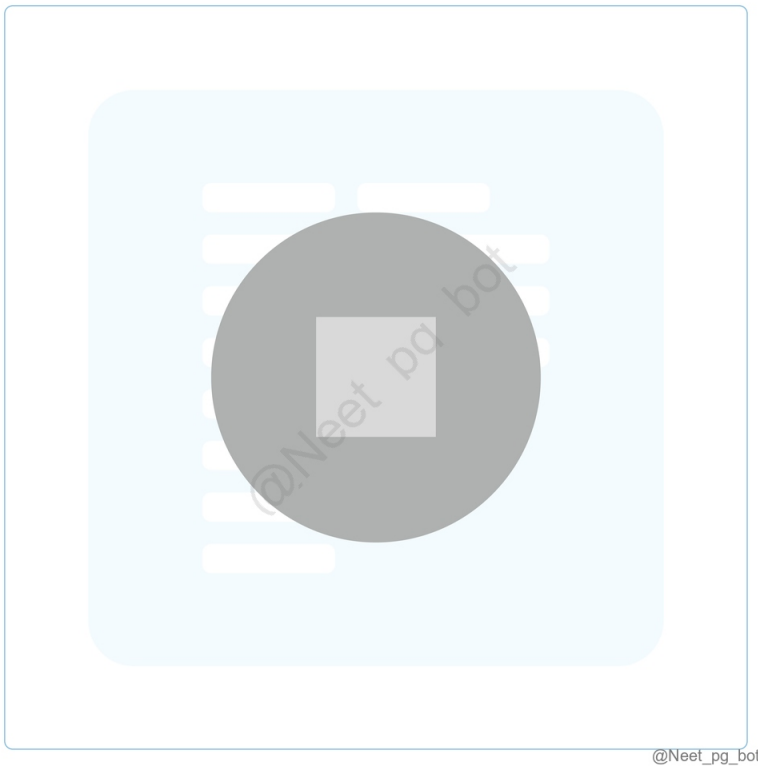


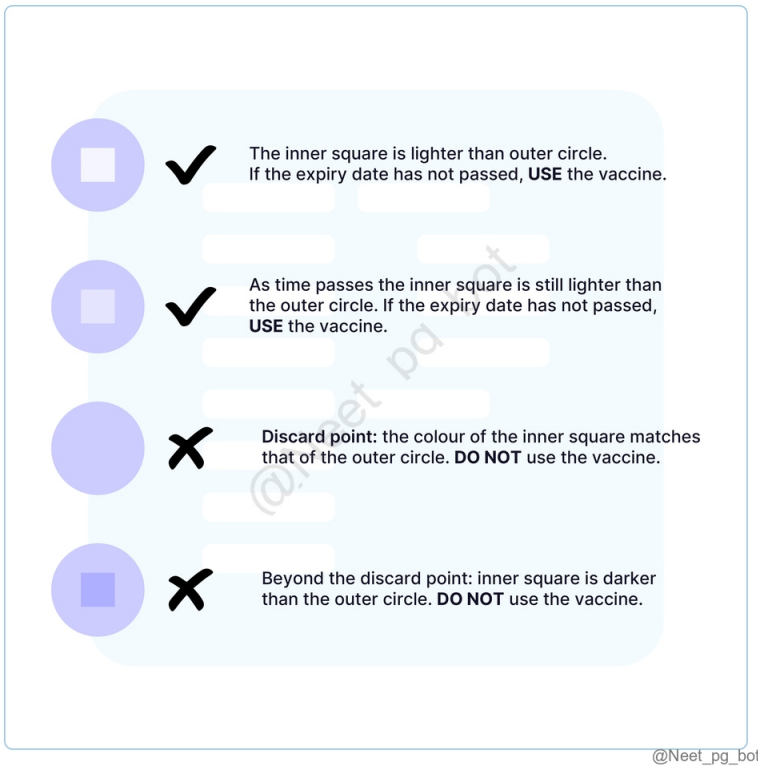
Correct Answer: B. 1 & 2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Both vaccine vials 1 & 2 are safe to use as long as the inner square is lighter than the outer circle, indicating it has not been exposed to excessive heat. Vaccine vials 3 and 4: The inner square is darker than the outer circle and hence has to be discarded Consists of an Inner lighter square within an outer dark circle. Function : The inner square darkens gradually and irreversibly upon heat exposure. Usability Indicator : Vaccine usable: Inner square lighter than the outer circle. Vaccine unusable: The inner square matches or is darker than the outer circle. VVM2 (Oral Polio Vaccine) : assigned to OPV, the most heat-sensitive vaccine, reaches its end-point in 48 hours at 37°C VVM30 (Hepatitis B Vaccine) : Reaches end-point in 30 days at 37°C; used for more heat-stable vaccines.





References:

Ghai Essential Pediatrics, 10th Edition, Page 214

Vaccine pediatrics

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: Which of the following statements about the HPV vaccines is false? (Q850035)

A. Gardasil 9 protects against 9 strains of HPV.

B. The recommended no. of doses for girls under 15 receiving Gardasil 9 is 2.

C. Cervavac (HPV4) is recommended for only girls in the Indian immunization program.

D. Catch-up vaccination for the Gardasil 4 HPV vaccine is available for individuals up to 45 years of age.

Correct Answer: C. Cervavac (HPV4) is recommended for only girls in the Indian immunization program.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Vaccine Name Cervavac (HPV4) Gardasil 4 (HPV4) Gardasil 9 (HPV9) Strain Number 4 4 9 L1 protein of Virus-like particles 6, 11, 16, 18 6, 11, 16, 18 6, 11, 16, 18, 31, 35, 45, 52, 58 (Option A ruled out) Target Age (Girls) 9–26 years 9–45 years 9–45 years Target Age (Boys) 9-26 years 9–26 years 9–45 years Dose (Age < 15) 2 doses (Option B ruled out) Dose (Age ≥ 15) 3 doses Schedule (Age < 15) 0, 6–12 months Schedule (Age ≥ 15) 0, 2, 6 months Dosage & Route 0.5 mL, intramuscular Injection Site Upper arm (deltoid) National Program In certain states for girls aged 11–13 years. IAP 2021 All young girls are recommended. (and boys in Cervavac) Catch-up Coverage Up to 45 years (preferably pre-sexual activity) in Gardasil 4 & 9. (Option D ruled out) Only up to 26 years in Cervavac. Side Effects Local pain, swelling, erythema, fever, syncope (due to injection, not vaccine) C/I Anaphylaxis after the previous dose. Storage 2–8°C, protect from light.

References:

Ghai Essential Pediatrics, 10th Edition, Page 202

Nelson Textbook of Pediatrics, 21st edition, Pages 1350, 1356, 1357, 1358

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 2 y/o child has received only one dose of PCV13 at 6 months. What is the appropriate course of action to complete the pneumococcal vaccination series? (Q850034)

A. Administer three additional PCV13 doses: two 4 weeks apart, the third 8 weeks later.

B. Give one dose of PPSV23 now, no more PCV13 is needed.

C. Administer one additional dose of PCV13 at 24-59 months.

D. No further PCV13 doses are needed since the child is over 2 years old.

Correct Answer: C. Administer one additional dose of PCV13 at 24-59 months.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Aspect Pneumococcal Conjugate Vaccine (PCV) Pneumococcal Polysaccharide Vaccine (PPSV23) Type Conjugate vaccine Polysaccharide vaccine Dose, Route 0.5 mL; Intramuscular 0.5 mL; Intramuscular or Subcutaneous Site Anterolateral thigh or deltoid Deltoid Schedule in National Program Three doses at 6 weeks, 14 weeks, and 9 months. Not included in the national program. Recommended for: All adults 65 years or older. Individuals aged 2 years or older with specific medical conditions that increase their risk for pneumococcal disease should receive the PPSV23 vaccine. Note that PPSV23 is not approved for children under 2 years. IAP 2021 Three doses at ≥ 6 weeks; given ≥4 weeks apart. One booster at 15-18 months. One dose ≥8 weeks after the primary

course with conjugate vaccine. Repeat once after 5 years, if risk persists. Catch-Up (IAP) At 7-11 months of age: Two doses ≥4 weeks apart; one booster at 15-18 months. At 12-23 months of age: Two doses ≥8 weeks apart. At 24-59 months of age: One dose ≥60 months age: One dose, if high-risk Use only if high-risk and ≥2 years old. Adverse Reactions Fever, local pain, soreness, malaise. Local pain, redness, and soreness (30-50%). C/I Anaphylaxis after the previous dose. Anaphylaxis after the previous dose. Storage 2-8°C; do not freeze 2-8°C Administer three additional PCV13 doses: two 4 weeks apart, the third 8 weeks later. (Option A): The catch-up schedule does not require three additional doses with specific intervals. Give one dose of PPSV23 now, no more PCV13 is needed. (Option B): Pneumococcal Polysaccharide Vaccine (PPSV23) is not recommended for routine use in children under 2 years of age. No further PCV13 doses are needed since the child is over 2 years old (Option D): This option is incorrect because it does not follow the catch-up vaccination guidelines.

References:

Ghai Essential Pediatrics, 10th Edition, Page 200

Nelson Textbook of Pediatrics, 21st edition, Pages 1350, 1353, 1356, 1358

Pneumococcal vaccines

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: Which of the following statements about the Rotavirus and Typhoid vaccines is not accurate? (Q850033)

A. The Rotavirus vaccine should be administered at 6, 10, and 14 weeks of age.

B. The Typhoid conjugate vaccine is administered as a single dose at ≥6 months of age.

C. The Typhoid Vi capsular polysaccharide vaccine is recommended every 5 years.

D. The Rotavirus vaccine vial can be used for up to 4 hours after opening.

Correct Answer: C. The Typhoid Vi capsular polysaccharide vaccine is recommended every 5 years.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Aspect Typhoid Conjugate Vaccine Typhoid Vi Capsular Polysaccharide Vaccine Dose 0.5 mL (25 µg) 0.5 mL (25 µg) Route Intramuscular (IM) Subcutaneous (SC) or Intramuscular (IM) Site Anterolateral thigh or deltoid Anterolateral thigh or deltoid Schedule (IAP) One dose at ≥6 months of age. (preferred) (Option B ruled out) One dose at ≥2 years of age; Every 3 years if repeated dose is required. Booster Doses None Required every 3 years. (Option C) Catch-Up One dose up to 18 years. One dose at ≥2 years. Adverse Reactions Local pain, swelling, redness; fever Local pain, swelling, redness; fever Contraindication Anaphylaxis after the previous dose. Anaphylaxis after the previous dose. Storage 2-8°C 2-8°C; do not freeze ROTAVIRUS VACCINE Schedule 3 doses at 6, 10, and 14 weeks (Option A ruled out) About Vaccine Live attenuated oral vaccine Each dose is of 5

drops (0.5ml)-oral. The Rotavirus vaccine vial can be used for up to 4 hours after it has been opened. (Option D ruled out) Strain Used Recently, the 116 E strain of rotavirus found in AIIMS NICU has been used to produce the Indian rotavirus vaccine. Adverse reactions Fever, diarrhoea, vomiting, cough, rhinitis, rash, irritability; Intussusception is rare. C/I Known or Documented Allergic Reaction to the Rotavirus vaccine. History of Intussusception. History of Abdominal Surgery or Intestinal Malformation. Immunodeficiency or severe immunosuppression. Infants with moderate or severe acute illness. Vaccination should be postponed if the infant is experiencing moderate to severe diarrhoea or vomiting requiring rehydration therapy. Catch-Up on Immunization Schedule Permissible up to 1 year of age.



References:

Ghai Essentials of Pediatrics, 10th Edition, Pages 201, 203

Nelson Textbook of Pediatrics, 21st Edition, Pages 1350, 1357, 1358

nhm.gov.in/New_Updates_2018/NHM_Components/Immunization/Guildelines_for_immunization/Operational_Guidelines_for_Introduction_of_Rotavac_in_UIP.pdf

www.fic.nih.gov/News/Publications/Pages/roger-glass-neonatal-rotavirus-vaccine-project-article.aspx#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A baby is born to a Hepatitis B-positive mother. What is the most appropriate plan for the baby? (Q850032)

A. Give Hepatitis B vaccine immediately after birth

B. Give both Hepatitis B vaccine and Hepatitis B Immunoglobulin in 2 separate syringes, at 2 separate sites, within 12 hours of birth

C. Delay Hepatitis B vaccine till 6 weeks. Give Hep B Immunoglobulin immediately after birth

D. Mix Hepatitis B vaccine and Immunoglobulin in a single syringe and give, so that two separate injections are not required.

Correct Answer: B. Give both Hepatitis B vaccine and Hepatitis B Immunoglobulin in 2 separate syringes, at 2 separate sites, within 12 hours of birth

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: When a mother is HBsAg-positive (Hepatitis B surface antigen positive), the newborn is at extremely high risk of vertical transmission during delivery. To prevent chronic Hepatitis B infection, Post-Exposure Prophylaxis (PEP) must be initiated immediately. Hepatitis B Vaccine (Active Immunity): This stimulates the baby's own immune system to produce antibodies. It is the first of a 3 or 4-dose series. Hepatitis B Immunoglobulin (HBIG) (Passive Immunity): This provides "ready-made" antibodies to neutralize the virus immediately while the vaccine is still taking effect. Administration: These must be given at separate anatomical sites (e.g., the right and left vastus lateralis muscles of the thighs) to prevent the immunoglobulin from binding to and neutralizing the vaccine antigens before they can stimulate an immune response. Follow-up Testing For babies born to HBsAg-positive mothers, it is crucial to perform post-vaccination serologic testing (HBsAg and anti-HBs) at 9 to 12 months of age (after the vaccine series is complete) to confirm the baby is not infected and has developed adequate immunity. HEPATITIS B VACCINE Dose, Route, Site 0.5 mL (10 µg) for infants; 1 mL (20 µg) for adults; Intramuscular. Site: Anterolateral thigh or deltoid; avoid the gluteal region. Dosage Birth Dose: As soon as possible after birth to prevent transmission from mother to baby. Follow-up Doses: Administered as part of the Pentavalent vaccine at 6, 10, and 14 weeks. Catch-Up Ideally, a gap of ≥4 weeks between the first two doses; ≥8 weeks between doses 2 and 3; and ≥16 weeks between the first and final doses, with the final dose given at ≥6 months of age. Adverse Reactions Local soreness, fever, fatigue. Contraindication Anaphylaxis after the previous dose. Storage 2-8°C; do not freeze Hepatitis B Positive Mother Initial Dose: Hepatitis B vaccine given immediately after birth. HBIG: Ideally administered within 24 hours of birth. HEPATITIS A VACCINE Disease Overview Hepatitis A is a liver infection caused by the Hepatitis A virus, which can lead to symptoms such as jaundice, weakness, loss of appetite, fever, nausea, vomiting, abdominal pain, and dark urine. Rarely, this leads to liver failure and death. Vaccines Available Inactivated (killed) Vaccine: Administered in two doses, with the second dose given at least 6 months after the first. Live, Weakened Vaccine: Given as a single dose starting at 12 months of age. Safety and Administration Both vaccines are generally safe with minor side effects such as local pain, swelling, and low-grade fever. All children over 12 months should receive the vaccine. The vaccine is not recommended for those with severe allergies to vaccine components or those with weakened immune systems. Prevention Maintaining good hygiene and sanitation is crucial, but vaccination is the most effective way to prevent Hepatitis A. Giving the vaccine alone (Option A) is only about 70% to 75% effective in preventing transmission from an HBsAg-positive mother. Adding HBIG increases the efficacy to over 90% . Delaying the vaccine (Option C) is dangerous. The risk of the baby developing a chronic infection is highest if the virus is allowed to replicate in

the first few weeks of life. 90% of infants infected at birth will develop chronic Hepatitis B. Mixing them in a single syringe (Option D) would cause the antibodies in the HBIG to bind to the vaccine particles, rendering the vaccine ineffective .

References:

Ghai Essential Pediatrics, 10th Edition, Pages 198, 199

Nelson Textbook of Pediatrics, 21st edition, Pages 1350, 1353, 1355, 1356, 1358

Hepatitis B vaccine

Hepatitis A vaccine

Management of Infants Born to Women with Hepatitis B Virus Infection for Pediatricians

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A 6-month-old infant is brought to the clinic due to concerns about a local measles outbreak. The parents are worried about the child contracting measles and inquire about vaccination options. The child has not yet received any measles vaccination. What is the most appropriate recommendation regarding measles vaccination for this child? (Q850031)

A. Delay vaccination until the child reaches 9 months of age.

B. Administer the MMR vaccine now and no further doses are needed.

C. Administer the first dose of the Measles vaccine now and give MR vaccine again at 9 months and 16-18 months

D. Administer the first dose of the Measles vaccine now and schedule the next dose at 4-6 years.

Correct Answer: C. Administer the first dose of the Measles vaccine now and give MR vaccine again at 9 months and 16-18 months

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: MEASLES VACCINE Type of vaccine & Strain Live-attenuated vaccine; Edmonston Zagreb strain; Each dose of the vaccine contains a minimum of 1000 infectious units of the attenuated virus. Dose, Route 0.5 mL; Subcutaneous Site The right upper arm (at the insertion of the deltoid) or anterolateral thigh. National Program At 9-12 months and 15-24 months, the measles or measles-rubella vaccine. IAP At 9-12 months, 15-18 months, and 4-6 years; preferably as MMR; avoid MMR-V <2 years. In case of a measles outbreak The vaccine can be administered as early as 6 months of age, followed by a booster dose at 12-15 months. Adverse Reactions Local

pain, tenderness; febrile seizures (especially with MMR-V in <2 years); Measles vaccine : fever or transient macular rash (after 7-12 days); MMR vaccine : Transient rash, arthralgia, aseptic meningitis, lymphadenopathy. Contraindications Immunosuppression; Pregnancy; malignancy; immunodeficiency (e.g., symptomatic HIV); recent infusion of immunoglobulin-containing blood product. Storage 2-8°C; sensitive to heat and light; use within 4-6 hours of reconstitution. Delay vaccination until the child reaches 9 months of age (Option A): Delaying vaccination increases the child's risk of contracting measles. Administer the MMR vaccine now, and no further doses are needed (Option B): The MMR vaccine is generally administered after 9 months of age. At 6 months, only the Measles vaccine should be given, and a booster is still required later. Administer the first dose of the Measles vaccine now and schedule the next dose at 4-6 years (Option D): While the first dose should be administered now, the next dose should be given at 12-15 months. The third dose is scheduled for 4-6 years.

References:

Ghai Essential Pediatrics, 10th Edition, Pages 197,198

Nelson Textbook of Pediatrics, 21st edition, Pages 1347, 1350, 1353

MMR Vaccine

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 18-month-old, previously vaccinated with the Pentavalent series, is due for the 1 st DPT booster. The parents are concerned about side effects. What should the healthcare provider explain about the appropriate vaccine and potential adverse effects? (Q850030)

A. Administer DPT as the booster; local reactions like pain or redness are common.

B. Administer Pentavalent again to maintain immunity; severe side effects are rare.

C. Administer DPT and monitor for severe side effects like encephalopathy.

D. No further vaccines are needed after completing the Pentavalent series.

Correct Answer: A. Administer DPT as the booster; local reactions like pain or redness are common.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: DPT VACCINE Protects Against Diphtheria, Pertussis (Whole cell and Acellular), Tetanus Dosage 6 weeks, 10 weeks, 14 weeks; 1st Booster: 16-24 months; 2nd Booster: 5-6 years Route of Administration Intramuscular, on the anterolateral aspect of the left thigh. Adverse Effects Local: Redness and pain at the injection site; Systemic: Fever; Severe: Persistent inconsolable cry (>3 hours), seizures, hypotonic hyporesponsive episodes, encephalopathy/altered sensorium, anaphylaxis. C/I Progressive neurological illness; Anaphylaxis to a previous dose; Encephalopathy within 7 days of the previous dose. Precautions Previous dose associated with

fever >40.5°C within 48 hours; Hypotonic-hyporesponsive episode <48 hours; Persistent inconsolable crying for >3 hours, <48 hours; Seizures <72 hours. Storage 2-8°C; sensitive to light. PENTAVALENT VACCINE Protects a child from 5 life-threatening diseases – Diphtheria, Pertussis, Tetanus, Hepatitis B, and H. influenzae type B. Administer at 6 weeks, 10 weeks, and 14 weeks. 0.5 mL given intramuscularly in the anterolateral mid-thigh. Store and transport at +2 to +8°C. Administer Pentavalent again to maintain immunity; severe side effects are rare (Option B): The Pentavalent vaccine is only given in the primary series at 6, 10, and 14 weeks. Administer DPT and monitor for severe side effects like encephalopathy (Option C): While severe side effects like encephalopathy are possible, they are extremely rare. No further vaccines are needed after completing the Pentavalent series. (Option D): Even though the Pentavalent series has been completed, the DPT booster is still necessary at 16-24 weeks to maintain immunity against diphtheria, pertussis, and tetanus.

References:

Ghai Essential Pediatrics, 10th Edition, Page 196

Nelson Textbook of Pediatrics, 21st edition, Pages 1350, 1353, 1357, 1358

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: In response to the emergence of circulating vaccine-derived polioviruses (cVDPVs), which of the following strategies has been implemented globally to address this issue? (Q850029)

A. Exclusively using trivalent oral polio vaccine (OPV) to enhance herd immunity.

B. Transitioning from trivalent OPV to bivalent OPV (bOPV) and introducing inactivated polio vaccine (IPV) into routine schedules.

C. Replacing all OPV doses with IPV doses in the primary immunization schedule.

D. Discontinuing the use of any polio vaccines and relying on natural immunity.

Correct Answer: B. Transitioning from trivalent OPV to bivalent OPV (bOPV) and introducing inactivated polio vaccine (IPV) into routine schedules.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The transition to bivalent OPV and incorporating IPV helps mitigate cVDPV risks. Types of Polio Vaccines: Attribute Oral Polio Vaccine (OPV) Inactivated Polio Vaccine (IPV) Composition Weakened (attenuated) Sabin poliovirus strains grown in monkey kidney cells. Killed (inactivated) poliovirus - Salk’s. Administration Oral Injection Immunity Provides mucosal immunity in the gut. Primarily induces a systemic immune response. Advantages Stronger mucosal immunity "Herd immunity" reducing wild poliovirus transmission No risk of VAPP or cVDPV circulation. Effective in preventing paralytic poliomyelitis. Disadvantages Requires multiple doses. Rare risk of vaccine-associated paralytic poliomyelitis (VAPP).

Emergence of circulating vaccine-derived polioviruses (cVDPVs). Weaker mucosal immunity. More complex and expensive to manufacture. (Option C ruled out) Evolution of Polio Vaccination Strategies: Historical Focus : Relied on OPV for its ease of use and herd immunity benefits. Shift in Strategy : The emergence of cVDPVs, especially type 2 (cVDPV2), led to a switch from trivalent OPV to bivalent OPV (bOPV) in 2016, and the introduction of IPV in routine schedules. (Option A ruled out) (Option B) Current Approach : Sequential IPV-OPV schedules are used, transitioning to exclusive IPV use once wild poliovirus is no longer circulating. (Option D ruled out)

References:

Ghai Essential Pediatrics, 10th Edition, Pages 192- 195

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 10-week-old infant is brought to the clinic for a routine check-up. The mother reports that the baby received the first dose of Hepatitis B at birth but missed the scheduled vaccinations at 6 weeks. Which of the following should be administered to the infant at this visit to catch up with the National Immunisation Schedule? (Q850017)

A. bOPV, Pentavalent, Rotavirus, fIPV-1, PCV-1

B. MMR, Hepatitis A

C. Vitamin A, Tetanus Toxoid

D. Hepatitis B, HPV

Correct Answer: A. bOPV, Pentavalent, Rotavirus, fIPV-1, PCV-1

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: All the vaccines that were supposed to be given at 6 weeks are given at 10 weeks now Age National Immunisation Schedule At birth BCG, bOPV-0, HBV-0 6 weeks bOPV-1, Pentavalent-1, Rota-1, fIPV-1, PCV-1 10 weeks bOPV-2, Pentavalent-2, Rota-2 14 weeks bOPV-3, Pentavalent-3, Rota-3, fIPV-2, PCV-2 9 months MR-1, JE-1, PCV-3, fIPV-3 16-18 months DTwP-B1, bOPV-B, JE-2, MR-2 5-6 years DTwP-B2 10-12 years Td 9-14 years HPV-1, HPV-2 16 years Td Abbreviations: BCG Bacillus Calmette-Guerin; bOPV- Bivalent oral polio vaccine. HBV hepatitis B virus f-IPV - fractional - Inactivated poliovirus vaccine Rota - Rotavirus vaccine PCV - Pneumococcal vaccine DPT - Diphtheria, pertussis, and tetanus vaccine MR - Measles & Rubella vaccine Td - Tetanus-Diphtheria vaccine JE - Japanese encephalitis vaccine Additional Vaccines added by IAP: Hepatitis A Varicella HPV(Human Papillomavirus) vaccine Typhoid vaccine: Given at 2 years of age

References:

Ghai Essential Pediatrics, 10th Edition, Page 189

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A preterm infant born at 28 weeks of gestation weighs 1.8 kg at birth. The infant's mother is HBsAg-positive. Which of the following is the correct management for hepatitis B vaccination in this infant? (Q850027)

A. Administer the hepatitis B birth dose within the first 24 hours of life.

B. Defer the hepatitis B birth dose until the infant reaches 1 month of age.

C. Administer hepatitis B immunoglobulin (HBIG) and hepatitis B vaccine within 12 hours of birth.

D. Administer hepatitis B vaccine only after discharge from the hospital.

Correct Answer: C. Administer hepatitis B immunoglobulin (HBIG) and hepatitis B vaccine within 12 hours of birth.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Preterm Infants: General Recommendations : Vaccinate based on chronological age, similar to full-term infants. Hepatitis B Vaccine : For ≥ 2 kg and stable : Birth dose within 24 hours. For < 2 kg : Birth dose deferred until 1 month or hospital discharge (if HBsAg-negative mother). All preterm, low-birthweight infants born to HBsAg-positive mothers should receive HBIG and hepatitis B vaccine within 12 hours of birth, with three additional doses starting at 1 month.

References:

Nelson Textbook of Paediatrics, 21st Edition, Pages 1359, 1360, 1362, 1363

newsinhealth.nih.gov/2022/10/vaccinations-older-adults

www.ncbi.nlm.nih.gov/pmc/articles/PMC5328222/

www.cdc.gov/rsv/vaccines/older-adults.html

www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/vaccines/art-20046750

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: According to the World Health Organization (WHO) classification, which of the following is classified as a severe vaccine reaction? (Q850026)

A. Pain, swelling, or redness at the injection site

B. Mild fever

C. Severe allergic reaction requiring emergency treatment

D. Convulsions occurring in clusters

Correct Answer: C. Severe allergic reaction requiring emergency treatment

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: WHO Classification of Vaccine Reactions: Category Definition Examples Minor Reactions (Options A&B ruled out) Common, self-limiting; resolve within a few days without specialized care. Pain, swelling, or redness at the injection site Mild fever Malaise or fatigue Muscle pain or headache Severe Reactions Usually are enhanced minor reactions, generally due to a heightened immune response of the vaccinated individual. Severe allergic reactions requiring emergency treatment. Convulsions or serious neurological events. All adverse effects are not categorized as minor or serious. Serious Reactions (Option D ruled out) May require hospitalization; can lead to permanent disability or death. Severe allergic reactions (e.g., anaphylaxis) Convulsions Reactions occurring in clusters (two or more cases at one vaccination centre or in a geographical area)

References:

iapindia.org/pdf/Ch-012-AEFI-IAP-Parental-Guideline-28112021.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: Which of the following is an example of a vaccine-induced adverse event following immunization? (Q850025)

A. Syncope after vaccination

B. Toxic shock syndrome due to a contaminated vaccine

C. Anaphylaxis after the measles vaccine

D. Gastroenteritis after the MMR injection

Correct Answer: C. Anaphylaxis after the measles vaccine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Classification of Adverse Event Following Immunization (AEFI): Classification Description Examples Vaccine-Induced Caused by an active component of the vaccine. Anaphylaxis (measles vaccine), vaccine-associated paralytic poliomyelitis, BCG-related adenitis, pertussis encephalopathy. Vaccine Potentiated Precipitated by vaccination but could occur even without it. First febrile seizure. Injection Reaction (Option A ruled out) Caused by anxiety or pain from the injection, not the vaccine. Syncope after vaccination. Program/Immunization Errors (Option B ruled out) Result from errors in vaccine preparation, handling, or administration. Toxic shock syndrome (contaminated measles vaccine), injection site abscess. Coincidental (Option D ruled out) Temporally linked to the vaccine by chance or due to an unrelated illness. Gastroenteritis after MMR injection. Assessing AEFI Severity: An AEFI is considered serious if it: Results in death Leads to hospitalisation Causes persistent or significant disability Occurs in clusters (two or more cases within a geographical area)

References:

Ghai Essential Pediatrics, 10th Edition, Pages 212, 213

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: Which of the following vaccines is not administered via intramuscular (IM) injection according to the National Immunization Schedule (NIS) of India? (Q850024)

A. Hepatitis B

B. Measles & Rubella (MR)

C. Pentavalent Vaccine

D. Diphtheria, Pertussis & Tetanus (DPT) Booster-1

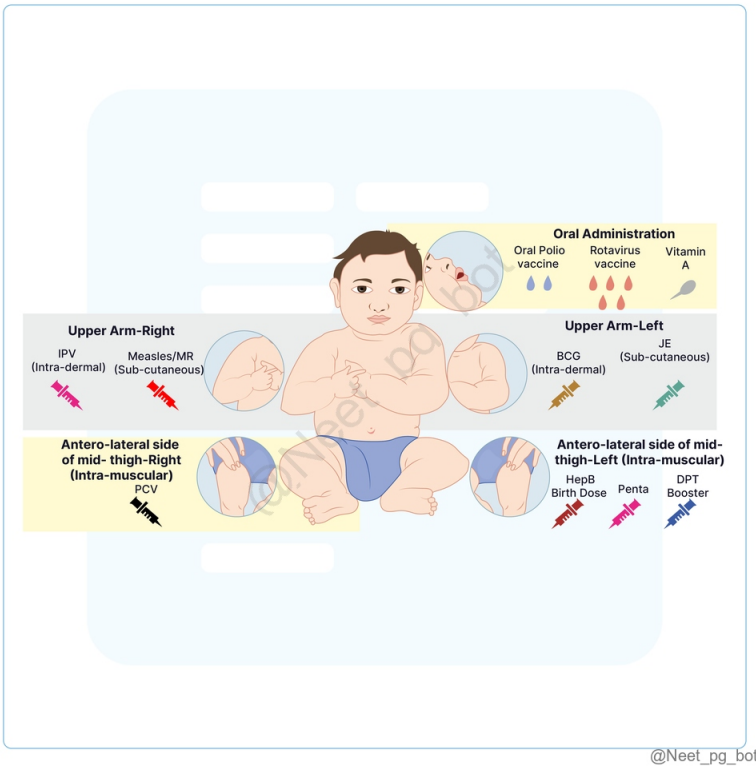
Correct Answer: B. Measles & Rubella (MR)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: National Immunization Schedule (NIS) of India Age Vaccine Dose Route Site At Birth BCG 0.1 ml (0.05 ml until 1 month) Intradermal Left upper arm Hepatitis B (Birth Dose) (Option A ruled out) 0.5 ml Intramuscular The anterolateral side of the mid-thigh Oral Polio Vaccine (OPV-0) 2 drops Oral Oral 6 Weeks OPV-1 2 drops Oral Oral Pentavalent-1 (Option C ruled out) 0.5 ml Intramuscular The anterolateral side of the mid-thigh Rotavirus Vaccine (RVV-1) 5 drops Oral Oral Fractional dose of Inactivated Polio Vaccine (fIPV-1) 0.1 ml Intra dermal Right upper arm Pneumococcal Conjugate Vaccine (PCV-1) 0.5 ml Intramuscular The anterolateral side of the mid-thigh 10 Weeks OPV-2 2 drops Oral Oral Pentavalent-2 (Option C ruled out) 0.5 ml Intramuscular The anterolateral side of the mid-thigh Rotavirus Vaccine (RVV-2) 5 drops Oral Oral 14 Weeks

OPV-3 2 drops Oral Oral Pentavalent-3 (Option C ruled out) 0.5 ml Intramuscular The anterolateral side of the mid-thigh fIPV-2 0.1 ml Intra dermal Right upper arm Rotavirus Vaccine (RVV-3) 2 drops Oral Oral Pneumococcal Conjugate Vaccine (PCV-2) 0.5 ml Intramuscular The anterolateral side of the mid-thigh 9-12 Months Measles & Rubella (MR-1) (Option B) 0.5 ml Subcutaneous Upper arm Japanese Encephalitis (JE-1) 0.5 ml Subcutaneous (Live attenuated vaccine) Intramuscular(Killed vaccine) Left upper Arm (Anterolateral aspect of mid-thigh PCV Booster (if applicable) [The only booster dose administered before 1 year] 0.5 ml Intramuscular The anterolateral side of the mid-thigh 16-24 Months MR-2 (Option B) 0.5 ml Subcutaneous Upper arm JE-2 0.5 ml Subcutaneous (Live attenuated vaccine) Intramuscular(Killed vaccine) Left upper Arm Anterolateral aspect of mid-thigh. Diphtheria, Pertussis & Tetanus (DPT) Booster-1 (Option D ruled out) 0.5 ml Intramuscular Upper arm OPV Booster 2 drops Oral Oral 5-6 Years DPT Booster-2 0.5 ml Intramuscular Upper arm 10 Years Tetanus & adult Diphtheria (Td) 0.5 ml Intramuscular Upper arm 16 Years Td 0.5 ml Intramuscular Upper arm



References:

nhm.gov.in/New_Updates_2018/NHM_Components/Immunization/report/National_%20Immunization_Schedule.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A 16 y/o girl who missed her HPV vaccination series as a pre-teen is now seeking to catch up. What is the most appropriate action according to the vaccination

guidelines? (Q850023)

A. Start the full 3-dose HPV vaccine series immediately.

B. Administer a single dose of HPV vaccine.

C. Delay vaccination until she is 18 years old.

D. Perform serologic testing before initiating the HPV vaccine series.

Correct Answer: A. Start the full 3-dose HPV vaccine series immediately.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The HPV vaccine series should be started as soon as possible for adolescents who missed the vaccination at the recommended age. Dosing Rule <15 years at initiation → 2 doses ≥15 years at initiation → 3 doses Recommended Vaccines for Adolescents (WHO): Vaccine Recommended Age Dosage Schedule Tetanus-diphtheria-pertussis (Tdap/Td) Tdap: 10 years Td: Every 10 years Tdap at age 10. Td boosters every 10 years. Measles, Mumps, and Rubella (MMR) 12–13 years One dose if not previously received. Rubella 12–13 years One dose specifically for girls if MMR was not given earlier. Hepatitis B Birth to 18 years Series of three doses at 0, 1, and 6 months. Hepatitis A 12 months to 18 years Two doses at 0 and 6 months. Typhoid 2 years to 18 years A single dose of intramuscular Vi polysaccharide or three doses of oral vaccine. Boosters every 3 years. Varicella (Chickenpox) 2–12 years and >12 years One dose for ages 2–12 years. Two doses for ages over 12 years. Human Papillomavirus (HPV) 10–12 years Three doses (0, 1, 2 or 0, 1, 6 months depending on the vaccine)

References:

www.ncbi.nlm.nih.gov/pmc/articles/PMC5054787/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: Which of the following vaccines should be discarded at the end of an immunization session if partially used? (Q850022)

A. Diphtheria-tetanus-pertussis (DTP) vaccine

B. BCG Vaccine

C. Hepatitis B vaccine (monovalent)

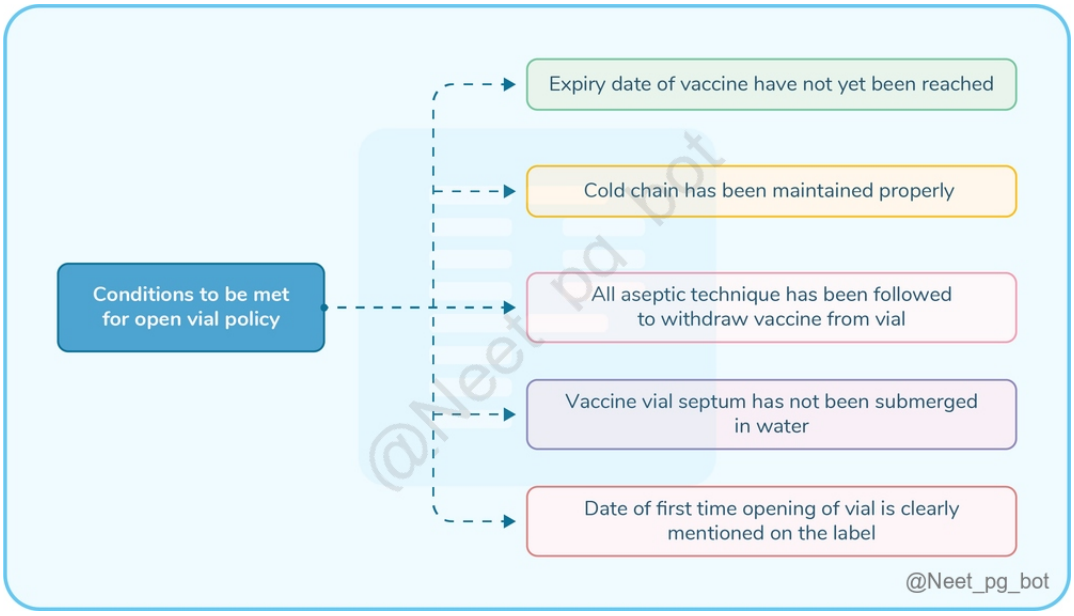
D. Pneumococcal conjugate vaccine (PCV)

Correct Answer: B. BCG Vaccine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Open Vial Policy: The Open Vial Policy allows for the reuse of partially used multi-dose vials of certain vaccines under the Universal Immunization Program (UIP) in subsequent immunization sessions. These sessions can be both fixed or outreach and can occur up to four weeks (28 days) after the vial was first opened. Vaccines Applicable for Open Vial Policy: Vaccines Not Applicable for Open Vial Policy: Vaccines that can be used in subsequent sessions if conditions are met: Vaccines that should be discarded at the end of an immunization session if partially used: Diphtheria-tetanus-pertussis (DTP) containing vaccines (Option A ruled out) Tetanus-diphtheria (Td) vaccine Hepatitis B vaccine (monovalent) (Option C ruled out) Haemophilus influenzae type b (Hib) vaccine (monovalent or combined) Pneumococcal conjugate vaccine (PCV) (Option D ruled out) Inactivated poliovirus vaccine (IPV) Oral polio vaccine (OPV) BCG vaccine (Option B) Rotavirus vaccine (some strains) Measles-rubella (MR) vaccine Measles-mumps-rubella (MMR) vaccine Rubella vaccine Japanese encephalitis (JE) vaccine



References:

www.unicef.org/india/media/6671/file/Open%20Vial%20Policy%20report.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: Which of the following correctly describes the purpose of the shake test in vaccine management? (Q850021)

A. To check if the vaccine has been exposed to excessive heat

B. To determine if the vaccine has been frozen and potentially damaged

C. To verify the expiration date of the vaccine

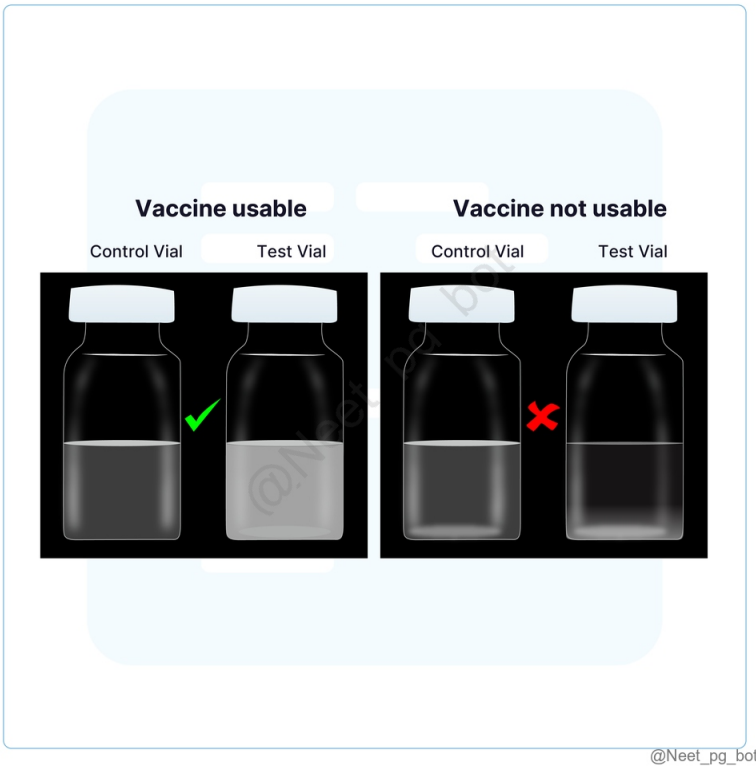
D. To assess the potency of the vaccine by checking its colour

Correct Answer: B. To determine if the vaccine has been frozen and potentially damaged

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Shake Test: Purpose: To determine if a freeze-sensitive vaccine (e.g., DTP, DT, TT, pentavalent, hepatitis B has been accidentally frozen, which can reduce efficacy. Procedure: Control Vial: Deliberately freeze a vial from the same batch for a specific time, then thaw at room temperature. Test Vial: The vial suspected of freezing is shaken vigorously along with the control vial. Comparison: Place both vials side by side against a light source to compare sedimentation patterns. Interpretation: Observation Interpretation Action Sedimentation in the test vial is similar to or faster than the control vial Likely frozen Discard the test vial No sediment or slower sedimentation in the test vial compared to the control vial Not Frozen Safe to use Vaccine Vial Monitor (VVM): Purpose: A heat-sensitive label on vaccine vials to ensure vaccine potency during transportation and storage. Function: The VVM contains a heat-sensitive material that changes colour irreversibly when exposed to heat over time. (Option A ruled out) Healthcare providers use this visual indicator to assess if a vaccine has been exposed to inappropriate temperatures. Usage Criteria: The vaccine is usable if the inner square of the VVM is lighter than the outer circle. The vaccine should be discarded if the inner square is the same colour as or darker than the outer circle. VVM Color Change Timeline: Vaccine VVM Type Colour Change Time Oral poliovirus vaccine (OPV) VVM2 2 days DTP-hepatitis B vaccine VVM14 14 days







References:

Ghai Essential Pediatrics, 10th Edition, Pages 213, 214

↑ *Back to this question in Part A*

@Neet_pg_bot

Q21: A 7 y/o foster child presents to the clinic with an undocumented immunization history. The caretakers are unsure if the child received any vaccines. What is the most appropriate next step in managing this child? (Q850020)

A. Delay vaccination until the immunization history is confirmed.

B. Administer all age-appropriate vaccines immediately.

C. Vaccine-preventable diseases are no longer a concern.

D. Administer only the first dose of each vaccine and wait for serologic confirmation.

Correct Answer: B. Administer all age-appropriate vaccines immediately.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Children with unknown or undocumented immunization histories should be considered at risk and vaccinated without delay based on their current age. Vaccination of Children with Unknown or No Immunisation History: Consider Susceptible : Children with unknown or undocumented immunization history should be considered at risk for vaccine-preventable diseases and vaccinated without delay. Safety of Vaccination : Administering vaccines to children who are already immune is not harmful. Age-Based Immunisation : The immunization schedule should be tailored to the child's current age, ensuring all age-appropriate vaccines are administered promptly. Catch-Up Schedule : Refer to the catch-up immunization schedules for children aged 4 months through 18 years. These schedules specify the minimum age for the first dose and the minimum intervals between doses. Options for Addressing Concerns about Previous Vaccinations: Option Description 1. Administer or Repeat Missing Doses Ensures full protection by completing the vaccine series. 2. Perform Serologic Tests If tests show no antibodies, vaccinate according to the recommended schedule.

References:

Nelson Textbook of Paediatrics, 21st Edition, Pages 1358, 1365

↑ *Back to this question in Part A*

@Neet_pg_bot

Q22: A 6-month-old infant arrives at the clinic for their scheduled vaccinations. The mother mentions that the baby has a mild cough and runny nose but no fever. She is also concerned because the baby vomited 15 minutes after receiving the last dose of

OPV during the previous visit. Which of the following is the most appropriate action for the healthcare provider to take today? (Q850019)

A. Administer all scheduled vaccines, including a repeat dose of OPV

B. Withhold all vaccines and reschedule for when the child is symptom-free

C. Restart the entire vaccination series from the beginning

D. Administer all scheduled vaccines except OPV due to the previous vomiting episode

Correct Answer: A. Administer all scheduled vaccines, including a repeat dose of OPV

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Special case scenarios: Scenario Key Points A child with a Cough/Cold Mild illness (cough, cold, mild fever, mild diarrhoea) is not a contraindication to vaccination. Vaccination is safe for children with mild symptoms. Children with moderate to severe illness requiring hospitalization should not be vaccinated. Child with Vomiting If vomiting occurs within 10 minutes after OPV, repeat the dose immediately. For vomiting within 30 minutes after OPV, a repeat dose is recommended. Oral vaccines should be withheld in a child with recurrent vomiting until controlled. Lapsed Immunization Longer intervals between doses usually do not reduce final antibody levels. Vaccines should be administered as close to recommended intervals as possible. Full protection is achieved after completing the recommended doses. The interruption usually does not require restarting the series (exceptions: oral typhoid vaccine). Preponed Immunization Doses given 5+ days early are invalid and should be repeated. Repeat doses should follow the recommended minimum interval after the invalid dose. For doses before the minimum age, repeat after reaching the minimum age. For live vaccines, wait at least 28 days before repeating. Withhold all vaccines and reschedule for when the child is symptom-free (Option B): This is not recommended because mild symptoms like a cough or cold do not justify delaying vaccinations. Restart the entire vaccination series from the beginning (Option C): This is unnecessary. Interrupted or delayed vaccination schedules generally do not require restarting the series. Administer all scheduled vaccines except OPV due to the previous vomiting episode (Option D): While OPV might be delayed in cases of uncontrolled vomiting, this child only vomited once, 15 minutes after the previous dose, which warrants a repeat dose rather than skipping it.

References:

nhm.gov.in/New_Updates_2018/NHM_Components/Immunization/Guildelines_for_immunization/FAQ_on_Immunization_for_Health_Workers-English.pdf

www.tr.cocukenfeksiyondergisi.org/upload/documents/2023-02-en/2023-17-2-en-140-141.pdf

www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html#

www.immunize.org/wp-content/uploads/catg.d/p3033.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q23: A 1 y/o child is assessed for vaccination status. The records show the child has received all vaccines recommended for the first year. Which of the following vaccines has the child not received as part of being fully immunized according to the National Immunisation Schedule? (Q850018)

A. 3 doses of OPV

B. 1 dose of Measles/MR

C. DPT Booster

D. 2 doses of IPV

Correct Answer: C. DPT Booster

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The DPT Booster is recommended in the second year of life, so a fully immunized child (up to 1 year) would not have received this yet. Fully immunised Child Completely immunised child Received all vaccines recommended in the National Immunization Schedule for the first year of life. Received all vaccines recommended for both the first and second years of life in the National Immunization Schedule. Specific criteria for monitoring: 1 dose of BCG 1 dose of Measles/MR (Option B ruled out) 3 doses each of OPV (Option A ruled out) and Pentavalent Vaccine 2 doses of IPV (Option D ruled out) Additional vaccines for complete protection (as per the program): 3 doses of PCV 3 doses of RVV 1 dose of JE (where applicable) First Year: 1 dose of BCG, Measles/MR, JE (where applicable). 3 doses of OPV, Pentavalent vaccine, Rotavirus vaccine (RVV), and PCV (where applicable). 2 doses of IPV. Second Year: 2nd dose of Measles/MR, JE (where applicable). 1 booster dose of OPV and DPT.

References:

nhm.gov.in/New_Updates_2018/NHM_Components/Immunization/Guildelines_for_immunization/FAQ_on_Immunization_for_Health_Workers-English.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

• [04_Immunization] 011 Previous Year Questions

« Back to Folder Directory

[04_Immunization] 011 Previous Year Questions — Quick Jump

Q1 (p. 753) *Q2 (p. 753)* *Q3 (p. 754)*

Q1: Which of the following vaccines is contraindicated in a patient diagnosed with Severe Combined Immunodeficiency (SCID)? (Q865439)

A. Hepatitis B

B. Tetanus, Diphtheria, and Pertussis (Tdap)

C. Inactivated Poliovirus (IPV)

D. Measles, Mumps, and Rubella (MMR)

Correct Answer: D. Measles, Mumps, and Rubella (MMR)

Explanation: Severe Combined Immunodeficiency (SCID) is a life-threatening primary immunodeficiency characterized by a severe defect in both cellular (T-cell) and humoral (B-cell, indirectly) immunity. Patients with SCID are highly susceptible to infections. The general rule for vaccinating immunocompromised individuals, especially those with severe immunodeficiencies like SCID, is to avoid live-attenuated vaccines. Live-attenuated vaccines contain weakened forms of the virus or bacteria, which can replicate in the body and, in a severely immunocompromised person, can cause the full-blown disease rather than a protective immune response. Other options ruled out Hepatitis B (Option A ruled out) : This is an inactivated (killed) vaccine. Inactivated vaccines do not contain live pathogens and are generally safe for immunocompromised individuals, although their immune response might be blunted. Tetanus, Diphtheria, and Pertussis (Tdap) (Option B ruled out) : This is a toxoid and inactivated vaccine (diphtheria and tetanus toxoids, and inactivated pertussis components). It is safe for immunocompromised individuals. Inactivated Poliovirus (IPV) (Option C ruled out) : As the name suggests, this is an inactivated (killed) vaccine. It is safe for immunocompromised individuals. (Note: The Oral Polio Vaccine (OPV) is a live-attenuated vaccine and would be contraindicated).

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1115, 1116, 1117

O.P Ghai Essentials of Pediatrics, 10th Edition, Pages 697, 698

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 5-year-old unimmunized child presents to the OPD with a fully immunized 2-year-old sibling. Upon inspection, a white membranous layer is observed in the throat of the 5-year-old. What is the next step in management for the contact? (Q844161)

A. Diphtheria toxoid vaccine booster

B. Diphtheria toxin

C. Penicillin

D. No treatment is needed

Correct Answer: A. Diphtheria toxoid vaccine booster

Explanation: Close contacts of a diphtheria case should receive post-exposure prophylaxis which includes: Administration of a booster dose of diphtheria toxoid vaccine if their vaccination status is incomplete or if the last dose was more than 5 years ago.■ Antibiotic prophylaxis (usually erythromycin or penicillin) to eradicate carriage. Routine administration of diphtheria toxoid vaccine to contacts prevents disease development by boosting immunity. Diphtheria toxin (Option B): This is incorrect and dangerous. The toxin is the virulent agent produced by Corynebacterium diphtheriae and is responsible for systemic effects like myocarditis and neuropathy. Toxoid , not toxin, is used in vaccines. Penicillin (Option C): Prophylactic antibiotics can be considered but are not a substitute for vaccine booster in contacts. No treatment is needed (Option D): This is incorrect. Even fully immunized contacts require evaluation and possibly prophylactic antibiotics due to risk of carriage and spread . Surveillance and monitoring are essential.

References:

https://iapindia.org/pdf/Ch-129-Diphtheria.pdf https://www.who.int/docs/default-source/documents/publications/operational-protocol-for-clinical-management-of-diphtheria.pdf?sfvrsn=70868342_1

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: In which of the following conditions is live vaccination not contraindicated? DiGeorge syndrome Wiskott Aldrich Syndrome Ataxia telangiectasia Complement deficiency (Q854736)

A. 4 only

B. 1 only

C. 1 and 3

D. 2 and 3

Correct Answer: A. 4 only

Explanation: Live vaccines are typically contraindicated in conditions associated with impaired T-cell immunity, as individuals with such deficiencies are at risk for severe infections due to their inability to mount an adequate immune response to live pathogens. This includes DiGeorge syndrome, Wiskott-Aldrich Syndrome, and Ataxia telangiectasia. In contrast, patients with complement deficiencies have normal T-cell and B-cell functions. They may have an increased susceptibility to certain bacterial infections, particularly those caused by Neisseria species, due to defective complement-mediated immunity. However, their adaptive immune system, which is responsible for responding to vaccines, remains intact. Therefore, live vaccinations are generally not contraindicated in complement deficiency. DiGeorge syndrome (1) involves a defect in the development of the thymus, leading to T-cell deficiency and impaired cell-mediated immunity. As a result, live vaccines should be avoided due to the increased risk of severe infections. Wiskott-Aldrich Syndrome (2) is caused by mutations in the Wiskott-Aldrich syndrome protein (WASP), leading to T-cell dysfunction. Live vaccines are contraindicated in these patients because of their compromised immune system. Ataxia telangiectasia (3) results from mutations in the ATM gene, impairing DNA repair mechanisms and leading to T-cell deficiency. Live vaccines are avoided due to the risk of severe infection.

References:

O.P Ghai Essential Paediatrics, 10th Edition, Page: 79. NCBI - PMC Article: PMC4009347

↑ *Back to this question in Part A*

@Neet_pg_bot

• [05_Nutrition and Malnutrition] 012 Breastmilk Micronutrients

« Back to Folder Directory

[05_Nutrition and Malnutrition] 012 Breastmilk Micronutrients — Quick Jump

Q1 (p. 756)	*Q2 (p. 757)*	*Q3 (p. 758)*	*Q4 (p. 759)*	*Q5 (p. 760)*	*Q6 (p. 761)*
Q7 (p. 762)	*Q8 (p. 763)*	*Q9 (p. 764)*	*Q10 (p. 765)*	*Q11 (p. 766)*	*Q12 (p. 767)*
Q13 (p. 768)	*Q14 (p. 769)*	*Q15 (p. 770)*	*Q16 (p. 771)*	*Q17 (p. 772)*	*Q18 (p. 773)*
Q19 (p. 774)	*Q20 (p. 775)*				

Q1: A 10-month-old, exclusively breastfed infant presents with lethargy, poor feeding, restlessness, developmental delay, and abdominal distention. The mother's diet is high in polished rice. Which vitamin deficiency is most likely responsible? (Q849905)

A. Vitamin B12 (Cobalamin)

B. Vitamin B1 (Thiamine)

C. Vitamin B9 (Folate)

D. Vitamin A

Correct Answer: B. Vitamin B1 (Thiamine)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Thiamine deficiency in infants, especially in those breastfed by mothers with poor thiamine intake (such as diets high in polished rice), can lead to symptoms such as lethargy, restlessness, developmental delay, and abdominal distention. These symptoms are consistent with infantile beriberi, making thiamine deficiency the most likely cause in this scenario. Recommended Daily Allowances (RDAs) & Sources for Thiamine, Cobalamin and Folate in Infants: Vitamin RDA Dietary Sources Thiamine (B1) 0.2-0.3 mg/day Unpolished rice, oats, legumes, wheat, meat Cobalamin (B12) 0.3-0.5 µg / day Milk, meat, eggs (not found in plant sources) Folate 65-80 µg/day Green leafy vegetables, citrus fruits, papaya Vitamin Deficiencies Thiamine Deficiency Vit B12 Deficiency (Option A) Vitamin B9 (Folate) Deficiency (Option C) Cause Polished rice diet Refined wheat flour diet. Alcoholism Malnutrition Malignancies Vegan diet. Maternal deficiency during breastfeeding. Malabsorption syndromes (e.g. Celiac disease, Crohn's disease). Poor dietary intake, Malabsorption (e.g., celiac disease, IBD), Increased demand (e.g., sickle cell disease, malignancies) Inborn errors of folate metabolism, Cerebral folate deficiency Clinical features: Early: Lethargy, Irritability, restlessness, depression, drowsiness, poor concentration and GI discomfort. Late: Dry Beriberi (neurologic): Peripheral neuritis, decreased reflexes, loss of vibration sense, muscle tenderness, cramping, ataxia, loss of coordination Wet Beriberi (cardiac): Heart failure, tachycardia, edema, cardiomegaly Infantile : Emesis, lethargy, restlessness, ophthalmoplegia, abdominal distention, developmental delay. Hematologic manifestations: Megaloblastic anemiaia Neurological manifestations:

Developmental delay/regression and involuntary movements (tremors). Megaloblastic anemia, growth retardation, glossitis, neural tube defects in offspring. Vitamin A (Option D) deficiency typically presents with visual disturbances, such as night blindness, and may lead to an increased susceptibility to infections. It does not explain the neurological symptoms, lethargy, and abdominal distention seen in this infant. Therefore, it is less likely to be the cause in this case.

References:

Nelson Textbook of Paediatrics, Ed. 21, Pg. 365-368, 371, 372

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 10 y/o child from a rural area with a history of inadequate dietary intake is brought to the clinic for a routine check-up. The child's growth is within normal limits, but the caregiver expresses concerns about ensuring proper nutrition, especially concerning iodine intake. What is the recommended daily intake (RDA) of iodine for a child aged 10 years? (Q849914)

A. 90 µg/day

B. 120 µg/day

C. 150 µg/day

D. 200 µg/day

Correct Answer: B. 120 µg/day

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: 120 µg/day is the correct RDA for iodine for children aged 6-12 years. Iodine Sources Sea water Seafood Sea plants Soil in mountainous regions (deficient) Recommended Daily Intake (RDA) Birth to 5 years: 90 µg/day (Option A). Ages 6-12 years: 120 µg/day. Adolescents and adults: 150 µg/day (Option C). Pregnant and lactating mother: 200µg/day (Option D). Causes of Iodine Deficiency Low iodine content in soil (especially mountainous regions). Lack of iodine in the diet. Clinical Features of Iodine Deficiency Mental retardation (especially in early life) Goiter Hypothyroidism Lowered IQ Psychoneuromotor and intellectual development issues. Prevention of Iodine Deficiency Universal iodization of salt. National Iodine Deficiency Disorders Control Program in India. Target iodine content in salt: 30 ppm at the manufacturing level, and 15 ppm at the distribution level.

References:

OP Ghai Paediatrics, 10th Edition, Pages 116, 117

Nelson Paediatrics, 21st Edition, Page 2916

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 4 y/o child is diagnosed with zinc deficiency and is experiencing growth delays, delayed sexual maturation, and poor wound healing. The child's diet consists mostly of cereals and plant-based foods with minimal animal protein. What is the recommended treatment for this child's zinc deficiency? (Q849913)

A. 0.5-1.0 mg elemental zinc/kg/day for several weeks

B. 2-4 mg elemental zinc/kg/day for several weeks

C. 3.5-5.0 mg elemental zinc/day

D. 20-30 mg/kg/day oral zinc therapy

Correct Answer: B. 2-4 mg elemental zinc/kg/day for several weeks

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: 2-4 mg elemental zinc/kg/day is recommended for malnourished children and those with significant zinc deficiency, as it accounts for increased needs due to depletion and potential absorption issues. Zinc Sources : Animal protein: liver, meat, fish, eggs, nuts. Low in cereals, starch, plants, and legumes (high phytate content). RDA : Children: 3.5-5.0 mg/day Causes of Zinc Deficiency : Increased demand in infants, children, adolescents, and pregnant/lactating women. Malnutrition and malabsorption syndromes. Chronic or recurrent diarrhoea. Prolonged IV feeding without adequate zinc. Clinical Features of Zinc Deficiency: Poor physical growth in children. Delayed sexual maturation (hypogonadism) in adolescents. Anemia, anorexia, diarrhea. Alopecia, dermatitis, impaired immune function. Poor wound healing, and skeletal abnormalities. Acrodermatitis Enteropathica: {{caption_text}} Autosomal recessive disorder. Severe zinc deficiency due to impaired intestinal absorption (ZIP4 protein defect). Early infancy onset : Vesiculobullous, dry, scaly skin lesions (periorificial, buttocks, acral areas). Associated with alopecia, eye changes, chronic diarrhea, growth retardation, and stomatitis. Treatment : 2-3 mg/kg/day oral zinc therapy. Treatment : General deficiency: 0.5-1.0 mg elemental zinc/kg/day for several weeks/months Malnourished children: 2-4 mg/kg/day for several weeks.



References:

OP Ghai Paediatrics, 10th Edition, Pages 115, 116

Nelson Paediatrics, 21st Edition, Pages 320, 3589

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 3-month-old infant is brought to the emergency room with symptoms of irritability, poor feeding, and muscle twitching. An ECG shows a prolonged QTc interval, and the infant exhibits Chvostek and Trousseau signs. What is the most appropriate immediate treatment for this infant's symptoms? (Q849912)

A. Oral calcium supplementation at 40-80 mg/kg/day

B. 2 mL/kg of 10% calcium gluconate IV, administered slowly

C. Calcium chloride 10% IV solution

D. Reassurance and observation.

Correct Answer: B. 2 mL/kg of 10% calcium gluconate IV, administered slowly

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This patient is exhibiting signs and symptoms of severe calcium deficiency . 2 mL/kg of 10% calcium gluconate IV is the immediate treatment for severe hypocalcemia symptoms such as tetany, laryngospasm, and seizures. It provides rapid correction of calcium levels and is administered under cardiac monitoring to prevent complications. Calcium Sources: Milk, cheese, yogurt, Green leafy vegetables, legumes, nuts, fruit juice, and some fortified breakfast cereals RDA: Infants- 200- 250mg/day Toddlers -700-1000mg/day Adolescents - 1300 mg/day Deficiency of Calcium: Manifestations Central nervous system irritability. Poor muscular contractility. Lethargy, Poor feeding. Jitteriness. Vomiting, Abdominal distension. Seizures. Twitching and cramps, Laryngospasm (rare). Tetany (muscular twitching, carpopedal spasm, stridor). Chvostek sign: Twitching of orbicularis oculi and mouth upon facial nerve tapping. Trousseau sign: Carpopedal spasm upon arm BP cuff inflation. ECG: Prolonged QTc (>0.45 seconds), Impaired cardiac function. Features of rickets (with prolonged hypocalcemia). Treatment Immediate treatment: Tetany, laryngospasm, seizures: 2 mL/kg of 10% calcium gluconate IV, administered slowly under cardiac monitoring. Repeat IV calcium boluses every 6 hours as needed. Calcium supplementation: IV calcium gluconate: 9.8 mg/mL elemental calcium (0.45 mEq/mL). Calcium chloride 10%: 27 mg/mL elemental calcium (1.4 mEq/mL). Oral calcium therapy: 40-80 mg/kg/day. For asymptomatic patients. Follow-up after IV calcium therapy. Oral calcium supplementation (Option A) is used for follow-up or asymptomatic patients but is not suitable for acute treatment of severe symptoms. Calcium chloride 10% (Option C:) While effective, calcium chloride is not as safe- it is more caustic and can cause tissue damage if extravasation from the vein occurs. It is usually reserved for situations where rapid calcium administration is crucial, and central venous access is available. However, calcium gluconate is preferred due to its safer profile. Reassurance and observation (Option D) would be appropriate for mild cases without serious symptoms. However, immediate intervention is necessary given the severity of the infant's symptoms, including the prolonged QTc interval.

References:

OP Ghai Paediatrics 10th edition. Pages 65,66,67

Nelson Paediatrics 21st edition. Pages 319

www.medscape.com/viewarticle/832467

www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/calcium-chloride

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 6 y/o child presents with irritability, pallor of nail beds, and fatigue. Laboratory tests reveal microcytic, hypochromic red cells, and reduced serum iron levels. What is the most appropriate initial treatment for this child's iron deficiency anemia? (Q849911)

A. Iron-rich dietary counseling.

B. Oral iron supplementation at 3-6 mg/kg/day.

C. Intravenous iron administration.

D. Treatment for intercurrent infections

Correct Answer: B. Oral iron supplementation at 3-6 mg/kg/day.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's clinical features and lab findings are suggestive of iron deficiency anemia. Oral iron supplementation at 3-6 mg/kg/day is the first-line treatment for iron deficiency anemia in children. It provides the elemental iron necessary to replenish stores and correct anemia. Iron Deficiency Anemia Clinical Features Behavioral : Irritability, anorexia. The pallor of Nail beds , oral mucous membranes, and palpebral conjunctivae are reliable indicators Physical: Weakness, fatigue, leg cramps, breathlessness, tachycardia. Severe cases : Congestive cardiac failure, splenomegaly Severe deficiency signs : Angular stomatitis, glossitis, koilonychia, paronychia Laboratory Findings: Peripheral blood smear : Microcytic, hypochromic red cells, anisocytosis, poikilocytosis, increased RDW. Reduced MCV and MCHC. Decreased serum iron, increased TIBC, transferrin saturation <16%. Early reduction in serum ferritin, and high free erythroprotoporphyrin (FEP) before anemia. Treatment Address Underlying Causes Dietary Counseling Iron Supplementation : Oral iron medications (e.g., ferrous sulfate, 20% elemental iron). Dosage: 3-6 mg/kg/day of elemental iron (On an empty stomach or between meals for best absorption). Parenteral iron therapy: eg Injection Iron sucrose, Injection Ferric carboxymaltose. Blood transfusion: Packed red cell transfusions are essential in emergencies such as severe bleeding, urgent surgery, or severe anemia with congestive heart failure (administered slowly with monitoring). Iron-rich dietary counseling (Option A) is important but not sufficient as a standalone treatment for established iron deficiency anemia. It should complement iron supplementation. Intravenous iron administration(Option C) is generally reserved for cases where oral iron is not effective, not tolerated, or when a rapid response is needed, which is not indicated as the initial treatment for this case. Treatment for intercurrent infections(Option D) should be addressed if an infection is identified as a contributing factor, but the immediate treatment of iron deficiency anemia requires direct iron supplementation.

References:

OP Ghai Paediatrics 10th edition. Page 351, 354, 355

Nelson Paediatrics 21st edition. Page 319

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 5 y/o child with chronic gastrointestinal malabsorption presents with easy bruising and bleeding. Laboratory tests show a prolonged prothrombin time (PT) and elevated levels of PIVKA (protein induced by vitamin K absence). What is the most

appropriate long-term treatment for this child with vitamin K deficiency due to malabsorption? (Q849910)

A. Administer 1 mg of parenteral vitamin K.

B. Administer 2.5-10 mg of parenteral vitamin K.

C. Initiate chronic high-dose oral vitamin K therapy.

D. Administer fresh-frozen plasma (FFP).

Correct Answer: C. Initiate chronic high-dose oral vitamin K therapy.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Chronic high-dose oral vitamin K therapy is appropriate for managing vitamin K deficiency due to malabsorption, as it provides a consistent source of vitamin K to counteract ongoing deficiencies. Vitamin K Sources Green leafy vegetables. Liver Synthesized by intestinal bacteria. Recommended Daily Allowance (RDA) Newborns and infants: 3 to 5 µg/day Older children: 10 to 30 µg/day Vitamin K Deficiency Manifestations in Neonates and Children Neonates: Hemorrhagic disease of the newborn (HDN) High levels of protein induced by vitamin K absence (PIVKA) Children: Bleeding from various sites. Presence of ecchymosis. Investigations Prolonged prothrombin time (PT). Prolonged activated partial thromboplastin time (aPTT). Normal platelet counts. Detection of PIVKA. Treatment Infants with VKDB Administer 1 mg of parenteral vitamin K. Expect PT to decrease within 6 hours and normalize within 24 hours. For Adolescents Administer 2.5-10 mg of parenteral vitamin K for rapid correction. For Severe, Life-Threatening Bleeding Administer fresh-frozen plasma (FFP) infusion to rapidly correct coagulopathy (along with Vitamin K). For Vitamin K Deficiency Due to Malabsorption in Children Chronic administration of high-dose oral vitamin K (2.5 mg twice weekly to 5 mg daily). 1 mg (Option A) or 2.5-10 mg (Option B) of parenteral vitamin K are typically used for acute treatment of vitamin K deficiency, not long-term management in cases of chronic malabsorption. Fresh-frozen plasma (FFP) (Option D) is used for severe, life-threatening bleeding and coagulopathy, and is not suitable for long-term management of vitamin K deficiency.

References:

OP Ghai Paediatrics, 10th Edition, Pages 109, 110

Nelson Paediatrics, 21st Edition, Page 386

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 6-month-old premature infant presents with irritability, poor feeding, and unexplained hemolytic anemia. You suspect a vitamin deficiency. Which of the following is the most likely cause of these symptoms? (Q849909)

A. Vitamin A deficiency

B. Vitamin B12 deficiency

C. Vitamin E deficiency

D. Vitamin K deficiency

Correct Answer: C. Vitamin E deficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Vitamin E deficiency in premature infants can cause hemolytic anemia due to oxidative damage to red blood cells, presenting symptoms such as irritability and poor feeding. Vitamin E Overview: Recommended Daily Allowance (RDA): No specific RDA. Deficiency is rare in the general population but can occur in premature infants and cases of severe malnutrition. Dietary Sources: Vegetable oils, Seeds, Nuts, Green leafy vegetables, Margarine Causes of Deficiency: Prematurity : Lack of transfer from mother to baby. Fat Malabsorption syndromes : Conditions affecting bile acid production (e.g., cholestatic liver disease, cystic fibrosis, coeliac disease, Crohn's disease). Abetalipoproteinemia : Autosomal recessive disorder causing fat malabsorption. Ataxia with Isolated Vitamin E Deficiency (AVED) : Autosomal recessive disorder with mutations in the TTPA gene affecting vitamin E incorporation. Clinical Manifestations: In Premature Infants : Hemolysis, anemia, edema. Neurologic Disorder: Cerebellar Disease: Ataxia, dysarthria Posterior Column Dysfunction: Loss of reflexes, decreased proprioception, vibratory sensation Loss of DTR (deep tendon reflexes) Retinal Disease: Ophthalmoplegia, nystagmus, pigmentary retinopathy Diagnosis: Premature Infants : Serum vitamin E and lipid levels if unexplained hemolytic anemia is present. Children with Neurologic Findings: Evaluate vitamin E status Unexplained Ataxia : Screen for AVED Serum Vitamin E Ratio: <0.8 mg/g (children/adults), <0.6 mg/g (infants) is abnormal. Treatment: Neonates : 25–50 units/day for one week, then adequate dietary intake. Malabsorption in children : 1 unit/kg/day, with dose adjustments based on monitoring. AVED : High doses of vitamin E, ongoing treatment required. Vitamin A deficiency (Option A) typically affects vision and skin. Vitamin B12 deficiency (Option B) often presents with neurological symptoms and macrocytic anemia. Vitamin K deficiency (Option D) primarily leads to bleeding disorders due to impaired blood clotting.

References:

Nelson Textbook of Paediatrics, Ed. 21, Pg. 385

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 3 y/o child is brought with symptoms of nausea, vomiting, and abdominal pain. The child's mother mentions that they recently started a new multivitamin supplement. Laboratory tests reveal elevated serum calcium and 25-hydroxyvitamin D levels. What is the most appropriate management strategy for this child? (Q849908)

A. Immediate hemodialysis.

B. High-dose vitamin D supplementation.

C. Aggressive rehydration with normal saline and discontinuation of vitamin D sources.

D. Administration of glucocorticoids and calcitonin.

Correct Answer: C. Aggressive rehydration with normal saline and discontinuation of vitamin D sources.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Hypervitaminosis D leads to hypercalcemia, so the primary treatment involves managing hypercalcemia and discontinuing vitamin D sources. Aggressive rehydration helps to dilute serum calcium, correct pre-renal azotemia, and increase urinary calcium excretion. Hypervitaminosis D: Causes: Excessive vitamin D supplementation. Accidental over-fortification of milk. Contaminated table sugar. Inadvertent use of vitamin D as cooking oil. Upper Intake Limits: Children <1 year: 1,000 IU/day. Older children and adults: 2,000 IU/day. Symptoms: Gastrointestinal : Nausea, vomiting, constipation, abdominal pain, pancreatitis. Cardiac : Hypertension, arrhythmias, decreased QT interval. Central Nervous System : Lethargy, hypotonia, confusion, psychosis, hallucinations, coma. Renal : Polyuria, dehydration, hypernatremia, acute renal failure, kidney stones, nephrocalcinosis. Diagnosis: Elevated serum calcium and 25-D levels. 25-D >100 ng/mL is considered high. Normal 1,25-D levels despite high 25-D. Treatment: Managing Hypercalcemia : Rehydration: Dilutes serum calcium, corrects pre-renal azotemia and increases urinary calcium excretion. Glucocorticoids: Reduce calcium absorption; Prednisone 1-2 mg/kg/24 hr. Calcitonin: Inhibits bone resorption. Bisphosphonates: Effective in treating hypercalcemia. Hemodialysis: Used in severe cases for rapid calcium reduction. Eliminating Excess Vitamin D: Stop or reduce vitamin D intake. Avoid sun exposure and use sunscreen. Restrict dietary calcium. Hemodialysis (Option A) is reserved for severe cases where other treatments are ineffective. High-dose vitamin D supplementation (Option B) would worsen the condition, not treat it. Glucocorticoids and calcitonin (Option D) are additional treatments but not the first line in managing acute cases.

References:

Nelson Textbook of Paediatrics, Edition 21, Page 384

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 3 y/o child with a diet primarily consisting of cow milk presents with a history of irritability, painful leg swelling, and gum bleeding. Laboratory findings show anemia and normal prothrombin time. Despite initial treatment with iron supplements, the child's symptoms persist. Which of the following is the most likely underlying cause and the appropriate intervention? (Q849907)

A. Chronic iron deficiency; continue iron therapy and consider a different iron formulation

B. Scurvy due to Vitamin C deficiency; initiate high-dose Vitamin C therapy

C. Vitamin K deficiency due to malabsorption; administer Vitamin K supplementation

D. Excessive calcium intake from fortified milk; reduce calcium and monitor levels

Correct Answer: B. Scurvy due to Vitamin C deficiency; initiate high-dose Vitamin C therapy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child's symptoms—irritability, leg swelling, gum bleeding , and normal prothrombin time (As the defect is in collagen synthesis and th coagulation cascade is not affected)—align with scurvy, which is caused by Vitamin C deficiency. UHT milk, which lacks Vitamin C, can contribute to this deficiency. High-dose Vitamin C therapy is the appropriate intervention. Vitamin C Overview: Recommended Daily Allowance in Infants: Age Group RDA (mg/day) 0-6 months 40 7-12 months 50 Vitamin C Source: Citrus fruits/juices, cauliflower and green leafy vegetables, melons, guava. Vitamin C Deficiency (Scurvy) Causes: Heat-treated milk or unfortified formula. Diets lacking fruits and vegetables. Symptoms: Early : Irritability, loss of appetite, fever, pain, leg tenderness. Later : Swelling, pseudoparalysis, subperiosteal hemorrhages, "rosary" beads at the costochondral junction, gum changes, anemia, bleeding, poor healing. Treatment: Vitamin C 100-200 mg/day (oral or parenteral). Improvement within a week; continue for 3 months. Chronic iron deficiency; continue iron therapy and consider a different iron formulation (Option A): Although iron deficiency can cause anemia, the persistence of symptoms such as gum bleeding and leg swelling, coupled with a diet of UHT milk, strongly suggests a Vitamin C deficiency rather than an ongoing issue with iron therapy. Vitamin K deficiency due to malabsorption; administer Vitamin K supplementation (Option C): While Vitamin K deficiency can cause bleeding, it typically does not have normal prothrombin time (Elevated Prothrombin time seen). The diet and clinical presentation are more indicative of Vitamin C deficiency. Excessive calcium intake from fortified milk; reduce calcium and monitor levels (Option D): The symptoms and clinical findings do not match the effects of excessive calcium intake. The dietary history of UHT milk is more consistent with Vitamin C deficiency rather than calcium-related issues.

References:

Nelson Textbook of Paediatrics, Ed. 21, Pg. 373-375

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A 4-month-old infant is brought with c/o irritability, vomiting, and frequent seizures. The mother reports that the infant's diet consists primarily of formula milk, with minimal introduction of solid foods. O/E, the infant appears listless and has an abnormal EEG pattern. Considering these clinical findings, which of the following deficiencies is most likely responsible for the symptoms described? (Q849906)

A. Riboflavin (Vitamin B2)

B. Vitamin B6 (pyridoxine)

C. Vitamin B12 (cobalamin)

D. Vitamin D

Correct Answer: B. Vitamin B6 (pyridoxine)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Vitamin B6 (pyridoxine) deficiency commonly causes irritability, vomiting, seizures, and failure to thrive in infants. It is also associated with EEG abnormalities and can respond to pyridoxine supplementation, which fits the clinical presentation described. RDAs & sources for Pyridoxine (Vitamin B6) and Riboflavin (Vitamin B2) in Infants: Vitamin RDA Dietary Sources Pyridoxine (B6) 0.1-0.3 mg/day Banana, wheat germ, rice, sunflower seeds, fish, poultry. Riboflavin (B2) 0.3-0.4mg/day Milk, green leafy vegetables, sprouts, legumes, meat Vitamin Deficiencies Pyridoxine (B6) deficiency Riboflavin (B2) deficiency Cause High protein intake. Certain medications (eg. Isoniazid) Oral contraceptives. Dialysis. Malnutrition Malabsorption Certain medications Phototherapy Clinical features: Infants: Irritability, seizures, vomiting, failure to thrive. Adults: Peripheral neuritis, cheilosis, glossitis, seborrheic dermatitis, anemia. Dependency Syndromes: Pyridoxine-dependent epilepsy, Vitamin B6-responsive anemia. Cheilosis, glossitis, keratitis, conjunctivitis, seborrheic dermatitis, anemia, photophobia. (Option A) Diagnosis: Low AST/ALT, high urinary xanthurenic acid, EEG response to pyridoxine. Clinical response to supplementation, EGR (Erythrocyte Glutathione Reductase) activity test, low urinary riboflavin. Treatment: Convulsions: 100 mg pyridoxine IM/IV, then oral intake. Dependency: 2-10 mg IM or 10-100 mg orally daily. Oral riboflavin 3-10 mg/day, balanced diet including dairy products Vitamin B12 (cobalamin) (Option C) : While it can cause developmental delays and irritability, it is less likely to cause seizures at this early age compared to vitamin B6 deficiency. It is mostly associated with a Vegan diet in the mother. Vitamin D (Option D) : Generally leads to rickets and bone pain but does not typically present with seizures or irritability in infants.

References:

Nelson Textbook of Paediatrics, Ed. 21, Pg. 366, 367, 370

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 6-month-old infant is brought in for a routine check-up. The mother has been exclusively breastfeeding and is now concerned about the appropriate time to introduce solid foods. What is the recommended action? (Q849895)

A. Continue exclusive breastfeeding until the baby is 9 months old.

B. Introduce complementary foods along with breastfeeding.

C. Switch entirely to solid foods and stop breastfeeding.

D. Start formula feeding and delay introducing solid foods until 7 months.

Correct Answer: B. Introduce complementary foods along with breastfeeding.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Complementary feeding should begin at 6 months to ensure the infant receives adequate nutrition while continuing to breastfeed. It is defined as semi-solid, energy-dense food, given in addition to breast milk. It ensures that the infant continues to receive the immunological benefits of breast milk while also obtaining essential nutrients from various solid foods, such as iron-rich and zinc-containing foods. Continue exclusive breastfeeding until the baby is 9 months old (Option A): While exclusive breastfeeding is highly beneficial during the first six months , continuing it alone can lead to nutritional deficiencies. By 9 months, the baby needs additional nutrients, such as iron, so complementary feeding should begin around 6 months to meet the baby's nutritional needs. Switch entirely to solid foods and stop breastfeeding (Option B): While introducing solid foods is necessary at 6 months, breastfeeding should continue to provide the baby with essential antibodies and nutrients that complement the solids. Abruptly stopping breastfeeding may increase the risk of infections and nutritional gaps. Start formula feeding and delay introducing solid foods until 7 months (Option D): Formula feeding is unnecessary if breastfeeding is adequate, and delaying complementary foods beyond 6 months is not recommended. Assessment of adequacy of breastfeeding: Weight Gain: After an initial weight loss within the first week, a healthy term infant should regain their birth weight by 7 to 10 days of age. Following this, the baby should gain approximately 20 to 40 grams daily. Urine Output: A well-nourished baby typically produces 6 to 8 wet diapers daily, indicating adequate hydration. Stool Pattern: By the end of the first week, a newborn's stool should change from the initial black-green meconium to a yellow-green colour, reflecting proper digestion and milk intake. Infant Behavior: A baby who is content and sleeps well for 2 to 3 hours after feeding is considered to receive enough milk.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 323, 326

Ghai Essential Pediatrics, 10th Edition, Pages 129,130

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 4-year-old child presents to the pediatric clinic with complaints of poor vision during nighttime and dryness of the eyes. On physical examination, you observe Bitot's spots on the conjunctiva. There is concern about vitamin A deficiency. What is the most appropriate WHO grading of vitamin A deficiency and treatment plan for this child? (Q849904)

A. X1B ; 300,000 IU once daily on D1, D2, and D7

B. X3B ; 100,000 IU once daily on D1, D2, and D21

C. X1B ; 200,000 IU once daily on D1, D2, and D28

D. X3B ; 400,000 IU once daily on D1, D2, and D14

Correct Answer: C. X1B ; 200,000 IU once daily on D1, D2, and D28

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Bitot's spots indicate ocular vitamin A deficiency, classified as WHO grade X1B. Grade X1B includes conjunctival xerosis with Bitot's spots. The child may have night blindness, a common symptom of vitamin A deficiency. WHO recommends 200,000 IU of vitamin A for children ≥12 months for X1B deficiency. The dosing schedule is on Day 1, Day 2, and Day 28 to replenish liver stores. Early treatment prevents progression to corneal ulceration or blindness. Oral supplementation is safe and effective in reversing ocular signs. Incorrect Options: Option A) X1B; 300,000 IU once daily on D1, D2, and D7: Dose is too high; risk of vitamin A toxicity. Interval is too short; WHO recommends 1-month gap after second dose. Option B) X3B; 100,000 IU once daily on D1, D2, and D21: X3B refers to corneal involvement (xerophthalmia), not just Bitot's spots. Dose is too low for age ≥12 months; ineffective for full correction. Option D) X3B; 400,000 IU once daily on D1, D2, and D14: X3B misclassification; 400,000 IU is excessive for a 4-year-old, may cause toxicity. Dosing interval is shorter than WHO guideline; unsafe.

References:

OP Ghai Paediatrics 10th edition. Pages 101, 102

Nelson Paediatrics, 21st edition. Page 364

The eye signs of vitamin A deficiency - PMC

WHO Treatment for Vit A Deficiency

RETINOL = VITAMIN A oral | MSF Medical Guidelines

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: During a visit, the paediatrician discusses vitamin A prophylaxis and dietary sources with the parents of a 2-year-old child. Which of the following statements is correct according to the National Vitamin A Prophylaxis Programme (India) ? (Q849903)

A. The first dose is 200,000 IU at 9 months, followed by 100,000 IU every 6 months up to age 5.

B. The first dose is 100,000 IU at 9 months, followed by 200,000 IU at 16–18 months, and then every 6 months up to age 5.

C. The first dose is 100,000 IU at 6 months, followed by 200,000 IU every year until 5 years of age.

D. The RDA of vitamin A for a 2-year-old child is 800–1000 µg/day, and fortified oils are the only acceptable dietary source.

Correct Answer: B. The first dose is 100,000 IU at 9 months, followed by 200,000 IU at 16–18 months, and then every 6 months up to age 5.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This child should have received 100,000 IU of vitamin A at 9 months, 200,000 IU at 16-18 months, and 200,000 IU every 6 months up to age 5. Carotenoids in carrots and leafy greens are good dietary sources. The RDA of a 2-year-old child is 400-600 µg. National Vitamin A Prophylaxis Program by the National Health Mission (NHM) of India Age Dosage Additional Context 9 months 100,000 IU Given along with measles immunization. 16-18 months 200,000 IU Given with a DPT booster. Every 6 months 200,000 IU Up to the age of 5 years. Total Doses: 9 mega doses from 9 months to 5 years. Recommended Daily Allowance (RDA) for Vitamin A: Infants- 300-400 µg Children- 400-600 µg Adolescents- 750 µg Pregnant women- 800 µg Note: 1 µg retinol equivalent (RE) = 3.3 international units (IU) of vitamin A. Hence, 30 mg retinol = 100,000 IU vitamin A.

References:

OP Ghai Paediatrics, 10th Edition, Pages 101, 102

Nelson Paediatrics, 21st dition, Pages 313

nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1452&lid=801

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: Which of the following statements is false based on the provided information? (Q849902)

A. Fore milk satisfies the thirst of the baby.

B. Hind milk satisfies the hunger of the baby.

C. Preterm breast milk has a higher lactose content than full-term breast milk.

D. Preterm breast milk has higher immunoglobulins and protein content.

Correct Answer: C. Preterm breast milk has a higher lactose content than full-term breast milk.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Preterm breast milk, in fact, has lower lactose content compared to full-term breast milk. It is richer in sodium, immunoglobulins, proteins, iron, and calories Factor Milk Type Characteristics Depending on Gestational Age Fore Milk At the beginning of a feed. It's more thin and watery. High in proteins, sugar, vitamins, and minerals. Satisfies mainly the thirst of the baby. (Option A) Hind Milk Produced after the initial release of milk (foremilk). Thicker and calorie-dense. Richer in fat, providing more energy. Satisfies the hunger of the baby. (Option B) For optimal growth, a neonate requires both foremilk and hindmilk. Therefore, it is important for the baby to fully empty one breast before switching to the other. Depending on Each Feeding Session Preterm Breast Milk Richer in Sodium, Immunoglobulins, Proteins, Iron, and Calories. (Mnemonic- S I P For Intelligent CNS) (Option D) Lesser lactose compared to full-term breast milk

References:

OP Ghai Paediatrics 10th edition. Pg. 144, 145

Human Milk Composition: Nutrients and Bioactive Factors - PMC

Breastfeeding: Overview - American Pregnancy Association

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: Match the following: 1. Colostrum a. Higher in fat and sugar content 2. Transitional Milk b. Higher lactose 3. Mature Milk c. High in antibodies, low in lactose (Q849901)

A. 1-c, 2-b, 3-a

B. 1-b, 2-c, 3-a

C. 1-b, 2-a, 3-c

D. 1-c, 2-a, 3-b

Correct Answer: D. 1-c, 2-a, 3-b

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Milk Type Time of Production Appearance Quantity Key Components Colostrum Initial 3-4 days after delivery Yellow and thick Small High in antibodies , immune-competent cells, vitamins A, D, E, and K. Rich in immunoglobulins and proteins. Low in lactose. Transitional Milk From 3-4 days until two weeks Thinner than colostrum Moderate Decreased immunoglobulins and proteins. Increased fat and sugar. Mature Milk Follows transitional milk Thinner and watery Variable Consistent in nutrient composition Balanced in nutrients essential

for growth Higher lactose content.

References:

OP Ghai Paediatrics, 10th edition. Pg. 144

Breastfeeding: Overview - American Pregnancy Association

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A new mother asks her pediatrician how breast milk's components benefit her baby’s health. Which of the following pairs best describes a protective substance in breast milk and a disease it helps prevent? (Q849900)

A. PABA; Galactosemia

B. Lysozyme; Phenylketonuria

C. Lactoferrin; Maple syrup urine disease

D. Bifidus factor; NEC

Correct Answer: D. Bifidus factor; NEC

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Bifidus factor; NEC is the correct answer because it accurately describes a protective substance in breast milk and its associated protective role against NEC. Anti-Infective Substances in Breast Milk: P hagocytic macrophages P ABA (para-aminobenzoic acid) L actoferrin L ysozyme A ntibodies, especially IgA A nti-staphylococcal factor B ifidus factor (Option D) B ile-stimulated lipase T ransforming Growth Factor β (TGF-β) Mnemonic: Teach for PLAB Benefits of Breast Milk: During the Neonatal Period: Helps protect against conditions such as necrotizing enterocolitis (NEC) and neonatal sepsis. (Option D) Later in Life: Reduces the risk of obesity(lower total serum cholesterol), hypertension, diabetes, allergies, asthma, dental caries, ulcerative colitis, and Crohn's disease. Reduced risk of post-partum hemorrhage, pre-menopausal breast cancer, and ovarian cancer in the mother. Acute conditions: Diarrhea, pneumonia, ear infection, Haemophilus influenzae infection, meningitis, and UTIs. Cognitive Development: Breast milk-fed infants tend to have higher IQs. Bonding: Facilitates maternal-child bonding. Safety and Accessibility: Breast milk is safe, typically free from contaminants, and readily available even in resource-limited settings. Infants who should not receive breast milk Galactosemia (Option A) Phenylketonuria (Option B) Maple syrup urine disease (Option C)

References:

OP Ghai Paediatrics 10th edition. Pg. 143

Nelson Paediatrics 21st edition. Pg. 322

Acceptable medical reasons for the use of breast milk substitutes

Anti-Infective, Anti-Inflammatory, and Immunomodulatory Properties of Breast Milk Factors for the Protection of Infants in the Pandemic From COVID-19 - PMC

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: A preterm infant is being fed breast milk. Which of the following components is likely to be higher in the breast milk of a mother who delivered prematurely? (Q849899)

A. Lactose

B. Fat

C. Protein

D. Vitamin D

Correct Answer: C. Protein

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Preterm breast milk contains higher protein, sodium, iron, immunoglobulins, and calories than full-term milk. The increased protein concentration supports the accelerated growth and development needs of preterm infants, who require more protein for optimal development during their early weeks. Lactose (Option A): While lactose is present in breast milk, it does not significantly increase in preterm milk compared to full-term milk. Fat (Option B): The fat content in breast milk varies with the feeding stage but isn't specifically higher in preterm milk compared to full-term milk. Vitamin D (Option D): Vitamin D, while essential for bone health, is generally present in low amounts in breast milk regardless of whether the infant is preterm or full-term. Supplementation may be required. Breastmilk Composition Colostrum The initial, thick, yellow milk is produced during the first 3-4 days after birth. Rich in antibodies (particularly secretory IgA), immune cells, and vitamins A, D, E, and K. This early milk provides crucial protection and immunity for the newborn. Transitional milk Follows colostrum, appearing from days 3-4 to about two weeks postpartum. A gradual reduction in immunoglobulins and proteins, while fat and sugar levels increase. This shift meets the infant's increasing energy requirements. Mature milk Established after the transitional phase. Thinner and more diluted than earlier milk stages, but continues to offer essential nutrients for the baby’s growth. Carbohydrates - Lactose, Galactose Lactose: The main sugar in breast milk, which helps with calcium absorption and encourages the growth of beneficial gut bacteria. Galactose: Contributes to the development of brain tissue and nerve cell membranes. Proteins Whey proteins (like lactalbumin and lactoglobulin) - easily digestible . Taurine and cysteine- are important for brain development. Fats One of the main energy sources in breast milk, with the composition influenced by the mother’s diet. DHA and

ARA are essential for the development of the brain and vision. Vitamins and minerals Provides necessary vitamins and minerals in forms that are easily absorbed by the infant. Note: Vitamin D may be present in low amounts; supplementation might be recommended. Water and electrolytes Comprises around 88% water, which typically eliminates the need for additional fluids. The minimal concentration of minerals reduces stress on the baby's kidneys. Immunological components Secretory IgA offers protection against infections. Includes macrophages, lymphocytes, lactoferrin, and lysozyme, which help fight off pathogens. Growth factors, enzymes, and hormones Epidermal Growth Factor (EGF) supports gut health. Enzymes like lipases, aid in fat digestion. Hormones help regulate appetite and metabolism.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 322, 324, 325

Ghai Essential Pediatrics, 10th Edition, Pages 142, 143, 144

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A healthcare provider is educating a group of expectant mothers about situations where breastfeeding might not be recommended. Which of the following maternal conditions would most likely contraindicate breastfeeding? (Q849898)

A. History of mastitis with successful treatment during pregnancy.

B. Active varicella-zoster infection with lesions on the breast.

C. Use of a low-dose, progestin-only contraceptive pill.

D. Mildly elevated blood pressure controlled with medication.

Correct Answer: B. Active varicella-zoster infection with lesions on the breast.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Breastfeeding Contraindications Maternal Contraindications Infectious Diseases: Active Tuberculosis Mothers with active tuberculosis should delay breastfeeding until they have completed at least two weeks of appropriate treatment to reduce the risk of transmission. Active Herpes Simplex Virus (HSV) Lesions on the Breast: Breastfeeding is contraindicated if a mother has active herpetic lesions on her breast to prevent transmission to the infant. Varicella-Zoster Infection If the mother has active chickenpox lesions, breastfeeding should be avoided to prevent direct contact between the lesions and the infant. The infant should also receive appropriate immunoglobulin. (Option B) Medications and Treatments: Chemotherapy, Radiopharmaceuticals and Certain Medications Breastfeeding is usually contraindicated during maternal treatment with chemotherapy or radiopharmaceuticals due to the potential harm to the infant. Specific medications, such as some anticoagulants, anti-tuberculosis drugs, and anticonvulsants, may require mothers to avoid breastfeeding. Substance Use: Alcohol and Smoking While not a strict contraindication, alcohol consumption should be limited to less than 0.5g/kg/day.

Cigarette smoking is strongly discouraged. Maternal Health Conditions: Severe Illness or Surgery Breast Conditions Maternal issues like mastitis or breast engorgement may complicate breastfeeding and require temporary cessation but are not absolute contraindications. Fetal Contraindications Metabolic Disorders: Galactosemia Infants with galactosemia, a condition where they cannot process galactose, should not be breastfed. Instead, they require specialized formulas. Anatomical Challenges: Oral or Facial Anomalies Conditions like cleft palate that affect the infant's ability to suckle may necessitate alternative feeding methods. Prematurity or Low Birth Weight : Support Needs Premature or low-birth-weight infants may initially require supplemental feeding methods until they can effectively breastfeed. History of mastitis with successful treatment during pregnancy (Option A): A history of mastitis, once successfully treated, does not contraindicate breastfeeding. Use of a low-dose, progestin-only contraceptive pill (Option C) is not a contraindication to breastfeeding. Mildly elevated blood pressure controlled with medication(Option D): Controlled mild hypertension is not a contraindication to breastfeeding, as it does not pose a risk to the infant.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.322,324

Ghai Essential Pediatrics, 10th Edition, Pg.146,178

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: A new mother visits the clinic concerned that her baby might not be latching on correctly during breastfeeding. She describes that feeding sessions are painful, and her baby seems unsettled afterward. Which of the following observations indicates a poor attachment? (Q849897)

A. The baby's mouth is wide open, covering most of the areola.

B. The baby's chin is deeply pressing against the breast, with the lower lip flanged outward.

C. The mother is leaning towards the baby to help them latch onto the breast.

D. The baby’s cheeks are rounded, and swallowing sounds are audible

Correct Answer: C. The mother is leaning towards the baby to help them latch onto the breast.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Leaning towards the baby to facilitate latching can lead to improper attachment , causing discomfort for the mother and ineffective suckling by the baby. The baby should be brought to the breast, not vice versa, to maintain good attachment. The baby's mouth is wide open, covering most of the areola (Option A): A wide-open mouth covering most of the areola is a sign of good attachment. This ensures that the baby is effectively compressing the milk sinuses under the areola, facilitating proper milk transfer and reducing discomfort for the

mother. The baby's chin is deeply pressed against the breast, with the lower lip flanged outward (Option B): This helps secure the nipple and areola in the mouth, allowing efficient milk extraction and preventing nipple trauma. It is a sign of good attachment. The baby's cheeks are rounded, and swallowing sounds are audible (Option D): Rounded cheeks and audible swallowing sounds are positive signs of effective suckling, indicating that the baby is well-attached and transferring milk successfully.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 323

Ghai Essential Pediatrics, 10th Edition, Page 145

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: A new mother is struggling with milk production and asks what she can do to increase her breast milk supply. Which of the following strategies would be most effective? (Q849896)

A. Use a pacifier to soothe the baby between feeds.

B. Encourage early and frequent breastfeeding, including night feeds.

C. Skip night feeds to ensure the mother gets more rest.

D. Offer formula supplements to ensure the baby is getting enough nutrition.

Correct Answer: B. Encourage early and frequent breastfeeding, including night feeds.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Early initiation and frequent feedings are critical for establishing and maintaining an adequate milk supply. Frequent suckling increases the release of prolactin, which stimulates milk production. Additionally, night feeds are important because prolactin levels are naturally higher at night, further enhancing milk production and helping to sustain a steady milk supply. Use a pacifier to soothe the baby between feeds (Option A): Using a pacifier can interfere with breastfeeding by causing nipple confusion and reducing the baby's time at the breast, potentially decreasing milk production. Skip night feeds to ensure the mother gets more rest (Option C): Skipping night feeds can lead to reduced prolactin levels and milk production. Night feeds are important for sustaining milk output. Offer formula supplements to ensure the baby is getting enough nutrition (Option D): Offering formula can reduce breastfeeding frequency, leading to less stimulation of milk production and a lower overall milk supply.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.324

Ghai Essential Pediatrics, 10th Edition, Pg.144,146

↑ *Back to this question in Part A*

@Neet_pg_bot

• [05_Nutrition and Malnutrition] 013 Malnutrition

« Back to Folder Directory

[05_Nutrition and Malnutrition] 013 Malnutrition — Quick Jump

Q1 (p. 777)	*Q2 (p. 778)*	*Q3 (p. 779)*	*Q4 (p. 779)*	*Q5 (p. 780)*	*Q6 (p. 781)*
Q7 (p. 782)	*Q8 (p. 786)*	*Q9 (p. 787)*	*Q10 (p. 791)*	*Q11 (p. 792)*	*Q12 (p. 793)*
Q13 (p. 794)	*Q14 (p. 796)*	*Q15 (p. 797)*	*Q16 (p. 798)*	*Q17 (p. 800)*	

Q1: A 2-year-old child is brought to the clinic with a puffy face, edema of the feet, and an enlarged abdomen. The child has been fed mostly starchy foods like rice and porridge with very little protein. Laboratory tests reveal low serum albumin. What is the most likely diagnosis? (Q885133)

A. Marasmus

B. Kwashiorkor

C. Indian childhood cirrhosis

D. Congenital hypothyroidism

Correct Answer: B. Kwashiorkor

Explanation: Kwashiorkor is a form of protein-energy malnutrition primarily due to severe protein deficiency despite adequate caloric intake. Fatures: Edema (pitting, generalized, especially feet and face) Ascites / “swollen belly” due to hypoalbuminemia Fatty liver , skin changes (flaky paint, hyperpigmentation) Apathetic/dull appearance Low serum albumin is a hallmark laboratory finding Marasmus (Option A) results from calorie deficiency, characterized by severe wasting, muscle loss, and absence of edema, but the child is alert and has normal serum albumin. Indian childhood cirrhosis (Option C) presents with hepatomegaly, jaundice, and cirrhosis, usually due to excess copper ingestion; protein deficiency is not the main cause. Congenital hypothyroidism (Option D) presents with cretinism, delayed milestones, and growth retardation; edema is rare and there is no protein deficiency pattern.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 87-88.

https://pubmed.ncbi.nlm.nih.gov/29939653/

https://emedicine.medscape.com/article/1104623-overview

↑ *Back to this question in Part A*

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Q2: A 3-year-old child is brought for a routine check-up. The physician measures triceps skinfold thickness using a Harpenden caliper as shown below. What is the cut-off value to classify the child as malnourished? (Q885132)

A. 10 mm

B. 6 mm

C. 4 mm

D. 8 mm



Correct Answer: B. 6 mm

Explanation: Triceps skinfold thickness is a direct measure of subcutaneous fat , reflecting the child's energy reserves. A triceps skinfold < 6 mm in children aged 1-5 years indicates malnutrition , particularly protein-energy malnutrition . 6-10 mm indicates mild to moderate malnutrition , whereas >10 mm is considered normal. Skinfold measurement is age- and sex-specific , but a value below 6 mm is a widely accepted practical cut-off for screening malnutrition in clinical and community settings.

References:

https://www.jmchemsci.com/article_177273.html

https://pmc.ncbi.nlm.nih.gov/articles/PMC7469063/

↑ *Back to this question in Part A*

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Q3: Which of the following anthropometric indices can be considered age-independent in assessing nutritional status? (Q885131)

A. Jelliffe ratio

B. Rao and Singh index

C. Kanawati and McLaren index

D. All of the above

Correct Answer: D. All of the above

Explanation: Age-independent indices are anthropometric measures that assess nutritional status without requiring the child's exact age . These indices are particularly useful in field surveys where age is unknown or unreliable. Kanawati and McLaren index : Evaluates weight and height ratios, independent of age. (Option C ruled out) Jelliffe ratio : Weight-to-height ratio, also age-independent. (Option A ruled out) Rao and Singh index : Uses weight and height in a formula to identify undernutrition, independent of age. (Option B ruled out) Hence, all of the above are age-independent indices , useful for rapid nutritional assessment.

References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC5084566/

https://openaccesspub.org/international-journal-of-nutrition/article/1231

↑ *Back to this question in Part A*

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Q4: A 10-month-old infant is brought to the pediatric clinic for routine growth monitoring. On examination, the child's weight-for-height Z score is between -2 SD and -3 SD according to WHO growth charts. Which anthropometric indicator correctly identifies moderate acute malnutrition? (Q885130)

A. Weight-for-height < -2 SD

B. Weight-for-height < -3 SD

C. Weight-for-age < -2 SD

D. Height-for-age < -2 SD

Correct Answer: A. Weight-for-height < -2 SD

Explanation: Moderate acute malnutrition (MAM) is defined by weight-for-height between -2 and -3 SD or mid-upper arm circumference (MUAC) 11.5- 12.5 cm in children aged 6-59 months. It indicates recent or acute nutritional deficit . These children require nutritional counseling, supplementation, and close follow-up to prevent progression to severe acute malnutrition (SAM). Weight-for-height < -3 SD (Option B): Indicates severe acute malnutrition (SAM), not moderate malnutrition. Weight-for-age < -2 SD (Option C): Indicates underweight, which does not differentiate between acute (wasting) and chronic (stunting) malnutrition. Height-for-age < -2 SD (Option D): Indicates stunting , reflecting chronic malnutrition rather than acute nutritional deficiency.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 88, 89

https://pmc.ncbi.nlm.nih.gov/articles/PMC8116145/

↑ *Back to this question in Part A*

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Q5: An 11-month-old infant is brought to the pediatric outpatient department for growth monitoring. On examination, his weight-for-height Z score is –2.5 SD according to WHO growth standards. His height-for-age is within normal limits. What is the most appropriate diagnosis? (Q885129)

A. Stunting

B. Chronic undernutrition

C. Wasting

D. Underweight due to long-standing malnutrition

Correct Answer: C. Wasting

Explanation: Weight-for-height reflects current nutritional status and indicates acute weight loss or recent failure to gain weight. A value less than –2 SD from the median is diagnostic of wasting , which corresponds to acute malnutrition . Definition (WHO Criteria): Weight-for-height between –2 and –3 SD → Moderate acute malnutrition (MAM) Weight-for-height < –3 SD → Severe acute malnutrition (SAM) In this case, the child has a weight-for-height of –2.5 SD, indicating moderate acute malnutrition. Stunting (Option A): Stunting is defined as height-for-age < –2 SD and reflects chronic malnutrition over a long duration; it does not indicate acute weight loss. Chronic undernutrition (Option B): Chronic malnutrition primarily affects linear growth (height-for-age), not

weight-for-height, and therefore does not explain acute wasting. Underweight due to long-standing malnutrition (Option D): Underweight is defined by low weight-for-age and does not differentiate between acute and chronic malnutrition.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 88-89.

↑ *Back to this question in Part A*

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Q6: Based on the image provided, which of the following statements is TRUE? (Q849873)

A. Measure from the acromion to the olecranon and mark the midpoint.

B. MUAC assesses the nutritional status of children aged three months to five years.

C. In Shakir's tape, the Yellow zone indicates 11.5 to 13.5 cm.

D. In Shakir's tape, the Green zone indicates >11.5 cm.

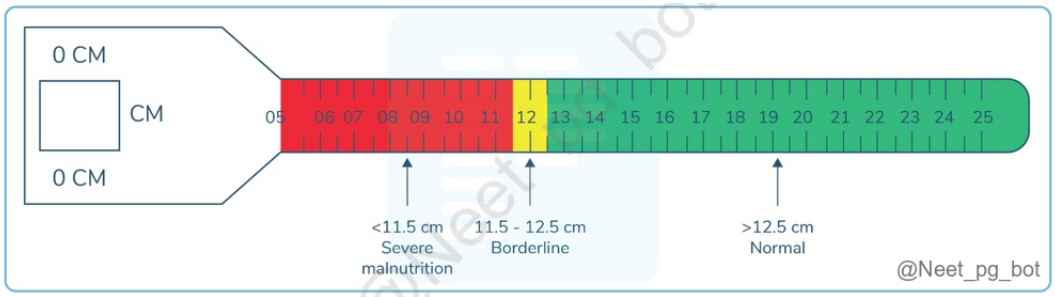


Correct Answer: A. Measure from the acromion to the olecranon and mark the midpoint.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: MID UPPER ARM CIRCUMFERENCE (MUAC) Definition MUAC - used to assess the nutritional status of children aged 6 months to 5 years. (Option B) In infants under 6 months old, the Mid-Upper Arm Circumference (MUAC) is not utilised as a measurement criterion. Procedure Ensure the child is standing straight with their left arm free of clothing. The arm should be bent at a right angle. Measure the distance between the tip of the shoulder (acromion) and the tip of the elbow (olecranon). Mark the midpoint on the upper arm. (Option A) The child's arm should hang relaxed by their side, with the palm facing the thigh. Use a MUAC tape to wrap around the marked midpoint of the arm. The tape should be snug but not tight enough to pinch the skin. Record the measurement at the zero mark of the tape. Shakir's Tape The tape is marked with different zones that correspond to various levels of malnutrition: Red Zone: Indicates severe malnutrition (MUAC < 11.5 cm). Yellow Zone: Indicates moderate malnutrition (MUAC between 11.5 cm and 12.5 cm). (Option C) Green Zone: Indicates healthy nutritional status (MUAC > 12.5 cm) (Option D) SHAKIR'S TAPE



References:

Ghai Essential Pediatrics, 10th Edition, Pg.88

Nelson Textbook of Pediatrics, 21st edition, Pg.334

PARTICIPANT-MANUAL_FBCSA-Malnutrition.pdf (nhm.gov.in)

Mid-upper-arm-circumference-measuring-tapes-technical-bulletin.pdf (unicef.org)

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 5 y/o male presents with fatigue, glossitis, and tingling in his hands and feet. On examination, the physician notices swollen gums and pinpoint haemorrhages on his legs. All of the following are features of Vitamin B deficiency EXCEPT? (Q849876)

Correct Answer: Unknown

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This image shows swollen and bleeding gums. These are classic signs of scurvy, caused by Vitamin C deficiency, not Vitamin B deficiency. Clinical features of Vitamin C deficiency Increased Capillary Fragility: Petechiae on skin Delayed Wound Healing Bleeding Gums Bleeding gums Scurvy (Severe Vitamin C Deficiency):

Hemarthrosis (bleeding into joints). Painful joint swellings. Pseudoparalysis (inability to move limbs due to pain). Frog-like posture (semi-flexion at hips and knees) Scorbutic rosary (angular swellings at the costochondral junction)- different from rickety rosary seen in vitamin D. Clinical features of vitamin B deficiencies Peripheral neuropathy , Wernicke-Korsakoff syndrome (Mental confusion , ataxia , ocular abnormalities): Caused by thiamine deficiency Angular stomatitis, cheilitis (Option A) ,glossitis (Option B) : Caused by riboflavin deficiency Chelitis Glossitis Casal’s necklace: The cutaneous lesions are characterized by a symmetrical, pigmented rash that appears on body parts exposed to sunlight, particularly around the neck or the back. It is caused by a deficiency of Niacin (Option C).




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References:

Ghai Essential Pediatrics, 10th Edition, Pages 110, 112, 114

Nelson Paediatrics, 21st Edition, Page 3589

↑ *Back to this question in Part A*

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Q8: A 2 y/o child is brought to the clinic for evaluation due to concerns about poor growth and changes in hair appearance. The child's hair is sparse, and dull, and shows alternating light and dark bands. Which of the following is NOT a characteristic hair sign in a severely malnourished child? (Q849875)

A. Dyspigmentation

B. Sparse hair

C. Tightening of natural curls

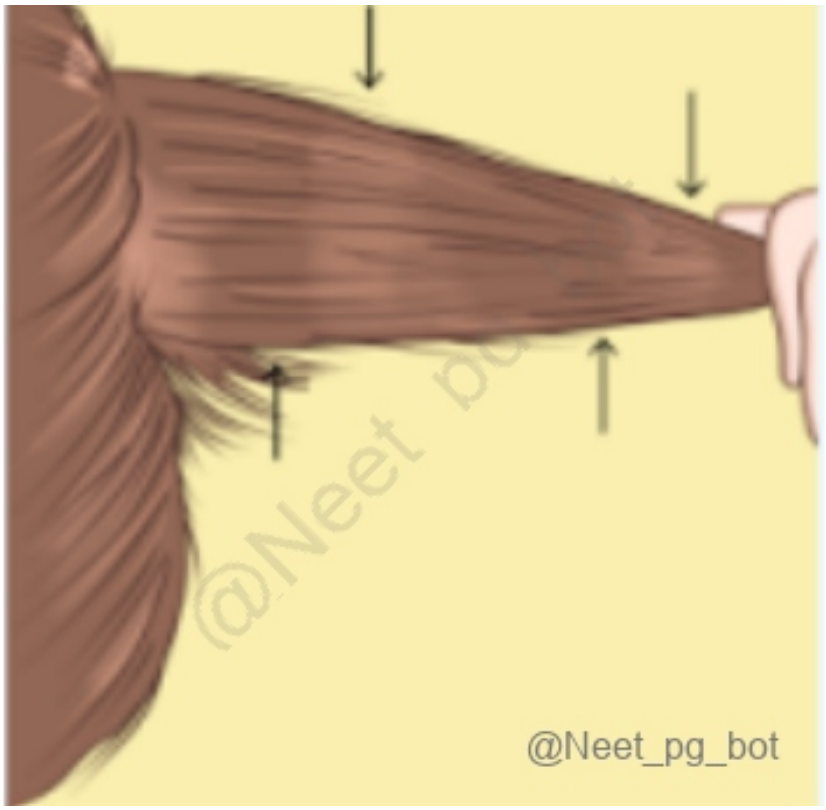
D. Flag sign

Correct Answer: C. Tightening of natural curls

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In malnutrition, the natural curl pattern is usually lost, not tightened. Tightening of curls is not a recognized sign of severe malnutrition. Hair Signs in Severely Malnourished Children- mainly Kwashiorkor. Flag sign in a severely malnourished child. Dyspigmentation : Changes in hair colour. (Option A) Loss of characteristic curls : Hair loses its natural curl. Sparse hair : Notably over temple and occipital regions. (Option B) Dull, easily pluckable hair : Hair lacks lustre and is fragile. Flag sign : Alternate bands of hypopigmented and normally pigmented hair, seen during growth spurts. (Option D)



References:

Ghai Essential Pediatrics, 10th Edition, Page 88

Nelson Paediatrics, 21st Edition, Page 3589

↑ *Back to this question in Part A*

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Q9: A 4-month-old infant presents with a 5-week history of scaly lesions on the face, trunk, and limbs as given in the image, along with irritability, dehydration, and generalized oedema. Laboratory tests reveal hypoalbuminemia and hypokalemia. Based on these findings, what is the most likely diagnosis? (Q849874)

A. Marasmus

B. Flaky paint dermatosis

C. Flag sign

D. Acrodermatitis Enteropathica



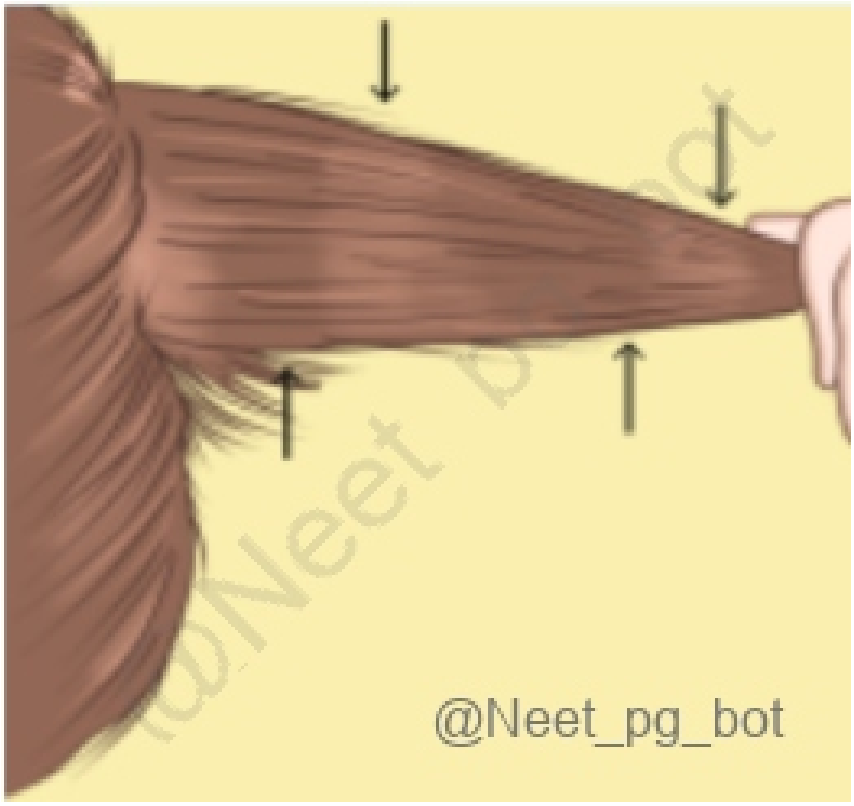
Correct Answer: B. Flaky paint dermatosis

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Flaky paint dermatosis , also known as peeling paint dermatosis , is a skin manifestation commonly seen in children with kwashiorkor , a form of severe protein-energy malnutrition. The characteristic skin changes include: Dry, desquamative, hyperpigmented, patchy, and macular lesions on the face, trunk, and limbs. Fragile skin that peels off irregularly, revealing underlying hypopigmentation. Shiny, varnished-looking hyperpigmentation is the most common finding. Progression from dryness and atrophy to generalized hyperkeratosis and hyperpigmentation. The skin changes are attributed to low methionine levels , which impair the sulfation of keratin. Treatment involves improving protein and calorie intake, gradually introducing enteral feeds, and providing supportive care. Marasmus (Option A) is characterized by severe energy deficiency leading to significant weight loss and muscle wasting. While it presents with malnutrition, it typically does not feature the specific skin manifestations described in the vignette. Instead, a marasmic child presents with a more generalized wasting appearance without the oedema seen in kwashiorkor. Flag sign (Option C) is characterized by alternating bands of hypopigmented and normally pigmented hair and appears when a child experiences growth spurts. This is seen in a child with kwashiorkor. Acrodermatitis enteropathica (Option D) is a rare genetic disorder caused by zinc deficiency due to defective zinc absorption in the intestines, often linked to gene mutations that encode the ZIP4 zinc transporter . This condition leads to insufficient dietary zinc absorption, manifesting in distinctive skin, hair, and nail issues.


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References:

Ghai Essential Pediatrics, 10th Edition, Page 87, 88

Nelson Textbook of Pediatrics, 21st Edition, Page 337

Flaky Paint Dermatosis in Kwashiorkor - PMC (nih.gov)

Acrodermatitis Enteropathica - PMC (nih.gov)

Acrodermatitis Enteropathica Clinical Presentation (medscape.com)

↑ *Back to this question in Part A*

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Q10: A 2 y/o from a low-income community presents with poor growth. The child's height for age is below -2 SDS on WHO standards, but weight-for-height is normal. What is the most likely diagnosis? (Q849865)

A. Severe Acute Malnutrition (SAM)

B. Moderate Stunting

C. Moderate Wasting

D. Severe Underweight

Correct Answer: B. Moderate Stunting

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Stunting is indicated by low height-for-age, falling between -2 and -3 SDS , which suggests chronic malnutrition. This child's growth has been stunted due to long-term inadequate nutrition. Severe Acute Malnutrition (SAM)(Option A): SAM is characterized by severe wasting, a weight-for-height below -3 SDS, or bilateral oedema. This child does not have these symptoms. Moderate Wasting (Option C): Wasting refers to low weight-for-height, typically indicating acute malnutrition. The child's weight for height is normal, so wasting is not present. Severe Underweight (Option D): Underweight refers to low weight-for-age. Although underweight can be associated with both wasting and stunting, the child's weight-for-height is normal, ruling out underweight as the primary issue.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 334

Ghai Essential Pediatrics, 10th Edition, Pages 85,88

www.ncbi.nlm.nih.gov/books/NBK487900/table/fm.s1.t1/

↑ *Back to this question in Part A*

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Q11: Which of the following features correctly describes the conditions depicted in images 1 and 2? a) Severe wasting b) Flaky paint dermatitis c) Baggy pants d) Skin and bone appearance e) Nutritional anaemia f) Sugar baby g) Flag sign h) Monkey facies (Q849872)

A. 1- a,d,e,f; 2- b,c,g,h

B. 1- b,d,g,h; 2- a,c,e,f

C. 1- a,b,c,e; 2- d,f,g,h

D. 1- a,c,d,h; 2- b,e,f,g



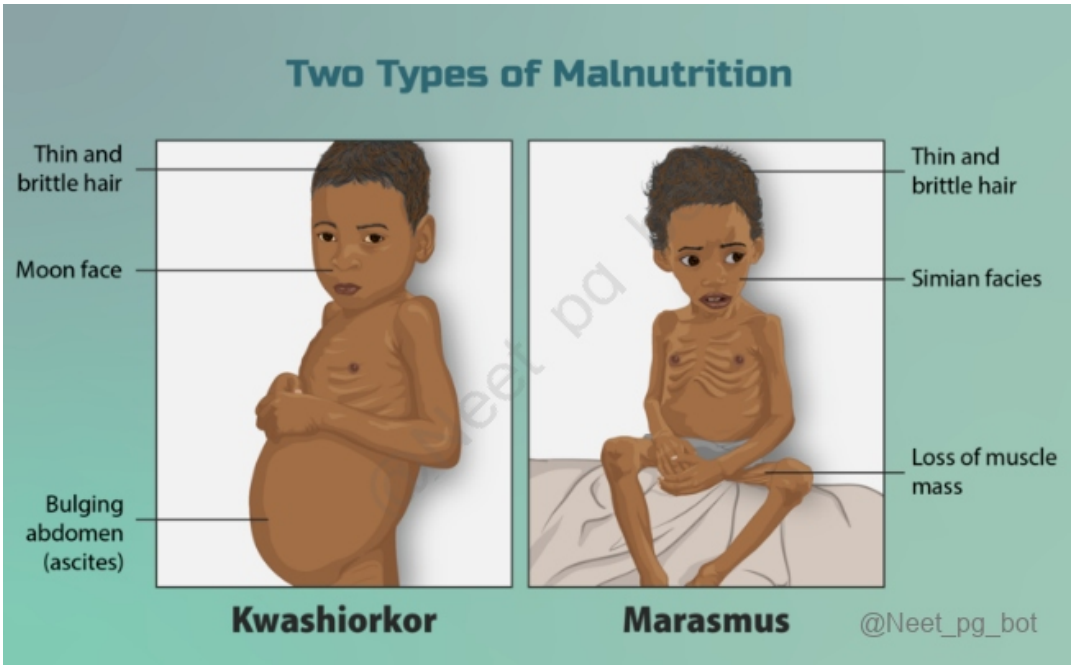
Correct Answer: D. 1- a,c,d,h; 2- b,e,f,g

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: MARASMUS KWASHIORKOR Severe wasting of fat and muscle. Often due to acute starvation or illness secondary to poor nutritional status. Severe marasmus is a form of severe acute malnutrition (SAM). Skin-and-bones appearance. Monkey facies due to the loss of buccal fat pads. Baggy pants appearance- due to loose skin hanging from the buttocks. Loss of axillary fat pad . Despite the severe wasting, affected children may appear alert . No oedema . Pitting oedema present. “Well-fed” / “Sugar baby” appearance of the child d/t oedema. Oedema can be mild to severe, representing 5-20% of body weight . Muscle wasting is present. Flaky pain dermatitis present (peeling skin). Mucous membrane lesions- smooth tongue, cheilosis , angular stomatitis. Flag sign in hair- alternating pigmented bands. Hair is sparse. Unhappiness, apathy, irritability , and feeding difficulties.

Anorexia, vomiting, abdominal distension, and diarrhoea. Nutritional anaemia is typically present. Cardiovascular issues include cold, pale extremities, prolonged circulation time, bradycardia, and hypotension.



References:

Ghai Essential Pediatrics, 10th Edition, Pg.87, 88

Nelson Textbook of Pediatrics, 21st edition, Pg.336, 337

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: Which of the following is a target of POSHAN Abhiyaan? (Q849871)

A. Increase the average weight of children by 5 kg per year.

B. Achieve a 2% annual reduction in under-nutrition.

C. Eliminate all forms of malnutrition by 2022.

D. Provide free school meals to all children.

Correct Answer: B. Achieve a 2% annual reduction in under-nutrition.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: One of the specific targets of POSHAN Abhiyaan is to achieve a 2% annual reduction in undernutrition among children, women, and adolescent girls. POSHAN ABHIYAAN Prime minister's overarching scheme for holistic nutrition. Launch : POSHAN Abhiyaan was launched by Prime Minister Narendra Modi in Jhunjhunu, Rajasthan, in March 2018. Objectives : The initiative targets reduction in under-nutrition, stunting, anaemia (in children, women, and adolescent girls), and low birth weight by coordinating various nutrition schemes. Improve nutrition in 1st 1000 days of life (including the antenatal period and 2 years after birth). Implementation : The program utilizes existing structural arrangements of line ministries and will be scaled up with support from the World Bank's ISSNIP project to all districts by 2022. Annual Targets : Reduce stunting by 2% per year. Reduce Undernutrition by 2% per year (Option B). Reduce Anemia by 3% per year. Reduce low birth weight by 2% per year. Stunting Reduction Goal : Strives to decrease stunting from 38.4% (NFHS-4) to 25% by 2022, with a target of at least a 2% annual reduction.



References:

www.india.gov.in/spotlight/poshan-abhiyaan-pms-overarching-scheme-holistic-nourishment

static.pib.gov.in/WriteReadData/specificdocs/documents/2021/dec/doc202112111.pdf

pmposhan.education.gov.in/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 10-month-old with SAM was treated with F75 and transitioned to F100 and RUTF after the oedema resolved and appetite returned. The child has gained 6

grams/kg/day. Which of the following is NOT an appropriate discharge criterion? (Q849870)

A. The child has shown consistent weight gain of more than 5 grams/kg/day for at least 3 consecutive days.

B. The child's oedema has resolved.

C. The child has been switched from F75 to F100.

D. The child has received all necessary vaccinations.

Correct Answer: C. The child has been switched from F75 to F100.

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Switching to F100 is NOT sufficient for discharge. Discharge criteria require resolution of medical issues, sufficient weight gain, and clinical stability. SAM- Nutritional Rehabilitation Phase and Discharge Nutritional Rehabilitation Entry to Rehabilitation Phase: Indicated by reduced or minimal oedema and a return of appetite. Transition Process: Duration: Over 3 days to prevent refeeding syndrome. Method: Replace F75 with an equal volume of F100 for 2 days. Gradual Increase: Increase feed volume by 10 mL at each feeding until some feed remains uneaten (around 200 mL/kg/day). Post-Transition Feeding: Feeds: Provide unlimited amounts of high-energy, high-protein milk formula like F100 (100 kcal and 3 g protein per 100 mL), ready-to-use therapeutic food (RUTF), or modified family foods with similar energy and protein content. (Option C) Calories and Protein: Offer 150-220 kcal/kg/day and 4-6 g protein/kg/day. Supplements: Continue potassium, magnesium, and micronutrients. Add iron at 3 mg/kg/day. Breastfeeding: Encourage continued breastfeeding if applicable. RUTF Standard ready-to-use therapeutic food (RUTF) usually contains milk powder, sugar, peanut butter, vegetable oil, vitamins, and minerals. It has a long shelf life and low moisture content- preventing the growth of pathogens. When using RUTF: Begin with small, frequent meals of RUTF, aiming for 8 meals per day initially and then reducing to 5–6 meals per day. If the child cannot consume the full RUTF portion at each meal, supplement with F-75 to complete the meal until they can eat the full amount of RUTF. If the child is unable to consume at least half of the recommended RUTF amount within 12 hours, discontinue RUTF and provide F-75 instead. Reintroduce RUTF after 1–2 days and continue this approach until the child can consume sufficient RUTF. If the child is still breastfeeding, offer breast milk before each RUTF feeding. Discharge criteria All medical issues, including oedema, are resolved for 2 weeks (Option B) They have completed parenteral antibiotic treatment and the infant is clinically stable and alert. The infant is either breastfeeding effectively or feeding well. The weight gain is satisfactory, such as being above the median of WHO growth velocity standards or gaining more than 5g/kg/day for at least 3 consecutive days. (Option A) Before discharge, check and provide any missing vaccinations and routine interventions as needed. Ensure that mothers or caregivers are connected with appropriate community follow-up and support. (Option D)

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.340, 341

Ghai Essential Pediatrics, 10th Edition, Pg.96

Severe acute malnutrition - Pocket Book of Hospital Care for Children - NCBI Bookshelf (nih.gov)

Ready■to■use therapeutic food (RUTF)

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A 2 y/o child is diagnosed with severe acute malnutrition (SAM) and is admitted to the hospital. On admission, the child is found to have hypoglycemia and starts showing signs of hypothermia. Which of the following is the most likely complication of SAM that the child is experiencing? (Q849869)

A. Refeeding Syndrome

B. Electrolyte Imbalance

C. Dehydration

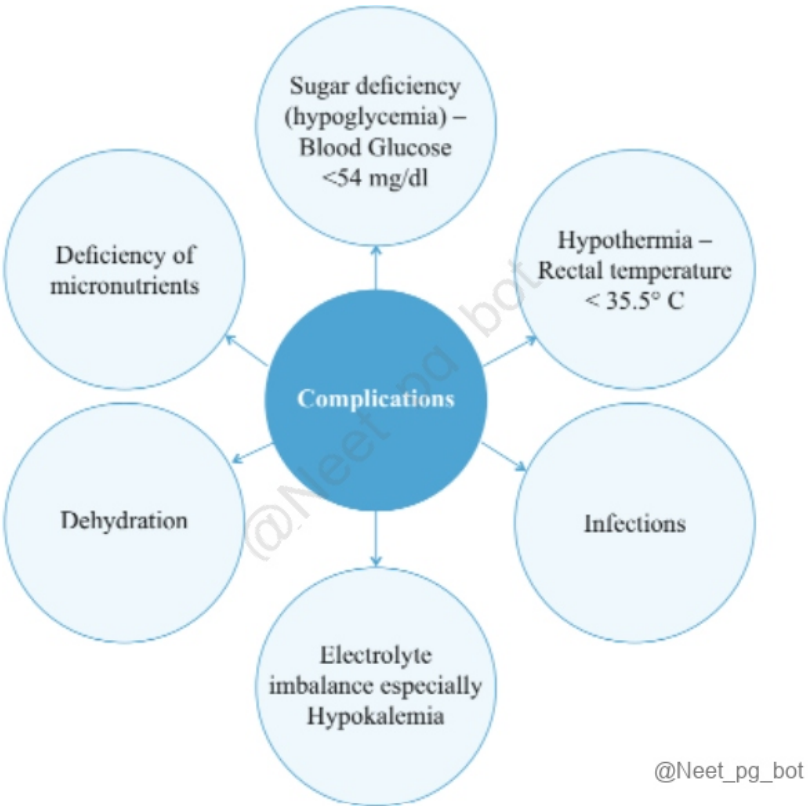
D. Metabolic Disturbances

Correct Answer: D. Metabolic Disturbances

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: SAM is characterized by significant metabolic disturbances, including hypoglycemia (due to impaired gluconeogenesis in the liver) and hypothermia (due to reduced metabolic rate and loss of body fat). The symptoms presented in the scenario align closely with these disturbances, making this the most likely complication the child is experiencing. Refeeding Syndrome (Option A) is a serious complication that can occur when feeding is reintroduced too rapidly in malnourished patients, leading to dangerous shifts in fluids and electrolytes. Although it is a known risk during the treatment of SAM, the symptoms present as breathlessness, rapid pulse, and watery diarrhoea which are not seen in this patient. Electrolyte Imbalance (Option B) particularly involving potassium, magnesium, and sodium, is common in children with SAM and can lead to complications like cardiac arrhythmias and muscle weakness. However, the symptoms described (hypoglycemia and hypothermia) are more indicative of metabolic disturbances. Dehydration (Option C): Dehydration can occur in malnourished children due to inadequate fluid intake, diarrhea, or other factors. However, dehydration typically presents with signs such as dry mucous membranes, sunken eyes, decreased skin turgor, and low blood pressure, none of which are specifically noted in this child. The presentation of hypoglycemia and hypothermia strongly suggests metabolic disturbances related to refeeding rather than dehydration alone.



References:

Nelson Textbook of Pediatrics, 21st edition, Pg.335,338,342

↑ *Back to this question in Part A*

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Q15: A 14-month-old child is brought to the clinic with concerns about poor growth. The child is significantly underweight, and O/E, the mid-upper arm circumference (MUAC) measures 11 cm. There is also noticeable swelling in both feet. What is the most likely diagnosis? (Q849868)

A. Mild Acute Malnutrition

B. Severe Acute Malnutrition

C. Moderate Acute Malnutrition

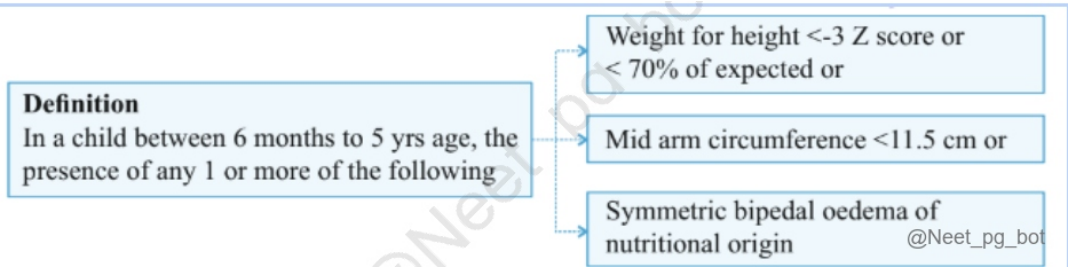
D. Chronic Malnutrition

Correct Answer: B. Severe Acute Malnutrition

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Severe Acute Malnutrition is the correct option, characterized by severe wasting (MUAC < 11.5 cm) and the presence of bilateral oedema, both of which are diagnostic criteria for SAM. SAM requires immediate medical attention due to its life-threatening nature. Definition of SAM - can have any of the 3 criteria. Mild Acute Malnutrition (Option A): This refers to a less severe form of malnutrition where weight and MUAC are below normal but not critically low as seen in SAM. The presence of bilateral oedema and a MUAC of 11 cm indicates a more severe condition. Moderate Acute Malnutrition (Option C) is when a child shows moderate wasting, with a MUAC that is lower than normal but higher than the threshold for severe malnutrition (typically between 11.5 cm and 12.5 cm). Chronic Malnutrition (Option D): It is characterized by stunting, where a child is shorter for their age due to long-term nutritional deficiency. The key features in this scenario -acute wasting and edema are more consistent with severe acute malnutrition, not chronic malnutrition.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 336

Ghai Essential Pediatrics, 10th Edition, Pages 85,88

↑ *Back to this question in Part A*

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Q16: A 2 y/o child from a rural area presents to the clinic with severe wasting, prominent ribcage, and a "baggy pants" appearance due to loose skin on the buttocks. Despite the child's emaciated state, they remain mentally alert. What is the most likely diagnosis? (Q849867)

A. Kwashiorkor

B. Marasmus

C. Mild Malnutrition

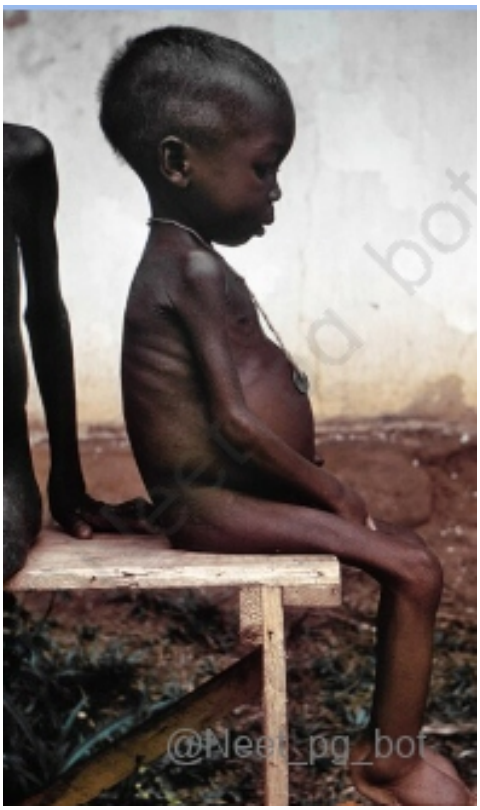
D. Obesity

Correct Answer: B. Marasmus

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A 2 y/o child who is mentally alert, with severe wasting, prominent ribcage, and a "baggy pants" appearance likely points towards the diagnosis of Marasmus. Kwashiorkor (Option A ruled out) Marasmus (Option B) Pitting Edema: Characterized by swelling, often starting in the legs and feet, leaving a persistent indentation when pressed. Severe Wasting: The child appears extremely thin, with prominent bones and little body fat. Sugar Baby Appearance: The child may look deceptively healthy due to oedema, despite being malnourished. Monkey Facies: A sunken appearance of the cheeks due to loss of fat, giving an aged look. Muscle Wasting: Despite the swollen appearance, muscle loss is present, leading to weakness and hypotonia. Baggy Pants Appearance: Loose, sagging skin around the buttocks caused by significant muscle and fat loss. Mental and Neurological Symptoms: The child is apathetic, irritable, and may have feeding difficulties. Alertness: Children with marasmus remain mentally alert. Hair Changes: Hair may lose colour, become thin, and show alternating bands of colour ("flag sign"). Absence of Edema: Unlike kwashiorkor, marasmus does not involve swelling or oedema. Skin Changes: Includes hyperpigmentation, peeling skin ("flaky paint" appearance), and colour changes, particularly in the buttocks, perineum, and thighs. Hypoglycemia Risk: The liver's reduced capacity to produce glucose increases the risk of low blood sugar. Gastrointestinal Issues: Anorexia, vomiting, and abdominal distension. Anaemia is present due to nutritional deficiencies. Hypothermia Risk: The child may struggle to maintain body temperature due to energy depletion. Mild Malnutrition (Option C): Mild malnutrition does not present with such severe symptoms as wasting and an emaciated appearance. Obesity (Option D): Obesity is characterized by excessive fat accumulation, which is the opposite of the symptoms described in the scenario.





References:

Ghai Essential Pediatrics, 10th Edition, Pages 87,88

Nelson Textbook of Pediatrics, 21st Edition, Pages 336

www.ncbi.nlm.nih.gov/pmc/articles/PMC1785878/pdf/brmedj02220-0038.pdf

↑ *Back to this question in Part A*

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Q17: A 2 year old malnourished child is assessed using mid-upper arm circumference (MUAC), and the measurement is 10 cm. What does this indicate? (Q849866)

A. Moderate Stunting

B. Severe Wasting

C. Chronic Malnutrition

D. Obesity

Correct Answer: B. Severe Wasting

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A MUAC measurement significantly below the recommended threshold (11.5 cm between 6 months to 5 years of age) typically indicates severe wasting . Wasting is a form of acute malnutrition where the child has a skinny appearance due to recent and severe weight loss. Therefore, a low MUAC strongly suggests severe wasting. MUAC is considered an age-independent measure for assessing malnutrition. Moderate Stunting (Option A): It is assessed using height-for-age measurements, which reflect long-term nutritional status and growth. MUAC is not used to diagnose stunting; thus, a low MUAC measurement would not indicate moderate stunting. Chronic Malnutrition (Option C): It is associated with long-term nutritional deficiencies and is evaluated through height-for-age measurements that show stunting. MUAC is more suited for detecting acute malnutrition rather than chronic malnutrition. Obesity (Option D) is identified through high BMI or weight-for-height measurements, not by a low MUAC. Since MUAC is used to assess acute malnutrition, it cannot indicate obesity.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.334

Ghai Essential Pediatrics, 10th Edition, Pg.88

Mid-Upper Arm Circumference Assessment

↑ *Back to this question in Part A*

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• [05_Nutrition and Malnutrition] 014 Previous Year Questions

« Back to Folder Directory

[05_Nutrition and Malnutrition] 014 Previous Year Questions — Quick Jump

Q1 (p. 802)	*Q2 (p. 803)*	*Q3 (p. 804)*	*Q4 (p. 805)*	*Q5 (p. 807)*	*Q6 (p. 808)*
Q7 (p. 809)	*Q8 (p. 811)*	*Q9 (p. 813)*	*Q10 (p. 814)*	*Q11 (p. 815)*	*Q12 (p. 816)*
Q13 (p. 817)	*Q14 (p. 819)*	*Q15 (p. 820)*	*Q16 (p. 820)*	*Q17 (p. 823)*	*Q18 (p. 823)*
Q19 (p. 824)	*Q20 (p. 825)*	*Q21 (p. 826)*	*Q22 (p. 827)*	*Q23 (p. 828)*	*Q24 (p. 830)*
Q25 (p. 830)	*Q26 (p. 831)*	*Q27 (p. 832)*	*Q28 (p. 833)*	*Q29 (p. 834)*	*Q30 (p. 835)*
Q31 (p. 836)	*Q32 (p. 836)*	*Q33 (p. 837)*	*Q34 (p. 837)*	*Q35 (p. 838)*	

Q1: During the anthropometric evaluation of the child, the height for the age is < -2 SD according to WHO growth charts. This is most likely due to: (Q856164)

A. Chronic malnutrition

B. Acute malnutrition

C. Recent infection

D. No malnutrition

Correct Answer: A. Chronic malnutrition

Explanation: hronic malnutrition: The child's height for age being below -2SD suggests chronic malnutrition. The best indicator of chronic malnutrition is a decrease in height for age, i.e., stunting. It can be caused by factors such as insufficient food availability, poor dietary diversity, inadequate breastfeeding, or repeated infections that affect nutrient absorption. WHO Classification of Malnutrition Moderately underweight Weight for age is between -2 and -3 SD. Severely underweight Weight for age is < -3 SD. Moderately wasted Weight for length/height is between -2 and -3 SD. Severely wasted Weight for length/height is < -3 SD. Moderate Acute Malnutrition Weight-for-length/height or BMI for age is between -2 and -3 SD. Mid-upper arm circumference (MUAC) is between 11.5 cm and 12.5 cm. Severe Acute Malnutrition (SAM) : Weight-for-length/height or BMI-for-age is less than -3SDS. MUAC is less than 11.5 cm. The presence of bilateral pitting oedema. Moderately Stunted (Moderate Chronic Malnutrition) Length/height for age is between -2 and -3 SD. Severely Stunted (Severe Chronic Malnutrition) Length/height for age is < -3 SD. Acute malnutrition (Option B) refers to a severe and sudden lack of adequate nutrition, often resulting from a recent significant decrease in food intake or a severe illness. The best indicator of acute malnutrition is a decrease in weight for height , i.e., wasting. While recent infection (Option C) can temporarily affect a child's growth and nutritional status, a recent infection alone is less likely to cause a significant and sustained decrease in height for age.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 333, 334, 336

Ghai Essential Pediatrics, 10th Edition, Page 85,88

World Health Organization (WHO) classification

↑ *Back to this question in Part A*

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Q2: Which of the following statements regarding breastfeeding technique is/are incorrect? A) The infant's lower lip should be inverted during latching B) The infant's cheeks should appear full during effective suckling C) A greater portion of areola should be covered above the breast than below D) The infant's chin should make contact with the breast during feeding (Q865415)

A. A and C only

B. B and D only

C. B, C, and D only

D. All of the above

Correct Answer: A. A and C only

Explanation: For a proper latch, the infant's lower lip should be everted (flanged outwards), not inverted. An inverted lower lip indicates a shallow latch and can lead to nipple pain for the mother and inadequate milk transfer for the baby. (Statement A) When an infant is effectively suckling and getting milk, their cheeks should appear full and rounded, indicating that their mouth is well-filled with breast tissue and they are creating good suction. Dimpling of the cheeks often suggests a shallow latch or ineffective suckling. (Statement B) For an effective latch, a greater portion of the areola should be covered below the nipple than above it. This allows the infant to take in more breast tissue from the underside, which is crucial for compressing the milk ducts and extracting milk efficiently. (Statement C) The infant's chin should be tucked into the breast, making good contact. This position helps the baby to open their mouth wide and take in a good amount of breast tissue, facilitating a deep and effective latch. (Statement D)

References:

Nelson Textbook of Pediatrics, 21st edition, Page 323

Ghai Essential Pediatrics, 10th Edition, Page 145

↑ *Back to this question in Part A*

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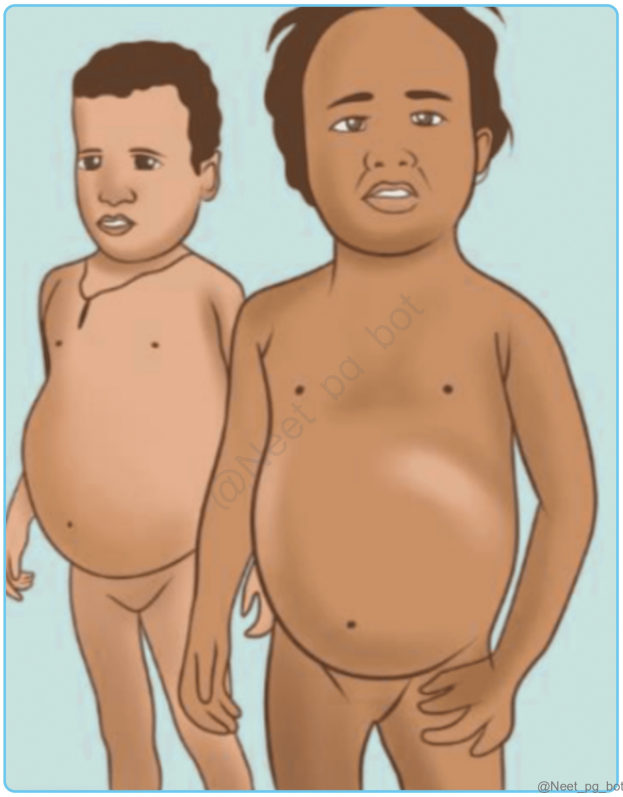
Q3: A child with lethargy and poor appetite with weight for age 70% of expected, presents with the findings shown in the image below. What is the true statement regarding this condition? (Q858064)

A. Kwashiorkor due to protein malnutrition

B. Kwashiorkor due to calorie malnutrition

C. Marasmus due to protein malnutrition

D. Marasmus due to calorie malnutrition



Correct Answer: A. Kwashiorkor due to protein malnutrition

Explanation: omparison between Marasmus and Kwashiorkor: Marasmus Kwashiorkor Severe Wasting: The child appears extremely thin, with prominent bones and little body fat. Pitting Edema: Characterized by swelling, often starting in the legs and feet, leaving a persistent indentation when pressed. Monkey Facies: A sunken appearance of the cheeks due to loss of fat, giving an aged look. Sugar Baby Appearance: The child may look deceptively healthy due to oedema, despite being malnourished. Baggy Pants Appearance: Loose, sagging skin around the buttocks caused by significant muscle and fat loss. Muscle Wasting: Despite the swollen appearance, muscle loss is present, leading to weakness and hypotonia. Alertness: Children with marasmus remain mentally alert. Mental and Neurological Symptoms: The child is apathetic, irritable, and may have feeding difficulties. Absence of Edema: Unlike kwashiorkor, marasmus does not involve swelling or oedema. Hair Changes: Hair may lose colour,

become thin, and show alternating bands of colour ("flag sign"). Hypoglycemia Risk: The liver's reduced capacity to produce glucose increases the risk of low blood sugar. Skin Changes: Includes hyperpigmentation, peeling skin ("flaky paint" appearance), and colour changes, particularly in the buttocks, perineum, and thighs. Hypothermia Risk: The child may struggle to maintain body temperature due to energy depletion. Gastrointestinal Issues: Anorexia, vomiting, and abdominal distension. Anaemia is present due to nutritional deficiencies. Kwashiorkor due to calorie malnutrition (Option B) is incorrect as kwashiorkor is primarily a protein deficiency condition, though calories may also be deficient. The characteristic edema is linked to hypoalbuminemia rather than caloric deficiency. Marasmus (Option C & D) does not match the presentation as marasmus presents with severe wasting, "monkey facies", baggy pants appearance and absence of edema. These children typically appear extremely thin with prominent bones. The presence of edema and swollen abdomen rules out this diagnosis.



References:

Ghai Essential Pediatrics, 10th Edition, Pages 87,88

Nelson Textbook of Pediatrics, 21st Edition, Page 336

↑ *Back to this question in Part A*

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Q4: Which of the following statements is true regarding the tape shown in the image? It is called Shelter's tape. It is used to assess severe acute malnutrition. Reading of 13.5

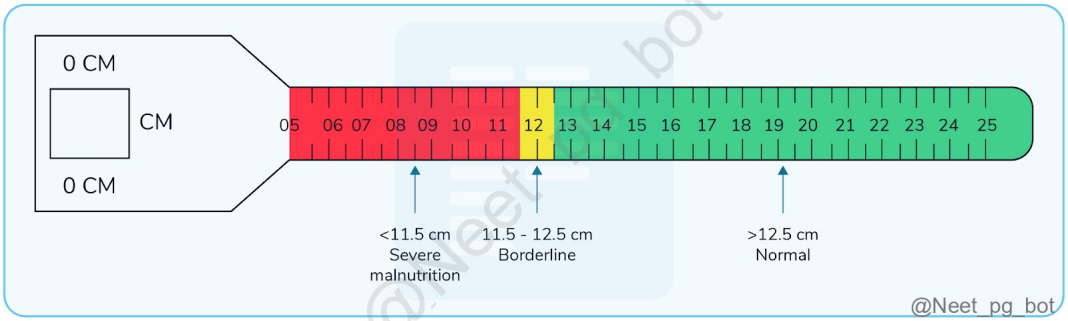
to 14.5 cm is considered undernourished. It is useful mainly for frontline field workers. (Q855732)

A. 1, 3

B. 2, 4

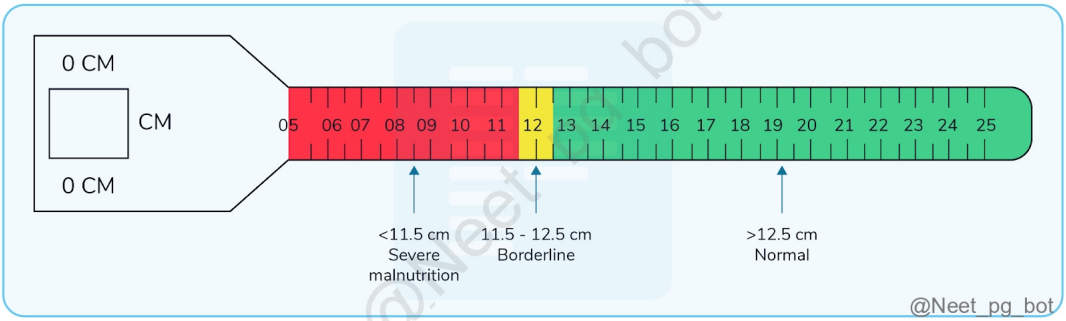
C. 2, 3

D. 1, 4



Correct Answer: B. 2, 4

Explanation: The tape shown in the image is Shakir's tape , used to assess severe acute malnutrition , and is primarily useful for frontline field workers to quickly identify malnourished children. Mid Upper Arm Circumference (MUAC) Definition MUAC is a vital measurement used primarily to assess the nutritional status of children aged 6 months to 5 years. Quick and effective screening tool. In infants under 6 months old, the Mid-Upper Arm Circumference (MUAC) is not utilized as a measurement criterion. (G88) Procedure Ensure the child is standing straight with their left arm free of clothing. The arm should be bent at a right angle. Measure the distance between the tip of the shoulder (acromion) and the tip of the elbow (olecranon). Mark the midpoint on the upper arm. The child's arm should hang relaxed by their side, with the palm facing the thigh. Use a MUAC tape to wrap around the marked midpoint of the arm. The tape should be snug but not tight enough to pinch the skin. Record the measurement at the zero mark of the tape. Shakir’s Tape Shakir's tape (1) is a specific type of MUAC measuring tape designed for use in assessing malnutrition. (2) Used by frontline field workers for nutritional screening of malnourished children. (4) It is typically three colour-coded to facilitate easy interpretation of nutritional status. The tape is marked with different zones that correspond to various levels of malnutrition: Red Zone: Indicates severe malnutrition (MUAC < 11.5 cm). Yellow Zone: Indicates moderate malnutrition (MUAC between 11.5 cm and 12.5 cm). Green Zone: Indicates healthy nutritional status (MUAC > 12.5 cm) (3) SHAKIR’S TAPE



References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 88

Nelson Textbook of Pediatrics, 21st Edition, Page 334

PARTICIPANT-MANUAL_FBCSA-Malnutrition.pdf (nhm.gov.in)

Mid-upper-arm-circumference-measuring-tapes-technical-bulletin.pdf (unicef.org)

↑ *Back to this question in Part A*

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Q5: Which can be used as an alternative to mother's milk in a low birth weight (LBW) baby? (Q855021)

A. Cow's milk

B. Preterm formula

C. Term formula

D. Human donor milk

Correct Answer: D. Human donor milk

Explanation: Human donor milk is the best alternative to mother's milk in a low birth weight (LBW) baby. Choice of Milk in LBW: All low birth weight (LBW) infants should receive only breast milk, regardless of their initial feeding method. Feeding methods: Paladai or gastric tube can be used for feeding. Source of breast milk: Expressed breast milk can be either the mother's own milk or human donor milk. Donor milk is preferred over preterm formula as it reduces the risk of necrotising enterocolitis, offers comparable long-term growth and neurodevelopmental outcomes, provides non-nutrient benefits like improved immunity, and serves as a safer alternative when maternal milk is unavailable. Special Situations: Sick Mothers or Contraindication to Breastfeeding: Temporary Alternatives: When a mother is sick or breastfeeding is contraindicated, the following options are available: Formula Feeds: Preterm formula for very low birth weight (VLBW) infants. (Option B) Term formula for infants weighing >1500 g at birth. (Option C) Animal Milk: Cow's milk (lacking vitamin C,

iron, and essential fatty acids, and containing high levels of protein and lactose that can cause digestive and allergic issues in infants) can be used as an alternative. (Option A) Resumption of Breastfeeding: Once the mother's condition stabilizes or the contraindication resolves, exclusive breastfeeding should be initiated for these infants.

References:

AIIMS Protocols in Neonatology, 2nd Edition, Pages 240,242

↑ *Back to this question in Part A*

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Q6: Which of the following is an absolute contraindication for breastfeeding? (Q857193)

A. Alcoholic mother

B. Classic galactosemia in the infant

C. A mother with HIV infection

D. Infants born to an HbsAg-positive mother

Correct Answer: B. Classic galactosemia in the infant

Explanation: ctive Tuberculosis Mothers with active tuberculosis should delay breastfeeding until they have completed at least two weeks of appropriate treatment to reduce the risk of transmission. Active Herpes Simplex Virus (HSV) Lesions on the Breast: Breastfeeding is contraindicated if a mother has active herpetic lesions on her breast to prevent transmission to the infant. Varicella-Zoster Infection If the mother has active chickenpox lesions, breastfeeding should be avoided to prevent direct contact between the lesions and the infant. The infant should also receive appropriate immunoglobulin. Medications and Treatments: Chemotherapy, Radiopharmaceuticals and Certain Medications Breastfeeding is usually contraindicated during maternal treatment with chemotherapy or radiopharmaceuticals due to the potential harm to the infant. Specific medications, such as some anticoagulants, anti-tuberculosis drugs, and anticonvulsants, may require mothers to avoid breastfeeding. Substance Use: Alcohol and Smoking (Option A) While not a strict contraindication, alcohol consumption should be limited to less than 0.5g/kg/day. Cigarette smoking is strongly discouraged. Maternal Health Conditions: Severe Illness or Surgery Breast Conditions Maternal issues like mastitis or breast engorgement may complicate breastfeeding and require temporary cessation but are not absolute contraindications. Fetal Contraindications Metabolic Disorders: Galactosemia Infants with galactosemia , a condition where they cannot process galactose, should not be breastfed. Instead, they require specialized formulas. Anatomical Challenges: Oral or Facial Anomalies Conditions like cleft palate that affect the infant's ability to suckle may necessitate alternative feeding methods. Prematurity or Low Birth Weight: Support Needs Premature or low-birth-weight infants may initially require supplemental feeding methods until they can effectively breastfeed. A mother with HIV infection (Option C) is not an absolute contraindication to breastfeeding and continues normally with the mother on antiretroviral therapy. Infants born to an HbsAg-positive mother (Option D) can be breastfed as usual once the baby receives the hepatitis B vaccine and

immunoglobulin within 12 hours of birth.

References:

Nelson Textbook of Pediatrics, 21st edition, Page: 322, 324.

Ghai Essential Pediatrics, 10th Edition, Page: 146,178.

↑ *Back to this question in Part A*

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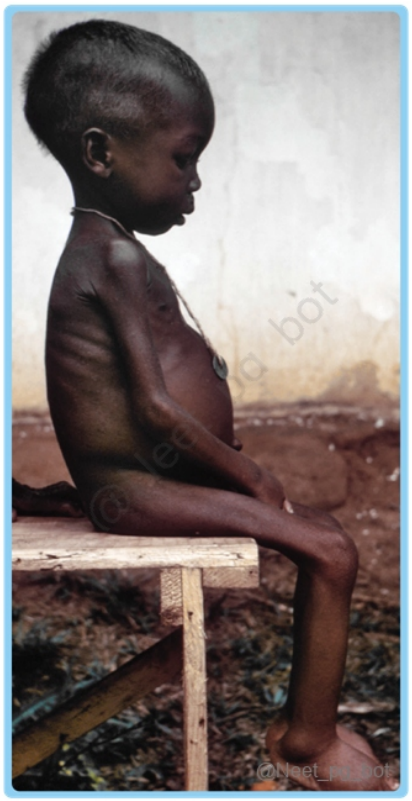
Q7: A child presents to your outpatient department with the findings shown in the image below. What is the likely diagnosis? (Q857219)

A. Kwashiorkor

B. Marasmus

C. Nephrotic syndrome

D. Nephritic syndrome



Correct Answer: A. Kwashiorkor

Explanation: haracterized by swelling, often starting in the legs and feet, leaving a persistent indentation when pressed. Absence of Edema: Unlike kwashiorkor, marasmus does not involve swelling or oedema. Sugar Baby Appearance: The child may look deceptively healthy due to oedema, despite being malnourished. Monkey Facies: A sunken appearance of the cheeks due to loss of fat, giving an aged look. Muscle Wasting: Despite the swollen appearance, muscle loss is present, leading to weakness and hypotonia. Severe Wasting: The child appears extremely thin, with prominent bones and little body fat. Mental and Neurological Symptoms: The child is apathetic, irritable, and may have feeding difficulties. Alertness: Children with marasmus remain mentally alert. Hair Changes: Hair may lose colour, become thin, and show alternating bands of colour (" flag sign "). Baggy Pants Appearance: Loose, sagging skin around the buttocks caused by significant muscle and fat loss . Skin Changes: Includes hyperpigmentation, peeling skin ("flaky paint" appearance), and colour changes, particularly in the buttocks, perineum, and thighs. Hypoglycemia Risk: The liver's reduced capacity to produce glucose increases the risk of low blood sugar. Gastrointestinal Issues: Anorexia, vomiting, and abdominal distension. Anaemia is present due to nutritional deficiencies. Hypothermia Risk: The child may struggle to maintain body temperature due to energy depletion. {{caption_text}} {{caption_text}} Nephrotic syndrome (Option C) is characterized by massive proteinuria, hyperlipidemia, and hypoalbuminemia. This does cause oedema, poor growth and nutrition but the oedema is often present at birth. The nephritic syndrome (Option D) is a clinical syndrome presenting as hematuria, hypertension, oliguria, and oedema.





References:

Ghai Essential Pediatrics, 10th Edition, Page: 87, 88.

Nelson Textbook of Pediatrics, 21st Edition, Page: 336.

↑ *Back to this question in Part A*

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Q8: A child who is exclusively fed rice water presents with a swollen abdomen and a pale, unenergetic expression, and shows signs of malnourishment with decreased serum protein and albumin levels. What is the probable diagnosis? (Q857576)

A. Kwashiorkor

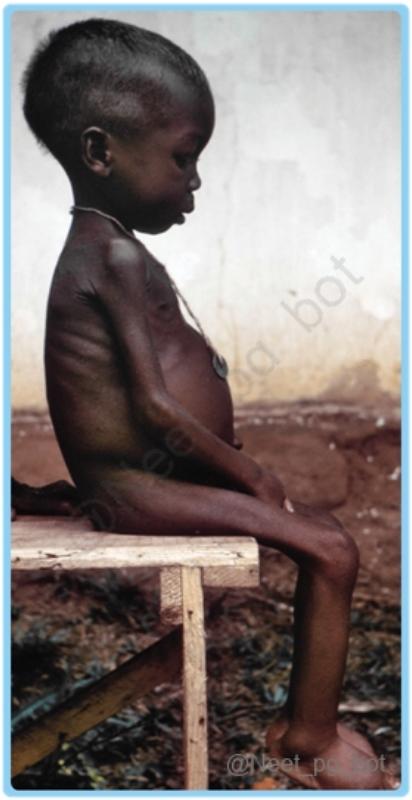
B. Marasmus

C. Indian childhood cirrhosis

D. Kawasaki disease

Correct Answer: A. Kwashiorkor

Explanation: haracterized by swelling , often starting in the legs and feet, leaving a persistent indentation when pressed. Severe Wasting: The child appears extremely thin, with prominent bones and little body fat. Sugar Baby Appearance: The child may look deceptively healthy due to oedema, despite being malnourished. Monkey Facies: A sunken appearance of the cheeks due to loss of fat, giving an aged look. Muscle Wasting: Despite the swollen appearance, muscle loss is present, leading to weakness and hypotonia. Baggy Pants Appearance: Loose, sagging skin around the buttocks caused by significant muscle and fat loss. Mental and Neurological Symptoms: The child is apathetic, irritable, and may have feeding difficulties. Alertness: Children with marasmus remain mentally alert. Hair Changes: Hair may lose colour, become thin, and show alternating bands of colour ("flag sign"). Absence of Edema: Unlike kwashiorkor, marasmus does not involve swelling or oedema. Skin Changes: Includes hyperpigmentation, peeling skin ("flaky paint" appearance), and colour changes, particularly in the buttocks, perineum, and thighs. Hypoglycemia Risk: The liver's reduced capacity to produce glucose increases the risk of low blood sugar. Gastrointestinal Issues: Anorexia, vomiting, and abdominal distension. Anaemia is present due to nutritional deficiencies. Hypothermia Risk: The child may struggle to maintain body temperature due to energy depletion. {{caption_text}} {{caption_text}} Indian childhood cirrhosis (Option C) is a chronic liver disease in infants and children that presents with jaundice, pruritis, lethargy, and hepatosplenomegaly. It is related to copper accumulation in the liver and is not the given scenario. Kawasaki disease (Option D) is a vasculitis that affects medium-sized arteries, especially the coronary arteries and presents with fever, strawberry tongue, bilateral conjunctivitis, rash, and desquamation of hands and feet. This is not the given scenario.





References:

Nelson Textbook of Pediatrics, 21st edition, Page: 336.

Ghai Essential Pediatrics, 10th Edition, Page: 87, 88.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: Which of the following statements is incorrect about colostrum? (Q857596)

A. It is the breastmilk that is seen in the initial 3-4 days

B. It is yellow

C. It contains a large number of antibodies

D. It contains a high amount of lactose and low amounts of protein

Correct Answer: D. It contains a high amount of lactose and low amounts of protein

Explanation: alanced in nutrients essential for growth Higher lactose content.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 322,324,325.

Breastfeeding: Overview - American Pregnancy Association

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: What is the fluid of choice for shock in a child with severe acute malnutrition? (Q858054)

A. Normal saline

B. Ringer lactate

C. 10% dextrose

D. Ringer's lactate with 5% dextrose

Correct Answer: D. Ringer's lactate with 5% dextrose

Explanation: symptomatic: 50 mL of 10% glucose/sucrose orally/NG Follow with first feed F-75 starter diet every 2 hours Symptomatic: 10% dextrose IV 5 mL/kg Follow with 50 mL 10% glucose via NG tube Start antibiotics immediately Blood glucose every 30 minutes until stable Level of consciousness Vital signs every 2 hours Feed intake volume Signs of deterioration 2. Treat/Prevent Hypothermia Temperature <35.5°C (rectal) or <35°C (axillary) Immediate interventions: Warm clothing with head cover Skin-to-skin contact with mother Warm room (25-30°C) Warm feeds Overhead warmer/heat convector Avoid: Rapid rewarming Direct heat sources Prolonged exposure Temperature every 30 minutes until >36.5°C Then every 2 hours until >37.5°C Watch for overheating Monitor blood glucose Check for infection signs 3. Treat/Prevent Dehydration Clinical signs: Thirst Sunken eyes Reduced skin turgor Weak pulses Cold extremities ReSoMal administration: 5-10 mL/kg/hour for first 12 hours Maximum 12 hours for rehydration Replace ongoing losses If shock present: Ringer's lactate with 5% dextrose 15 mL/kg over first hour Reassess and repeat if needed Every 30 minutes for first 2 hours: Pulse rate Respiratory rate Urine output Stool frequency Signs of overhydration Mental status 4. Correct Electrolyte Imbalance Common abnormalities: Hypokalemia Hypomagnesemia Excess total body sodium Metabolic acidosis Potassium supplementation: 3-4 mEq/kg/day Continue for 2 weeks Magnesium: Day 1: 0.3 mL/kg IM (max 2 mL) Then 0.8-1.2 mEq/kg/day oral Restrict sodium intake Daily electrolytes ECG if severe hypokalemia Clinical signs of deficiency Urine output Mental status changes 5. Treat/Prevent Infection Screen for: Sepsis Pneumonia UTI TB HIV Malaria in endemic areas First-line antibiotics: Ampicillin 50 mg/kg 6 hourly Gentamicin 7.5 mg/kg daily If no improvement in 48h: Cefotaxime 100-150 mg/kg/day or Ceftriaxone 50-75 mg/kg/day Temperature Respiratory rate Heart rate Clinical response Culture results Inflammatory markers 6. Micronutrient Supplementation Common deficiencies: Vitamin A Zinc Iron Folic acid Copper Other vitamins/minerals Vitamin A (Day 1): 6-12 months: 100,000 IU >12 months: 200,000 IU Daily supplements: Folic acid 1mg/day Zinc 2mg/kg/day Copper 0.2-0.3 mg/kg/day Iron 3mg/kg/day (after stabilization) Clinical signs of deficiency Response to therapy Weight gain Appetite improvement Complications 7. Initiate Feeding Assessment: Appetite Ability to

feed Complications Metabolic status Initial feeding: F-75 formula (75 kcal/100 mL) Start 80 kcal/kg/day Increase to 100 kcal/kg/day 2-hourly feeds initially Volume per feed: 11 mL/kg/feed initially Feed tolerance Volume consumed Weight changes Edema Vomiting/diarrhea Refeeding syndrome 8. Catch-up Growth Indicators for transition: Return of appetite Reduced/resolved edema Metabolic stability Infection control Transition to F-100: Increase to 150-200 kcal/kg/day Protein 4-6 g/kg/day 6 feeds per day Gradual volume increase Target weight gain: >10 g/kg/day Daily weight Height weekly MUAC weekly Appetite Clinical status Feed intake 9. Sensory Stimulation Assess: Developmental status Interaction level Physical capabilities Emotional state Daily activities: Structured play 15-30 min Physical activity as tolerated Emotional support Mother-child bonding Age-appropriate stimulation Development progress Activity level Social interaction Emotional response Motor skills 10. Prepare for Follow-up Discharge criteria: No edema x 2 weeks Weight-for-height > -2 SD Good appetite Clinically well Completed immunizations Discharge planning: Family education Follow-up schedule Community health worker linkage Emergency care plan Nutrition counseling Post-discharge: Weekly follow-up initially Monthly weight checks Growth monitoring Development assessment Immunization status Normal saline (Option A) provides only sodium chloride without any glucose component. In SAM, hypoglycemia is a common complication, and using normal saline alone fails to address it. Additionally, the high chloride content may worsen metabolic acidosis. Ringer lactate (Option B) alone, while providing better electrolyte balance than normal saline, does not address the hypoglycemia. These children have depleted glycogen stores and require glucose supplementation. 10% dextrose (Option C) provides only glucose without addressing the electrolyte requirements crucial in shock management. Using pure dextrose solution can worsen electrolyte imbalances and fail to provide adequate volume resuscitation needed in shock.

References:

OP Ghai Essentials of Pediatrics, 10th Edition, Page 88-96

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: Which of the following is not a criterion for severe acute malnutrition? (Q856770)

A. Weight for height less than -3 SD

B. MUAC < 115 mm

C. Bilateral pedal edema

D. Weight for age less than -3 SD

Correct Answer: D. Weight for age less than -3 SD

Explanation: Weight for age less than -3 SD is not a criterion for Severe Acute Malnutrition (SAM). It defines Severe Underweight , but it does not distinguish between acute (wasting) and chronic (stunting) malnutrition. Severe acute malnutrition: In a child between 6 months to 5 years of age, the presence of any one or more of the following: Weight for height Weight-for-length/height or BMI-for-age is less than -3SD in WHO child growth

charts (Option A ruled out) Mid arm circumference < 11.5 cm (115 mm) (Option B ruled out) Presence of bipedal edema (nutritional edema) (Option C ruled out)

References:

Nelson Textbook of Pediatrics, 21st edition, Page 336

Ghai Essential Pediatrics, 10th edition, Page 98

↑ *Back to this question in Part A*

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Q12: Which of the following symptoms does not indicate severe dehydration? (Q856440)

A. Drowsy child

B. Skin pinch retracts slowly

C. Thirsty child

D. Sunken fontanelle

Correct Answer: C. Thirsty child

Explanation: Thirst is actually a symptom of dehydration, not specific for severe dehydration. When the body is dehydrated, it sends signals of thirst to encourage the person to drink fluids and replenish the water deficit. Therefore, a thirsty child is more likely to be experiencing some dehydration rather than severe dehydration. Drowsy child (Option A) is a symptom of severe dehydration. When the body is severely dehydrated, it can lead to altered mental status, including drowsiness or lethargy. Severe dehydration affects the normal functioning of the brain and can result in decreased alertness and responsiveness. Retraction of skin slowly on pinching (Option B) is also a symptom of severe dehydration. Decreased skin turgor is a sign of dehydration, and in severe cases, the skin may remain tented or retracted due to fluid loss. Sunken fontanelle (Option D) is another symptom of severe dehydration, especially in infants. The fontanelles are the soft spots on a baby's head where the skull bones have not yet fully fused. If the fontanelle appears sunken or depressed, it suggests significant fluid loss and dehydration. Assessment and classification of Dehydration in Children: Sign/Symptom No Dehydration Some Dehydration Severe Dehydration Mental status Alert Irritable/restless Lethargic/unconscious Loss of body weight <3% 3- 9% >9% Thirst Normal Increased Unable to drink Eyes Normal Slightly sunken Very sunken Tears Present Decreased Absent Mouth Moist Dry Parched Skin turgor Normal (Immediate recoil) Slow recoil (2-3sec) Very slow recoil (>3sec) Capillary refill Normal (<2sec) Prolonged (2-3sec) Prolonged (>3sec) Urine output Normal Decreased Minimal

References:

Nelson Textbook of Pediatrics, 21st edition, Page 2027, 2028, 2029, 2030

Ghai Essential Pediatrics, 9 th edition, Page 287, 288, 289

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A labourer's second child is brought to the outpatient department (OPD) with a swollen belly and dull face appearance. He has been fed rice water in his diet mostly. Further investigations revealed low levels of serum protein and albumin. What could be the probable diagnosis? (Q854943)

A. Kwashiorkor

B. Marasmus

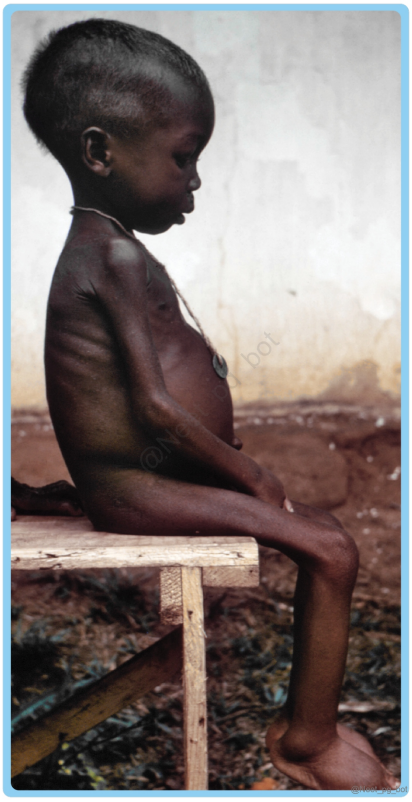
C. Indian childhood cirrhosis

D. Kawasaki disease

Correct Answer: A. Kwashiorkor

Explanation: The child's presentation with a swollen abdomen and a tired looking face with low levels of serum protein and albumin on investigation and a history of consumption of rice water as a major part of the diet are suggestive of kwashiorkor. Kwashiorkor is a form of severe malnutrition that occurs due to a deficiency in protein intake, particularly essential amino acids. It is commonly seen in children, typically between the ages of 1 and 3 years, who consume a diet lacking in quality protein sources. In the given scenario, the child's symptoms of a swollen belly and dull face , along with low serum protein and low albumin levels, indicate a protein deficiency. These are characteristic features of kwashiorkor , making it the most probable diagnosis. Kwashiorkor Marasmus (Option B) Pitting Edema: Characterized by swelling, often starting in the legs and feet, leaving a persistent indentation when pressed. Severe Wasting: The child appears extremely thin, with prominent bones and little body fat. Sugar Baby Appearance: The child may look deceptively healthy due to oedema, despite being malnourished. Monkey Facies: A sunken appearance of the cheeks due to loss of fat, giving an aged look. Muscle Wasting: Despite the swollen appearance, muscle loss is present, leading to weakness and hypotonia. Baggy Pants Appearance: Loose, sagging skin around the buttocks caused by significant muscle and fat loss. Mental and Neurological Symptoms: The child is apathetic, irritable, and may have feeding difficulties. Alertness: Children with marasmus remain mentally alert. Hair Changes: Hair may lose colour, become thin, and show alternating bands of colour ("flag sign"). Absence of Edema: Unlike kwashiorkor, marasmus does not involve swelling or oedema. Skin Changes: Includes hyperpigmentation, peeling skin ("flaky paint" appearance), and colour changes, particularly in the buttocks, perineum, and thighs. Hypoglycemia Risk: The liver's reduced capacity to produce glucose increases the risk of low blood sugar. Gastrointestinal Issues: Anorexia, vomiting, and abdominal distension. Anaemia is present due to nutritional deficiencies. Hypothermia Risk: The child may struggle to maintain body temperature due to energy depletion. {{caption_text}} {{caption_text}} Wellcome Classification (Protein Calorie Malnutrition) Weight (% of standard) Edema Present Absent 60-80 Kwashiorkor Undernourished <60 Marasmic Kwashiorkor Marasmus Indian childhood cirrhosis (Option C) is a liver disease that primarily affects infants and young children in India. It is characterized by liver damage and fibrosis, leading to liver

dysfunction. But it is not associated with a swollen belly or dull face. Kawasaki disease (Option D) is an acute febrile illness that primarily affects children under the age of 5. It involves inflammation of blood vessels throughout the body, leading to various symptoms such as high fever, rash, red eyes, swollen lymph nodes, and changes in the extremities.





References:

Nelson Textbook of Pediatrics, 21st edition, Page 336, 337 1310, 2105

Ghai Essential Pediatrics, 10th edition, Page 87, 88

Wellcome Classification, Page 3

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: According to current recommended dietary guidelines for children, energy from saturated fats should be what percentage of total energy intake? (Q854974)

A. < 10%

B. < 5%

C. < 15%

D. < 30%

Correct Answer: A. < 10%

Explanation: According to the current recommended dietary guidelines for children, the energy intake from saturated fats should be less than 10% of the total energy intake. This guideline is in place to promote a diet that is low in saturated fats and cholesterol without transfat, and encourages the consumption of healthier sources of fat, such as unsaturated fats. This helps reduce the risk of obesity, dyslipidemia, and later cardiovascular disease. Acceptable macronutrient distribution ranges (AMDA % of energy) : Macronutrient Age 1 to 3 years Age 4 to 18 years Carbohydrates 45- 65 % 45- 65 % Fats 30- 40 % 25- 35 % Protein 5- 20 % 10- 30 %

References:

Nelson Textbook of Pediatrics, 21st edition, Page 304, 307

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: At what age is it recommended to introduce solid foods to an infant while continuing breastfeeding? (Q859918)

A. 2 months

B. 6 months

C. 12 months

D. 18 months

Correct Answer: B. 6 months

Explanation: According to current recommendations by World Health Organization (WHO) and American Academy of Pediatrics (AAP), solid foods should be introduced to an infant while continuing breastfeeding at around 6 months of age. At 6 months, infants have typically developed the necessary oral motor skills to handle solid foods, including loss of the tongue-thrust reflex, ability to sit with support, and adequate head and neck control . Breast milk or formula remains the primary source of nutrition during the first year, with complementary foods gradually introduced to meet increasing nutritional demands, especially for iron and zinc. Breastfeeding can go up to 2 years of age or till the time the mother wants.

References:

OP Ghai Essential Paediatrics 10th Edition, Page 142-144

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: Specific sign of kwashiorkor is: (Q859922)

A. Pitting edema

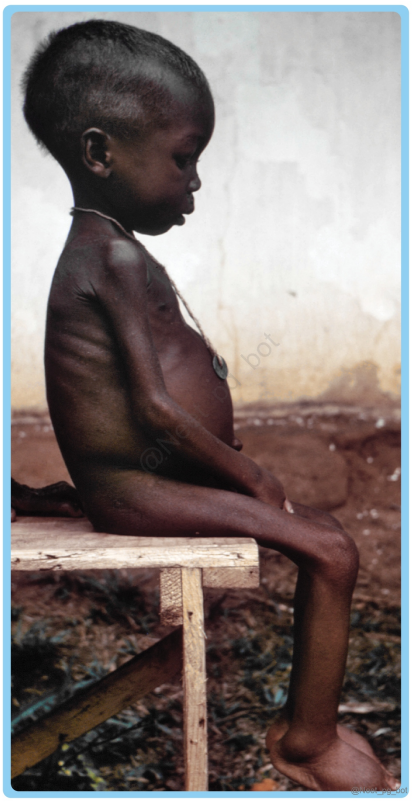
B. Weight loss

C. Flag sign

D. Muscle wasting

Correct Answer: A. Pitting edema

Explanation: Bilateral pitting edema is the specific sign of kwashiorkor , distinguishing it from other forms of malnutrition. This characteristic edema develops due to severe protein deficiency, leading to decreased plasma oncotic pressure, which results in fluid accumulation in the interstitial spaces. Kwashiorkor typically affects children between weaning age and 5 years, with the edema being most pronounced in the lower extremities but potentially affecting other body parts, including the face and hands. Features of Kwashiorkar and Marasmus Kwashiorkor Marasmus Pitting Edema: Specific sign of Kwashiorkar Characterized by swelling, often starting in the legs and feet, leaving a persistent indentation when pressed. Severe Wasting: The child appears extremely thin, with prominent bones and little body fat. Sugar Baby Appearance: The child may look deceptively healthy due to oedema, despite being malnourished. Monkey Facies: A sunken appearance of the cheeks due to loss of fat, giving an aged look. Muscle Wasting: Despite the swollen appearance, muscle loss is present, leading to weakness and hypotonia. Baggy Pants Appearance: Loose, sagging skin around the buttocks caused by significant muscle and fat loss. Mental and Neurological Symptoms: The child is apathetic, irritable, and may have feeding difficulties. Alertness: Children with marasmus remain mentally alert. Hair Changes: Hair may lose colour, become thin, and show alternating bands of colour ("flag sign"). Absence of Edema: Unlike kwashiorkor, marasmus does not involve swelling or oedema. Skin Changes: Includes hyperpigmentation, peeling skin ("flaky paint" appearance), and colour changes, particularly in the buttocks, perineum, and thighs. Hypoglycemia Risk: The liver's reduced capacity to produce glucose increases the risk of low blood sugar. Gastrointestinal Issues: Anorexia, vomiting, and abdominal distension. Anaemia is present due to nutritional deficiencies. Hypothermia Risk: The child may struggle to maintain body temperature due to energy depletion. {{caption_text}} {{caption_text}} Weight loss (Option B), while common in malnutrition, is not specific to kwashiorkor. In fact, weight may be masked by the presence of edema, making it an unreliable indicator for this specific condition. Weight loss is a general feature of malnutrition that can occur in various nutritional deficiency states. Flag sign (Option C) is characterized by alternating bands of normal and depigmented hair, is seen in periodic nutritional deficiency but is not specific to kwashiorkor. This sign can be observed in various forms of malnutrition, including marasmus, and can indicate periods of adequate and inadequate nutrition. Muscle wasting (Option D) is a feature of protein-energy malnutrition in general but is not specific to kwashiorkor. While muscle wasting may be present in kwashiorkor, it is often masked by edema and is more prominently seen in marasmus.





References:

Ghai Essential Pediatrics, 10th Edition, Page 87,88

Nelson Textbook of Pediatrics, 21st Edition, Page 336

Wellcome ClassificationPage 3

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: Exclusive breastfeeding should be continued for a minimum of how many months? (Q859962)

A. 6 months

B. 2 months

C. 12 months

D. 5 months

Correct Answer: A. 6 months

Explanation: Breastfeeding is exclusively recommended for the first 6 months of life. It ensures child health and higher survival rates. While exclusive breastfeeding is highly beneficial during the first six months, continuing it alone can lead to nutritional deficiencies. By 9 months, the baby needs additional nutrients, such as iron, so complementary feeding should begin around 6 months to meet the baby's nutritional needs.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 323,326

Ghai Essential Pediatrics, 10th edition, Page 129,130

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A child with diarrhea was eager to drink, and the skin pinch went back slowly. Which of the following categories is the child classified into as per IMNCI? (Q860523)

A. Pink

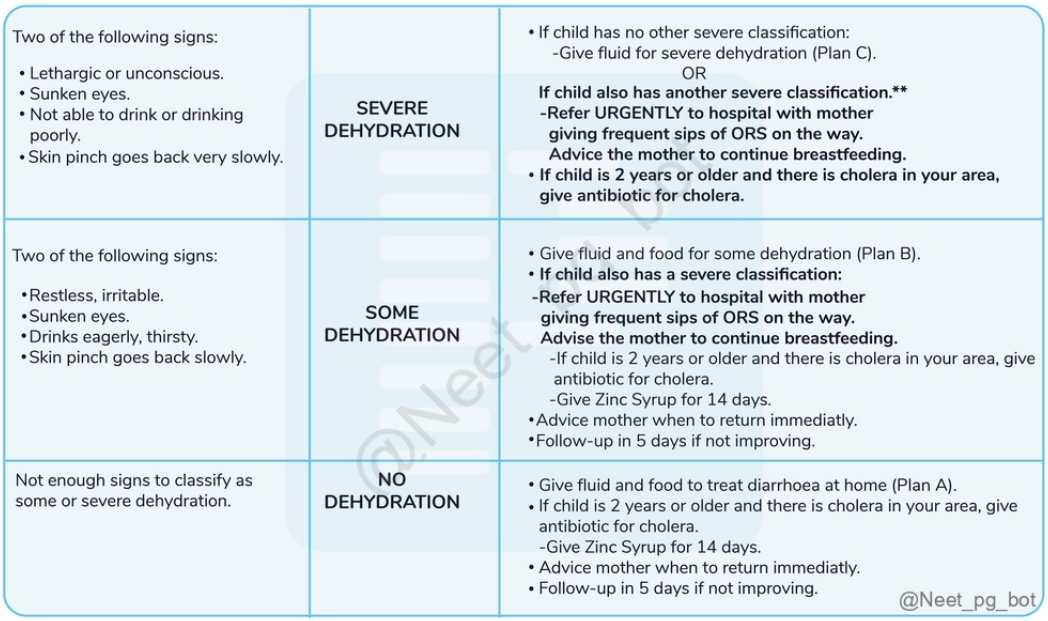
B. Yellow

C. Green

D. None

Correct Answer: B. Yellow

Explanation: The clinical manifestations indicate some dehydration according to IMNCI (Integrated Management of Neonatal and Childhood Illness) classification. IMNCI uses a color-coded classification system where “eagerness to drink (indicating thirst)” and “slow skin pinch return” are characteristic findings in the "some dehydration" category. Assessment of Dehydration Parameters: Parameters No Dehydration (Green) (Option C) Some Dehydration (Yellow) (Option B) Severe Dehydration (Pink) (Option A) Sensorium Well alert Restless, irritable Lethargic, floppy Eyes Normal Sunken Very sunken Tears Present Absent Absent Mucosa Moist Dry Very dry Thirst Drinks normally Thirsty, drinks eagerly Drinks poorly/unable Skin pinch Goes back quickly Goes back slowly (<2 sec) Goes back very slowly (>2 sec) Pink (Option A): This category indicates severe dehydration with features like lethargy, very sunken eyes, and very slow skin pinch return (>2 seconds), none of which are present in this case. Severe dehydration requires immediate IV fluid therapy. Green (Option C): This indicates no dehydration, where children drink normally and skin pinch returns immediately. The child's eagerness to drink and slow skin pinch return are inconsistent with this category. None (Option D): This is incorrect as the child's symptoms clearly fit into the established IMNCI classification system.



Two of the following signs: • Lethargic or unconscious. • Sunken eyes. • Not able to drink or drinking poorly. • Skin pinch goes back very slowly.	SEVERE DEHYDRATION	• If child has no other severe classification: -Give fluid for severe dehydration (Plan C). OR **If child also has another severe classification.**** **-Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way.** **Advice the mother to continue breastfeeding.** • **If child is 2 years or older and there is cholera in your area, give antibiotic for cholera.**
Two of the following signs: •Restless, irritable. •Sunken eyes. •Drinks eagerly, thirsty. •Skin pinch goes back slowly.	SOME DEHYDRATION	• Give fluid and food for some dehydration (Plan B). • **If child also has a severe classification:** **-Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way.** **Advise the mother to continue breastfeeding.** -If child is 2 years or older and there is cholera in your area, give antibiotic for cholera. -Give Zinc Syrup for 14 days. •Advice mother when to return immediatly. •Follow-up in 5 days if not improving.
Not enough signs to classify as some or severe dehydration.	NO DEHYDRATION	• Give fluid and food to treat diarrhoea at home (Plan A). • If child is 2 years or older and there is cholera in your area, give antibiotic for cholera. -Give Zinc Syrup for 14 days. • Advice mother when to return immediatly. • Follow-up in 5 days if not improving.

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References:

WHO IMNCI Guidelines, 2019 Edition, Page 32-34

https://platform.who.int/docs/default-source/mca-documents/policy-documents/operational-guidance/EGY-CH-59-01-OPERATIONALGUIDANCE-eng-IMCI-Assessment-Booklet-2m-5yrs.pdf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: Complementary feeding is initiated for a 7-month-old infant using the “katori method”. What is the recommended amount and frequency of food to be given in the first 24 hours? (Q866376)

A. ½–1 katori, 4 times a day

B. ½–1 katori, 5 times a day

C. ½–1 katori, 6 times a day

D. ½–1 katori, 8 times a day

Correct Answer: A. ½–1 katori, 4 times a day

Explanation: ½–1 katori, 4 times a day Complementary feeding starts at 6 months while continuing breastfeeding. For a 7-month-old, the recommend amount and frequency of food given in the first 24 hours is ½–1 katori per feed, 4 times/day, plus breastfeeding on demand. Complementary feeding ensures adequate nutrition after exclusive breastfeeding period ends. Foods should be soft, mashed, and energy dense (e.g., dal, mashed fruits, khichdi). Gradual increase in amount and variety prevents feeding difficulties and nutritional deficiencies. ½–1 katori, 5/ 6 /7 times/day (Other options): Exceeds recommended frequency and may cause digestive issues. Feeding so frequently is impractical and unnecessary for nutrient needs at this stage.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: All of the following are included under diagnostic criteria of severe acute malnutrition except? (Q853378)

A. Height for age

B. Weight for height

C. Pedal edema

D. MUAC < 11.5 cm

Correct Answer: A. Height for age

Explanation: Height for age is not included under diagnostic criteria of severe acute malnutrition Definition of Severe acute malnutrition: In a child between 6 months to 5 years of age, the presence of any 1 or more of the following: Weight for ;-3 Z score or <70% of expected (Option B ruled out) , or Mid-upper arm circumference (MUAC): <11.5 cm (Option D ruled out) , or Symmetric bipedal edema: of nutritional origin (Option C ruled out) Definition of SAM (Severe Acute Malnutrition) - can have any of the 3 criteria. Learning Objective: WHO Classification of Malnutrition Moderately underweight Weight-for-age is between -2 and -3 SDS. Severely

underweight Weight-for-age is < -3 SDS. Moderately wasted Weight-for-length/height is between -2 and -3 SDS. Severely wasted Weight-for-length/height is < -3 SDS. Moderate Acute Malnutrition Weight-for-length/height or BMI-for-age is between -2 and -3 SDS. Mid-upper arm circumference (MUAC) is between 11.5 cm and 12.5 cm. Severe Acute Malnutrition: Weight-for-length/height or BMI-for-age is less than -3SDS. MUAC is less than 11.5 cm. The presence of bilateral pitting oedema. Moderately Stunted (Moderate Chronic Malnutrition) Length/height-for-age is between -2 and -3 SDS. Severely Stunted (Severe Chronic Malnutrition) Length/height-for-age is < -3 SDS.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.334 Ghai Essential Pediatrics, 10th Edition, Pg.85,88 https://www.ncbi.nlm.nih.gov/books/NBK487900/table/fm.s1.t1/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q21: Which of the following is true about breastmilk jaundice? (Q853384)

A. Breastfeeding should not be continued

B. Most of the children require phototherapy

C. Exclusive breastfeeding with total bilirubin >10mg/dl after 3-4 weeks of birth

D. Conjugated hyperbilirubinemia

Correct Answer: C. Exclusive breastfeeding with total bilirubin >10mg/dl after 3-4 weeks of birth

Explanation: Approximately 2-4% of term neonates who are exclusively breastfed may have total serum bilirubin (TSB) levels exceeding 10 mg/dL beyond the third or fourth week of life. They are diagnosed to have breast milk jaundice. Breast milk jaundice (BMJ) should be considered in these infants if the jaundice is of the unconjugated type (not causing staining of nappies) and other causes of prolonged hyperbilirubinemia, such as insufficient feeding, ongoing hemolysis, blood extravasation, G6PD deficiency, and hypothyroidism, have been excluded. Breast milk contains elevated levels of beta-glucuronidase, which deconjugates bilirubin that has been conjugated by the liver and excreted into the intestine (Option D ruled out) . Most of these infants do not develop dangerously high TSB levels and typically do not require treatment (Option B ruled out) . Mothers can safely continue breastfeeding their infants, as there is no need to discontinue breastfeeding (Option A ruled out) for either the diagnosis or treatment of BMJ.

References:

GHAI Essential Pediatrics 10th edition Page 170, 171

↑ *Back to this question in Part A*

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Q22: Which of the following indicates the primary failure of recovery in an admitted patient with severe acute malnutrition? A. Failure to regain appetite by day 4 B. Failure to start to lose edema by day 4 C. Presence of edema by day 10 D. Weight gain of less than 5gm/kg/day from day 20 (Q853387)

A. A, B, C

B. A, B, D

C. A, C, D

D. B, C, D

Correct Answer: A. A, B, C

Explanation: In an admitted patient with severe acute malnutrition (SAM), primary failure to respond is indicated by the following: Failure to regain appetite by day 4 (Point A) Failure to start to lose edema by day 4 (Point B) If edema still present on day 10 (Point C) Weight gain of less than 5gm/kg/day from day 10, not from day 20 (Point D) (Option B, C and D) Day of admission is counted as day 0 Learning Objective: SAM- Nutritional Rehabilitation Phase and Discharge Nutritional Rehabilitation Entry to Rehabilitation Phase: Indicated by reduced or minimal oedema and a return of appetite. Transition Process: Duration: Over 3 days to prevent refeeding syndrome. Method: Replace F75 with an equal volume of F100 for 2 days. Gradual Increase: Increase feed volume by 10 mL at each feeding until some feed remains uneaten (around 200 mL/kg/day). Post-Transition Feeding: Feeds: Provide unlimited amounts of high-energy, high-protein milk formula like F100 (100 kcal and 3 g protein per 100 mL), ready-to-use therapeutic food (RUTF), or modified family foods with similar energy and protein content. (Option C) Calories and Protein: Offer 150-220 kcal/kg/day and 4-6 g protein/kg/day. Supplements: Continue potassium, magnesium, and micronutrients. Add iron at 3 mg/kg/day. Breastfeeding: Encourage continued breastfeeding if applicable. RUTF Standard ready-to-use therapeutic food (RUTF) usually contains milk powder, sugar, peanut butter, vegetable oil, vitamins, and minerals. It has a long shelf life and low moisture content- preventing the growth of pathogens. When using RUTF: Begin with small, frequent meals of RUTF, aiming for 8 meals per day initially and then reducing to 5–6 meals per day. If the child cannot consume the full RUTF portion at each meal, supplement with F-75 to complete the meal until they can eat the full amount of RUTF. If the child is unable to consume at least half of the recommended RUTF amount within 12 hours, discontinue RUTF and provide F-75 instead. Reintroduce RUTF after 1–2 days and continue this approach until the child can consume sufficient RUTF. If the child is still breastfeeding, offer breast milk before each RUTF feeding. Discharge criteria All medical issues, including oedema, are resolved for 2 weeks They have completed parenteral antibiotic treatment and the infant is clinically stable and alert. The infant is either breastfeeding effectively or feeding well. The weight gain is satisfactory, such as being above the median of WHO growth velocity standards or gaining more than 5g/kg/day for at least 3 consecutive days. Before discharge, check and provide any missing vaccinations and routine interventions as needed. Ensure that mothers or caregivers are connected with appropriate community follow-up and support.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.334, 340, 341 Ghai Essential Pediatrics, 10th Edition, Pg.96
Severe acute malnutrition - Pocket Book of Hospital Care for Children - NCBI Bookshelf (nih.gov)
Ready■to■use therapeutic food (RUTF)

↑ *Back to this question in Part A*

@Neet_pg_bot

Q23: In a child presenting with diarrhoea, the following finding is noted. What is the likely micronutrient deficiency? (Q852537)

A. Zinc

B. Copper

C. Vitamin A

D. Vitamin C



Correct Answer: A. Zinc

Explanation: The characteristic rash is acrodermatitis enteropathica, which occurs due to zinc deficiency. Zinc: Sources : Animal protein: liver, meat, fish, eggs, nuts. Low in cereals, starch, plants, and legumes (high phytate content). RDA : Children: 3.5-5.0 mg/day Causes of Zinc Deficiency : Increased demand in infants, children,

adolescents, and pregnant/lactating women. Malnutrition and malabsorption syndromes. Chronic or recurrent diarrhoea. Prolonged IV feeding without adequate zinc. Clinical Features of Zinc Deficiency: Poor physical growth in children. Delayed sexual maturation (hypogonadism) in adolescents. Anaemia, anorexia, diarrhoea. Alopecia, dermatitis , impaired immune function. Poor wound healing, and skeletal abnormalities. Acrodermatitis Enteropathica: ■■■■■ Autosomal recessive disorder. Severe zinc deficiency due to impaired intestinal absorption (ZIP4 protein defect). Early infancy onset: Vesiculobullous , dry, scaly skin lesions (periorificial, buttocks , acral areas). Associated with alopecia, eye changes, chronic diarrhoea, growth retardation, and stomatitis. Treatment: 2-3 mg/kg/day oral zinc therapy. Treatment : General deficiency: 0.5-1.0 mg elemental zinc/kg/day for several weeks/months Malnourished children: 2-4 mg/kg/day for several weeks. Copper (Option B) deficiency presents with anaemia and neutropenia. Acrodermatitis enteropathica is not associated with copper deficiency. Vitamin A (Option C) deficiency typically presents with visual disturbances, such as night blindness, and may lead to an increased susceptibility to infections. It is not associated with the given rash in the scenario. Vitamin C (Option D) deficiency in the early stages presents as irritability, loss of appetite, pain, fever, pain, leg tenderness. The later stages are associated with swelling, pseudoparalysis, subperiosteal haemorrhages, "rosary" beads at the costochondral junction, gum changes, anaemia, bleeding, and poor healing. This does not explain the rashes in the given scenario.



References:

OP Ghai Paediatrics, 10th Edition, Page 115, 116

Nelson Paediatrics, 21st Edition, Page 320, 3589

↑ *Back to this question in Part A*

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Q24: Chronic malnutrition is best measured by? (Q852454)

A. Height for age

B. Weight for age

C. Weight for height

D. Body mass index

Correct Answer: A. Height for age

Explanation: Chronic malnutrition is best measured by height for age. WHO Classification of Malnutrition Moderately underweight Weight-for-age is between -2 and -3 SDs. Severely underweight Weight-for-age is < -3 SDs. Moderately wasted Weight-for-length/height is between -2 and -3 SDs. Severely wasted Weight-for-length/height is < -3 SDs. Moderate Acute Malnutrition Weight-for-length/height or BMI-for-age is between -2 and -3 SDs. Mid-upper arm circumference (MUAC) is between 11.5 cm and 12.5 cm. Severe Acute Malnutrition: Weight-for-length/height or BMI-for-age is less than -3SDs. MUAC is less than 11.5 cm. The presence of bilateral pitting oedema. Moderately Stunted (Moderate Chronic Malnutrition) Length/height-for-age is between -2 and -3 SDs. Severely Stunted (Severe Chronic Malnutrition) Length/height-for-age is < -3 SDs. Weight for age (Option B) is used to determine whether a child is moderately or severely underweight. Weight for height (Option C) is used to determine the severity of acute malnutrition and wasting. Body mass index (Option D) is used to determine the severity of acute malnutrition.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 334

Ghai Essential Pediatrics, 10th Edition, Page 85, 88

World Health Organization (WHO) classification

↑ *Back to this question in Part A*

@Neet_pg_bot

Q25: A 4-year-old child with mid-arm circumference of 105mm, upon providing therapeutic food, eagerly completed all of it. This patient is considered under? (Q852530)

A. Uncomplicated SAM

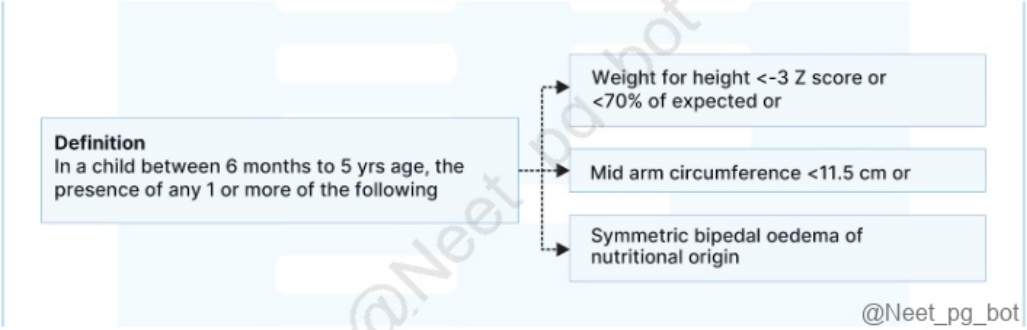
B. Complicated SAM

C. Acute malnutrition

D. Normal nutrition

Correct Answer: A. Uncomplicated SAM

Explanation: In this case, the 4-year-old child has a MUAC of 105 mm (10.5 cm), which falls below the Severe Acute Malnutrition (SAM) threshold of 115 mm (11.5 cm), indicating severe malnutrition. The child eagerly consumed the therapeutic food, successfully passing the appetite test. There is no severe edema or medical complications requiring inpatient care, and no immediate life-threatening conditions. Based on these findings, the child is classified as having Uncomplicated SAM and can be managed with supervised home-based therapeutic feeding. Severe Acute Malnutrition (SAM) in Children (6 to 59 months of age): Criteria Details Diagnostic Criteria for SAM Assessment for Complications Check for the following complications: Severe edema (+++) Low appetite (fails appetite test) Medical complications Presence of one or more danger signs (as per IMNCI guidelines) Management Approach Based on the presence or absence of complications: If NO complications → Uncomplicated SAM → Supervised home management If YES (complications present) → Complicated SAM → Inpatient management in a healthcare facility



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 335, 338, 342

↑ *Back to this question in Part A*

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Q26: A child presents with generalized body aches, poor wound healing, and corkscrew hairs on her arms, and white lines of Frenkel on X-ray as shown below. This clinical presentation is most consistent with which of the following deficiencies? (Q844259)

A. Zinc deficiency

B. Vitamin C deficiency

C. Copper deficiency

D. Iron deficiency



Correct Answer: B. Vitamin C deficiency

Explanation: Correct Option B - Vitamin C deficiency : Vitamin C deficiency (scurvy) is known for causing anemia, bleeding gums, and skin changes. Collagen is the backbone of blood vessels, in scurvy due to improper collagen synthesis, blood vessels become fragile resulting in bleeding Gum bleeding Painful pseudo paralysis of lower limbs, so there is crying on touching Subperiosteal hemorrhage of long bones. Scorbutic rosary i.e., prominence of the costochondral junction which is sharper, tender, and angulated as compared to rachitic rosary. Xray show "lines of Frenkel" on X-ray. Incorrect Options: Option A - Zinc deficiency : Zinc deficiency can cause growth retardation, skin changes, and immune dysfunction. However, the specific feature of "lines of Frenkel" is not typically associated with zinc deficiency. Option C - Copper deficiency: Copper deficiency can lead to anemia, neutropenia, and depigmentation of the hair and skin. Option D - Iron deficiency : Causes pallor, easy fatiguability, iron deficiency anemia, lethargy and irritability.

References:

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↑ *Back to this question in Part A*

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Q27: A child presented to the clinic with complaints of malnutrition and severe dehydration. What would be the choice of IV fluid for this patient? (Q820477)

A. ORS

B. NS

C. RL in 5% Dextrose

D. DNS

Correct Answer: C. RL in 5% Dextrose

Explanation: Correct Option C - RL in 5% Dextrose: Ringer's Lactate (RL) with 5% Dextrose is often used as an initial intravenous fluid in children who present with severe dehydration and malnutrition. This solution provides hydration and electrolyte replacement, as well as a source of energy from the dextrose. Incorrect Options: Option A - ORS: Oral Rehydration Salts (ORS) are typically used for mild to moderate dehydration and not for severe dehydration. ORS is given orally and thus may not be suitable for a severely dehydrated child who might have impaired consciousness or difficulty in swallowing. Option B - NS: Normal Saline (NS) is an isotonic solution and while it can serve as an intravenous fluid for hydration, it does not contain any source of energy like dextrose. In severe cases of malnutrition, the body requires energy, which can be provided by dextrose. Option D - DNS: Dextrose Normal Saline (DNS) does contain dextrose, which provides a source of energy, and it also helps in rehydration. However, it lacks the balanced electrolyte content of Ringer's Lactate, which is essential for the proper functioning of body cells and maintaining fluid balance.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q28: Conjunctival xerosis is caused by which vitamin deficiency? (Q860553)

A. Vitamin A

B. Vitamin K

C. Vitamin C

D. Vitamin D

Correct Answer: A. Vitamin A

Explanation: Conjunctival xerosis (drying of conjunctiva) is the earliest sign of vitamin A deficiency . WHO Grading of eye signs of vitamin A deficiency (VAD) in children Grade Eye Sign XN Night blindness X1A Conjunctival xerosis X1B Bitot's spots X2 Corneal xerosis X3A Corneal ulcer covering less than 1/3 of the cornea X3B Corneal ulcer covering at least 1/3 of the cornea XS Corneal scarring Management of Vit A deficiency Standard Oral Treatment Children <6 months: 50,000 IU Children 6-12 months: 100,000 IU Children >1 year:

200,000 IU Administration Schedule Initial dose Repeat same dose next day Final dose 4 weeks later Parenteral Administration(For severe malabsorption or persistent vomiting) Children <6 months: 75% of oral dose Children ≥6 months: 50% of oral dose Ocular Emergencies Corneal clouding: Immediate parenteral administration of 50,000-100,000 IU (15-30 mg retinol) Keratomalacia: Antibiotic drops/ointment and eye padding Vitamin K (Option B): This vitamin is essential for blood clotting, and its deficiency results in bleeding manifestations such as easy bruising and mucocutaneous bleeding. It notably causes hemorrhagic disease in newborns, but it is not associated with ocular surface changes. Vitamin C (Option C): Deficiency leads to scurvy, characterized by gum bleeding, scorbutic rosary, and painful pseudo paralysis. Vitamin D (Option D) : This vitamin primarily affects bone metabolism, and its deficiency leads to rickets in children. It does not have any direct effects on the conjunctiva or other ocular structures.

References:

GhaiEssential Paediatrics, 10th edition, Page 101, 102

Nelson Textbook of Pediatrics, 21st Edition, Page 364

The eye signs of vitamin A deficiency - PMC

↑ *Back to this question in Part A*

@Neet_pg_bot

Q29: Feature of angular cheilitis, stomatitis, and glossitis is seen in which vitamin deficiency? (Q860556)

A. Niacin

B. Riboflavin

C. Cobalamin

D. Vitamin C

Correct Answer: B. Riboflavin

Explanation: The clinical manifestations indicate Riboflavin (Vitamin B2) deficiency, characterized by the classic triad of angular cheilitis, stomatitis, and glossitis. This vitamin plays a crucial role in cellular energy metabolism and maintaining the integrity of mucocutaneous surfaces . The deficiency typically manifests with inflammation of the lips (cheilosis) , painful lesions at the corners of the mouth (angular stomatitis) , and inflammation of the tongue (glossitis) Additional manifestations include seborrheic dermatitis along nasolabial folds and photophobia. Vitamin B2 Deficiency Riboflavin (B2) deficiency Cause Malnutrition Malabsorption Certain medications Phototherapy Clinical features: Cheilosis, glossitis, keratitis, conjunctivitis, seborrheic dermatitis, anemia, photophobia. Diagnosis: Clinical response to supplementation, EGR (Erythrocyte Glutathione Reductase) activity test, low urinary riboflavin. Treatment: Oral riboflavin 3-10 mg/day, balanced diet including dairy products Niacin (Vitamin B3) (Option A) deficiency presents as pellagra, characterized by the 4 D's: diarrhea, dermatitis, dementia, and death if untreated. While it can affect the mucous membranes, the classic triad of oral manifestations is not its

primary presentation. Cobalamin (Vitamin B12) (Option C) deficiency primarily presents with megaloblastic anemia and neurological manifestations, including subacute combined degeneration of the spinal cord. Oral manifestations are not the predominant feature. Vitamin C (Option D) deficiency leads to scurvy, characterized by bleeding gums, poor wound healing, and petechial hemorrhages. While it can affect oral mucosa, it does not cause the specific triad of angular cheilitis, stomatitis, and glossitis.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 366, 367, 370

↑ *Back to this question in Part A*

@Neet_pg_bot

Q30: A child presents to the OPD with fatigue, bone pains, and swollen and bleeding gums. Physical examination reveals petechiae on her skin. Which of the following can be given to treat her condition? (Q860605)

A. Vitamin A

B. Vitamin D

C. Vitamin E

D. Vitamin C

Correct Answer: D. Vitamin C

Explanation: The clinical manifestations indicate scurvy, due to vitamin C deficiency. The presentation includes characteristic features of impaired collagen synthesis due to vitamin C deficiency, leading to weakened blood vessels and connective tissue abnormalities. Vitamin C is essential for collagen formation, and its deficiency results in the classic presentation of fatigue, bone pain, gingival changes, and easy bruising. Treatment with vitamin C supplementation typically shows rapid improvement within days. Vitamin C Source: Vitamin C Source: Citrus fruits/juices, cauliflower and green leafy vegetables, melons, guava. Vitamin C RDA (Infants) 0-6 months- 40 mg/day 7-12 months- 50 mg/day Vitamin C Deficiency (Scurvy) Causes: Heat-treated milk or unfortified formula. Diets lacking fruits and vegetables. Symptoms: Early : Irritability, loss of appetite, fever, pain, leg tenderness. Later : Swelling, pseudoparalysis, subperiosteal hemorrhages, "scorbutic rosary" beads at the costochondral junction due to periosteal bleeds, gum changes, anemia, bleeding, poor healing. Treatment: Vitamin C 100-200 mg/day (oral or parenteral). Improvement within a week; continue for 3 months. Vitamin A (Option A) : Deficiency primarily affects vision and epithelial integrity, presenting with night blindness and xerophthalmia. It does not cause the bleeding manifestations or musculoskeletal symptoms seen in this case. Vitamin D (Option B) : Deficiency leads to rickets in children with bone deformities and growth problems. While it can cause bone pain, it does not cause bleeding manifestations or gum problems. Vitamin E (Option C) : Deficiency primarily causes neurological manifestations, including cerebellar ataxia and retinopathy. It does not cause the bleeding diathesis or musculoskeletal symptoms presented in this case.

References:

Nelson Textbook of Pediatrics, Edition. 21st, Page 373-375

↑ *Back to this question in Part A*

@Neet_pg_bot

Q31: Which of the following is a reliable sign of some dehydration in severe acute malnutrition? (Q840098)

A. Increased thirst

B. Sunken eyes

C. Skin pinch that goes back slowly

D. Altered sensorium

Correct Answer: A. Increased thirst

Explanation: Correct Option A - Increased Thirst: Dehydration tends to be over-diagnosed, and its severity is overestimated in severely malnourished children. Increased thirst is a reliable sign of some dehydration in children with severe acute malnutrition. Incorrect Options: Option B - Sunken eyes: Sunken eyes are often observed in children with SAM due to the loss of subcutaneous fat. In these children, the appearance of sunken eyes can be misleading because it is primarily related to malnutrition and reduced fat stores rather than hydration status. Option C - Skin pinch that goes back slowly In malnourished children, the skin may return slowly to its normal position, even in the absence of dehydration, due to the lack of underlying fat. Option D - Altered sensorium: Altered sensorium is a feature of severe dehydration, not some dehydration.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q32: Which of the following is not seen in nutritional rickets? (Q840108)

A. Low phosphate

B. Normal calcium

C. Urine Calcium: creatinine > 15mg/kg

D. High PTH

Correct Answer: C. Urine Calcium: creatinine > 15mg/kg

Explanation: Correct Option C - Urine calcium: creatinine > 15mg/kg Incorrect: The normal urine calcium: creatinine ratio in children is below 0.2 mg/kg. In nutritional rickets, the urine calcium: creatinine ratio is typically low, not high. Other Options: Option A - Low phosphate: Correct: Nutritional rickets are associated with low serum phosphate levels. Option B - Normal calcium: Correct: Serum calcium levels in nutritional rickets can be normal or low. Initially, the patient is likely to have hypocalcemia, which is then compensated by increased secretion of PTH. Option D - High PTH: Correct: Elevated PTH (parathyroid hormone) levels are a hallmark of nutritional rickets.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q33: Which of the following vitamins is deficient in breast milk? (Q793773)

A. Vitamin A

B. Vitamin C

C. Vitamin E

D. Vitamin K

Correct Answer: D. Vitamin K

Explanation: of the correct answer.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q34: A labourer’s younger child is brought to the OPD with a swollen belly and dull face. He has mostly fed rice water in his diet. On investigations, the child was found to have low serum protein, low serum protein, and low albumin. What is the probable diagnosis? (Q793754)

A. Kwashiorkor

B. Marasmus

C. Indian childhood cirrhosis

D. Kawasaki disease

Correct Answer: A. Kwashiorkor

Explanation: Correct option A: Kwashiorkor: The patient's presentation with a swollen abdomen and a tired-looking face with low levels of serum protein and albumin on investigation and a history of consumption of rice water as a major part of the diet are suggestive of Kwashiorkor. Kwashiorkor is a type of protein-energy malnutrition that can occur in children with inadequate protein intake. The disease is characterized by a swollen belly, a dull face, and edema in the limbs. Low serum protein and albumin levels can lead to edema in Kwashiorkor. Incorrect options: Option B: Marasmus: Marasmus is a type of protein-energy malnutrition characterized by severe calorie deficiency, which leads to muscle wasting and weight loss. Option C: Indian childhood cirrhosis: Indian childhood cirrhosis is a chronic liver disease of childhood characterised by cirrhosis of the liver associated with the deposition of copper in the liver. It primarily affects children of 1–3 years of age and has a genetic predisposition. Option D: Kawasaki disease: Kawasaki disease is an acute febrile illness that affects young children and causes inflammation in blood vessels.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q35: What is the amount of milk given to a term baby in first 24 hours after delivery? (Q820471)

A. 40ml/kg

B. 50ml/kg

C. 60ml/kg

D. 80ml/kg

Correct Answer: C. 60ml/kg

Explanation: Correct option C: 60ml/kg: In the first 24 hours after delivery, a term baby is typically given around 60ml of milk per kilogram of body weight. This amount accounts for the newborn's small stomach size and the gradual increase in milk intake as the baby's digestive system continues to develop. Incorrect options: Options A, B, and D are incorrect.

↑ *Back to this question in Part A*

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• [06_Fluid and Electrolyte Disturbances] 015 Acid-Base Balance Fluid And Electrolyte Disorders And Ivf

« Back to Folder Directory

[06_Fluid and Electrolyte Disturbances] 015 Acid-Base Balance Fluid And Electrolyte Disorders And Ivf — Quick Jump

Q1 (p. 840)	*Q2 (p. 841)*	*Q3 (p. 842)*	*Q4 (p. 842)*	*Q5 (p. 844)*	*Q6 (p. 845)*
Q7 (p. 846)	*Q8 (p. 847)*	*Q9 (p. 847)*	*Q10 (p. 849)*	*Q11 (p. 850)*	*Q12 (p. 851)*
Q13 (p. 851)	*Q14 (p. 852)*	*Q15 (p. 853)*	*Q16 (p. 854)*	*Q17 (p. 855)*	*Q18 (p. 856)*
Q19 (p. 857)					

Q1: A 5-year-old boy is brought to the emergency department with a history of profuse watery diarrhea and multiple episodes of vomiting for the past 3 days. On examination, he appears lethargic, has poor oral acceptance, and has dry mucous membranes. Laboratory tests reveal serum potassium of 2.1 mEq/L. Which of the following is the most appropriate initial treatment for this patient? (Q850050)

A. Oral potassium chloride solution

B. Intravenous potassium chloride at 0.5 mEq/kg/hour

C. Intravenous potassium chloride at 1.5 mEq/kg/hour

D. Potassium-sparing diuretic

Correct Answer: B. Intravenous potassium chloride at 0.5 mEq/kg/hour

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Normal serum potassium level: 3.5-5.5 meq/L. Hypokalemia is defined as a serum potassium level below 3.5 mEq/L. Mild hypokalemia: 3 - 3.5 mEq/L Moderate hypokalemia: 2.5 - 3.0 mEq/L Severe hypokalemia: <2.5 mEq/L In this case, the patient has moderate hypokalemia with symptoms of lethargy and dehydration. Etiology: Common causes of hypokalemia in children include: Gastrointestinal losses (diarrhea, vomiting) Renal losses (diuretics, renal tubular disorders) Inadequate intake Transcellular shifts (e.g., insulin administration, beta-agonists) Clinical features: Muscle weakness Fatigue Constipation Cardiac arrhythmias (in severe cases) Polyuria and polydipsia Treatment: The treatment of hypokalemia depends on its severity and the presence of symptoms. In this case, with moderate hypokalemia and symptoms, intravenous replacement is appropriate. Potassium Supplementation: Indications for IV Potassium Supplementation: Symptomatic patients Severe hypokalemia (<2.5 mEq/L) Presence of ECG abnormalities Unable to tolerate oral feeds. IV Potassium Chloride Supplementation: Dosage: 0.5-1 mEq/kg per dose Administration: IV infusion over 1-2 hours Infusion Rate: Do

not exceed 1 mEq/kg per hour Potassium Concentration: Maximum of 60 mEq/L for peripheral lines Maximum of 80 mEq/L for central lines Avoid using glucose-containing fluids to prevent insulin-mediated intracellular potassium shift. Oral Potassium Supplementation: Dosage: 2-4 mEq/kg per day, divided into 3-4 doses Common Preparations: Potassium chloride (10%; 20 mEq/15 mL) Potassium citrate (especially for renal tubular acidosis) Administration Tip: Liquid preparations can be bitter; dilute with juice or water to improve taste. Additional Management Considerations: Replace ongoing potassium losses Ensure volume resuscitation with normal saline Correct any associated hypomagnesemia Treat underlying conditions (e.g., monogenic hypertension, Bartter syndrome, Gitelman syndrome)

References:

Ghai Essential Paediatrics, 10th Edition, Pages 63,64.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 10-kg child with severe dehydration requires rapid fluid resuscitation. Which of the following IV fluids is most appropriate for initial management? (Q850059)

A. 5% Dextrose in 0.45% Normal Saline

B. Normal Saline (0.9% NaCl)

C. 10% Dextrose

D. Isolyte P Solution

Correct Answer: B. Normal Saline (0.9% NaCl)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Normal Saline (0.9% NaCl) is the fluid of choice for initial rapid fluid resuscitation in children with severe dehydration or shock. It has the following characteristics: Isotonic solution with osmolality of 308 mOsm/L Contains 154 mEq/L of both sodium and chloride Does not contain glucose, potassium, or other electrolytes For a 10-kg child, the initial bolus would typically be 20 mL/kg (200 mL) given rapidly over 15-20 minutes. Infusion of large volumes of normal saline may be associated with hyperchloremic metabolic acidosis and associated adverse effects. Balanced salt solutions(RL) are physiologically similar to human plasma and contain less chloride. Ringer's Lactate is also an acceptable alternative, especially in cases of prolonged shock or diarrhoea, as it is a more balanced solution. IV fluids used in pediatrics include: 1. Normal Saline (0.9% NaCl): Used for initial fluid resuscitation in shock or severe dehydration Also used for the correction of hypernatremia 2. Lactated Ringer's Solution: An alternative to Normal Saline for fluid resuscitation Contains electrolytes closer to plasma composition 3. 5% Dextrose in Water (D5W): Used when free water is needed without additional electrolytes Caution is needed as it can cause hyponatremia if overused 4. 3% Saline: Used in the treatment of severe symptomatic hyponatremia Requires careful monitoring due to the risk of rapid sodium correction 5. 10% Dextrose: Used for treatment of hypoglycemia 6. Plasma-Lyte: A balanced electrolyte solution May be used for

fluid resuscitation or as a maintenance fluid in some cases 7. Albumin Solutions: 5% or 25% albumin may be used in specific situations like burn management or certain types of shock 8. 5% Dextrose in 0.45% Normal Saline. Appropriate free water Glucose to prevent hypoglycemia and ketosis Sodium and chloride to maintain electrolyte balance 5% Dextrose in 0.45% Normal Saline is hypotonic and not suitable for rapid fluid resuscitation (Option A) 10% Dextrose is not preferred for initial rapid resuscitation, It is used for management of Hypoglycemia (Option C) Isolyte P is hypotonic (Na 23 mEq/L) and not appropriate for rapid fluid resuscitation (Option D)

References:

Ghai Essential Paediatrics, 10th Edition, Pages 58, 59.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: Which of the following is the most appropriate cannula size for peripheral IV access in a 38-week gestational age neonate on day-3 of life? (Q850058)

A. 22 gauge

B. 24 gauge

C. 20 gauge

D. 18 gauge

Correct Answer: B. 24 gauge

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The 24 gauge cannula is the most appropriate for a 38-week gestational age neonate as it provides a good balance between ease of insertion and adequate flow rate for most purposes in this population. The choice of cannula size in pediatrics depends on the patient's age, size, and the purpose of the IV access. 26-gauge and 24-gauge cannulas are suitable for neonates, including preterm infants. 22-gauge cannulas are generally used for older infants. 20-gauge cannulas are typically reserved for children.

References:

www.ncbi.nlm.nih.gov/pmc/articles/PMC6761776/#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: Before performing radial artery cannulation on a 7-year-old child for continuous blood pressure monitoring during major surgery, the anesthesiologist compresses both the radial and ulnar arteries, asks the child to make a fist, then releases the ulnar artery while keeping the radial artery compressed. What is the primary purpose of this maneuver? (Q850057)

A. To assess the elasticity of the arterial walls

B. To evaluate collateral circulation in the hand

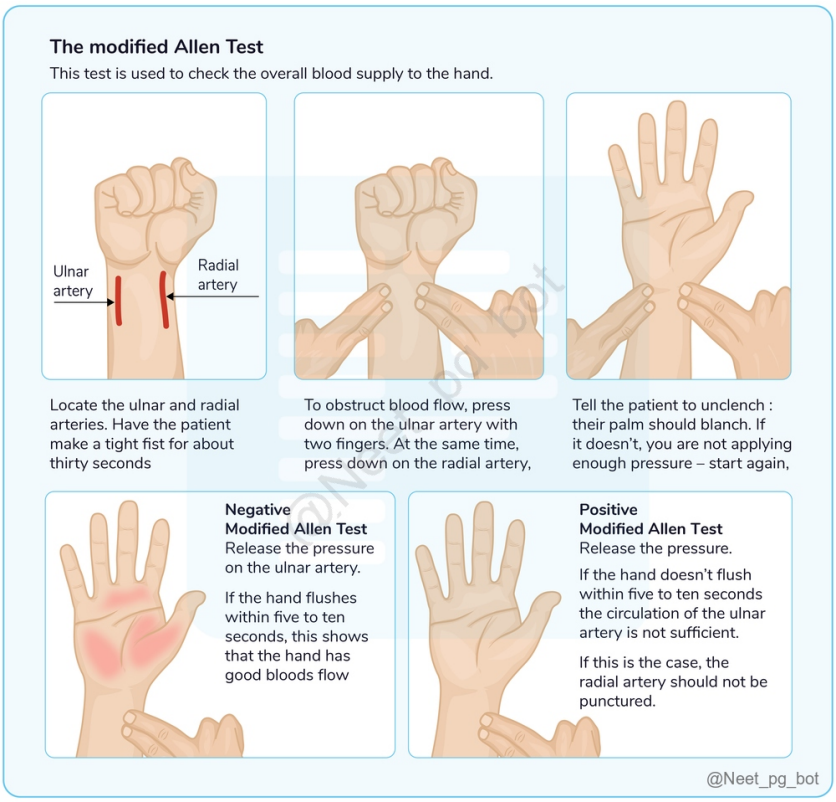
C. To determine the size of the radial artery

D. To check for arteriovenous malformations

Correct Answer: B. To evaluate collateral circulation in the hand

- *Listen (English)*
- *Listen (Hindi)*

Explanation: This maneuver, known as the Modified Allen's test , is a non-invasive procedure used primarily to evaluate the collateral circulation in the hand before radial artery cannulation. Its main purposes are: To assess the patency and adequacy of the ulnar artery To evaluate the completeness of the palmar arch The test is performed as follows: Both ulnar and radial arteries are compressed. The child is asked to clench their fist several times to expel blood from the hand. The hand is then opened, appearing pale. Pressure on the ulnar artery is released while maintaining compression on the radial artery. If the hand flushes within 5-7 seconds, it indicates adequate collateral circulation through the ulnar artery. A positive test (rapid flushing) suggests that it's safe to proceed with radial artery catheterization , as the ulnar artery can adequately perfuse the hand if the radial artery is compromised during or after the procedure. A negative test , where the hand fails to flush within 5-15 seconds, suggests inadequate or absent ulnar circulation . In this case, avoid puncturing the radial artery, as it is the sole source of arterial blood to that hand.



References:

Ghai Essential Paediatrics, 10th Edition, Page 779

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A child presents with petechiae, purpura, and a platelet count of 10,000/µL. Bone marrow examination reveals increased megakaryocytes. Which of the following is the drug of choice (DOC) for this condition? (Q850056)

A. Bone marrow transplant

B. Methotrexate

C. Intravenous immunoglobulin (IVIG)

D. Aspirin

Correct Answer: C. Intravenous immunoglobulin (IVIG)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This child presents with the classic clinical and laboratory features of Immune Thrombocytopenic Purpura (ITP) : Clinical Presentation: Sudden onset of "wet" or "dry" bleeding (petechiae and purpura) in an otherwise healthy child, often following a viral infection. Platelet Count (10,000/µL): Significant thrombocytopenia (normal is 150,000-450,000/µL). Bone Marrow Findings: Increased megakaryocytes (platelet precursor cells) indicate that the bone marrow is healthy and attempting to compensate for the rapid peripheral destruction of platelets by antibodies. Treatment Options for ITP In children, ITP is often self-limiting, but treatment is indicated when the platelet count is very low (usually < 20,000/µL) or if there is significant bleeding. First-line Treatments: Corticosteroids (e.g., Prednisolone): Work by suppressing the immune response and decreasing antibody production. Intravenous Immunoglobulin (IVIG): This is often the Drug of Choice (DOC) when a rapid rise in platelet count is required. It works by "distracting" or saturating the Fc receptors on macrophages in the spleen, preventing them from destroying the antibody-coated platelets. Anti-D Immunoglobulin: Can be used in Rh-positive, non-splenectomized patients. Bone marrow transplant (Option A): This is used for bone marrow failure syndromes (like Aplastic Anemia) or malignancies (Leukemia). In ITP, the marrow is already over-functioning, so a transplant is not indicated. Methotrexate (Option B): This is a chemotherapy agent and immunosuppressant used for conditions like RA or certain cancers. It is not a first-line or standard treatment for acute childhood ITP. Aspirin (Option D): This is contraindicated . Aspirin inhibits platelet function (anti-aggregation). Giving aspirin to a patient who already has dangerously low platelets significantly increases the risk of a fatal intracranial hemorrhage.

References:

OP Ghai Essentials of Pediatrics, Edition 10, Page 746-748

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 3-year-old boy is brought to the emergency department with lethargy, tachycardia, and cool extremities. His blood pressure is 70/40 mmHg, heart rate is 160 bpm, and capillary refill time is 4 seconds. Which of the following is the most appropriate initial management? (Q850055)

A. Administer 20 mL/kg of normal saline over 1 hour

B. Start dopamine infusion at 5 mcg/kg/min

C. Give 20 mL/kg of normal saline as a rapid bolus

D. Administer 1 mg/kg of hydrocortisone IV

Correct Answer: C. Give 20 mL/kg of normal saline as a rapid bolus

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Shock is a state of inadequate tissue perfusion that can result from various etiologies, including hypovolemic, cardiogenic, distributive, or obstructive causes. The clinical features of shock in children include tachycardia, weak peripheral pulses, prolonged capillary refill time, cool extremities, altered mental status, and hypotension (a late sign in pediatric shock). Treatment of shock in children follows a stepwise approach: Initial Resuscitation Rapid administration of 10-20 mL/kg isotonic crystalloid (usually normal saline or Ringer's lactate) over 5-10 minutes. This can be repeated up to 60 mL/kg within the first hour if needed. Reassessment : After each fluid bolus, reassess for signs of improved perfusion and fluid overload. Vasoactive Medications If shock persists after adequate fluid resuscitation, initiate vasoactive drugs. Dopamine (5-20 mcg/kg/min) or epinephrine (0.05-0.3 mcg/kg/min) are commonly used first-line agents. Corticosteroids Consider hydrocortisone (2 mg/kg) in catecholamine-resistant shock or if adrenal insufficiency is suspected. Specific Therapies Antibiotics for suspected septic shock Blood products for hemorrhagic shock Antidotes for toxic shock Supportive Care Ensure adequate oxygenation and ventilation Correct electrolyte imbalances and hypoglycemia Maintain normothermia Continuous Monitoring: Vital signs, urine output, mental status, and perfusion markers should be closely monitored.

References:

Ghai Essential Paediatrics, 10th Edition, Pages 767-770.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A preterm newborn weighing 1200 g is admitted to the neonatal intensive care unit. What is the recommended fluid requirement for this infant on day 2 of life? (Q850054)

A. 80 mL/kg/day

B. 95 mL/kg/day

C. 110 mL/kg/day

D. 120 mL/kg/day

Correct Answer: B. 95 mL/kg/day

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: 95 mL/kg/day is the correct answer for a preterm infant weighing 1200 g on day 2 of life. Fluid management in neonates is crucial and varies based on factors such as gestational age, birth weight, and postnatal age. Fluid requirements for neonates: For neonates weighing <1500 g For neonates weighing ≥1500 g Day 1: 80 mL/kg/day Day 2: 95 mL/kg/day Day 3: 110 mL/kg/day Day 4: 120 mL/kg/day Day 5: 130 mL/kg/day Day 6: 140 mL/kg/day Day 7 and onwards: 150 mL/kg/day Day 1: 60 mL/kg/day Day 2: 75 mL/kg/day Day 3: 90 mL/kg/day Day 4: 105 mL/kg/day Day 5: 120 mL/kg/day Day 6: 135 mL/kg/day Day 7 and onwards: 150 mL/kg/day Preterm neonates have higher total body water and may lose up to 10-15% of birth weight during the first week of life.

Insensible water loss is higher in preterm infants due to their thin skin.

References:

Ghai Essential Paediatrics, 10th Edition, Pages 151.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 4-year-old boy weighing 18 kg is admitted for minor elective surgery. According to the Holliday-Segar method, what is his estimated daily fluid requirement? (Q850053)

A. 1300 mL

B. 1400 mL

C. 1600 mL

D. 1900 mL

Correct Answer: B. 1400 mL

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The Holliday-Segar method is a widely used approach for calculating maintenance fluid requirements in children. It's based on the child's weight and provides an estimate of daily fluid needs. It estimates a child's energy expenditure in kilocalories and aligns it with their fluid needs. For every 100 kilocalories burned during metabolism, approximately 100 mL of fluid is required to replace the loss. The method assumes that each kilocalorie lost necessitates 1 mL of fluid for adequate replacement. The method uses the following formula: 100 mL/kg for the first 10 kg 50 mL/kg for the next 10 kg (11 - 20 kg) 20 mL/kg for each kg above 20 kg For this 18 kg child: First 10 kg: 10 x 100 mL = 1000 mL Next 8 kg: 8 x 50 mL = 400 mL Total: 1000 + 400 = 1400 mL

References:

Ghai Essential Paediatrics, 10th Edition, Page 57.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 10-year-old boy is brought to the emergency department with severe vomiting. His serum potassium level is 2.7 mEq/L. Which of the following ECG changes is most

likely to be seen in this patient? (Q850052)

A. Peaked T waves

B. Prolonged PR interval

C. Prominent U waves

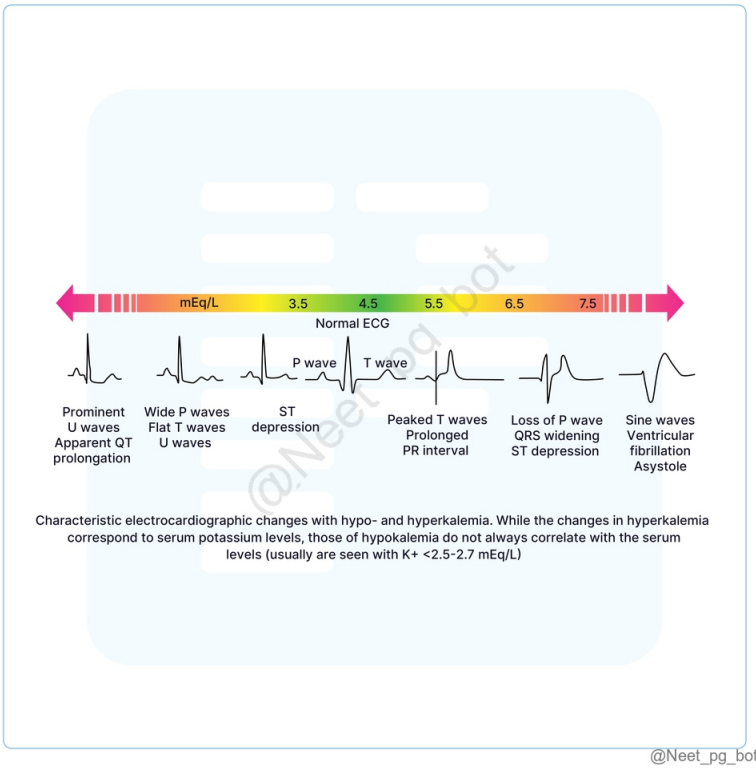
D. ST segment elevation

Correct Answer: C. Prominent U waves

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In hypokalemia, U waves become prominent and are typically best seen in leads V2-V4 . They appear as a small positive deflection after the T wave. ECG changes are important indicators of electrolyte imbalances, particularly potassium disturbances. Hypokalemia Hyperkalemia Flattened T waves (Option A ruled out) ST segment depression (Option D ruled out) Prominent U waves Prolonged QT interval Wide P waves Peaked T waves (earliest and most sensitive sign) Prolonged PR interval (Option B ruled out) Widened QRS complex Sine wave pattern (in severe cases) Loss of P wave



@Neet_pg_bot

References:

Ghai Essential Paediatrics, 10th Edition, Pages 64.

↑ *Back to this question in Part A*

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Q10: A 3-year-old girl with a history of recurrent urinary tract infections presents with lethargy and muscle weakness. Laboratory tests reveal a serum potassium level of 6.8 mEq/L. Which of the following is the most likely etiology of her condition? (Q850051)

A. Congenital adrenal hyperplasia

B. Obstructive uropathy

C. Excessive potassium intake

D. Rhabdomyolysis

Correct Answer: B. Obstructive uropathy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The history of recurrent urinary tract infections suggests the possibility of an underlying urological abnormality. Obstructive uropathy can lead to impaired renal potassium excretion, resulting in hyperkalemia. Normal serum potassium level: 3.5-5.5 meq/L. Hyperkalemia is defined as a serum potassium level above 5.5 mEq/L. HYPERKALEMIA Etiology: Decreased renal excretion (acute kidney injury, chronic kidney disease, obstructive uropathy) Transcellular shifts (acidosis, cell lysis, rhabdomyolysis) Excessive intake (rare in children with normal renal function) Pseudohyperkalemia (hemolysis during blood draw) Endocrine disorders (adrenal insufficiency, hypoaldosteronism) Clinical features: Muscle weakness Fatigue Paralysis (in severe cases) Cardiac arrhythmias Often asymptomatic in mild cases Treatment: Prevent further progression of hyperkalemia Discontinue Potassium-Containing Substances Stabilize the Myocardial Membrane To prevent cardiac arrhythmias, administer IV calcium gluconate (10% solution) at a dose of 0.5-1 mL/kg over 5-10 minutes , with continuous cardiac monitoring. If bradycardia occurs, discontinue the infusion. Enhance Potassium Uptake into Cells : Regular Insulin and Glucose : Administer 0.3 units of regular insulin per gram of glucose IV over 2 hours . Sodium Bicarbonate : Infuse 1-2 mEq/kg body weight of sodium bicarbonate IV over 20-30 minutes . Beta-Adrenergic Agonists : Use nebulized or IV beta-agonists (e.g., salbutamol, terbutaline) to drive potassium into cells. Eliminate Potassium from the Body : Sodium Polystyrene Sulfonate (Kayexalate) : Administer 1 g/kg orally or via rectal enema, with a maximum dose of 15 g, mixed in 20-30% sorbitol. Diuretics : Consider loop or thiazide diuretics if renal function is adequate. Renal Replacement Therapy : For severe hyperkalemia, especially in cases of renal impairment or tumor lysis syndrome, hemodialysis or peritoneal dialysis may be required. For Hypoaldosteronism : Administer maintenance doses of steroids and fludrocortisone. For severe hyperkalemia (K^+ >7.0 mEq/L) or when ECG changes (e.g., tall peaked T waves) are present, immediate treatment is necessary, starting with IV calcium gluconate, followed by sodium bicarbonate, insulin-glucose infusion, and/or nebulized beta-agonists. In refractory cases, hemodialysis may be needed. Mild hyperkalemia (5.5-6.5 mEq/L) should be managed by stopping potassium intake, discontinuing potassium-sparing drugs, and addressing the underlying

cause. Congenital adrenal hyperplasia (Option A) : Congenital adrenal hyperplasia can cause hyperkalemia, but it often presents in infancy with other signs such as salt-wasting, ambiguous genitalia, and not typically with recurrent UTIs at 3 years. Excessive potassium intake (Option C) : This is rarely a cause of hyperkalemia in children with normal renal function. The history doesn't suggest excessive intake. Rhabdomyolysis (Option D) : While this can cause hyperkalemia due to the release of intracellular potassium, it's typically associated with a history of trauma, severe exercise, or certain medications. The clinical presentation doesn't suggest rhabdomyolysis.

References:

Ghai Essential Paediatrics, 10th Edition, Pages 64, 65.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: Which of the following statements is false? (Q850041)

A. TBW constitutes 75% of body weight at the time of birth

B. Preterm neonates have lower TBW than the term neonates

C. After birth, ECF decreases and ICF increases

D. After puberty, males have slightly more total body water than females.

Correct Answer: B. Preterm neonates have lower TBW than the term neonates

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Preterm neonates have higher TBW than the term neonates. Extremely preterm infants (<28 weeks gestation) are at particularly high risk of fluid and electrolyte imbalance due to their high TBW content and immaturity of renal function and skin barriers. Neonates undergo volume contraction because of high renal function at birth. Total Body Water (TBW) Composition: 90% of body weight in early fetal life. 75% of body weight at birth. (Option A) 60% of body weight by the end of the first year, remaining consistent until puberty. After puberty, males have slightly more TBW compared to females. (Option D) Preterm vs. Term Neonates: Preterm neonates have a higher TBW compared to term neonates. TBW Distribution: TBW is divided into: Extracellular Fluid (ECF) Intracellular Fluid (ICF) The equation is: TBW = ECF + ICF ECF = plasma + interstitial fluid ECF and ICF Changes: In fetus and newborns, ECF > ICF volume. After birth, ECF volume decreases and ICF volume increases. (Option C)

References:

Ghai Essential Paediatrics, 10th Edition, Pages 55, 56

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 6-year-old boy is brought to the emergency department with a 2-day history of headache, nausea, and confusion. He was recently treated for bacterial meningitis. Physical examination reveals no signs of dehydration or edema. Laboratory studies show: Serum sodium: 128 mEq/L Serum osmolality: 265 mOsm/kg Urine sodium: 55 mEq/L Urine osmolality: 450 mOsm/kg Blood pressure: 100/60 mmHg According to the Schwartz and Bartter Clinical Criterion, which of the following is NOT a diagnostic criterion for Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)? (Q850049)

A. Serum sodium less than 135 mEq/L

B. Urine osmolality greater than 100 mOsm/kg

C. Urine sodium more than 40 mEq/L

D. Low blood pressure

Correct Answer: D. Low blood pressure

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: According to Schwartz and Bartter Clinical Criterion, blood pressure is not considered amongst the diagnostic criteria. The Schwartz and Bartter Clinical Criterion for SIADH diagnosis includes: Serum sodium less than 135 mEq/L (Option A) Serum osmolality less than 275 mOsm/kg Urine sodium greater than 40 mEq/L (Option C) Urine osmolality greater than 100 mOsm/kg (Option B) The absence of clinical evidence of volume depletion The absence of other causes of hyponatremia Correction of hyponatremia by fluid restriction

References:

www.racgp.org.au/getattachment/6370dd94-d25e-4a47-b056-995898e55ba6/The-suspect-SIADH.aspx#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 7-year-old boy presents to the emergency department with confusion and lethargy. His medical history includes cirrhosis. Physical examination reveals peripheral edema and ascites. Laboratory tests show: Serum sodium: 128 mEq/L

Serum creatinine: 1.4 mg/dL Total protein: 5.5 g/dL (low) Albumin: 2.8 g/dL (low) Which of the following best describes the type of this patient's condition? (Q850048)

A. Hypovolemic hyponatremia

B. Euvolemic hyponatremia

C. Hypervolemic hyponatremia

D. None of the above

Correct Answer: C. Hypervolemic hyponatremia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient has signs of fluid overload (edema, ascites), indicating hypervolemic hyponatremia. Cirrhosis is one of the causes of hypervolemic hyponatremia. Causes of Hyponatremia Hypovolemic (Option A) GI/skin losses Renal losses: Intake of diuretics Underlying renal conditions: Nephronophthisis Autosomal recessive polycystic kidney disease Cerebral salt wasting syndrome: Sodium loss through urine Euvolemic (Option B) SIADH (syndrome of inappropriate antidiuretic hormone) Glucocorticoid deficiency Hypothyroidism Hypervolemic Conditions with lots of third spacing or edema Total fluid in body is increasing but fluid in intravascular compartment may not be much Specific conditions: Cardiac failure Cirrhosis of liver Nephrotic syndrome Hypoalbuminemia Renal failure

References:

Ghai Essentials of Paediatrics, 10th Edition, Pages 59, 60

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: Which of the following is not likely the cause of hypernatremia in the pediatric age group? (Q850047)

A. Nephrogenic diabetes insipidus

B. Acute tubular necrosis

C. Inadequate breastfeeding

D. Hypothyroidism

Correct Answer: D. Hypothyroidism

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Hypothyroidism can lead to hyponatremia due to impaired free water excretion. It does not result in hypernatremia. Causes of Hypernatremia Excess Sodium Intake Salt-rich diet IV 3% NaCl (Hypertonic saline) Sodium bicarbonate (oral or IV) Excess sodium intake Hypertonic feeds, boiled skimmed milk Ingestion of seawater Water Deficit Diabetes insipidus (central or nephrogenic) (Option A) Increased insensible losses Inadequate fluid intake Inadequate breastfeeding (Option C) Sodium and Water Loss (water loss > Sodium loss) GI losses: Vomiting or diarrhea Cutaneous losses: Burns involving large body surface area Renal losses: Polyuric phase of acute tubular necrosis (Option B) Osmotic diuresis: Free water loss Loop, osmotic diuretics; post obstructive diuresis Hormonal Hyperaldosteronism: More and more sodium retention in body Primary hyperaldosteronism, Cushing syndrome

References:

Ghai Essential Paediatrics, 10th Edition, Pages 62

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A 4-year-old boy has been brought to the emergency department with severe vomiting for the past 2 days. He appears dehydrated and lethargic. Laboratory studies reveal: pH: 7.52 pCO2: 38 mmHg HCO3-: 32 mEq/L Na+: 138 mEq/L Which of the following is the most appropriate initial treatment for this patient's acid-base disorder? (Q850046)

A. Administer sodium bicarbonate

B. Provide oxygen therapy

C. Initiate normal saline infusion

D. Initiate hyperventilation

Correct Answer: C. Initiate normal saline infusion

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient presents with metabolic alkalosis (pH > 7.45, increased HCO3-) likely due to severe vomiting. Also, the low urinary chloride (< 15 mEq/L) indicates a chloride-responsive metabolic alkalosis. The most appropriate treatment is to initiate normal saline infusion. Provide oxygen therapy (Option B): Oxygen therapy is not indicated in the treatment of metabolic alkalosis. The patient's primary issue is related to fluid and electrolyte imbalances due to vomiting, not a respiratory or oxygenation problem. Initiate hyperventilation (Option D): Hyperventilation blows off CO■, which would increase the pH even further (creating a secondary respiratory

alkalosis), potentially leading to seizures or tetany. Acid-Base Disorder Primary Cause Initial Treatment Additional Considerations Metabolic Acidosis Excess HCO3- loss or H+ retention Treat underlying cause Fluid resuscitation (e.g., normal saline) Start sodium bicarbonate (Option A) Sodium bicarbonate rarely used, only if pH < 7.1 or life-threatening Address electrolyte imbalances after initial resuscitation Respiratory Acidosis CO2 retention due to respiratory compromise Assisted ventilation (NIV/IMV) Treat underlying cause For every 10 mmHg increase in pCO2, there is 4 mEq/L rise in HCO3- (metabolic compensation) Metabolic Alkalosis (Chloride-Responsive) HCl loss (e.g., vomiting) Urinary chloride < 15 mEq/L Volume repletion with normal saline Most common type Responds to fluid and chloride replacement Metabolic Alkalosis (Chloride-Resistant) Various endocrine disorders Urinary chloride > 20 mEq/L Treat underlying cause May require specific treatments based on etiology (e.g., spironolactone for Liddle syndrome) Acetazolamide Does not respond to volume repletion alone Requires targeted therapy based on specific diagnosis Respiratory Alkalosis CO2 washout due to hyperventilation Treat underlying cause (e.g., fever, sepsis, asthma) Adjust ventilator settings if over ventilated Monitor for hypocalcemia (may cause tetany, seizures) Metabolic compensation occurs over days

References:

Ghai Essential Paediatrics, 10th Edition, Pages 69-73

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 5-year-old patient presents with resistant hypertension that has not improved despite various antihypertensive treatments. Laboratory tests reveal normal levels of potassium and no significant kidney damage. The patient's family history shows a pattern of early-onset hypertension in multiple relatives. Which of the following is most likely to be the underlying cause of the patient’s hypertension? (Q850045)

A. An activating mutation of sodium channels in the distal nephron

B. Hyperaldosteronism due to adrenal hyperplasia

C. A loss-of-function mutation in the renin-angiotensin-aldosterone system

D. An activating mutation of sodium channels in the loop

Correct Answer: A. An activating mutation of sodium channels in the distal nephron

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient experienced resistant hypertension, normal potassium levels and no significant kidney damage with family history of early-onset hypertension suggesting a genetic component. Thus, the patient is most likely suffering from Liddle syndrome. Liddle Syndrome: An autosomal dominant disorder Caused by an activating mutation in sodium channels in the collecting duct (distal part of nephron) (Option D) These sodium channels remain perpetually open This leads to sodium retention and resistant hypertension Differential diagnosis

of Liddle Syndrome: (Common clinical feature: Hypertension) Glucocorticoid Remediable Aldosteronism (GRA): An autosomal dominant disorder It is characterized by overproduction of aldosterone thus causing hypertension Treatment involves glucocorticoids, which suppress ACTH production from the pituitary Reduced ACTH lowers aldosterone synthase production, thereby decreasing hypertension Apparent Mineralocorticoid Excess (AME): Caused by a deficiency in the 11 beta-hydroxysteroid dehydrogenase enzyme Results in elevated cortisol levels and reduced cortisone levels in the kidney Elevated cortisol exhibits mineralocorticoid activity, leading to hypertension Hyperaldosteronism from adrenal hyperplasia (Option B) would generally cause hypokalemia due to excessive potassium excretion. A loss-of-function mutation in the RAAS system (Option C) would usually result in reduced aldosterone production and potentially lower blood pressure, not resistant hypertension.

References:

Ghai Essential Paediatrics, 10th Edition, Page 84.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: Which of the following is not a feature of Chloride Responsive Metabolic Alkalosis in children? (Q850044)

A. It responds to fluid replacement with normal saline

B. Urinary chloride >20 meq/L

C. Decrease in ECF volume

D. Can occur in cystic fibrosis.

Correct Answer: B. Urinary chloride >20 meq/L

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Chloride-Responsive Metabolic Alkalosis: Urinary chloride levels < 15 meq/L Decrease in extracellular fluid (ECF) volume (Option C) Responsive to volume replenishment with normal saline (Option A) Causes include: (chloride or fluid loss from the gastrointestinal tract, kidneys, or skin) Gastrointestinal losses: persistent vomiting, continuous nasogastric drainage, congenital chloride diarrhoea Renal losses: loop diuretics (e.g., furosemide), thiazide diuretics Skin losses: cystic fibrosis (Option D) Chloride-Resistant Metabolic Alkalosis: Urinary chloride levels exceed 20 meq/L Does not respond to volume replenishment with normal saline Chloride-Resistant Metabolic Alkalosis Normal BP Barter syndrome Gitelman syndrome High BP Mnemonic: CLGADA C -Congenital adrenal hyperplasia(11 beta hydroxylase/17 alpha hydroxylase deficiency) L -Liddle syndrome G -GRA (Glucocorticoid-remediable Aldosteronism) A -AME (Apparent mineralocorticoid excess) D -Disorders of sexual development A -Adrenal Adenoma/carcinoma

References:

Ghai Essential Paediatrics, 10th Edition, Page 72, 73

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: Match the following: Etiology Diagnosis a) Tissue hypoxia (Shock) i) Respiratory alkalosis b) Renal tubular acidosis ii) Metabolic Alkalosis c) Paralysis of respiratory muscles iii) Respiratory Acidosis d) Excessive use of loop diuretics iv) High anion gap metabolic acidosis e) Over Ventilation of intubated child v) Normal anion gap metabolic acidosis (Q850043)

A. a-i, b-iii, c-ii, d-iv, e-v

B. a-v, b-iii, c-iv, d-ii, e-i

C. a-iv, b-v, c-ii, d-iii, e-i

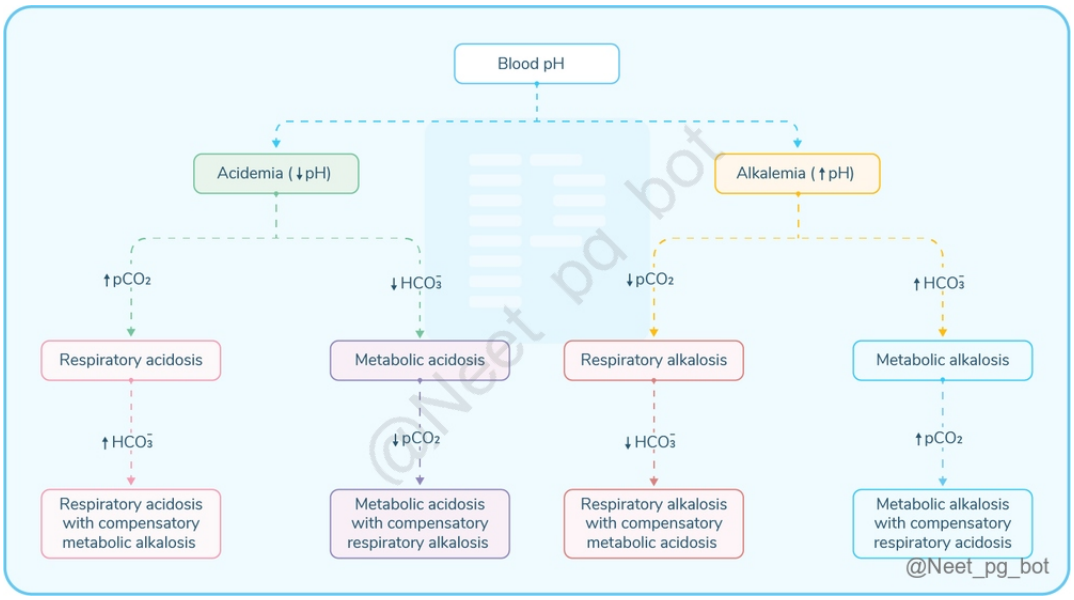
D. a-iv, b-v, c-iii, d-ii, e-i

Correct Answer: D. a-iv, b-v, c-iii, d-ii, e-i

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Acidosis: Defined as a pH level below 7.35 Causes include: Metabolic: Resulting from an excess loss of bicarbonate (HCO■) or retention of hydrogen ions (H■) Respiratory: Due to accumulation of carbon dioxide (CO■) Causes of Metabolic acidosis: Causes of Metabolic Acidosis Metabolic Acidosis with Normal Anion Gap (NAGMA) Metabolic Acidosis with Increased Anion Gap (HAGMA) Post hypocapnia Urinary tract diversions Renal tubular acidosis Diarrhea Ammonium chloride ingestion Ketoacidosis (DKA) Kidney failure Lactic acidosis Liver failure Metformin Tissue hypoxia (shock) Poisoning by Ethylene glycol Causes of Respiratory acidosis: It arises from respiratory compromise that leads to carbon dioxide (CO■) retention due to factors such as: Reduced central respiratory drive Paralysis of respiratory muscles Diseases affecting lung tissue or airways Progressive neuromuscular disorders Scoliosis Alkalosis is defined as a pH > 7.45 Causes of Metabolic Alkalosis: Causes of Metabolic Alkalosis Chloride Responsive Metabolic Alkalosis Chloride Resistant Metabolic Alkalosis Gastrointestinal losses: ongoing vomiting, continuous nasogastric (NG) drainage, or congenital chloride diarrhea Renal losses: use of loop diuretics (such as furosemide) or thiazide diuretics Cutaneous losses: cystic fibrosis Normal BP Barter syndrome Gitelman syndrome High BP Mnemonic: CLGADA C -Congenital adrenal hyperplasia (11 beta hydroxylase/17 alpha hydroxylase deficiency) L -Liddle syndrome G -GRA (Glucocorticoid remediable Aldosteronism) A -AME (Apparent mincralocorticoid exccss) D -Disorders of sexual development A -Adrenal Adenoma/carcinoma Causes of Respiratory Alkalosis: Primary Cause: Excessive loss of CO2 due to hyperventilation Elevated body temperature (high fever) Sepsis Bronchial asthma Central nervous system (CNS) disorders Overventilation in an intubated child



References:

Ghai Essential Paediatrics, 10th Edition, Pages 71, 72, 73, 74

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: Match the following: Plasma Osmolality Urine Osmolality Diagnosis 1) Increased a) Increased i) Dehydration/water deprivation 2) Decreased b) Decrease ii) Diabetic insipidus iii) Syndrome of inappropriate antidiuretic hormone secretion (SIADH) (Q850042)

A. 1-a-iii

B. 2-a-ii

C. 2-b-i

D. 2-a-iii

Correct Answer: D. 2-a-iii

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Plasma Osmolality Urine Osmolality Diagnosis 1. Increased Increased Dehydration/water deprivation 2. Increased Decreased Diabetic insipidus 3. Decreased Increased Syndrome of inappropriate antidiuretic hormone secretion (SIADH) Osmolality refers to the concentration of solute per unit weight of solvent

and is measured in mOsm/kg. Normal Values: Plasma Osmolality: Ranges from 285 to 295 mOsm/kg. Urine Osmolality: Can reach up to 1200-1400 mOsm/kg, typically achieved by or after 1 year of age. Calculation of plasma osmolality = 2 [sodium] + Glucose (mg/dl)/18 + BUN/2.8

References:

Ghai Essential Paediatrics, 10th Edition, Pages 58, 59, 61, 62

↑ *Back to this question in Part A*

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• [06_Fluid and Electrolyte Disturbances] 016 Previous Year Questions

« Back to Folder Directory

[06_Fluid and Electrolyte Disturbances] 016 Previous Year Questions — Quick Jump

Q1 (p. 859)	*Q2 (p. 860)*	*Q3 (p. 860)*	*Q4 (p. 861)*	*Q5 (p. 862)*	*Q6 (p. 863)*
Q7 (p. 863)	*Q8 (p. 864)*	*Q9 (p. 865)*	*Q10 (p. 867)*	*Q11 (p. 867)*	*Q12 (p. 868)*
Q13 (p. 869)	*Q14 (p. 870)*				

Q1: A 4-year-old child is brought in with suspected dehydration. To assess moderate dehydration, which of the following signs would you expect? Dry mucous membranes Delayed capillary refill Coma Sunken anterior fontanelle (Q853240)

A. 1, 2 and 3

B. 2, 3 and 4

C. 1, 3 and 4

D. 1, 2 and 4

Correct Answer: D. 1, 2 and 4

Explanation: Moderate dehydration typically presents with dry mucous membranes, delayed capillary refill, and a sunken anterior fontanelle , while coma indicates severe dehydration. Assessment and Classification of Dehydration in Children: Sign/Symptom No Dehydration Some Dehydration Severe Dehydration Mental status Alert Irritable/restless Lethargic/unconscious Loss of body weight <3% 3- 9% >9% Thirst Normal Increased Unable to drink Eyes and Anterior Fontanel Normal Slightly sunken Very sunken Tears Present Decreased Absent Mouth Moist Dry Parched Skin turgor Normal (Immediate recoil) Slow recoil (2-3sec) Very slow recoil (>3sec) Capillary refill Normal (<2sec) Prolonged (2-3sec) Prolonged (>3sec) Urine output Normal Decreased Minimal Treatment of Dehydration in Children: Rehydration: Plan A: For no dehydration. ORS is administered after each loose stool < 2 years: 50-100 ml of ORS administered. 2-10 years: 100-200 ml of ORS administered. >10 years: As much ORS as a child wants. Plan B: For some dehydration. The amount of ORS administered is 75ml/kg of body weight Plan C: For severe dehydration. Ringer lactate (ideal) or normal saline is used as IV fluids. Age First 30 ml/kg in Next 70 ml/kg in Total 100 ml/kg in <12 months 1 hour 5 hours 6 hours >12 months 30 min 2.5 hours 3 hours Nutrition: Continue breastfeeding Reintroduce age-appropriate diet early Avoid fatty foods and simple sugars Zinc Supplementation: <6 months: 10 mg/day >6 months: 20 mg/day Medications: Antibiotics: Use judiciously, mainly for severe bacterial cases Ondansetron (for vomiting) Avoid antimotility agents Probiotics: It may be beneficial, especially for rotavirus ORS Composition (WHO standard): Constituent mmol/L Sodium 75 Glucose 75 Potassium 20 Chloride 65 Citrate 10 Total osmolarity 245

References:

Nelson Textbook of Pediatrics, 21st edition, Pages 2027, 2028, 2029, 2030 Ghai Essential Pediatrics, 9th edition, Pages 287, 288, 289

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: Which of the following is the ideal maintenance fluid for pediatric patients? (Q853241)

A. 5% dextrose and N/2 saline

B. 5% dextrose and N saline

C. 10% dextrose and N/2 saline

D. 5% dextrose and N/4 saline

Correct Answer: B. 5% dextrose and N saline

Explanation: 5% dextrose and N saline The preferred fluid for fluid correction in pediatric patients is 5% dextrose and N saline (DNS) . Moreover, a maintenance dose of potassium, with 1ml of KCl per 100ml, is also added to the solution. DNS (Dextrose Normal Saline) is used in children as a maintenance fluid because: Prevents Hypoglycemia: Provides around 17 calories/ 100ml of 5%D as energy , crucial for children with higher metabolic rates. It also prevents ketone production and minimises protein degradation . Maintains Fluid and Electrolyte Balance: Sodium chloride in DNS preserves extracellular fluid volume and prevents dehydration. Isotonic Solution: Stabilizes intravascular volume without causing fluid shifts. Hypotonic fluids like N/2 and N/4 saline (Option A, C, D) can cause hyponatraemia and hemolysis. Hence Isotonic fluids with 5% dextrose are preferred as maintenance fluids in children

References:

Nelson Textbook of pediatrics, 21st edition, Page 426

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A child was brought to the casualty with complaints of vomiting and loose stools with a history of laxative use. On examination, arrhythmia is present. What will be the abnormality present? (Q852479)

A. Hyponatremia

B. Hypocalcemia

C. Hypokalemia

D. Hyperkalemia

Correct Answer: C. Hypokalemia

Explanation: Vomiting and loose stools, along with cardiac arrhythmia, point to the diagnosis of hypokalemia . Normal serum potassium level: 3.5-5.5 meq/L. Hypokalemia is defined as a serum potassium level below 3.5 mEq/L. Mild hypokalemia: 3 - 3.5 mEq/L Moderate hypokalemia: 2.5 - 3.0 mEq/L Severe hypokalemia: <2.5 mEq/L Etiology: Common causes of hypokalemia in children include: Gastrointestinal losses (diarrhoea, vomiting) Renal losses (diuretics, renal tubular disorders) Inadequate intake Transcellular shifts (e.g., insulin administration, beta-agonists) Clinical features: Muscle weakness Fatigue Constipation Cardiac arrhythmias (in severe cases) Polyuria and polydipsia Treatment: The treatment of hypokalemia depends on its severity and the presence of symptoms. In this case, with moderate hypokalemia and symptoms, intravenous replacement is appropriate Potassium Supplementation: Indications for IV Potassium Supplementation: Symptomatic patients Severe hypokalemia (<2.5 mEq/L) Presence of ECG abnormalities Unable to tolerate oral feeds. IV Potassium Chloride Supplementation: Dosage: 0.5-1 mEq/kg per dose Administration: IV infusion over 1-2 hours Infusion Rate: Do not exceed 1 mEq/kg per hour Potassium Concentration: Maximum of 60 mEq/L for peripheral lines Maximum of 80 mEq/L for central lines Avoid using glucose-containing fluids to prevent insulin-mediated intracellular potassium shift. Oral Potassium Supplementation: Dosage: 2-4 mEq/kg per day, divided into 3-4 doses Common Preparations: Potassium chloride (10%; 20 mEq/15 mL) Potassium citrate (especially for renal tubular acidosis) Administration Tip: Liquid preparations can be bitter; dilute with juice or water to improve taste. Additional Management Considerations: Replace ongoing potassium losses Ensure volume resuscitation with normal saline Correct any associated hypomagnesemia Treat underlying conditions (e.g., monogenic hypertension, Bartter syndrome, Gitelman syndrome) Hyponatremia (Option A) can be caused due to GI losses but is not associated with cardiac arrhythmias. Hypocalcemia (Option B) is not associated with arrhythmias but rather presents with prolonged QT intervals and congestive cardiac failure. Hyperkalemia (Option D) is associated with cardiac arrhythmias but is not caused due to vomiting and diarrhoea.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 63, 64

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 4-year-old child is got to the OPD with complaints of Loose stools for 2 days. Upon further clinical examination, excessive thirst, irritability and dry mucous membranes are noted. What is the glucose content of the rehydration solution used to treat this condition? (Q860520)

A. 50 mmol/L

B. 75 mmol/L

C. 100 mmol/L

D. 150 mmol/L

Correct Answer: B. 75 mmol/L

Explanation: C orrect Option B - 75 mmol/L This child has acute dehydration due to diarrhea , so the treatment is oral rehydration solution (ORS) . Glucose content of ORS (WHO-recommended, low-osmolarity) Glucose concentration: 75 mmol/L This is equivalent to ≈ 13.5 g of glucose per liter Glucose is needed for sodium–glucose co-transport (SGLT-1) in the intestine This mechanism allows efficient absorption of sodium and water , even during diarrhea Higher glucose concentrations increase osmolarity and can worsen diarrhea Current WHO ORS: Glucose: 75 mmol/L Sodium: 75 mmol/L Older ORS (no longer recommended): Glucose: 111 mmol/L (≈ 20 g/L) Incorrect Options: Option A - 50 mmol/L Glucose is too low to optimally drive the sodium–glucose co-transport (SGLT-1) mechanism Option C - 100 mmol/L Higher than the recommended WHO formulation Option D - 150 mmol/L Excessively high glucose concentration

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 340-341.

https://pmc.ncbi.nlm.nih.gov/articles/PMC5657219/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 5-year-old child presents with symptoms of mild to moderate dehydration. You are evaluating the clinical signs to confirm the diagnosis. Which of the following clinical signs are consistent with some dehydration in a child? Decreased urine output Lethargy Delayed skin pinch Sunken eyeballs Which of the following combinations is true for dehydration in this child? (Q840074)

A. 1, 2 and 3

B. 4,3 and 2

C. 1,3 and 4

D. 1,2 and 4

Correct Answer: C. 1,3 and 4

Explanation: Correct Option C - 1,3 and 4: Signs of some dehydration include increased heart rate and decreased urine output, indicating a depletion in intravascular space. Additional symptoms may include irritability,

restlessness, sunken eyes, no tear production, dry mucous membranes, and slightly delayed skin pinch test (<2 sec). Incorrect options: 2 - Lethargy: Lethargy is not seen in some dehydration; rather, it is a feature of severe dehydration.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: Which of the following fluid solutions is preferred as the maintenance fluid for pediatric patients? (Q840078)

A. 0.2% Normal Saline in 5% Dextrose (N/5 5% D)

B. 0.9% Normal Saline in 5% Dextrose (N 5% D)

C. 0.45% Normal Saline in 10% Dextrose (N/2 10% D)

D. 0.225% Normal Saline in 5% Dextrose (N/4 5% D)

Correct Answer: B. 0.9% Normal Saline in 5% Dextrose (N 5% D)

Explanation: Current Best Practice : Isotonic fluids are now preferred for maintenance therapy in children, as recommended by: American Academy of Pediatrics (AAP, 2018) European Society of Pediatric and Neonatal Intensive Care (ESPNIC) WHO and national health bodies These guidelines were updated due to the risk of hospital-acquired hyponatraemia associated with hypotonic fluids. Reason for Isotonic Preference : Children have higher levels of antidiuretic hormone (ADH) during illness or stress → increased risk of water retention and dilutional hyponatraemia. 0.9% Normal Saline maintains plasma tonicity and reduces this risk. Role of Dextrose and Potassium : 5% Dextrose : Prevents hypoglycaemia and provides energy. Potassium (usually 20 mmol/L KCl) : Often added unless contraindicated, especially if the child is not eating or passing urine. 0.2% NS + 5% Dextrose (Option A) : Too hypotonic → high risk of hyponatraemia. 0.45% NS + 10% Dextrose (Option C) : Still hypotonic, and 10% Dextrose is excessive for routine use. 0.225% NS + 5% Dextrose (Option D) : Also hypotonic; once commonly used but now largely outdated.

References:

.https://www.ncbi.nlm.nih.gov/books/NBK560540/ https://pmc.ncbi.nlm.nih.gov/articles/PMC11321816/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: What is the daily fluid requirement for a 3-day-old baby with a birth weight of 1500 grams? (Q860224)

A. 100-110 ml/kg/day

B. 80-90 ml/kg/day

C. 120-130 ml/kg/day

D. 130-150 ml/kg/day

Correct Answer: B. 80-90 ml/kg/day

Explanation: The fluid requirement of a baby weighing 1500gm or more is: Day 1: 60ml/kg/day Day 2: Increase it by 10-15 ml/kg/day) = 70-75 ml/kg/day Day 3: Increase it by 10-15 ml/kg/day) = 80-90 ml/kg/day Daily fluid requirements Birth Weight Day 1 2-6 7 & Beyond <1500 gm 80 ml/kg/day Increase daily by 10-15 ml/kg/day 150 ml/kg/day >1500 gm 60 ml/kg/day Increase daily by 10-15 ml/kg/day 150 ml/kg/day

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 151.

↑ *Back to this question in Part A*

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Q8: An 18-month-old child with a 3-day history of watery diarrhea and vomiting presented with altered sensorium. Which of the following are differential diagnoses? Severe dehydration Hemolytic Uremic Syndrome (HUS) Cerebral Venous Thrombosis Hyponatremia (Q854744)

A. 1, 2, 3, 4

B. 1, 2, 3

C. 1, 3, 4

D. 2, 3, 4

Correct Answer: A. 1, 2, 3, 4

Explanation: In a child presenting with diarrhea, vomiting, and altered sensorium, the differential diagnosis should focus on conditions associated with metabolic derangements, dehydration, and potential neurological complications. Severe dehydration (1) Profuse diarrhea and vomiting can cause hypovolemia. Reduced cerebral perfusion leads to lethargy and altered sensorium. MCC in such clinical settings. Hemolytic Uremic Syndrome

(HUS) (2) Can follow diarrheal illness (especially E. coli). Causes uremia, electrolyte imbalance, and encephalopathy. Altered sensorium can occur due to renal failure or hypertension. Cerebral Venous Thrombosis (CVT) (3) Severe dehydration is a major risk factor for CVT in children. Presents with altered consciousness, seizures, irritability. Must be considered in a dehydrated child with neurological symptoms Hyponatremia (4) Excess free water intake or hypotonic fluids during diarrhea. Causes cerebral edema, leading to altered sensorium and seizures. Very common metabolic cause in pediatric diarrhea.

References:

O.P Ghai Essential Paediatrics, 10th Edition, Page: 487,488, 572.

↑ *Back to this question in Part A*

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Q9: A 10-year-old child weighing 30 kg presents with a history of loose stools for 2 days. On examination, there is severe dehydration. Laboratory investigations are as follows. What is the initial management as per ISPAD guidelines? RBS 550 mg/dL pH 7.01 Na+ 158 mEq/L Urine glucose 3+ (Q855493)

A. Manage ABC, NS 20 mL/kg and start insulin after 1 hour

B. Manage ABC, NS 20 mL/kg along with insulin 0.1 IU/kg/hr

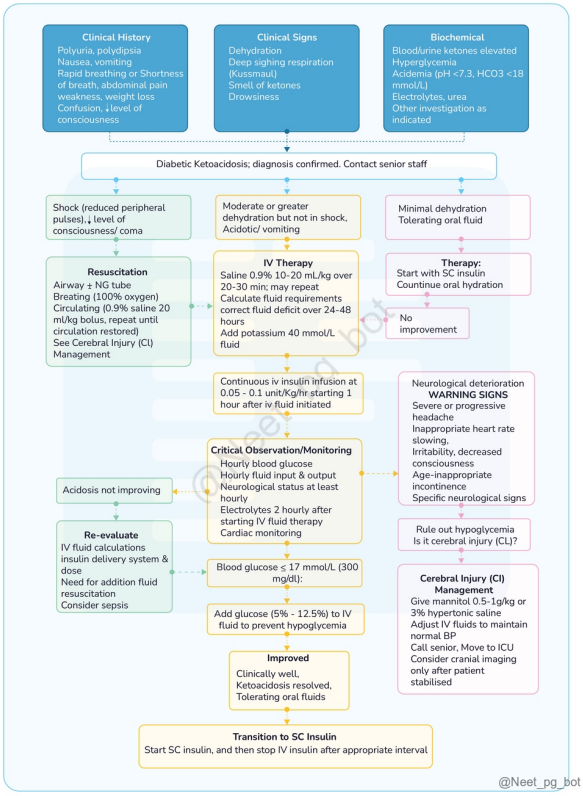
C. Manage ABC, NS 10 mL/kg along with insulin 0.1 IU/kg/hr

D. Manage ABC, NS 10 mL/kg and start insulin after 1 hour

Correct Answer: A. Manage ABC, NS 20 mL/kg and start insulin after 1 hour

Explanation: 10-year-old , 30 kg child Severe dehydration Hyperglycaemia (RBS = 550 mg/dL) Acidosis (pH = 7.01) Hypernatremia (Na■ = 158 mEq/L) Glucosuria This is a case of Diabetic Ketoacidosis (DKA) with severe dehydration , likely precipitated by diarrhoea. ISPAD Guidelines – Initial Management of DKA : ABC Stabilisation : Always assess and stabilise airway, breathing, and circulation first. Fluid Resuscitation : In severe dehydration or shock , give 0.9% Normal Saline (NS) 10–20 mL/kg over 1–2 hours . In this case (30 kg child with severe dehydration), give 20 mL/kg → 600 mL NS bolus . Insulin : Do not start insulin immediately . Begin insulin infusion after at least 1 hour of fluid resuscitation , to avoid rapid shifts in osmolality and risk of cerebral oedema. Dose: 0.05–0.1 IU/kg/hour , IV infusion. DKA Management in Children Immediate Management (First Hour): Rapid Assessment: Evaluate the child's vital signs (heart rate, respiratory rate, blood pressure) and weight. Assess GCS and check for signs of dehydration. Obtain blood samples for urgent measurement of blood glucose, blood beta-hydroxybutyrate (BHB) if available, venous pH, electrolytes (including bicarbonate), serum urea nitrogen, and creatinine. Serum BHB concentration : Most precise approach to measuring the severity of DKA Establish IV Access: Place two large-bore peripheral IV lines. Central lines are generally avoided (risk of thrombosis) unless necessary. Initial Fluid Resuscitation Administer a bolus of 0.9% saline at a rate of 10-20 ml/kg over 20-30 minutes to restore circulatory volume and address dehydration. After First Hour Initiate Insulin Therapy Start an intravenous insulin infusion at 0.05-0.1 U/kg/h , typically one hour after initiating fluids.

Continue Fluid Therapy After the initial bolus, continue fluid replacement with 0.45% to 0.9% saline, to replace the estimated fluid deficit over 24 to 48 hours. Adjust fluids based on clinical status and laboratory values. Monitoring and Replacing Electrolytes Begin potassium replacement once urine output is confirmed as insulin causes K+ entry into cells, leading to hypokalemia. Monitor vital signs, GCS, fluid balance, and capillary blood glucose every hour. Reassess electrolytes, blood glucose, blood urea nitrogen, calcium, magnesium, phosphate, blood gases, and BOHB every two hours if available. Transition Phase (6-24 Hours): Gradual Reduction of IV Fluids and transition to subcutaneous Insulin As DKA resolves and the child can tolerate oral intake, gradually reduce IV fluids while maintaining hydration. Transition to subcutaneous insulin once pH > 7.30, bicarbonate > 18 mmol/L, and BOHB < 1 mmol/L. Administer the first subcutaneous insulin dose 15-30 minutes before discontinuing the IV insulin infusion. {{caption_text}} NS 20 mL/kg along with insulin immediately (Option B) : Starting insulin at the same time as the fluid bolus is contraindicated in ISPAD guidelines. Can increase risk of cerebral oedema. NS 10 mL/kg along with insulin immediately (Option C) : Both inadequate fluid volume for severe dehydration and early insulin → not appropriate. NS 10 mL/kg and insulin after 1 hour (Option D) : Correct insulin timing, but underestimates fluid need for severe dehydration → volume should be 20 mL/kg .



References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC10433311/

www.ncbi.nlm.nih.gov/books/NBK470282/

pmc.ncbi.nlm.nih.gov/articles/PMC4413392/

↑ *Back to this question in Part A*

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Q10: A 10-month-old child undergoes treatment for diarrhoea with hypokalemia but the child does not respond to the treatment appropriately and on examination muscular weakness is noted, what is the most likely cause of treatment failure? (Q857603)

A. Hypomagnesemia

B. Hyponatremia

C. Hypermagnesemia

D. Hypernatremia

Correct Answer: A. Hypomagnesemia

Explanation: Hypomagnesemia In a child with diarrhoea with hypokalemia, presenting with muscular weakness and a failure to respond to treatment is suggestive of hypomagnesemia . Hypomagnesemia: Aetiology: Gastrointestinal losses (diarrhoea , steatorrhea, vomiting, IBD, celiac disease, etc) Potassium-lowering agents (ex: patiromer) Renal losses: Genetic diseases causing renal magnesium loss (Gitelman syndrome, Barter syndrome, familial hypomagnesemia with hypercalciuria and nephrocalcinosis, etc) Drugs (amphotericin, cisplatin, diuretics, mannitol, glucose, etc) Other metabolic disorders Hypokalemia Hypercalcemia Diabetes Chronic kidney disease Other causes: Poor intake Hungry bone syndrome Pancreatitis Insulin Intrauterine growth restriction Infants of diabetic mothers Clinical features: Secondary hypocalcemia Associated hypocalcemia or severe hypomagnesemia causes: Tetany Chvostek sign Trousseau sign Seizures Persistent hypocalcemia due to hypomagnesemia causes rickets in rare cases Hypokalemia Ecg: Flat T waves Lengthening of ST segment Arrhythmias Treatment: Severe hypomagnesemia Parenteral magnesium Dose: 25-50 mg/kg Slow IV infusion (IM in neonates) Long term therapy Oral administration Magnesium gluconate Magnesium oxide Magnesium sulfate IM injections (minimize diarrhoea) Nighttime nasogastric infusion (minimise diarrhoea) Options B, C, and D are incorrect as these are not associated with hypokalemia in diarrhoea.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 404-406.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 7-year-old boy weighing 30 kg has been posted for surgical resection of a tumor. What is the daily maintenance fluid required for this child while he's NPO? (Q859481)

A. 1000 mL

B. 1700 mL

C. 2500 mL

D. 3000 mL

Correct Answer: B. 1700 mL

Explanation: Based on the Holliday-Segar method, the daily maintenance fluid requirement for a 7-year-old boy who weighs 30 kg can be estimated as follows: Calculation of maintenance fluid: Body weight Maintenance fluid (mL/kg/day) <10 kg 100 mL/kg 10-20 kg 1000 + 50 for each kg in excess of 10kg >20 kg 1500 + 20 for each kg in excess of 20kg In case of 7 year old boy of 30 kg weight: For the first 10 kg of body weight : 100 mL/kg/day = 10 kg × 100 mL/kg/day = 1000 mL/day For the next 10 kg (from 11 to 20 kg): an additional 50 mL/kg/day = 10 kg × 50 mL/kg/day = 500 mL/day For the remaining 10 kg (from 21 to 30 kg): an additional 20 mL/kg/day = 10 kg × 20 mL/kg/day = 200 mL/day Adding the results from the above calculations: 1000 mL/day + 500 mL/day + 200 mL/day = 1700 mL/day

References:

Pediatric Fluid and Electrolyte Therapy - PMC

OP Ghai Essential Pediatrics, 10th Edition, Page 57.

↑ *Back to this question in Part A*

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Q12: A 5-year-old child is brought to the hospital with a history of profuse watery diarrhea. The mother reports that he is lethargic and barely responds when called. On examination, his eyes are very deeply sunken, the skin pinch returns very slowly, and his pulse is weak and rapid. What is the most appropriate management for this child? (Q859497)

A. Administer the first dose of IV antibiotic and immediately refer to a higher center

B. Give oral fluids and ask the mother to continue the same and visit again the next day

C. Give zinc supplementation and oral rehydration solution only and ask mother to come back if some danger signs develop

D. Consider severe dehydration, start intravenous (IV) fluids, IV antibiotics, and refer to a higher centre

Correct Answer: D. Consider severe dehydration, start intravenous (IV) fluids, IV antibiotics, and refer to a higher centre

Explanation: The given scenario with a 5-year-old child presenting with profuse watery diarrhea, lethargy, deeply sunken eyes, very slow skin pinch return, and weak rapid pulse is diagnosed as severe dehydration . Immediate treatment involves starting intravenous fluids to rapidly restore circulating volume and correct electrolyte imbalances. IV antibiotics may be necessary if there is suspicion of bacterial infection. Prompt referral to a higher center for specialized care is essential due to the risk of shock and complications. Assessment and Management of Dehydration: Degree of Dehydration Clinical Features Management Mild Slightly increased thirst Normal urine output Normal skin turgor Oral rehydration therapy (ORT) with a solution containing electrolytes and glucose Encourage the child to drink small, frequent amounts of the ORT solution Continue regular feeding if the child is not vomiting or unable to tolerate oral intake Moderate Increased thirst Decreased urine output Decreased tears Dry mucous membranes Delayed capillary refill (>2 seconds) Oral rehydration therapy (ORT) with a solution containing electrolytes and glucose Administer ORT in larger amounts and more frequently Monitor vital signs (heart rate, blood pressure), urine output, and mental status Consider antiemetic medication if vomiting is present If unable to tolerate oral intake or deteriorating clinical status, consider intravenous fluids Severe Markedly increased thirst Minimal or no urine output Sunken eyes, lethargy, irritability Cool extremities, mottled or pale skin Altered mental status, decreased consciousness Initiate intravenous fluids with a bolus of isotonic saline or lactated Ringer's solution Administer maintenance intravenous fluids and correct electrolyte imbalances as necessary Monitor vital signs closely, including heart rate, blood pressure, oxygen saturation Address underlying causes, such as infections or other medical conditions Consider transfer to a higher level of care if there are signs of severe or life-threatening dehydration Administer the first dose of IV antibiotic and immediately refer to a higher centre (Option A): While antibiotic therapy may be indicated in some cases of diarrhea, the priority in this scenario is to address the dehydration and provide appropriate fluid replacement. Referral to a higher center is necessary for the management of severe dehydration. Give oral fluids and ask the mother to continue the same and visit again the next day (Option B): Given the signs of dehydration mentioned, providing oral fluids alone may not be adequate to correct the dehydration rapidly. Prompt intervention with IV fluids is required in severe dehydration cases. Give zinc supplementation and oral rehydration solution only and ask the mother to come back if some danger signs develop (Option C): Zinc supplementation and oral rehydration solution are essential components of managing diarrheal illnesses, but in cases of severe dehydration, intravenous fluid therapy is necessary.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1758-1761

↑ *Back to this question in Part A*

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Q13: A 2-year-old boy is presented by his parents at a nearby village hospital, reporting loose stools over the past 3 days. The child's mother observes that he has become lethargic and refuses to eat. Upon examination, the child displays lethargy, dry mouth, sunken eyes, and delayed skin pinch recovery. How much fluid should be administered within the initial three hours if the child weighs 10 kg? (Q859921)

A. 1000 ml

B. 100 ml

C. 200 ml

D. 500 ml

Correct Answer: A. 1000 ml

Explanation: The patient's presentation with lethargy, dry mouth, sunken eyes, and delayed skin pinch recovery is suggestive of severe dehydration. In a severely dehydrated child, the initial fluid volume (intravenous) to be given is 100 ml/kg. Since the child's weight is 10 kg, the total fluid volume is 10kg x 100ml/kg =1000 ml. Dehydration - Treatment No dehydration: Continue normal diet Zinc: Reduces duration and severity of diarrhea in children from developing countries: Dose: 2-6-month age: 10 mg/day ≥ 6-month age: 20 mg/day Duration: 10-14 days Replacement of ongoing losses by WHO-ORS (5-10 ml/kg/loose stool) Some dehydration: 75 ml/kg over 4 hours (if cannot accept orally, give IV fluid) Severe dehydration: 100 ml/kg fluid IV Fluid Administration for Severe Dehydration: Age 1st 30ml/kg Next 70 ml/kg Total (100 ml/kg) < 1 year Over 1 hour Over 5 hour 6 hours > 1 year Over ½ hour Over 2 ½ hours 3 hours IV fluid of choice: Ringer lactate in 5% Dextrose > Ringer lactate

References:

Ghai Essential Pediatrics, 10th Edition, Pages 309-315

↑ *Back to this question in Part A*

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Q14: A 7-year-old boy presented with abdominal pain, vomiting, oliguria, and periorbital puffiness following chemotherapy. Investigations reveal hyperuricemia, raised creatinine levels, and hyperkalemia. What is the next best step in the management of this condition? (Q856065)

A. Hydration

B. Probenecid

C. Allopurinol

D. Rasburicase

Correct Answer: A. Hydration

Explanation: clinical condition caused by extensive tumor cell lysis and characterized by metabolic disturbances, such as hyperkalemia , hyperphosphatemia, hypocalcemia, and hyperuricemia , which can lead to end-organ damage. This syndrome is most commonly observed in patients with hematologic malignancies. Clinical Features: Abdominal Symptoms : Abdominal pain and distension. Urinary Symptoms : Dysuria, oliguria , flank pain, and hematuria. Symptoms of Hypocalcemia : Anorexia Vomiting Muscle cramps and spasms Seizures Tetany Altered

mental status Timing : TLS typically occurs 12-48 hours after initiating chemotherapy but can occur spontaneously in tumors with the high burden (e.g., Burkitt lymphoma, lymphoblastic lymphoma, high WBC leukemia). Rare Tumors : TLS is infrequently reported in Hodgkin lymphoma, neuroblastoma, or hepatoblastoma. Pre-Therapy Evaluation : Measure serum uric acid, electrolytes, calcium, phosphorus, and creatinine. Ensure adequate hydration. (Option A) Prevention : Allopurinol (xanthine oxidase inhibitor) to prevent uric acid accumulation. (Option C ruled out) Rasburicase (uric acid-degrading enzyme) in high-risk patients or those with established TLS to decrease the accumulation of uric acid. (Option D ruled out) Probenecid (Option B) inhibits organic anion transporters to reduce uric acid reabsorption, promoting excretion. However, it is contraindicated in TLS as it increases the risk of uric acid crystal formation and kidney stones due to increased uric acid levels.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2645 https://www.ncbi.nlm.nih.gov/books/NBK518985/

↑ *Back to this question in Part A*

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• [07_Genetics and Genetic Disorders] 017 Genetic Disorders And Syndromes

« Back to Folder Directory

[07_Genetics and Genetic Disorders] 017 Genetic Disorders And Syndromes — Quick Jump

Q1 (p. 872)	*Q2 (p. 873)*	*Q3 (p. 874)*	*Q4 (p. 876)*	*Q5 (p. 877)*	*Q6 (p. 878)*
Q7 (p. 880)	*Q8 (p. 881)*	*Q9 (p. 882)*	*Q10 (p. 883)*	*Q11 (p. 887)*	*Q12 (p. 887)*
Q13 (p. 889)	*Q14 (p. 889)*	*Q15 (p. 893)*	*Q16 (p. 897)*	*Q17 (p. 898)*	*Q18 (p. 899)*
Q19 (p. 899)					

Q1: A newborn presents with microcephaly, scalp defect, cleft lip and palate, and polydactyly. Cardiac evaluation reveals a ventricular septal defect. Which of the following is most likely to be associated with this clinical presentation? (Q850074)

A. Trisomy 21 (Down syndrome)

B. Trisomy 18 (Edwards syndrome)

C. Trisomy 13 (Patau syndrome)

D. Turner syndrome (45, XO)

Correct Answer: C. Trisomy 13 (Patau syndrome)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presentation of: Midline defects: Cleft lip/palate Holoprosencephaly Polydactyly Microcephaly Cutis aplasia (scalp defect) Congenital heart defects (VSD, ASD) Are suggestive of Trisomy 13 (Patau syndrome) Feature Down Syndrome (Trisomy 21) Option A Edwards Syndrome (Trisomy 18) Option B Patau Syndrome (Trisomy 13) Option C Turner Syndrome (45, X) Option D Chromosomal Defect Trisomy 21 Trisomy 18 Trisomy 13 Monosomy X (45, X) Incidence Most common autosomal trisomy compatible with life 2 nd most common autosomal trisomy 3rd most common autosomal trisomy Most common sex chromosome disorder in females Maternal Age Association Strong association Strong association Strong association Not strongly age-related Facial Features Flat facies, epicanthic folds, upslanting palpebral fissures, protruding tongue Micrognathia, low-set ears, prominent occiput Cleft lip/palate, microphthalmia Low-set ears, webbed neck Hand Findings Single palmar crease (Simian crease) Clenched fists with overlapping fingers Postaxial polydactyly Lymphedema of hands (at birth) Feet Findings Sandal gap Rocker-bottom feet Rocker-bottom feet — Cardiac Defects AV septal defect (most common) VSD, PDA VSD, complex defects Coarctation of aorta Other Major Anomalies Duodenal atresia, Hirschsprung disease Severe growth restriction Holoprosencephaly Gonadal streak ovaries Neurodevelopment Intellectual disability (mild–moderate) Severe intellectual disability Severe intellectual disability Normal

intelligence (usually) Endocrine Features Hypothyroidism common — — Ovarian failure, primary amenorrhea Characteristic Physical Clue Hypotonia (“floppy baby”) Clenched hands + rocker-bottom feet Polydactyly + cleft lip Short stature + webbed neck Survival Many survive to adulthood Most die within the first year Most die within the first year Normal life expectancy (with care) Screening Markers (First Trimester) ↑ NT, ↓ PAPP-A, ↑ β-hCG ↑ NT, ↓ PAPP-A, ↓ β-hCG ↑ NT, ↓ PAPP-A, ↓ β-hCG Cystic hygroma on ultrasound

References:

Nelson, Textbook of Pediatrics, 21st Edition, Pages 663, 664

↑ *Back to this question in Part A*

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Q2: A 10-year-old boy presents with recurrent weakness and confusion resembling stroke-like symptoms. His mother reports episodes of fatigue and lactic acidosis. Family history shows that his maternal grandmother had similar symptoms, while his grandfather was unaffected. Which of the following statements is TRUE about the inheritance pattern of this condition? (Q850069)

A. The patient's siblings have a risk of inheriting the disease from their mother.

B. Mitochondrial disorders can only exhibit homoplasmy.

C. The threshold effect is related to disorders associated with homoplasmy.

D. Kearns-Sayre syndrome and Pearson syndrome do not follow this type of inheritance.

Correct Answer: A. The patient's siblings have a risk of inheriting the disease from their mother.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical scenario is indicative of MELAS (Mitochondrial Encephalomyopathy, Lactic acidosis, Stroke-like episodes) , which is due to mitochondrial inheritance. Diseases related to mitochondrial inheritance can show either homoplasmy or heteroplasmy . (Option B) Homoplasmy implies that all mtDNAs are identical, which could be all wild type or all mutated . Heteroplasmy is a mixture of mutated and wild-type mtDNA. In the presence of heteroplasmy there is a threshold effect and clinical expression can vary between different tissues due to variation in mtDNA mutations. (Option C) Mitochondrial Inheritance Disorders: Inheritance Pattern Maternal inheritance: All children of an affected female inherit the disease. Homoplasmy: Presence of mtDNA which is either all wild type or all mutated . Heteroplasmy: Presence of both wild type (normal) and mutated mtDNA in the same individual. Threshold effect: Minimum percentage of mutated mtDNA required for disease manifestation. In the presence of heteroplasmy, the threshold effect leads to variability in clinical expression across different tissues and mtDNA mutations. Examples (Mnemonic: KLMNOP) Kearns-Sayre syndrome- Pigmentary retinopathy, cerebellar ataxia, heart block (Option D) Leber's hereditary optic neuropathy- Subacute painless bilateral visual failure MELAS- Mitochondrial Encephalomyopathy, Lactic acidosis, Stroke-like episodes MERRF- Myoclonic

epilepsy, Seizures, Ataxia NARP- Neuropathy, Ataxia, Retinitis pigmentosa CPEO- Chronic progressive external ophthalmoplegia, Bilateral Ptosis Pearson syndrome- Sideroblastic anemia of childhood, pancytopenia, pancreatic involvement (Option D)

References:

https://www.ncbi.nlm.nih.gov/books/NBK1224/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4723631/

↑ *Back to this question in Part A*

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Q3: The image shows a child with distinctive facial features. Which of the following are the features associated with this syndrome? {{caption_text}} (Q850078)

A. Short stature and triangular face

B. Hypoplastic mandible cheek and ear abnormalities

C. Facial asymmetry and triangular face

D. Retracted mandible



Correct Answer: B. Hypoplastic mandible cheek and ear abnormalities

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given image is suggestive of Treacher-Collins syndrome. Treacher-Collins syndrome Autosomal dominant Facial appearance: downward sloping palpebral fissures, colobomas and drooping of the lower eyelids, sunken cheekbones, deformed pinnae, atypical hair growth extending towards cheeks. Hypoplastic mandible Facial clefts, malformed ears, deafness Pierre-Robin syndrome: Autosomal dominant Clinical features: Micrognathia accompanied by a high-arched or cleft palate Retracted mandible (Option D) Normal sized tongue Retraction of tongue (Glossoptosis) {{caption_text}} Russell-Silver syndrome: Clinical features: Short stature, triangular face, microcephaly, limb and facial asymmetry, 5th finger clinodactyly (Options A and C). {{caption_text}}





References:

O P Ghai, Essential Paediatrics, 10th Edition, Pages 383, 389, 535

↑ *Back to this question in Part A*

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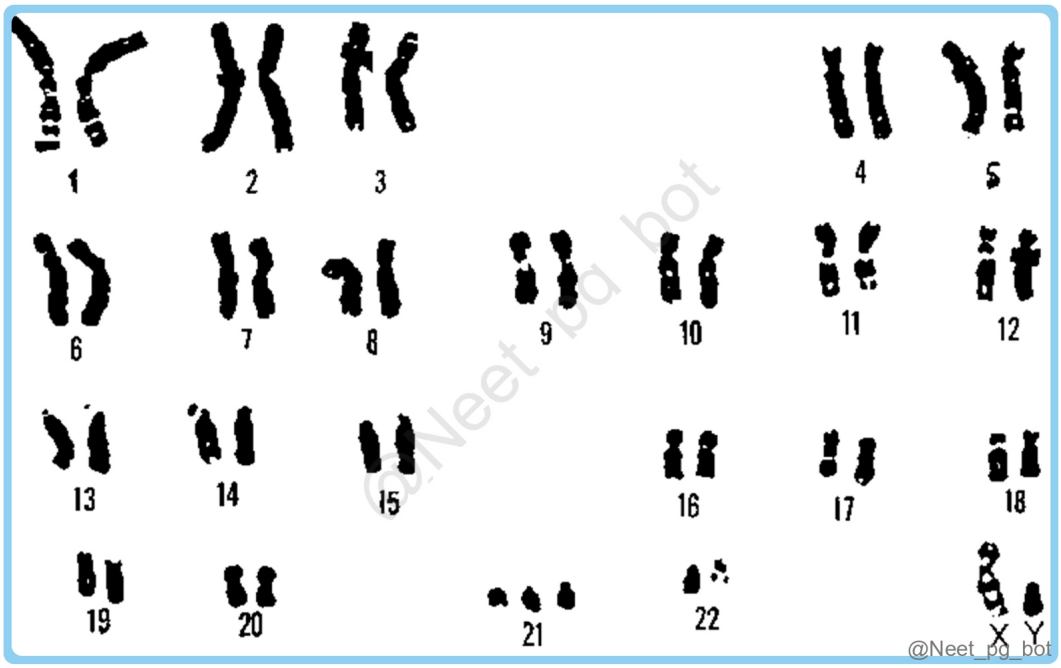
Q4: A 33-year-old pregnant woman was found to have an abnormal NT scan. An amniocentesis revealed a chromosomal karyotype given below. This result most commonly occurs due to which of the following? (Q850077)

A. Non-disjunction in maternal meiosis

B. Non-disjunction in paternal meiosis

C. Robertsonian translocation

D. Mosaic pattern



Correct Answer: A. Non-disjunction in maternal meiosis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The chromosomal karyotype of 47, XX, +21 is suggestive of Down's syndrome, which occurs due to Non-disjunction in maternal meiosis. Non-disjunction points to the failure of the homologous chromosome to separate during meiotic division. Mechanism: Trisomy 21 (meiotic material nondisjunction 95%) Robertsonian translocation (4%) - involves 2 acrocentric chromosomes (chromosomes 13, 14, 15, 21, and 22) that fuse near the centromeric region, with a subsequent loss of the short arms. (Option C) Mosaic pattern (1%) (Option D) Most trisomy 21 cases arise from maternal meiotic errors , making paternal nondisjunction an uncommon cause (Option B)

References:

Ghai Essentials of Pediatrics, 10th Edition, Pages 666-668

↑ *Back to this question in Part A*

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Q5: A 15-year-old male presents with tall stature, long limbs, and a history of frequent joint dislocation. O/E he has a high-arched palate and aortic regurgitation is noted on auscultation. Which of the following is the common genetic abnormality associated with this condition? (Q850076)

A. Mutation in BRCA1 gene

B. Mutation in the FBN1 gene

C. Mutation in the PTEN gene

D. Deletion of chromosome 22

Correct Answer: B. Mutation in the FBN1 gene

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Marfan syndrome is commonly associated with mutations in the FBN1 gene, which encodes the connective protein fibrillin. Autosomal dominant inheritance. Multisystem disorder with involvement of the connective tissues. Clinical features: Skeletal abnormalities: Tall stature Arachnodactyly Chest wall abnormalities like pectus excavatum/Pectus carinatum Thumb sign(On folding thumb, it will protrude beyond the ulnar border of palm) or wrist sign is positive Increased joint laxity CVS abnormalities: Aortic root dilation Mitral insufficiencies Arrhythmias Eye abnormalities: Ectopia lentis or subluxation of the lens of the eye Blindness Pulmonary involvement: Increased risk of pneumothorax Diagnosis: Marfan syndrome is clinically diagnosed using Ghent criteria Mutation in BRCA1 gene (Option A) i s associated with an increased risk of breast and ovarian cancer, not with the symptoms described in this case. Mutation in the PTEN gene (Option C) is linked to PTEN hamartoma tumor syndrome, which includes Cowden syndrome, characterized by multiple hamartomas and an increased risk of certain cancers, not the features presented here. Deletion of chromosome 22 (Option D) is associated with DiGeorge syndrome, which typically presents with congenital heart defects, cleft palate, and immune deficiencies, but not with the specific physical features described in this scenario.

References:

O P Ghai, Essential Paediatrics, 10th Edition, Page 706

↑ *Back to this question in Part A*

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Q6: A 12-year-old boy presents with short stature, webbed neck, broad chest, and undescended testis. What is the likely diagnosis? (Q850075)

A. Turner syndrome

B. Noonan syndrome

C. Klinefelters syndrome

D. Edward syndrome

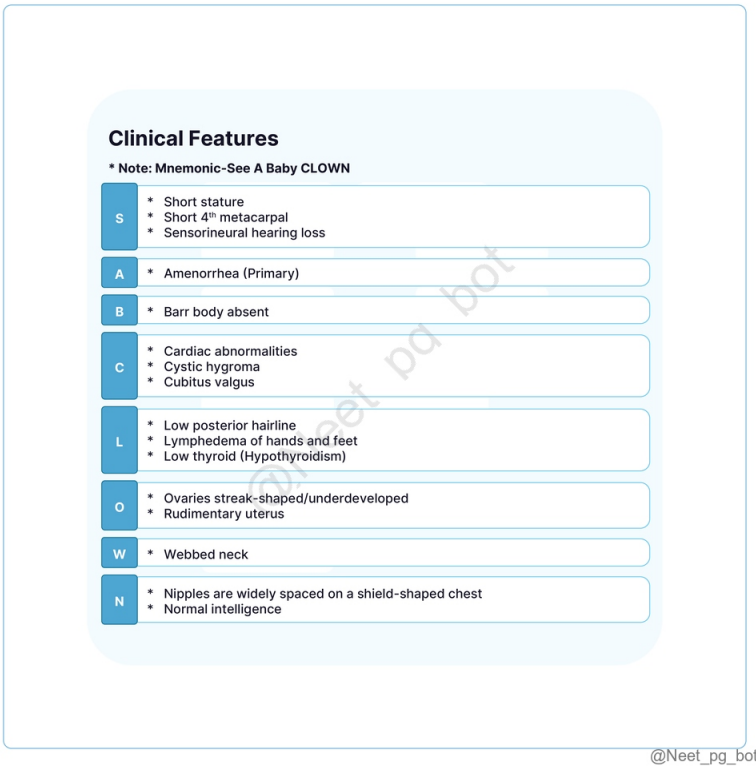
Correct Answer: B. Noonan syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The adolescent presenting with short stature, webbed neck, broad chest, and undescended testis suggests Noonan syndrome. Noonan syndrome: Autosomal dominant inheritance It is one of the disorders of the group called RASopathies; the RAS MAP kinase pathway is involved. The most common gene involved: is the PTPN 11 gene There is microdeletion in the PTPN 11 gene; the deletion is so small that it cannot be seen in the karyotype. So, karyotype is usually normal in these individuals. Turner syndrome: (Option A) Basic defect: 45, XO Always seen in females Most common congenital heart disease: Bicuspid aortic value> Coarctation of the aorta In Turner's syndrome, the Barr body is absent Similarities of Noonan syndrome and Turner syndrome: Differences between Noonan syndrome and Turner syndrome: Noonan Syndrome Turner Syndrome Autosomal dominant inheritance Karyotype- normal(Microscopic deletion) Seen in both boys and girls Intellectual disability present Delayed puberty but fertility preserved Do not follow any inheritance pattern Karyotype-45,XO Seen only in girls Normal intelligence Infertile(Streak ovaries and rudimentary uterus) Edward’s syndrome (Option C): Trisomy 18 Clinical features include Facial dysmorphism, index finger overlapping other fingers, and rocker bottom feet Klinefelter’s syndrome (Option D): Results from meiotic nondisjunction of sex chromosomes. Karyotype: 47, XXY Clinical features: Disproportionately long arms and legs Gynecomastia Testicular dysgenesis Infertility/azoospermia





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References:

O P Ghai, Essential Paediatrics, 10th Edition, Page 668-670

↑ *Back to this question in Part A*

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Q7: A 14-year-old girl presents with short stature and delayed puberty. On physical examination, she has a webbed neck, wide-set nipples, and cubitus valgus. Which of the following is not typically associated with this patient's likely diagnosis? (Q850073)

A. Coarctation of the aorta

B. Streak gonads

C. Intellectual disability

D. Horseshoe kidney

Correct Answer: C. Intellectual disability

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical presentation described in the question is highly suggestive of Turner syndrome , a chromosomal disorder characterised by the complete or partial absence of one X chromosome in females (45, X, or mosaic karyotypes). Intellectual disability is NOT typically associated with Turner syndrome, but it is associated with Noonan syndrome. While some individuals may have specific learning difficulties (particularly in spatial-temporal processing and mathematics), general intellectual ability is usually normal. Clinical Features of Turner Syndrome: Short Stature : A prominent feature, often becoming noticeable early in childhood. Skeletal Abnormalities : Short Fourth Metacarpal : A shortened bone in the hand. Cubitus Valgus : Increased carrying angle of the arms. Auditory Issues : Sensorineural Hearing Loss. Gonadal Dysgenesis : Primary Amenorrhea : Due to underdeveloped (streak) ovaries and a rudimentary uterus, leading to infertility. (Option B) Absent Barr Body : Seen in cytogenetic analysis, indicative of Turner syndrome. Cardiovascular Abnormalities : Coarctation of the Aorta (Option A), bicuspid aortic valve, hypertension - May develop over time due to cardiovascular abnormalities. Lymphatic System Abnormalities : Cystic Hygroma : Present at birth, leading to a characteristic webbed neck. Lymphedema : Swelling of the hands and feet, especially noticeable in infancy. Distinctive Physical Features : Webbed Neck Low Posterior Hairline Shield-Shaped Chest High-Arched Palate Micrognathia Epicanthal Folds Endocrine Disorders : Hypothyroidism : Common, requiring regular monitoring and treatment. Diabetes Mellitus : Increased risk for type 2 diabetes. Osteoporosis : Increased risk due to estrogen deficiency. Renal Abnormalities : Horseshoe Kidney : A fusion of the kidneys across the midline of the body. (Option D) Congenital Malformations : Various other structural abnormalities may be present. Gastrointestinal Issues : Increased Risk of Inflammatory Bowel Disease (IBD). Vision and Ocular Issues : Strabismus, ptosis, refractive errors. Developmental and Cognitive Features : Normal Intelligence : Cognitive abilities are generally within the normal range, in contrast to the Noonan syndrome, though some may have specific learning difficulties, particularly in spatial reasoning and mathematics. (Option C) Social Challenges : Some may experience difficulties with social interactions. Differences between Noonan syndrome and Turner syndrome: Noonan Syndrome Turner Syndrome Autosomal dominant inheritance Karyotype- normal(Microscopic deletion) Seen in both boys and girls Intellectual disability present Delayed puberty but fertility preserved Do not follow any inheritance pattern Karyotype-45,XO Seen only in girls Normal intelligence Infertile (Streak ovaries and rudimentary uterus)

References:

Nelson, Textbook of Pediatrics, 21st Edition, Page 659

↑ *Back to this question in Part A*

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Q8: A 32-year-old primigravida at 12 weeks of gestation undergoes first-trimester screening for Down syndrome. Which of the following is not typically included in this screening? (Q850072)

A. Maternal serum β-hCG level

B. Nuchal translucency measurement

C. Maternal serum PAPP-A level

D. Maternal serum alpha-fetoprotein (AFP) level

Correct Answer: D. Maternal serum alpha-fetoprotein (AFP) level

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Maternal serum alpha-fetoprotein (AFP) level is not typically included in first-trimester screening. AFP is part of the second-trimester quad screen. Diagnosis of Down syndrome: Definitive diagnosis requires chromosomal analysis, which can be done prenatally or postnatally. 1. Prenatal diagnostic tests: Chorionic Villus Sampling (CVS): Usually performed between 10-13 weeks Amniocentesis: Typically performed after 15 weeks 2. Postnatal diagnosis: Physical examination showing characteristic features Confirmed by karyotype analysis Antenatal Screening and Diagnosis: 1. Confirmatory Test: Fetal Karyotype Analysis is the gold standard for the prenatal diagnosis of Down syndrome, confirming the presence of an extra copy of chromosome 21. Chorionic Villous Sampling (CVS), Amniocentesis, Cordocentesis (Percutaneous Umbilical Blood Sampling). 2. Radiological Markers: First Trimester: Increased Nuchal Translucency (NT): An NT thickness greater than 3 mm, measured between 11-14 weeks, is a significant marker for Down syndrome. (Option B) Second Trimester: Soft Markers: Include shortened femur length, hypoplastic nasal bones, cardiac anomalies, and duodenal atresia. 3. Biochemical Markers: First Trimester (T1): β-HCG & PAPP-A: Elevated β-HCG and low PAPP-A levels are suggestive of Down syndrome. (Option A and C) Second Trimester (T2): Triple Test: Measures β-HCG, unconjugated estriol, and α-fetoprotein. Quadruple Test: Adds Inhibin-A to the triple test markers. Elevated Markers in Down Syndrome: Increased β-HCG and Inhibin-A levels are characteristic. 4. Integrated Test: Combines maternal age, T1 (NT thickness, PAPP-A), and T2 (quadruple test) to calculate a composite risk for Down syndrome. 5. Non-Invasive Prenatal Screening/Test (NIPS/NIPT): Cell-Free Fetal DNA Testing: Analyzes fetal DNA circulating in maternal blood to detect chromosomal abnormalities like Down syndrome.

References:

healthed.govt.nz/products/antenatal-screening-and-testing-for-down-syndrome-and-other-conditions

www.ucsfhealth.org/education/prenatal-testing-for-down-syndrome

↑ *Back to this question in Part A*

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Q9: A 4-year-old child presents with global developmental delay, hypotonia, and characteristic dysmorphic facial features. Karyotype analysis confirms trisomy 21. Given the genetic basis of the condition, which of the following additional findings is least likely to be directly associated with this disorder? (Q850071)

A. Increased risk of early-onset Alzheimer's disease

B. Increased risk of acute lymphoblastic leukemia (ALL)

C. Increased risk of ataxia-telangiectasia

D. Increased risk of congenital heart defects

Correct Answer: C. Increased risk of ataxia-telangiectasia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Down's syndrome , caused by trisomy 21, is associated with multiple systemic manifestations due to the presence of an extra copy of chromosome 21. This is due to meiotic nondisjunction in either maternal or paternal gamete. Occurs at a frequency of 1:800 to 1:1000 newborns. The overexpression of genes located on chromosome 21 contributes to the clinical features. Clinical Features and Diagnosis: General Features: Intellectual disability Flat facial profile, upward-slanting eyes with epicanthic folds, oblique palpebral fissure (visible when eyes are open). Small nose with flat nasal bridge Narrow palate, small teeth, and furrowed, protruding tongue Significant hypotonia Small, brachycephalic skull with flat occiput, and small, dysplastic ears Short, broad hands with clinodactyly (hypoplasia of the middle phalanx of the fifth finger) Simian crease on the palm A wide gap between the first and second toes (sandal gap) Comorbidities Congenital Heart Disease (Option D) : 40% of children have congenital heart defects, primarily endocardial cushion defects (40-60% of cases) - AVSD, VSD, ASD, PDA, TOF. Early cardiac evaluation is crucial. Gastrointestinal Malformations : 12% have atresias, especially duodenal atresia. There is an increased risk of annular pancreas and Hirschsprung disease. Ophthalmic Problems : Increased risk of cataracts, nystagmus, strabismus, and visual acuity issues. Regular eye evaluations are advised from infancy onward. Hearing Defects : 40-60% experience conductive hearing loss, often due to serous otitis media in the first year. Routine hearing assessments are recommended before 6 months of age and annually. Thyroid Dysfunction : Hypothyroidism occurs in 13-54% of patients. Atlanto-occipital Subluxation : Incidence ranges from 10-30%. A lateral neck radiograph is recommended. Physical Growth : Linear growth is typically slower, and children may become obese with age. Muscle tone often improves, but regular monitoring of height and weight is necessary. Malignancies : Increased risk of lymphoproliferative disorders, such as acute lymphoblastic leukemia (Option B), acute myeloid leukemia, myelodysplasia, and transient lymphoproliferative syndrome. Early-Onset Alzheimer's Disease (Option A): The APP gene, located on chromosome 21, plays a significant role in amyloid plaque formation, a hallmark of Alzheimer's disease. Ataxia-telangiectasia is a rare autosomal recessive disorder caused by mutations in the ATM gene on chromosome 11, unrelated to trisomy 21. This condition involves progressive cerebellar ataxia, telangiectasias, and immunodeficiency.

References:

Nelson, Textbook of Pediatrics, 21st Edition, Page 659

↑ *Back to this question in Part A*

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Q10: A 3-year-old girl presents with developmental delay, ataxic gait, and frequent inappropriate laughter. Genetic testing reveals a deletion in the 15q11-q13 region of the maternal chromosome. Which of the following conditions is most likely? (Q850070)

A. Disorder with maternal uniparental disomy

B. Disorder with paternal uniparental disomy

C. Beckwith-Wiedemann syndrome

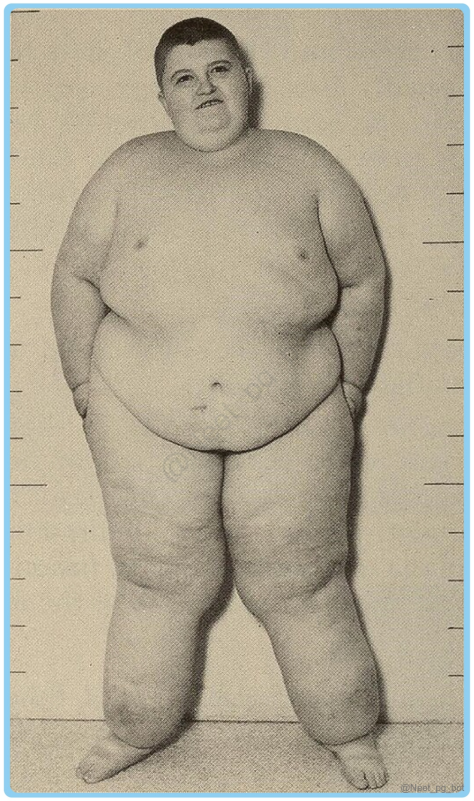
D. Silver-Russell syndrome

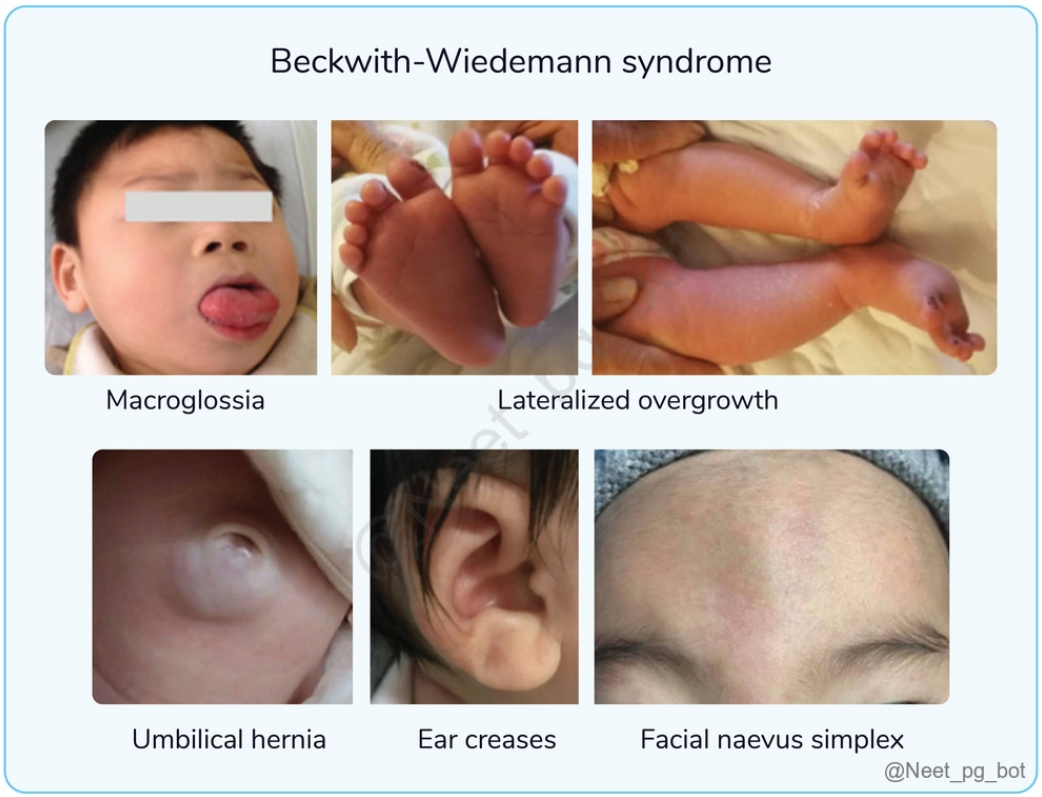
Correct Answer: B. Disorder with paternal uniparental disomy

- *Listen (English)*
- *Listen (Hindi)*

Explanation: The given condition is diagnosed as Angelman syndrome . Genomic imprinting is an epigenetic phenomenon (alteration in DNA without any change in nucleotide sequence) where certain genes are expressed in a parent-of-origin-specific manner. The maternal or paternal allele is silenced, while the other is expressed. This gene silencing is commonly linked to DNA methylation . Angelman syndrome (AS) is caused by the loss of function of the maternally inherited UBE3A gene in the 15q11-q13 region. This can occur through various mechanisms, including deletions, mutations, or imprinting defects. The key features of AS include developmental delay, ataxic gait, and inappropriate laughter (“happy puppet”) , all of which are present in this patient. {{caption_text}} Feature Angelman Syndrome Prader-Willi Syndrome Genetic Cause Deletion or mutation of the maternal UBE3A gene on chromosome 15q11-q13. Deletion or mutation of the paternal region on chromosome 15q11-q13, or maternal uniparental disomy. Developmental Milestones Severe developmental delay; speech is often minimal or absent. Mild to moderate developmental delay; speech and motor skills are delayed. Physical Features Microcephaly, frequent smiling/laughter, ataxia, seizures. Hypotonia, obesity, short stature, small hands and feet. Behavioral Characteristics Happy demeanor, hyperactivity, fascination with water. Food-seeking behavior, temper tantrums, compulsive behaviors. Intellectual Disability Severe to profound intellectual disability. Mild to moderate intellectual disability. Seizures Common and often severe. Rare, typically not a prominent feature. Growth Patterns Normal or mildly affected growth; often underweight. Hyperphagia leading to obesity if not managed. Sleep Disturbances Frequent, often severe sleep disturbances. Common, often associated with excessive daytime sleepiness. Disorder with maternal uniparental disomy(Option A) : While PWS also involves the 15q11-q13 region, it results from the loss of paternally expressed genes in this region with maternal disomy. PWS presents with hypotonia, obesity, and cognitive impairment, which don't match the given clinical picture. {{caption_text}} Beckwith-Wiedemann syndrome (BWS) (Option C) : BWS is an overgrowth disorder caused by dysregulation of imprinted genes on chromosome 11p15.5. It typically presents with macrosomia, macroglossia, and an increased risk of embryonal tumors, which are not described in this case. {{caption_text}} Silver-Russell syndrome (SRS) (Option D) : SRS is a growth restriction disorder associated with imprinting defects on chromosomes 7 and 11. It is characterized by intrauterine growth restriction, postnatal growth failure, and body asymmetry, which don't align with the presented symptoms. {{caption_text}}


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References:

Nelson, Textbook of Pediatrics, 21st Edition, Page 649

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Q11: Which of the following disorders manifest when only one allele on a somatic chromosome is affected? (Q850060)

A. Achondroplasia

B. Galactosemia

C. Mucopolysaccharidosis type II

D. Duchenne muscular dystrophy

Correct Answer: A. Achondroplasia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Achondroplasia is inherited in an autosomal dominant manner. Autosomal Dominant disorders These disorders appear when just one allele is affected, unlike recessive disorders which require both alleles to be affected. In cases of dominant disorders, at least one parent will have the same condition. Examples: Hereditary Spherocytosis, Hypercholesterolemia Ehlers-Danlos Syndrome Achondroplasia Von Willebrand Disease Pseudohypoparathyroidism Myotonic Dystrophy Osteogenesis Imperfecta (most types are autosomal dominant) Marfan Syndrome Intermittent Porphyria Noonan Syndrome Adenomatous Polyposis Coli (a precancerous condition for colorectal carcinoma) Neurocutaneous Conditions - Neurofibromatosis and Tuberous Sclerosis (Hereditary) Mucopolysaccharidosis type II and Duchenne muscular dystrophy (Options C and D) are X-linked recessive diseases. Galactosemia (Option B) is an autosomal recessive disease.

References:

O P Ghai, Essential Paediatrics, 10th Edition, Page 671, 672

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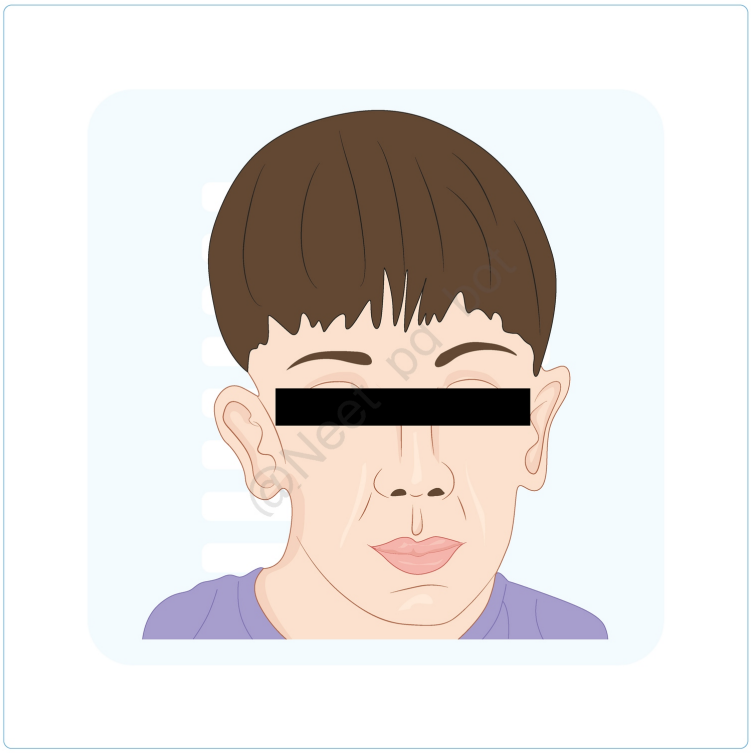
Q12: A 13-year-old adolescent boy presents with intellectual disability, a long face, large ears, and macroorchidism. Genetic testing reveals more than 200 CGG repeats in the X-chromosome. Which of the following statements about this condition is incorrect? (Q850068)

A. The gene involved is the FMR-1 gene on the X-chromosome

B. Normal population carries 55-200 CGG repeats

C. Carriers may experience premature ovarian failure

D. Hyperextensible joints and mitral valve prolapse are associated features



Correct Answer: B. Normal population carries 55-200 CGG repeats

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's clinical presentation is indicative of Fragile-X Syndrome . More than 200 CGG repeats is diagnostic of Fragile-X syndrome. However, repeat expansion of CGG in the range of 5-55 repeats is seen in the normal population. Fragile X Syndrome: Genetic Basis CGG repeats on FMR-1 (Familial mental retardation) gene on X chromosome (Option A) CGG Repeat Numbers Normal population: 5-55 repeats Carriers (premutation): 55-200 repeats Fragile X Syndrome: >200 repeats Gender Prevalence More common in males Females are mostly carriers Clinical Features Long face & large ears Large mandible/Prominent jaw High-arched palate Hyperextensible joints (Option D) Mitral valve prolapse Macroorchidism/large testes (seen in adolescent age group) Intellectual disability Clinical features of female carriers May be associated with premature ovarian failure (Option C) 10% may have an intellectual disability/low IQ

References:

https://www.ncbi.nlm.nih.gov/books/NBK459243/

↑ *Back to this question in Part A*

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Q13: A geneticist is reviewing various trinucleotide repeat disorders. Match the disorders with their correct trinucleotide repeats a. Huntington's disease 1. GAA b. Fragile X syndrome 2. CTG c. Friedreich's ataxia 3. CAG d. Myotonic dystrophy type 1 4. CGG (Q850067)

A. a-1, b-4, c-3, d-2

B. a-1, b-2, c-3, d-4

C. a-3, b-4, c-1, d-2

D. a-3, b-2, c-1, d-4

Correct Answer: C. a-3, b-4, c-1, d-2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Trinucleotide repeat disorders are caused by the expansion of specific three-nucleotide sequences in genes. Threshold effect: There's a threshold effect, where symptoms appear only above a certain number of repeats. Anticipation: Many, but not all, trinucleotide repeat disorders exhibit anticipation, where the disease appears earlier and with increased severity in successive generations. Dynamic mutations: Unlike traditional mutations, the number of repeats can change (usually increase) from one generation to the next or even within an individual's lifetime. This instability is a hallmark of these disorders. Examples of Trinucleotide repeat disorders include: Disease Trinucleotide Repeat Huntington's disease CAG Fragile X syndrome CGG Friedreich's ataxia GAA Myotonic dystrophy type 1 CTG

References:

https://www.ncbi.nlm.nih.gov/books/NBK559254/

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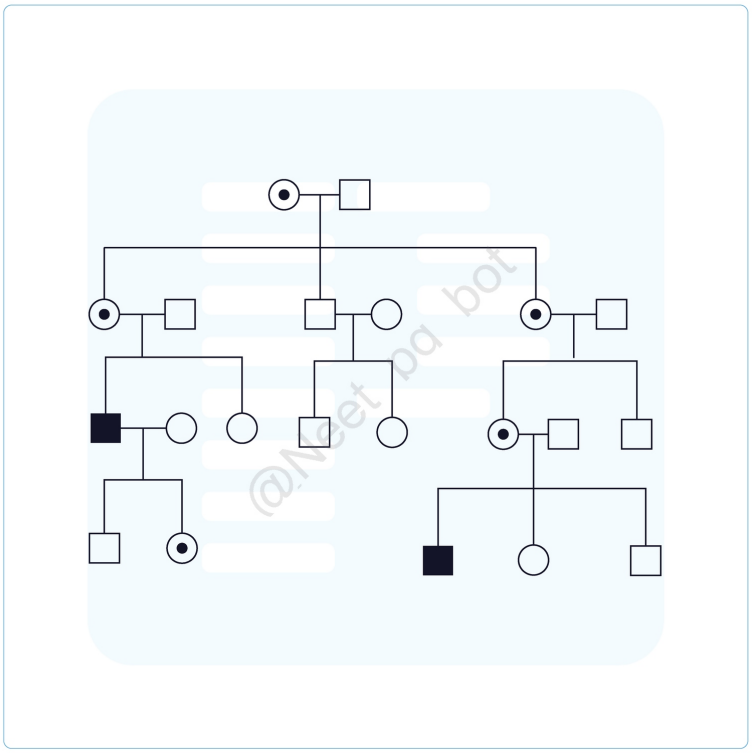
Q14: A genetic counselor is analyzing a family pedigree for a rare condition. The pedigree shows the following characteristics: Which of the following best describes the most likely mode of inheritance for this condition? (Q850066)

A. Autosomal recessive

B. X-linked dominant

C. X-linked recessive

D. Mitochondrial inheritance

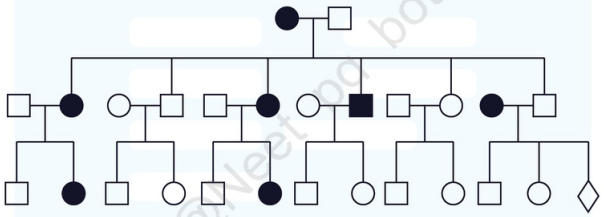


Correct Answer: C. X-linked recessive

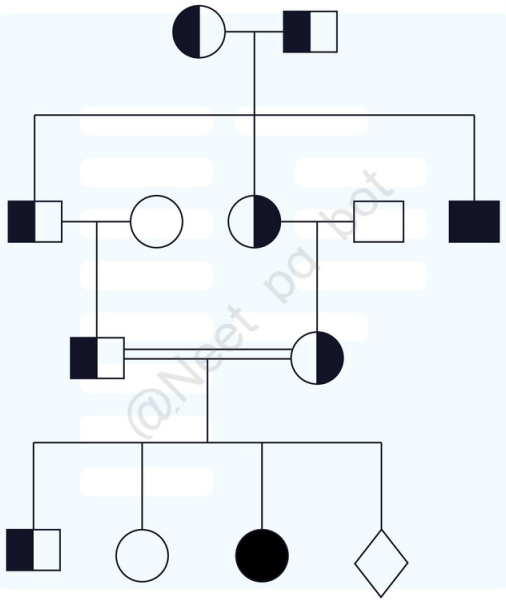
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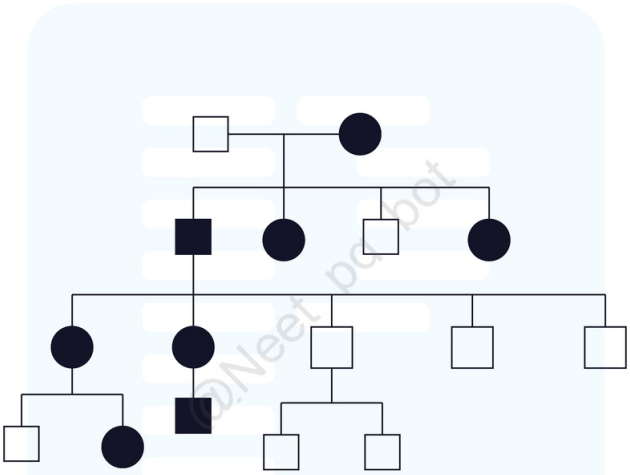
Explanation: The pedigree indicates an X-linked recessive condition , as the expression of disease occurs only in males. In males, since there is only one X chromosome, X-linked recessive disorders manifest. In females, the disorder does not manifest (usually) since the mutant gene is compensated for by the normal allele on the other X chromosome. Females thus act as carriers of the mutant allele. The table given below explains various modes of inheritance: Mode of Inheritance Pedigree



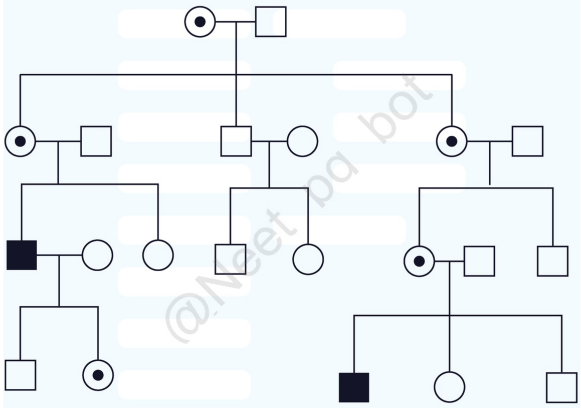
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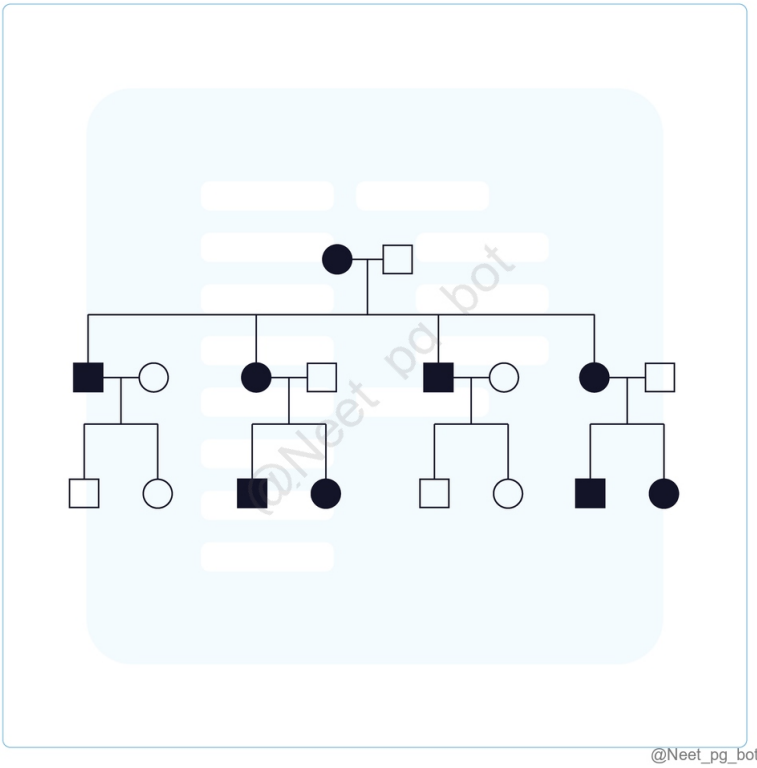
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References:

O P Ghai, Essential Paediatrics, 10th Edition, Pages 671, 672

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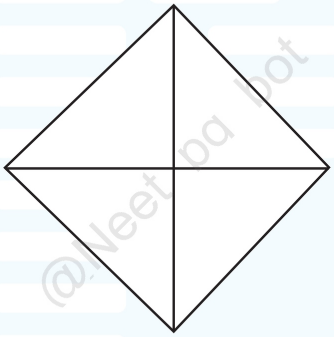
Q15: Match the symbols with their correct representation a. Proband (male) 1. b. Consultand (male) 2. c. Pregnancy (male) 3. d. Miscarriage 4. e. Stillbirth 5. (Q850065)

A. a-2, b-3, c-4, d-1, e-5

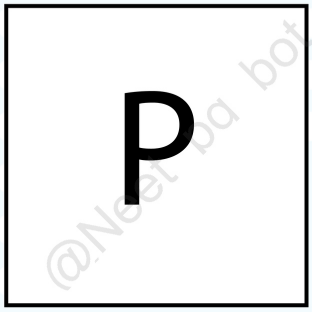
B. a-4, b-3, c-2, d-5, e-1

C. a-2, b-3, c-4, d-5, e-1

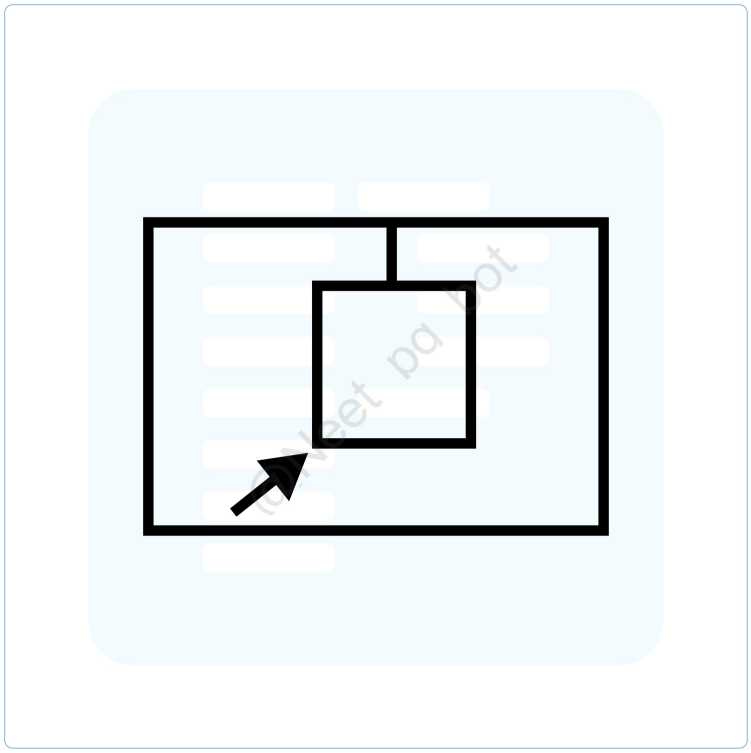
D. a-4, b-3, c-2, d-1, e-5



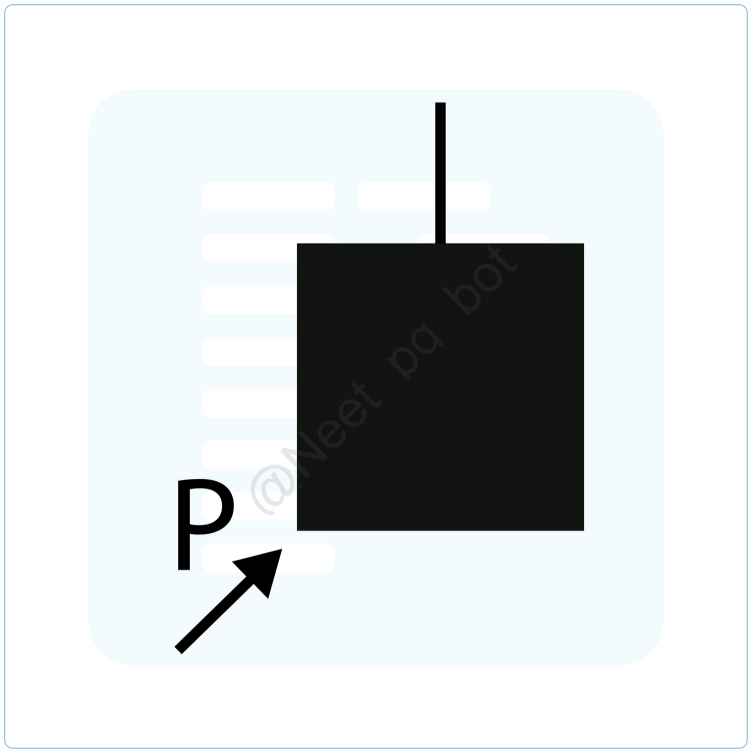
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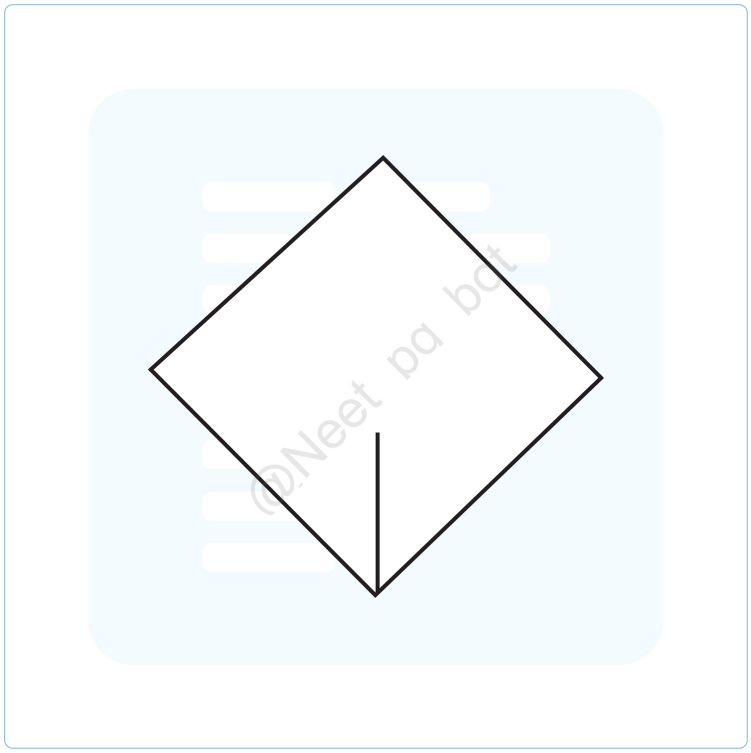
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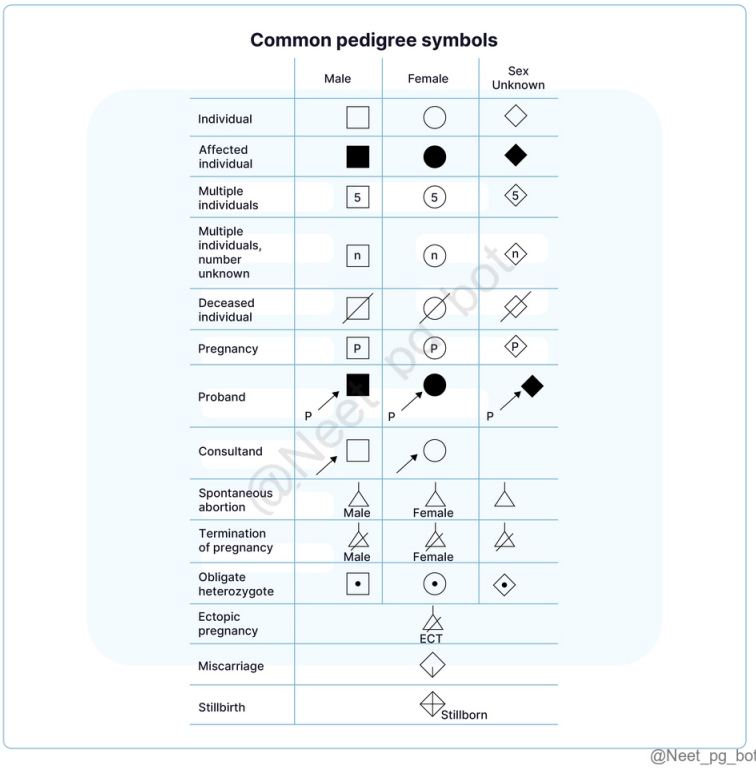
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Correct Answer: B. a-4, b-3, c-2, d-5, e-1

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Common pedigree symbols include:



References:

www.ncbi.nlm.nih.gov/books/NBK5191/box/further_illus-154/?report=objectonly

www.edrawmax.com/article/everything-you-need-to-know-about-pedigree-chart.html

↑ *Back to this question in Part A*

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Q16: Which of the following disorders are manifested when one allele on the X chromosome is affected? (Q850064)

A. Hypophosphatemic vitamin D-resistant rickets

B. Rett syndrome

C. Incontinentia pigmenti

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Examples of X-linked dominant Disorders: Hypophosphatemic vitamin D-resistant rickets (Option A) Orofaciodigital syndrome Incontinentia pigmenti (Option C) Charcot Marie tooth disease Rett syndrome (Option B) X-Linked Dominant Conditions: These conditions are rare. Both heterozygous females and hemizygous males are affected. Inheritance Patterns: Affected Males: All sons of affected males are normal. All daughters of affected males are affected. Affected Females: Transmit the condition to 50% of their sons and 50% of their daughters. Severe Cases: In some instances, the mutant gene causes severe developmental effects, resulting in affected males rarely being born alive.

References:

O P Ghai, Essential Paediatrics, 10th Edition, Pages 672

↑ *Back to this question in Part A*

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Q17: Which of the following statements is true? (Q850063)

A. All sons of affected males are affected by X-linked dominant disorders

B. Lyonization can cause the expression of X-linked recessive disorder in females

C. All offspring of an affected female are affected in an autosomal dominant disorder

D. None of the above

Correct Answer: B. Lyonization can cause the expression of X-linked recessive disorder in females

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Lyonization can cause the expression of X-linked recessive disorder in females Explaantion: X-inactivation (Lyonization) is a random process that typically involves the equal inactivation of one of the two X chromosomes in a heterozygous female. However, it is possible for skewed X-inactivation to occur where the X chromosome with the mutant allele is predominantly active in most cells. This can result in the expression of the disorder if the majority of cells have the X chromosome carrying the mutant allele. Other scenarios where females manifest X-linked recessive disorders: The female has only one X chromosome: In Turner syndrome (45,X), females only have one X chromosome. Therefore, if they inherit a mutated X chromosome, they will manifest the X-linked recessive disorder. All sons of affected males are affected by X-linked dominant disorders (Option A): All sons of affected males are normal in X-linked dominant disorder. All offspring of an affected female are affected in an autosomal dominant disorder (Option C): All offspring of an affected female are affected in a mitochondrial inheritance

References:

O P Ghai, Essential Paediatrics, 10th Edition, Pages 672 Genetics, X-Linked Inheritance

↑ *Back to this question in Part A*

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Q18: Which of the following disorders are manifested when both alleles on the X chromosome are affected? (Q850062)

A. Hemophilia

B. Leigh disease

C. Incontinentia pigmenti

D. MELAS syndrome

Correct Answer: A. Hemophilia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Haemophilia is an X-linked recessive disorder. X-linked Recessive Disorders in Males: Manifests in males because they have only one X chromosome. If the X chromosome carries the recessive mutant allele, the disorder will be expressed. X-linked Recessive Disorders in Females: Typically do not manifest clinically because the normal allele on the other X chromosome compensates for the mutant allele. Females with one mutant allele are carriers of the disorder. Inheritance Pattern: Carrier females pass the mutant allele to half of their male children, who will then be affected by the disorder. Examples of X-linked Recessive Disorders: G6PD (Glucose-6-Phosphate Dehydrogenase) Deficiency Duchenne Muscular Dystrophy (DMD) Color blindness Fabry Disease Chronic Granulomatous Disease (CGD) Hemophilia A and B Hunter disease Agammaglobulinemia (Bruton's Disease) Wiskott-Aldrich Syndrome Albinism Lesch-Nyhan Syndrome Leigh disease (Option B) and MELAS syndrome (Option D) are mitochondrial disorders. Incontinentia pigmenti (Option C) is an X-linked dominant disorder can affect females with one mutated allele; both alleles don’t need to be affected for the disorder to manifest.

References:

O P Ghai, Essential Paediatrics, 10th Edition, Pages 671, 672

↑ *Back to this question in Part A*

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Q19: Which of the following disorders are manifested when both alleles on a somatic chromosome are affected? (Q850061)

A. Spinal muscular atrophy

B. Marfan syndrome

C. Neurofibromatosis

D. Colour blindness

Correct Answer: A. Spinal muscular atrophy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Spinal muscular atrophy is an autosomal recessive disorder. Autosomal Recessive Disorders: These disorders appear only when both copies (alleles) of a gene are affected. If both parents are carriers of the gene, the disorder will manifest only in their children who inherit both affected alleles. Examples of Autosomal Recessive disorders include: Albinism, Alkaptonuria β-Thalassemia Cystic Fibrosis, Congenital Adrenal Hyperplasia Congenital Sensorineural Deafness Emphysema due to α1-Antitrypsin Deficiency Gaucher Disease, Galactosemia Marfan syndrome and Neurofibromatosis (Option B and C) are autosomal dominant diseases. Colour blindness (Option D) is an X-linked recessive disorder.

References:

Ghai Essentials of Paediatrics, 10th Edition, Pages 671, 672

↑ *Back to this question in Part A*

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• [07_Genetics and Genetic Disorders] 018 Previous Year Questions

« Back to Folder Directory

[07_Genetics and Genetic Disorders] 018 Previous Year Questions — Quick Jump

Q1 (p. 901)	*Q2 (p. 901)*	*Q3 (p. 902)*	*Q4 (p. 903)*	*Q5 (p. 904)*	*Q6 (p. 904)*
Q7 (p. 906)	*Q8 (p. 907)*	*Q9 (p. 908)*	*Q10 (p. 909)*	*Q11 (p. 909)*	*Q12 (p. 911)*
Q13 (p. 912)	*Q14 (p. 912)*	*Q15 (p. 914)*			

Q1: Which genetic syndrome is caused by a deletion of the short arm of chromosome 5 (5p deletion)? (Q866747)

A. Edward syndrome

B. Patau syndrome

C. Cri-du-chat syndrome

D. Turner syndrome

Correct Answer: C. Cri-du-chat syndrome

Explanation: Cri-du-chat syndrome is caused by a deletion on the short arm of chromosome 5 (5p deletion) . The name “cri-du-chat” (French for “cry of the cat”) refers to the characteristic high-pitched, cat-like cry of affected infants due to laryngeal hypoplasia and abnormal development of the nervous system. Other features include microcephaly, hypertelorism, epicanthal folds, hypotonia, developmental delay, and severe intellectual disability. Incorrect Options: Edward syndrome (Option A): Caused by trisomy 18 , not 5p deletion. Patau syndrome (Option B): Caused by trisomy 13 , not 5p deletion. Turner syndrome (Option D): Caused by complete or partial monosomy of the X chromosome (45,XO) , not 5p deletion.

↑ *Back to this question in Part A*

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Q2: A young boy is brought to the clinic for developmental assessment. On examination, he has a prominent epicanthal fold, a single transverse palmar crease, hypotonia, and intellectual disability. Facial features appear flat with upslanting palpebral fissures. What is the most likely diagnosis? (Q866748)

A. Down syndrome

B. Patau syndrome

C. Edward syndrome

D. Fragile X syndrome

Correct Answer: A. Down syndrome

Explanation: Down syndrome is caused by trisomy 21 and is the most common chromosomal cause of intellectual disability. Down's syndrome , caused by trisomy 21, is associated with multiple systemic manifestations due to the presence of an extra copy of chromosome 21. This is due to meiotic nondisjunction in either maternal or paternal gamete. Occurs at a frequency of 1:800 to 1:1000 newborns. The overexpression of genes located on chromosome 21 contributes to the clinical features. Clinical Features and Diagnosis: General Features: Intellectual disability Flat facial profile, upward-slanting eyes with epicanthic folds, oblique palpebral fissure (visible when eyes are open). Small nose with flat nasal bridge Narrow palate, small teeth, and furrowed, protruding tongue Significant hypotonia Small, brachycephalic skull with flat occiput, and small, dysplastic ears Short, broad hands with clinodactyly (hypoplasia of the middle phalanx of the fifth finger) Simian crease on the palm A wide gap between the first and second toes (sandal gap) Comorbidities Congenital Heart Disease: : 40% of children have congenital heart defects, primarily endocardial cushion defects (40-60% of cases) - AVSD, VSD, ASD, PDA, TOF. Early cardiac evaluation is crucial. Gastrointestinal Malformations : 12% have atresias, especially duodenal atresia. There is an increased risk of annular pancreas and Hirschsprung disease. Ophthalmic Problems : Increased risk of cataracts, nystagmus, strabismus, and visual acuity issues. Regular eye evaluations are advised from infancy onward. Hearing Defects : 40-60% experience conductive hearing loss, often due to serous otitis media in the first year. Routine hearing assessments are recommended before 6 months of age and annually. Thyroid Dysfunction : Hypothyroidism occurs in 13-54% of patients. Atlanto-occipital Subluxation : Incidence ranges from 10-30%. A lateral neck radiograph is recommended. Physical Growth : Linear growth is typically slower, and children may become obese with age. Muscle tone often improves, but regular monitoring of height and weight is necessary. Malignancies : Increased risk of lymphoproliferative disorders, such as acute lymphoblastic leukemia , acute myeloid leukemia, myelodysplasia, and transient lymphoproliferative syndrome. Early-Onset Alzheimer's Disease: The APP gene, located on chromosome 21, plays a significant role in amyloid plaque formation, a hallmark of Alzheimer's disease. Incorrect Options: Patau syndrome (Option B): Caused by trisomy 13; associated with cleft lip/palate, polydactyly, microphthalmia, and holoprosencephaly, not the described features. Edward syndrome (Option C): Caused by trisomy 18; features include clenched fists with overlapping fingers, rocker-bottom feet, micrognathia, and severe growth restriction. Fragile X syndrome (Option D): X-linked condition with intellectual disability, macroorchidism, long narrow face, and large ears. But, lacks the facial features and palmar crease of Down syndrome.

↑ *Back to this question in Part A*

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Q3: A teenage boy, who was previously raised as a girl, presents with primary amenorrhea and lack of secondary sexual characteristics. On examination, he has tall stature, small testes, and gynecomastia. Testosterone level was normal. Which of the

following is the most likely genotype? (Q866767)

A. 45,X

B. 46,XX

C. 47,XXY

D. 47,XYY

Correct Answer: C. 47,XXY

Explanation: The presentation fits Klinefelter syndrome , a condition with 47,XXY karyotype. Key features include: Genotypic male but with small, firm testes and primary testicular failure Tall stature with disproportionately long limbs Gynecomastia and sparse facial/body hair Often detected at puberty due to delayed secondary sexual characteristics or infertility Testosterone may be in the low–normal range due to Leydig cell dysfunction, with elevated gonadotropins (hypergonadotropic hypogonadism) Incorrect Options: 45,X (Option A): Turner syndrome - short stature, streak gonads, female phenotype. 46,XX (Option B): Normal female karyotype, not consistent with male phenotype. 47,XYY (Option D): Tall males with normal fertility; usually asymptomatic or may have learning difficulties.

↑ *Back to this question in Part A*

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Q4: A 3 year old child with short stature comes to your clinic. He has motor developmental delay, fingers oblique to each other. His Upper segment : Lower segment ratio is 1.5:1. What is the gene associated with this syndrome? (Q852527)

A. FGFR3

B. MECP2

C. PHEX

D. ATP7B

Correct Answer: A. FGFR3

Explanation: Correct Option A - FGFR3 Achondroplasia Short stature with disproportion (↑ upper-segment : lower-segment ratio ≈ 1.5:1) Motor developmental delay (common due to hypotonia and short limbs) Fingers oblique / trident hand appearance Onset evident in early childhood Gene associated with achondroplasia FGFR3 (Fibroblast Growth Factor Receptor 3) Caused by a gain-of-function mutation Inherited in an autosomal dominant manner (often sporadic) Incorrect Options: Option B - MECP2 Causes Rett syndrome Seen almost exclusively in girls Features: Normal early development → regression Loss of purposeful hand use Hand-wringing movements

Severe intellectual disability No short stature or skeletal disproportion Option C - PHEX Causes X-linked hypophosphatemic rickets Features: Short stature due to bone deformities Bowed legs , widened wrists Low phosphate, normal calcium Proportionate short stature No trident hands or ↑ US:LS ratio Option D - ATP7B Causes Wilson disease Features: Liver disease Neurologic symptoms (tremor, dystonia) Psychiatric manifestations Kayser–Fleischer rings No skeletal abnormalities or short stature

References:

https://pubmed.ncbi.nlm.nih.gov/10839976/ https://pmc.ncbi.nlm.nih.gov/articles/PMC6965970/ https://pmc.ncbi.nlm.nih.gov/articles/PMC4573649/ https://pmc.ncbi.nlm.nih.gov/articles/PMC4075446

↑ *Back to this question in Part A*

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Q5: At what age is surgery typically performed for cleft lip? (Q844218)

A. 3 months

B. 6 months

C. 1 year

D. 18 months

Correct Answer: A. 3 months

Explanation: Surgical closure of a cleft lip is usually performed by 3 mo of age, when the infant has shown satisfactory weight gain and is free of any oral, respiratory, or systemic infection Surgery for cleft lip is typically performed at around 3 months of age following the "Rule of 10s" , which provides safe criteria for timing of the operation: 10 weeks of age 10 pounds (approx. 4.5 kg) body weight 10 g/dL haemoglobin WBC < 10000/mm 3 This early repair helps with feeding , speech development , and aesthetic outcomes . 6 months (Option B) : Is later than the usual timing for cleft lip repair. By this time, cleft palate repair may be planned. 1 year (Option C) : Typical age for cleft palate surgery, not lip. 18 months (Option D) : Too late for primary cleft lip repair; may be considered for revision surgeries or speech surgeries if required.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1916

↑ *Back to this question in Part A*

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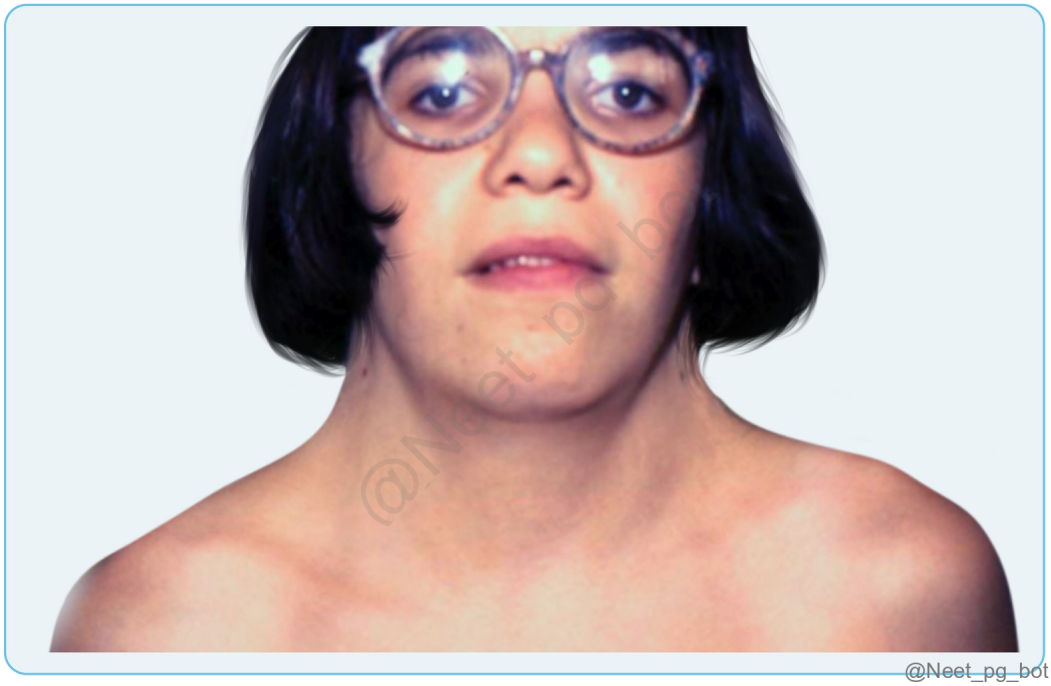
Q6: A child was diagnosed with Turner syndrome. Which of the following are features of Turner syndrome? (Q860604)

A. Webbed neck

B. Normal height

C. Decreased carrying angle

D. Gynecomastia



Correct Answer: A. Webbed neck

Explanation: The image shows a webbed neck , which is a characteristic feature of Turner syndrome . Turner syndrome (45, XO) is a chromosomal disorder characterized by the absence of one X chromosome in females. Turner syndrome has multiple clinical manifestations that can be categorized using the SABLCOWN mnemonic: Clinical Features of Turner Syndrome (Mnemonic- SABCLOWN) S Short stature Short 4th metacarpal Sensorineural hearing loss A Amenorrhea (Primary) B Barr body absent C Cardiac abnormalities Cystic hygroma Cubitus valgus L Low posterior hairline Lymphedema of hands and feet Low thyroid (Hypothyroidism) O Ovaries streak-shaped/underdeveloped Rudimentary uterus W Webbed neck N Nipples are widely spaced on a shield-shaped chest Normal intelligence Normal height (Option B): Short stature is a cardinal feature of Turner syndrome. Growth failure typically becomes evident by age 3-5 years, and final adult height is significantly reduced without growth hormone therapy. Decreased carrying angle (Option C): Turner syndrome is characterized by an increased carrying angle (cubitus valgus), not a decreased angle. This increased carrying angle is one of the characteristic skeletal manifestations of the condition. Gynecomastia (Option D): Gynecomastia is not a feature of Turner syndrome. Gynecomastia is associated with Klinefelter syndrome (47,XXY). Turner syndrome typically presents with widely spaced nipples on a shield-shaped chest.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 659

↑ *Back to this question in Part A*

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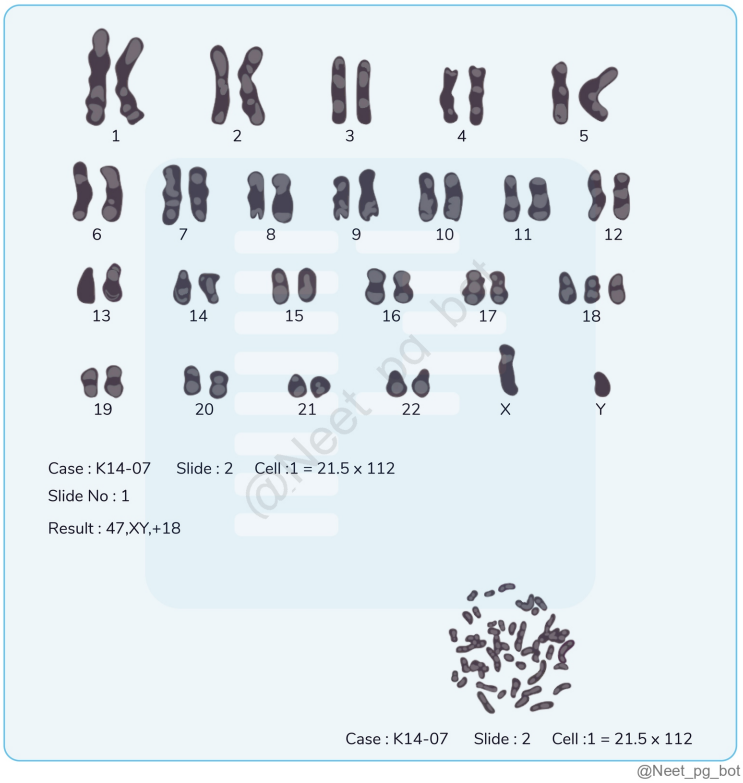
Q7: Which chromosomal defect is suggested by the karyotyping results given below? (Q860274)

A. Trisomy 18

B. Trisomy 13

C. Trisomy 21

D. Trisomy 11



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Correct Answer: A. Trisomy 18

Explanation: The karyotype analysis reveals Trisomy 18 (Edwards syndrome) based on the following findings: Total chromosome count: 47 Sex chromosomes: XY (male) Extra chromosome: +18 (three copies of chromosome 18) The presence of three copies of chromosome 18 confirms Trisomy 18 (Edwards syndrome). Incorrect

Options: Trisomy 13 (Option B): Incorrect, as Patau syndrome (Trisomy 13) would show 47, XY, +13, not +18. Trisomy 21 (Option C): Incorrect, as Down syndrome (Trisomy 21) is characterized by 47, XY, +21, not +18. Trisomy 11 (Option D): Not a recognized viable trisomy in humans.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 653-659

↑ *Back to this question in Part A*

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Q8: Which of the following is a new drug approved by the FDA for the treatment of Rett syndrome? (Q854729)

A. Olcegepant

B. Lasmiditan

C. Trofinetide

D. Erenumab

Correct Answer: C. Trofinetide

Explanation: Trofinetide is the newly FDA-approved drug for the treatment of Rett syndrome, a rare neurodevelopmental disorder primarily affecting females. Trofinetide is a synthetic analog of the amino-terminal tripeptide of insulin-like growth factor (IGF-1), designed to reduce neuroinflammation and support synaptic function. It is believed to work by inhibiting inflammatory cytokine production, reducing overactivation of microglia and astrocytes, and enhancing IGF-1 signaling in the brain, which is crucial for normal development and response to injury. Rett Syndrome Neurological disorder mostly affecting girls. Caused by mutations in the MECP2 gene . Characterized by normal early development, followed by loss of motor skills, speech, and purposeful hand movements. Development and Symptoms Early Development: Normal for the first 6-18 months. Loss of Skills: After early development, motor skills, speech, and purposeful hand movements are lost. Repetitive Hand Movements: Common signs include hand-wringing, clapping, or tapping. Motor Dysfunction: Loss of coordination, walking problems, and abnormal gait. Cognitive Impairment: Intellectual disability and delayed language development. Seizures: Commonly occur in many cases. Diagnosis: Genetic Testing to detect mutations in the MECP2 gene. Management: Symptom Management Antiepileptic drugs (e.g., valproic acid, lamotrigine) for seizures. SSRIs (Selective Serotonin Reuptake Inhibitors) Torfenetide: An investigational drug targeting MECP2 gene abnormalities to potentially enhance neurological function. Motor Support Speech Therapy Behavioral Therapy Olcegepant (Option A): A calcitonin gene-related peptide (CGRP) antagonist that was considered for migraine treatment but was discontinued. Lasmiditan (Option B): A 5HT1F receptor-selective agonist used for treating migraine. Erenumab (Option D): A CGRP-blocking antibody used for treating migraines.

References:

Goodman & Gillman's The Pharmacological Basis Of Therapeutics,14th Edition, Page: 292,293. Nelson Textbook of Paediatrics, 21st Edition, Page: 3192-3194. NCBI Books - National Library of Medicine Medscape - Daybue (Trofinetide)

↑ *Back to this question in Part A*

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Q9: Which of the following is not associated with Down's syndrome? (Q854749)

A. Conductive hearing loss

B. Short stature

C. Hypothyroidism

D. Caudal regression

Correct Answer: D. Caudal regression

Explanation: Among the provided options, caudal regression is not associated with Down syndrome . Caudal regression is a condition characterized by the abnormal development of the lower spine and limbs, and it is more frequently seen in infants of diabetic mothers rather than those with Down syndrome. Down's Syndrome (Trisomy 21) Cause Trisomy 21 due to meiotic nondisjunction. Less commonly caused by Robertsonian translocation (4%) or mosaicism (1%). Incidence 1:800 to 1:1000 live births. General Features Craniofacial: Intellectual disability, flat facial profile, upward-slanting eyes, epicanthic folds. Small nose, flat nasal bridge, narrow palate, small teeth, protruding tongue. Brachycephaly, flat occiput, dysplastic ears. Extremities: Short, broad hands, clinodactyly (5th finger), simian crease, sandal gap (wide space between toes). Comorbidities Cardiac: 40-60% have congenital heart defects (mainly AVSD, VSD, PDA, ASD). Gastrointestinal: Duodenal atresia, Hirschsprung disease, annular pancreas. Hematological: Increased risk of leukemia (acute lymphoblastic leukemia, acute myeloid leukemia). Endocrine: Thyroid dysfunction (hypothyroidism), type 1 diabetes risk. Neurological: Early-onset Alzheimer’s disease (APP gene on chromosome 21). Musculoskeletal: Atlanto-occipital subluxation, short stature, hypotonia, growth delays, obesity risk. Sensory: Hearing loss (conductive, often due to serous otitis media), ophthalmic problems (cataracts, strabismus, nystagmus). Diagnosis Prenatal: Chorionic Villus Sampling (CVS): Performed between 10-13 weeks. Amniocentesis: Performed after 15 weeks. Postnatal: Characteristic features (e.g., craniofacial dysmorphisms). Confirmatory Test: Karyotype analysis for trisomy 21. Antenatal Screening First Trimester: Increased nuchal translucency (>3 mm), elevated β-HCG, low PAPP-A. Second Trimester: Triple Test (β-HCG, estriol, AFP), Quadruple Test (adds Inhibin-A). Integrated Test: Combines maternal age, NT, PAPP-A, and Quadruple Test. Non-Invasive Prenatal Testing (NIPS/NIPT): Cell-free fetal DNA testing (high sensitivity and specificity).

References:

Nelson Textbook of Paediatrics, 21st Edition, Page 659, 660.
https://healthed.govt.nz/products/antenatal-screening-and-testing-for-down-syndrome-and-other-conditions
https://www.ucsfhealth.org/education/prenatal-testing-for-down-syndrome

↑ *Back to this question in Part A*

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Q10: What is the inheritance pattern observed in neural tube defects? (Q793669)

A. a.Autosomal dominant

B. X-linked dominant

C. c.Autosomal recessive

D. d.Multifactorial inheritance

Correct Answer: D. d.Multifactorial inheritance

Explanation: Neural tube defects (NTDs) are a group of congenital malformations that affect brain and spinal cord development. Examples of NTDs include spina bifida, anencephaly, and encephalocele. The pattern of Inheritance in NTDs is complex and can involve multiple genetic and environmental factors. While no single gene has been identified as causing NTDs, there is evidence to suggest that multiple genes may be involved. In addition to genetic factors, environmental factors such as maternal folic acid deficiency, certain medications, and exposure to toxins can also increase the risk of NTDs. Therefore, the inheritance pattern in NTDs is considered to be multifactorial, meaning that genetic and environmental factors contribute to the development of the condition. Incorrect Choices: a. Autosomal dominant: Autosomal dominant inheritance occurs when a single copy of a mutated gene is sufficient to cause the disease. This is not the pattern of inheritance in NTDs b. X-linked dominant: X-linked dominant inheritance occurs when a mutated gene on the X chromosome is responsible for the disease. This is not the pattern of inheritance in NTDs c. Autosomal recessive: Autosomal recessive inheritance occurs when an individual inherits two copies of a mutated gene, one from each parent. This is not the pattern of inheritance in NTDs.

↑ *Back to this question in Part A*

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Q11: A 9-month-old boy presents with progressive pallor and abdominal distension. The Mentzer index was found to be less than 13. What are the investigations to be done in this patient? High-performance liquid chromatography (HPLC) PT and APTT Bone marrow Peripheral blood smear (Q855735)

A. 1 and 2

B. 1, 3 and 4

C. 1 and 4

D. 1, 2, 3 and 4

Correct Answer: C. 1 and 4

Explanation: The clinical features of progressive pallor and abdominal distension, along with a Mentzer index less than 13, point towards a diagnosis of thalassemia , and the investigations to be done include High-performance liquid chromatography and a peripheral blood smear. Mentzer Index Calculation: MCV (in fL) / RBC count (in millions per microliter). Index Value: > 13: Suggests iron deficiency anemia (IDA). < 13: Indicates a higher likelihood of beta-thalassemia. Beta thalassemia: Results from mutations in the HBB gene on chromosome 11, which encodes the beta globin chains. Humans have two beta globin genes, and mutations in one or both genes lead to different severities of beta-thalassemia. Beta Thalassemias Major (Transfusion-dependent) Intermedia (Non-transfusion-dependent) Minor (Trait or Carrier) Genotype Homozygous: β■/β■ β■/β■ β■/β■ Variable: β■/β■ or β■/β■ or β■/β or β■/β Heterozygous: β■/β or β■/β Peripheral Smear Severe microcytic anemia with target cells (Hb 3–4 g/dL) Moderate microcytic anemia Mild microcytic anemia Hemoglobin Electrophoresis HbA■ (5% or more); HbF (up to 95%); No HbA HbA■ (4% or more); HbF (up to 50%) HbA■ (4% or more); HbF (up to 5%) β■ : No beta-globin production β■ : Decreased beta-globin production Feature Beta Thalassemia Minor (Trait) Beta Thalassemia Intermedia Beta Thalassemia Major (Cooley's Anemia) Genetic Mutation One beta-globin gene mutated, and the other is functional Both beta-globin genes mutated but allowed some beta-chain production Both beta-globin genes are severely mutated or absent Severity of Anemia Mild, often asymptomatic Moderate anaemia Severe anaemia, evident early in life (usually within the first year) Symptoms Typically asymptomatic, with mild fatigue Pallor, jaundice, delayed growth, bone deformities Profound fatigue, failure to thrive, bone deformities, hepatosplenomegaly Age of Onset Usually diagnosed incidentally through routine blood tests Variable; symptoms often arise in childhood Symptoms present within the first year of life Blood Transfusions Rarely needed Occasional transfusions, particularly during stress/illness Regular, lifelong transfusions required Iron Overload Rare May occur if frequent transfusions are given Significant risk due to frequent transfusions; iron chelation therapy needed Complications None significant Splenomegaly, growth delay, bone changes Iron overload complications (heart, liver damage), severe growth issues Hemoglobin Levels Slightly reduced Moderately reduced Severely reduced (Hemoglobin levels often <7 g/dL without transfusions) Hb Electrophoresis Normal or slight increase in HbA2 Increased HbA2 and possibly HbF Elevated HbF with very low or absent HbA HPLC Normal hemoglobin profile Abnormal profile with increased HbA2 and/or HbF Abnormal profile with high levels of HbF and very low HbA

References:

Harrison's Principles of Internal Medicine, 21st Edition, Page 761-763.

Davidson's Principles and Practice of Medicine, 24th Edition, Page 953,954.

Robbins & Cotran Pathologic Basis of Disease, 10th Edition, Page 644-647.

https://www.ncbi.nlm.nih.gov/books/NBK1426/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9121960/#

↑ *Back to this question in Part A*

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Q12: A child with thalassemia is undergoing multiple blood transfusions. What is the best method to detect iron overload? (Q855059)

A. Liver iron concentration

B. MRI T2 myocardium

C. Serum ferritin

D. NTBI

Correct Answer: A. Liver iron concentration

Explanation: Liver iron concentration is the best method to detect iron overload in thalassemia patients undergoing multiple blood transfusions. Iron Overload in Thalassemia: Iron Overload Mechanisms in Thalassemia: TDT (Transfusion-Dependent Thalassemia): Regular blood transfusions lead to iron accumulation (0.3-0.6 mg/kg per day). Iron is released into plasma after transfused red blood cells are phagocytized and binds to transferrin. Once transferrin is saturated, non-transferrin-bound iron enters organs like the liver , heart, and endocrine glands. Iron accumulation causes organ damage via reactive oxygen species. NTDT (Non-Transfusion-Dependent Thalassemia): Increased intestinal iron absorption due to hepcidin suppression and ineffective erythropoiesis. Iron primarily accumulates in the liver , not the myocardium, unlike in TDT. Diagnosis and Quantification of Iron Overload: Magnetic Resonance Imaging (MRI): MRI with R2 or T2 technique is the gold standard for quantifying liver iron concentration (LIC) and cardiac iron in thalassemia. Iron Overload Thresholds: LIC in NTDT: Values >5 mg/g correlate with increased morbidity. LIC in TDT: 7 mg/g dw indicates increased risk of complications. 15 mg/g dw is predictive of advanced liver fibrosis and increased cardiac risk. Cardiac T2 MRI: (Option B) <10 ms predicts higher risk of heart failure and mortality. 10-20 ms is linked to reduced left ventricular ejection fraction (LVEF) and arrhythmias. However there can be discrepancy between liver iron and cardiac iron levels. Serum Ferritin Assessment: (Option C) Used as a screening tool. Ferritin levels correlate with hepatic iron overload in both TDT and NTDT. However, it is not as accurate for detecting iron overload in thalassemia patients, as ferritin levels can be elevated due to other factors (e.g., inflammation). Non-Transferrin-Bound Iron (NTBI): (Option D) Refers to iron that is not bound to transferrin, typically occurring in iron overload conditions when iron exceeds the binding capacity of transferrin. NTBI is a labile form of iron that can contribute to iron toxicity. While NTBI can serve as an indicator of iron overload, it is influenced by plasma factors like citrate, uric acid, and albumin. Management of Iron Overload in Thalassemia: Iron Chelation Therapy (ICT): Aims to manage iron stores, reduce iron in tissues, and reverse heart failure. Three main chelators used: Deferoxamine (DFO), Deferiprone (DFP), and Deferasirox (DFX). TDT: Start ICT after 10 transfusions or by age 2 years. NTDT: Begin assessment at age 10, with consideration for MRI-based evaluation of organ-specific iron load from age 8-10 years.

References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC6142532/

↑ *Back to this question in Part A*

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Q13: What is the diagnosis of a 10-year-old boy who was brought for psychiatric evaluation due to intellectual disability and exhibits an IQ of 45? The boy also presents with physical characteristics such as a long face, large ears, and large testes, along with a cardiac murmur. Additionally, there is a history of poor intellectual function in the paternal family. (Q859511)

A. Cushing's syndrome

B. Rett syndrome

C. Fragile X syndrome

D. William syndrome

Correct Answer: C. Fragile X syndrome

Explanation: The patient presents with the classic triad of physical features , including a long face, large ears, and macroorchidism (large testes), along with intellectual disability (IQ 45) and a cardiac murmur suggestive of mitral valve prolapse , which indicates Fragile X syndrome. The X-linked inheritance pattern is supported by the paternal family history of poor intellectual function. This condition is caused by a CGG trinucleotide repeat expansion in the FMR1 gene on the X chromosome , making it the most common inherited cause of intellectual disability. Fragile X Syndrome: Genetic Basis CGG repeats on FMR-1 (Familial mental retardation) gene on X chromosome CGG Repeat Numbers Normal population: 5-55 repeats Carriers (premutation): 55-200 repeats Fragile X Syndrome: >200 repeats Gender Prevalence More common in males (X-Linked Dominant Inheritance) Females mostly carriers Clinical Features Long face & large ears Large mandible/Prominent jaw High arched palate Hyperextensible joints Mitral valve prolapse Macroorchidism/large testes (seen in adolescent age group) Intellectual disability Clinical features of female carriers May be associated with premature ovarian failure 10% may have an intellectual disability/low IQ Incorrect options: Cushing's syndrome (Option A): While this condition can affect growth and development, it typically presents with central obesity, moon face, and buffalo hump. The characteristic features of large ears and macroorchidism are not associated with Cushing's syndrome. Rett syndrome (Option B): This condition primarily affects females and is characterized by progressive loss of motor functions such as inability to speak, use hands, walk or perform other activities. It does not present with distinctive facial features or macroorchidism. William syndrome (Option D): While this condition can cause intellectual disability and cardiac abnormalities, it typically presents with elfin facies and a distinctive "cocktail party" personality.

References:

https://www.ncbi.nlm.nih.gov/books/NBK459243/

↑ *Back to this question in Part A*

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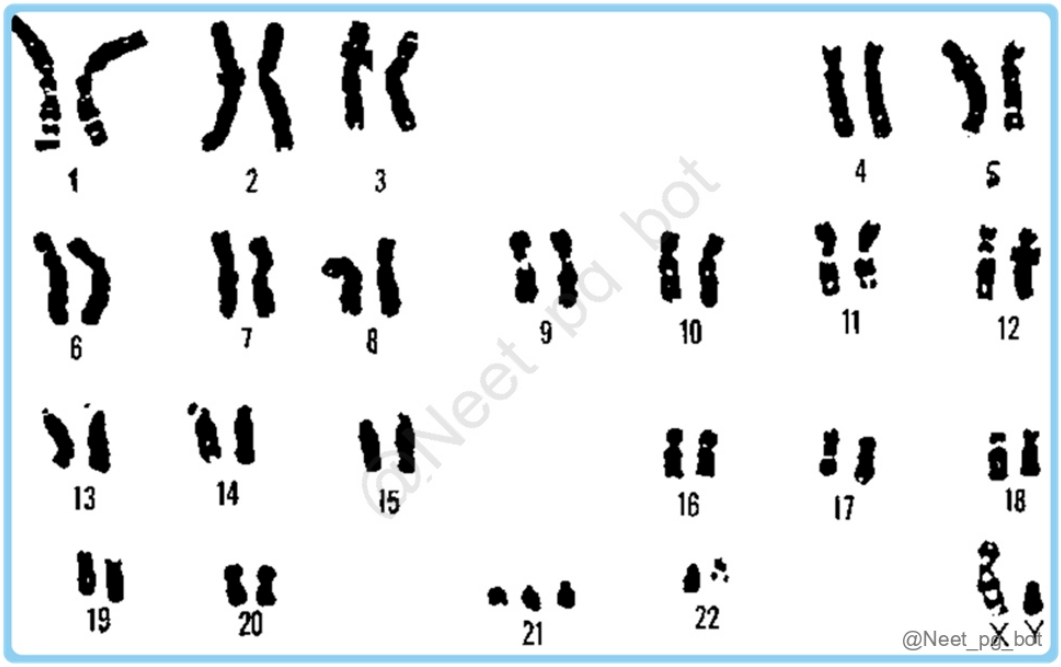
Q14: What is the diagnosis of the patient having the following type of karyotype, as shown in the image? (Q859762)

A. Turner Syndrome

B. Down Syndrome

C. Klinefelter syndrome

D. Edward syndrome



Correct Answer: B. Down Syndrome

Explanation: The karyotype is showing three copies of chromosome 21 , which indicates it is a case of Down syndrome. Down Syndrome is a chromosomal disorder caused by the presence of an extra copy of chromosome 21, resulting in a total of 47 chromosomes instead of the normal 46. Key features of Karyotyping: A karyotype is a visual representation of an individual's chromosomes, arranged in pairs by size and position of the centromere. In a normal human karyotype, 46 chromosomes are arranged in 23 pairs (22 pairs of autosomes and 1 pair of sex chromosomes). The chromosomes are photographed during metaphase, when they are most condensed and visible. They are then arranged in descending order of size, with the sex chromosomes placed last. Turner Syndrome (Option A) is characterized by monosomy X, which means there is an absence or partial deletion of one of the X chromosomes, resulting in a karyotype of 45, XO. The presented karyotype shows three copies of chromosome 21, not a missing X chromosome. Turner syndrome affects only females and is associated with short stature and ovarian dysfunction. Klinefelter Syndrome (Option C) presents with an extra X chromosome in males , resulting in a karyotype of 47, XXY. The karyotype image clearly shows trisomy 21, not an extra X chromosome. Klinefelter syndrome is characterized by tall stature, infertility, and delayed puberty. Edward Syndrome (Option D) also known as Trisomy 18, is caused by an extra copy of chromosome 18, resulting in a karyotype of 47, XX+18 or 47, XY+18. The provided karyotype shows an extra chromosome 21, not chromosome 18. Edward syndrome is

associated with severe developmental delays and multiple congenital anomalies.

References:

OP Ghai Essential Paediatrics 10th Edition, Page 666-668

↑ *Back to this question in Part A*

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Q15: In which trimester is a quadruple test done for antenatal screening of Down syndrome? (Q820481)

A. 1st trimester

B. 3rd trimester

C. 2nd trimester

D. 4th trimester

Correct Answer: C. 2nd trimester

Explanation: of the correct answer.

↑ *Back to this question in Part A*

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• [08_Inborn Errors of Metabolism] 019 Disorders Of Carbohydrate And Amino Acid Metabolism

« Back to Folder Directory

[08_Inborn Errors of Metabolism] 019 Disorders Of Carbohydrate And Amino Acid Metabolism — Quick Jump

Q1 (p. 915)	*Q2 (p. 916)*	*Q3 (p. 917)*	*Q4 (p. 918)*	*Q5 (p. 919)*	*Q6 (p. 920)*
Q7 (p. 922)	*Q8 (p. 922)*	*Q9 (p. 923)*	*Q10 (p. 924)*	*Q11 (p. 925)*	*Q12 (p. 925)*
Q13 (p. 926)	*Q14 (p. 927)*	*Q15 (p. 928)*	*Q16 (p. 928)*	*Q17 (p. 930)*	*Q18 (p. 931)*
Q19 (p. 932)	*Q20 (p. 933)*	*Q21 (p. 934)*	*Q22 (p. 935)*	*Q23 (p. 936)*	*Q24 (p. 937)*
Q25 (p. 938)	*Q26 (p. 939)*	*Q27 (p. 940)*	*Q28 (p. 942)*	*Q29 (p. 943)*	*Q30 (p. 944)*

Q1: A 4-month-old infant presents with hepatomegaly, hypoglycemic seizures, and a doll-like face with fat cheeks. Laboratory tests reveal hypoglycemia, lactic acidosis, hyperuricemia, and hyperlipidemia. The CPK levels are normal. Which of the following is not a correct statement about this condition? (Q850096)

A. It is caused by a deficiency in glucose-6-phosphatase or its translocase

B. The condition is inherited in an autosomal recessive pattern

C. Glucagon administration typically leads to a significant increase in blood glucose levels

D. Treatment involves maintaining normal blood glucose levels through multiple feeds at regular intervals.

Correct Answer: C. Glucagon administration typically leads to a significant increase in blood glucose levels

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Correct answer: C) Glucagon administration typically leads to a significant increase in blood glucose levels The infant’s symptoms are indicative of Von Gierke or Type I Glycogen Storage Disease (GSD). Here, glucagon administration leads to a negligible increase in blood glucose levels but causes a significant rise in lactate levels. This is due to the deficiency in glucose-6-phosphatase or its translocase , which impairs the conversion of glucose-6-phosphate to glucose. Gargoylic face with hepatosplenomegaly Von Gierke or Type I Glycogen Storage Disease Pathogenesis Deficiency of glucose-6-phosphatase (Type Ia) or its translocase (Type Ib) (Option A) Impaired conversion of glucose-6-phosphate to glucose Autosomal recessive inheritance (Option B) Clinical Features Hepatomegaly Hypoglycemic seizures Doll-like face with fat cheeks (Gargoylic face with HSM (hepatosplenomegaly)) Short stature Protuberant abdomen Thin extremities Kidney enlargement Additionally,

Type Ib: Neutropenia, recurrent infections Biochemical Characteristics Hypoglycemia Lactic acidosis Hyperuricemia Hyperlipidemia Diagnosis Clinical presentation Laboratory findings Minimal glucose response to glucagon (Negative glucagon challenge test) Gene-based variant analysis Treatment Maintain normal blood glucose levels by continuous nasogastric glucose infusion or uncooked cornstarch administration (Option D) Dietary restrictions (fructose, galactose) Allopurinol for hyperuricemia Lipid-lowering drugs Type Ib: G-CSF for neutropenia



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References:

Nelson, Textbook of Paediatrics, 21st Edition, Pages 778-781

↑ *Back to this question in Part A*

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Q2: A 5-day-old newborn presents with poor feeding, vomiting, and jaundice. Physical examination reveals hepatomegaly and cataracts. Laboratory tests show elevated liver enzymes, hypoglycemia, and a positive reducing substance in the urine. Which of the following is the most appropriate initial management step? (Q850099)

A. Start phototherapy for jaundice

B. Administer intravenous glucose

C. Discontinue all lactose-containing foods

D. Begin enzyme replacement therapy

Correct Answer: C. Discontinue all lactose-containing foods

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This clinical presentation of poor feeding, vomiting, jaundice, hepatomegaly, cataracts, and positive reducing substance in urine in a child less than 6 months of age is consistent with a diagnosis of galactosemia , an inborn error of galactose metabolism. Lactose (present in breast milk) is a disaccharide made up of glucose and galactose. The most critical initial step in management is to remove the source of galactose , which is lactose from milk (including breast milk) and milk products. Galactosemia Enzyme Deficiency Galactose-1-phosphate uridylyltransferase (GALT) - Classical type Galactokinase- benign disease with only oil drop cataract. Epimerase-SNHL + symptoms of classical type (Low galactose-based diet can be given which is contraindicated in the classical type) Pathophysiology Accumulation of galactose-1-phosphate (toxic causing jaundice, and liver damage) Inability to metabolize galactose from milk Damage to liver, kidney, and brain Clinical Features Hepatic: Jaundice, hepatomegaly GI: Vomiting, diarrhea, failure to thrive CNS: Seizures, intellectual disability Eyes: Oil drop cataracts Increased risk of E. coli sepsis Diagnosis Reducing substance in urine (positive)(Positive Benedict test but negative glucose oxidase test) Direct enzyme (GALT) assay Genetic testing (Perinatal diagnosis is possible) Management Lactose-free diet Breast Milk contraindicated Soy-based or elemental formulas Calcium supplementation Start phototherapy for jaundice (Option A): Does not help as conjugated bilirubin is elevated in Galactosemia Administer intravenous glucose (Option B): While intravenous glucose might help with hypoglycemia, it doesn't address the primary issue of galactose toxicity. Begin enzyme replacement therapy (Option D): Enzyme replacement therapy is not currently available for galactosemia.

References:

Nelson Textbook of Paediatrics, 21st Edition, Pages 788, 789

↑ *Back to this question in Part A*

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Q3: An 11-year-old child presents with sudden onset left-sided weakness and facial deviation. MRI brain shows an acute infarct in the right middle cerebral artery territory. On further evaluation, he is noted to have tall stature, long fingers, and mild intellectual disability. A metabolic disorder is suspected. Which of the following defects can lead to this condition? Cystathionine β-synthase deficiency Methionine synthase deficiency Defective MTHFR (methylenetetrahydrofolate reductase) Vitamin B12 deficiency (Q885149)

A. 1 and 3 only

B. 1, 2 and 3 only

C. 1, 2, 3 and 4

D. 2 and 4 only

Correct Answer: C. 1, 2, 3 and 4

Explanation: The child most likely has homocystinuria , which predisposes to arterial and venous thrombosis leading to stroke at a young age. Key mechanism: ↑ Homocysteine → endothelial damage → hypercoagulability → cerebral infarction Defects causing elevated homocysteine: Cystathionine β-synthase deficiency - Classic homocystinuria (most common cause). (Option 1) Methionine synthase deficiency - Impaired remethylation of homocysteine → accumulation. (Option 2) MTHFR defect - Reduced conversion of homocysteine to methionine → hyperhomocysteinemia. (Option 3) Vitamin B12 deficiency - Cofactor for methionine synthase; deficiency leads to elevated homocysteine. (Option 4) All listed defects can result in hyperhomocysteinemia and increase stroke risk in children.

References:

https://emedicine.medscape.com/article/1952251-overview

https://eyewiki.org/Homocystinuria

https://www.ncbi.nlm.nih.gov/books/NBK1524/

↑ *Back to this question in Part A*

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Q4: Match the following types of Glycogen storage disorders and their respective enzyme deficiencies: a. McArdle disease 1. Glucose 6 Phosphatase b. Her's disease 2. Muscle phosphorylase c. Von Gierke disease 3. Branching enzyme d. Anderson disease 4. Hepatic phosphorylase (Q850095)

A. a-3, b-1, c-4, d-2

B. a-3, b-4, c-1, d-2

C. a-2, b-3, c-1, d-4

D. a-2, b-4, c-1, d-3

Correct Answer: D. a-2, b-4, c-1, d-3

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Correct answer: D) a-2, b-4, c-1, d-3 Types of Glycogen Storage Disorders: Hepatic and Muscle Type Hepatic Glycogen Storage Disorders Deficient enzyme I Von Gierke disease (most common in younger age group) Glucose 6 Phosphatase III Cori disease (C affects D) Debranching enzyme IV Anderson disease (A affects B) Branching enzyme VI Her's disease Hepatic phosphorylase Type Muscle Glycogen Storage Disorders Deficient enzyme II Pompe disease (Pompe affects pump - Dilated Cardiomyopathy) Acid maltase/α-1,4-glucosidase V McArdle disease (No hemolysis) (Most common GSD to present in adolescents) Muscle phosphorylase VII Tarui disease (hemolysis present) Phosphofructokinase

References:

O P Ghai Essentials Paediatrics, 10th Edition, Pages 687, 688, 689

Nelson Textbook of Paediatrics, 21st Edition, Pages 777, 779, 780

↑ *Back to this question in Part A*

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Q5: A 13-year-old girl presents with progressive low back pain and stiffness. Characteristic findings are shown in the image below. She also reports that her urine darkens when left standing for several hours. Spine radiographs reveal calcification of the intervertebral discs. (Q885148)

A. Pyridoxine

B. Nitisinone

C. Thiamine

D. Folic acid





Correct Answer: B. Nitisinone

Explanation: The given scenario, with progressive low back pain, bluish sclera and ear cartilage, darkening urine, and spinal disc calcification , is characteristic of Alkaptonuria , which occurs due to deficiency of homogentisate 1,2-dioxygenase . Accumulation of homogentisic acid Oxidation → brownish-black urine Ochronosis → pigmentation of cartilage Degenerative arthritis of spine and large joints Nitisinone inhibits 4-hydroxyphenylpyruvate dioxygenase → decreases production of homogentisic acid → reduces pigment deposition and slows disease progression. Pyridoxine (Option A): Used in certain metabolic disorders like homocystinuria; no role in alkaptonuria. Thiamine (Option C): Used in pyruvate dehydrogenase deficiency and beriberi; unrelated to tyrosine metabolism. Folic acid (Option D): Used in megaloblastic anemia and homocystinuria; not effective in alkaptonuria.

References:

https://www.ncbi.nlm.nih.gov/books/NBK560571/

https://casereports.bmj.com/content/17/12/e262395

↑ *Back to this question in Part A*

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Q6: Which enzyme deficiency is responsible for the following findings in an 18-year-old male presenting with chronic low back pain? (Q885145)

A. L-ascorbic acid

B. Homogentisic acid oxidase

C. Tyrosine aminotransferase

D. Beta-carotene



Correct Answer: B. Homogentisic acid oxidase

Explanation: The clinical picture is suggestive of Alkaptonuria . Cause: Deficiency of homogentisic acid oxidase in the tyrosine degradation pathway. Pathophysiology: Accumulation of homogentisic acid Urine turns dark on standing (oxidation) Ferric chloride test may be positive Ochronosis - bluish-black pigmentation of cartilage and connective tissue- ear cartilage, sclera, nose Early-onset degenerative arthritis (spine, large joints). L-ascorbic acid (Option A): Vitamin C deficiency causes scurvy (bleeding gums, bone pain), not dark urine or ochronosis. Tyrosine aminotransferase (Option C): Deficient in Tyrosinemia Type II, which presents with corneal ulcers and palmoplantar keratosis. Beta-carotene (Option D): Excess causes carotenemia (yellowish skin discoloration), not dark urine or cartilage pigmentation.

References:

https://www.ncbi.nlm.nih.gov/books/NBK560571/

https://casereports.bmj.com/content/17/12/e262395

↑ *Back to this question in Part A*

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Q7: A 5-month-old infant develops persistent vomiting, metabolic acidosis, and poor weight gain after introduction of a protein-rich complementary diet. Parents report a peculiar "chlorine-like" odor in the urine. There is a family history of similar episodes in multiple generations. On examination, mild hepatomegaly is present. What is the most likely diagnosis? (Q885144)

A. Isovaleric acidemia

B. Phenylketonuria

C. Hawkinsinuria

D. Maple syrup urine disease

Correct Answer: C. Hawkinsinuria

Explanation: Hawkinsinuria is a rare disorder of tyrosine metabolism caused by partial deficiency of 4-hydroxyphenylpyruvate dioxygenase (HPPD) . Features: Autosomal dominant inheritance (positive family history across generations) Onset after high-protein intake Metabolic acidosis with ketosis Failure to thrive Characteristic swimming pool/chlorine-like urine odor Mild liver involvement. Isovaleric acidemia (Option A): Produces a "sweaty feet" odor and is due to leucine metabolism defect; not associated with chlorine-like smell. Phenylketonuria (Option B): Causes musty/mousy odor and intellectual disability; does not present with severe metabolic acidosis after protein intake. Maple syrup urine disease (Option D): Produces maple syrup/burnt sugar odor and presents with encephalopathy in the neonatal period.

References:

https://rarediseases.org/mondo-disease/hawkinsinuria/

https://metabolicsupportuk.org/condition/hawkinsinuria/

↑ *Back to this question in Part A*

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Q8: An 18-month-old child is evaluated for recurrent seizures and developmental delay. Laboratory testing reveals elevated plasma tyrosine levels. Urine organic acid

analysis shows increased 4-hydroxyphenylpyruvate along with its metabolites 4-hydroxyphenyllactate and 4-hydroxyphenylacetate. Liver function tests are normal. Which of the following inborn errors of metabolism is the most likely diagnosis? (Q885143)

A. Hereditary tyrosinemia type I

B. Hawkinsinuria

C. Hereditary tyrosinemia type III

D. Hereditary tyrosinemia type II

Correct Answer: C. Hereditary tyrosinemia type III

Explanation: Tyrosinemia Type III is caused by a deficiency of 4-hydroxyphenylpyruvate dioxygenase (HPPD) . Features: Elevated plasma tyrosine Increased urinary 4-hydroxyphenylpyruvate and its derivatives Predominantly neurological symptoms (seizures, developmental delay) No severe liver or renal involvement. Hereditary tyrosinemia type I (Option A): Presents with liver failure, renal tubular dysfunction, and elevated succinylacetone. Hawkinsinuria (Option B): Characterized by metabolic acidosis and failure to thrive; not typically associated with isolated neurological features. Hereditary tyrosinemia type II (Option D): Presents with painful corneal ulcers and palmoplantar hyperkeratosis, which are absent here.

References:

http://www.ncbi.nlm.nih.gov/medgen/78694

↑ *Back to this question in Part A*

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Q9: A 4-year-old child presents with recurrent photophobia and painful palmoplantar hyperkeratotic lesions. Laboratory evaluation shows markedly elevated plasma tyrosine levels. A diagnosis of Richner-Hanhart syndrome is made. Which enzyme deficiency is responsible for this condition? (Q885141)

A. 4-Hydroxyphenylpyruvate dioxygenase

B. Tyrosine aminotransferase

C. Fumarylacetoacetate hydrolase

D. Tyrosine hydroxylase

Correct Answer: B. Tyrosine aminotransferase

Explanation: Richner-Hanhart syndrome corresponds to Tyrosinemia Type II . Cause: Deficiency of tyrosine aminotransferase . Pathophysiology: Block in conversion of tyrosine → p-hydroxyphenylpyruvate Accumulation of tyrosine in the blood Deposition in cornea and skin → ocular and cutaneous manifestations Clinical triad: Herpetiform corneal ulcers Palmoplantar hyperkeratosis Developmental delay 4-Hydroxyphenylpyruvate dioxygenase (Option A): Deficiency causes Tyrosinemia Type III, which primarily presents with neurological symptoms without eye and skin lesions. Fumarylacetoacetate hydrolase (Option C): Deficient in Tyrosinemia Type I, associated with liver failure and renal tubular dysfunction. Tyrosine hydroxylase (Option D): Involved in catecholamine synthesis (dopamine pathway); not related to tyrosinemia disorders.

References:

https://www.ncbi.nlm.nih.gov/books/NBK608431/

https://medlineplus.gov/genetics/condition/tyrosinemia/

↑ *Back to this question in Part A*

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Q10: A 3-year-old boy is brought with complaints of eye pain, photophobia, and delayed speech. On examination, he has bilateral herpetiform corneal ulcers and hyperkeratotic, painful plaques on the palms and soles. What is the most likely diagnosis? (Q885140)

A. Hereditary Tyrosinemia Type II

B. Herpes simplex virus infection

C. Hereditary Tyrosinemia Type I

D. Epstein-Barr virus infection

Correct Answer: A. Hereditary Tyrosinemia Type II

Explanation: Tyrosinemia Type II (Richner-Hanhart syndrome) is caused by tyrosine aminotransferase deficiency . Clinical features: Ocular: Photophobia, painful herpetiform corneal ulcers Cutaneous: Painful hyperkeratotic plaques on palms and soles Neurological: Speech delay and developmental issues may occur Metabolic: Elevated plasma tyrosine levels Herpes simplex virus infection (Option B): Can cause corneal ulcers, but hyperkeratotic plaques on palms and soles are not characteristic. Hereditary Tyrosinemia Type I (Option C): Presents with liver disease, renal tubular dysfunction, and cabbage-like urine odor; eye involvement is absent. Epstein-Barr virus infection (Option D): Causes systemic symptoms like fever, lymphadenopathy, hepatosplenomegaly; ocular and palmar lesions are not features.

References:

https://www.ncbi.nlm.nih.gov/books/NBK608431/

https://medlineplus.gov/genetics/condition/tyrosinemia/

↑ *Back to this question in Part A*

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Q11: A 6-month-old infant is diagnosed with Tyrosinemia Type I after parents notice a strong cabbage-like odor in the urine. The child is started on treatment, but you explain the potential long-term complications. Which of the following is least likely to occur in this condition? (Q885139)

A. Fanconi-like renal tubular dysfunction

B. Paralytic ileus

C. Hepatocellular carcinoma

D. Corneal ulceration

Correct Answer: D. Corneal ulceration

Explanation: Tyrosinemia Type I complications result from accumulation of toxic metabolites (fumarylacetoacetate, succinylacetone). Common complications: (Option A, B, and C ruled out) Hepatocellular carcinoma – due to chronic liver injury. Major long-term risk in untreated Type I. Fanconi-like syndrome – proximal renal tubular dysfunction leading to aminoaciduria, phosphaturia, glycosuria. Classic renal manifestation in Type I. Paralytic ileus – from neuropathy associated with toxic metabolites. Rare but recognized neurological complication in Type I. Corneal ulceration (Option D) is seen in Tyrosinemia Type II , not Type I. Type II affects eyes and skin due to tyrosine aminotransferase deficiency.

References:

https://www.ncbi.nlm.nih.gov/books/NBK1515/

https://rarediseases.org/rare-diseases/tyrosinemia-type-1/

↑ *Back to this question in Part A*

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Q12: A 5-month-old infant born to consanguineous parents presents with jaundice, vomiting, and irritability. On examination, hepatomegaly and petechiae are noted, along with extensor hypertonia of neck and trunk. Laboratory investigations show elevated liver enzymes, low phosphate, and high levels of succinylacetone in serum and

urine. Which enzyme deficiency is responsible for this condition? (Q885138)

A. Tyrosine aminotransferase

B. Fumarylacetoacetate hydrolase

C. Tyrosine hydroxylase

D. 4-Hydroxyphenylpyruvate dioxygenase (4-HPPD)

Correct Answer: B. Fumarylacetoacetate hydrolase

Explanation: The infant has Tyrosinemia Type I Disorder , an autosomal recessive disorder. Deficiency of fumarylacetoacetate hydrolase → accumulation of fumarylacetoacetate → liver and kidney toxicity Succinylacetone is a pathognomonic marker Clinical features: jaundice, hepatomegaly, vomiting, irritability, petechiae, hypophosphatemia, neurological crises (extensor hypertonia) Early diagnosis prevents hepatic failure and risk of hepatocellular carcinoma Tyrosine aminotransferase (Option A): Deficient in Tyrosinemia Type II (oculocutaneous symptoms, painful keratitis, palmoplantar keratosis). Tyrosine hydroxylase (Option C): Involved in catecholamine synthesis; not related to tyrosinemia. 4-Hydroxyphenylpyruvate dioxygenase (4-HPPD) (Option D): Deficient in Tyrosinemia Type III (rare; neurological symptoms without severe liver involvement).

References:

https://www.ncbi.nlm.nih.gov/books/NBK1515/

https://rarediseases.org/rare-diseases/tyrosinemia-type-1/

↑ *Back to this question in Part A*

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Q13: A 3-month-old infant is diagnosed with classic phenylketonuria (PKU) on newborn screening. Blood phenylalanine levels are elevated. What is the mainstay of treatment for this infant? (Q885137)

A. Tyrosine supplementation

B. Low-phenylalanine diet

C. Phenylalanine-free diet

D. High-phenylalanine diet

Correct Answer: B. Low-phenylalanine diet

Explanation: The cornerstone of PKU management is dietary restriction of phenylalanine to prevent neurotoxicity while allowing normal growth. Maintain phenylalanine at levels sufficient for growth but below toxic threshold (Option C, D ruled out) Include adequate protein from low-phenylalanine medical formulas Start treatment early (within first 2-3 weeks of life) to prevent intellectual disability Monitor blood phenylalanine levels regularly Tyrosine supplementation (Option A): Tyrosine becomes an essential amino acid in PKU but alone does not control phenylalanine toxicity.

References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC11854529/

https://www.mayoclinic.org/diseases-conditions/phenylketonuria/diagnosis-treatment/drc-20376308

https://www.sciencedirect.com/science/article/pii/S1096719225001167

↑ *Back to this question in Part A*

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Q14: A 3-month-old infant presents with recurrent vomiting and developmental delay. Metabolic screening shows elevated serum phenylalanine levels. The clinician plans further evaluation to identify enzymatic defects responsible for hyperphenylalaninemia. Which of the following enzymes is not involved in the metabolism of phenylalanine? (Q885136)

A. GTP cyclohydrolase I

B. Phenylalanine hydroxylase

C. Dihydropteroate synthase

D. Dihydropteridine reductase

Correct Answer: C. Dihydropteroate synthase

Explanation: Hyperphenylalaninemia results from defects in phenylalanine metabolism. Normal pathway: Phenylalanine → (Phenylalanine hydroxylase + BH4) → Tyrosine Tetrahydrobiopterin (BH4) is an essential cofactor. Defects may occur in: Phenylalanine hydroxylase (classic PKU) BH4 synthesis enzymes BH4 regeneration enzymes GTP cyclohydrolase I (Option A): Required for BH4 synthesis; defect causes hyperphenylalaninemia with neurotransmitter deficiency. Phenylalanine hydroxylase (Option B): Directly converts phenylalanine to tyrosine; deficiency causes classic PKU. Dihydropteridine reductase (Option D): Regenerates BH4 from BH2; deficiency leads to malignant PKU.

References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC2268015/

https://davuniversity.org/images/files/study-material/BCH103-9.pdf

↑ *Back to this question in Part A*

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Q15: A 6-year-old boy is brought with complaints of delayed milestones and poor academic performance. Teachers report repetitive body movements and hyperactivity. He has a history of seizures. On examination, he has fair complexion compared to his siblings, light-colored hair, microcephaly, and growth retardation. A urine test shows a transient green color after addition of ferric chloride. What is the primary cause of the neurological manifestations in this child? (Q885134)

A. Accumulation of phenylpyruvate

B. Decreased tyrosine synthesis

C. Excess phenylalanine in blood

D. Increased phenylacetate levels

Correct Answer: C. Excess phenylalanine in blood

Explanation: The child has classical Phenylketonuria (PKU) . Cause: Deficiency of phenylalanine hydroxylase → impaired conversion of phenylalanine to tyrosine → accumulation of phenylalanine. CNS damage occurs due to hyperphenylalaninemia. Excess phenylalanine: Competes with other amino acids for transport across the blood–brain barrier Reduces neurotransmitter synthesis (dopamine, norepinephrine) Causes defective myelination Leads to intellectual disability and seizures Ferric chloride test: Detects phenylpyruvate in urine (green color). Accumulation of phenylpyruvate (Option A): Responsible for musty odor of urine, not the primary cause of CNS toxicity. Decreased tyrosine synthesis (Option B): Explains hypopigmentation (fair skin, light hair), not neurological damage. Increased phenylacetate levels (Option D): Causes characteristic mousy odor, not the direct mechanism of brain injury.

References:

https://www.ncbi.nlm.nih.gov/medgen/199655

https://www.mayoclinic.org/diseases-conditions/phenylketonuria/symptoms-causes/syc-20376302

↑ *Back to this question in Part A*

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Q16: A 2-year-old child was brought to the hospital with complaints of developmental delay associated with intellectual disability and on further examination revealed the presence of self-mutilating behavior. Laboratory investigations revealed hyperuricemia. Deficiency of which of the following enzymes is responsible for the condition of this patient? (Q882163)

A. Adenosine deaminase

B. Ornithine transcarbamylase

C. Xanthine oxidase

D. Hypoxanthine guanine ribosyl transferase

Correct Answer: D. Hypoxanthine guanine ribosyl transferase

Explanation: Option D: Hypoxanthine-guanine ribosyl transferase The above scenario describes Lesch-Nyhan disease It is an X-linked disease caused by a deficiency of the enzyme hypoxanthine-guanine phosphoribosyltransferase (HGPRT), which is important in the purine salvage pathway. Clinical features include: Developmental delay Neurologic signs such as dystonia, spasticity, and dysarthria Self-mutilating behavior Elevated serum uric acid levels >5 mg/dl Option A: Adenosine deaminase The deficiency of adenosine deaminase causes severe combined immunodeficiency (SCID). Recurrent infections are common in patients with this disorder, which is caused by the depletion of T and B lymphocytes. Many pathogens can infect these people. Immunotherapy is occasionally unavailable to treat these recurring infections. SCID is the most severe of the combined immunodeficiency illnesses. Clinical signs of bacterial, viral, fungal, and protozoal infections begin at 6 months or earlier. Furthermore, these infections may result in early mortality in severe combined immunodeficiency illnesses, distinguishing this condition from other kinds of combined immunodeficiency. Most importantly, the absence of adenosine deaminase would result in hypouricemia. Option B: Ornithine transcarbamylase Ornithine transcarbamylase is an enzyme involved in the urea cycle, and its absence can result in dangerous quantities of ammonia. Despite being the most frequent urea cycle abnormality, OTC deficiency is an uncommon condition. Because the genetic information for this enzyme is on the X-chromosome, signs and symptoms of OTC deficiency appear earlier in males. Females experience diverse symptoms, first nonspecific, and appear later in life. Severe behavioral problems, neurological symptoms, and sudden liver failure are all indications of advanced OTCD. Seizures, aggressive behavior, encephalopathy, coma, and death are indications of advanced OTCD. Option C: Xanthine oxidase Xanthinuria , commonly known as xanthine oxidase deficiency , is a rare hereditary condition that causes xanthine buildup . A xanthine oxidase enzyme deficiency causes it. Patients have abnormally high xanthine concentrations in their blood and urine, which can lead to health concerns such as renal failure and xanthine kidney stones, one of the rarest forms of kidney stones. Type I xanthinuria can be caused by a lack of xanthine oxidase, an enzyme required to convert xanthine to uric acid. In addition to xanthine oxidase, type II xanthinuria and molybdenum cofactor deficiency lack one or two more enzyme functions. There is no particular therapy other than maintaining a high hydration intake and avoiding purine-rich meals. Serum uric acid levels are decreased in xanthine oxidase deficiency.

References:

Nelson’s 20/e p 744-745

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: A 4-year-old boy is brought to the clinic due to developmental delay and vision problems. Physical examination reveals a tall, slender child with elongated limbs, pectus excavatum, and blue eyes. Ophthalmologic evaluation shows bilateral lens dislocation. Laboratory tests reveal elevated levels of homocystine and methionine in the blood and urine. Which of the following is the most likely underlying enzyme deficiency? (Q850115)

A. Phenylalanine hydroxylase

B. Cystathionine β-synthase

C. Methylenetetrahydrofolate reductase

D. Methionine synthase

Correct Answer: B. Cystathionine β-synthase

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's presentation is consistent with homocystinuria , which is caused by a deficiency of cystathionine β-synthase (CBS) . Classical Homocystinuria: Pathogenesis Defective metabolism of methionine and homocysteine Accumulation of homocysteine and methionine Decreased cysteine levels Impaired folate metabolism (in MTHFR deficiency) Enzymes Involved Cystathionine β-synthase (CBS) - Most common Methylenetetrahydrofolate reductase (MTHFR) Defect in methylcobalamin metabolism Clinical Features Ectopia lentis (Inferonasal subluxation of lens) (Superotemporal seen in Marfan disease) Marfanoid habitus (tall, slender, elongated limbs) Developmental delay and intellectual disability Psychiatric and behavioral disorders Skeletal abnormalities (scoliosis, pectus excavatum) Thromboembolism (recurrent episodes of stroke) (due to oxidised homocysteine) Fair complexion, blue eyes Seizures (in ~20% of untreated patients) Diagnosis Elevated homocysteine and methionine in blood and urine Low or absent cysteine in plasma Management Coenzyme supplementation B9 and B12 supplementation Methionine-restricted diet Cysteine supplementation Phenylalanine hydroxylase: This enzyme is deficient in phenylketonuria (PKU), not homocystinuria (Option A) Methylenetetrahydrofolate reductase (MTHFR) (Option C): While a deficiency of this enzyme can cause a form of non-classical homocystinuria, it typically presents with low or low-normal methionine levels, unlike the elevated methionine seen in this case. This is because MTHFR deficiency leads to THF deficiency, causing less conversion of homocysteine to methionine. Methionine synthase (Option D): Deficiency of this enzyme can cause homocystinuria, but it's typically associated with low methionine levels and methylmalonic aciduria if B12 deficiency is present.

References:

Nelson Textbook of Paediatrics, 21st Edition, Pages 703, 704, 705, 706

↑ *Back to this question in Part A*

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Q18: A 6-year-old boy is brought to the clinic. His parents mention occasional episodes of unsteady gait and irritability. Physical examination reveals a pellagra-like rash on sun-exposed areas. Laboratory tests show increased urinary excretion of neutral amino acids. Which of the following best describes the underlying pathophysiology of this condition? (Q850113)

A. Defective metabolism of tryptophan

B. Impaired transport of monoamine monocarboxylic amino acids (neutral amino acids)

C. Deficiency of enzyme tyrosine hydroxylase

D. Deficiency of biotinidase enzyme

Correct Answer: B. Impaired transport of monoamine monocarboxylic amino acids (neutral amino acids)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's presentation is consistent with Hartnup disease (Pellagra-like dermatosis) , a rare inborn error of metabolism. This condition is associated with impaired transport of monoamine monocarboxylic amino acids across the brush border epithelium of the intestine and renal tubules. Hartnup Disease: Inheritance Autosomal recessive Pathogenesis Mutation in the SLC6A19 gene; Impaired transport of neutral amino acids across the intestinal and kidney brush border epithelium Clinical features Photosensitivity Pellagra-like rash (Decreased Niacin due to tryptophan deficiency) Neurologic symptoms (ataxia, emotional instability) - Decreased serotonin due to tryptophan deficiency Biochemical defect Deficiency of nicotinamide synthesis Diagnosis Aminoaciduria (neutral amino acids) in urine and plasma Demonstrate SLC6A19 defect Treatment Administration of nicotinamide/nicotinic acid Protection from sunlight Defective metabolism of tryptophan (Option A): The primary defect in Hartnup disease is impaired transport , not defective metabolism. Tryptophan metabolism pathways (e.g., kynurenine pathway) are intact. The issue is that tryptophan is not absorbed properly from the intestine and is reabsorbed in kidney , leading to a deficiency. Deficiency of enzyme tyrosine hydroxylase (Option C): Tyrosine hydroxylase is involved in catecholamine synthesis (dopamine → norepinephrine → epinephrine). Deficiency would lead to dopamine deficiency symptoms , not pellagra-like rash or aminoaciduria. Additionally, this enzyme has no role in neutral amino acid transport or niacin synthesis. Deficiency of biotinidase enzyme (Option D): Biotinidase deficiency presents with: Seizures Hypotonia Developmental delay Alopecia Metabolic acidosis It does not cause pellagra-like rash or neutral aminoaciduria .

References:

Nelson Textbook of Paediatrics, 21st Edition, Pages 707, 708, 3501

↑ *Back to this question in Part A*

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Q19: A 2-day-old male neonate, born to consanguineous parents, presents with poor feeding, vomiting, and lethargy. Laboratory investigations reveal severe hyperammonemia (plasma ammonia 800 µmol/L) and respiratory alkalosis. Which of the following is the most appropriate immediate management step? (Q850110)

A. Start a protein-based diet

B. Administer intravenous sodium ammonium benzoate and arginine

C. Perform exchange transfusion

D. Initiate valproate for seizure prophylaxis

Correct Answer: B. Administer intravenous sodium ammonium benzoate and arginine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A 2-day-old neonate presenting with poor feeding, vomiting, lethargy, severe hyperammonemia (plasma ammonia 800 µmol/L), and respiratory alkalosis suggests a severe urea cycle disorder. The most appropriate immediate management is administering intravenous sodium benzoate and arginine. Sodium ammonium benzoate is a nitrogen-scavenging agent that helps reduce ammonia levels by providing an alternative pathway for nitrogen excretion. Arginine is essential in most UCDs (except arginase deficiency) as it helps drive the urea cycle and promotes ammonia removal. Management: Acute management of hyperammonemia is critical and includes: 1. Providing adequate calories through IV glucose and lipids while temporarily restricting protein intake. 2. Administer medications to remove ammonia, such as sodium benzoate and sodium phenylacetate. 3. Supplementing with arginine or citrulline (except in arginase deficiency). 4. In severe cases, use hemodialysis or peritoneal dialysis to rapidly lower ammonia levels. Start a protein-based diet (Option A) : This would be harmful in UCD as it would increase nitrogen load, exacerbating hyperammonemia. Perform exchange transfusion (Option C) : While this might temporarily lower ammonia levels, it's not the first-line treatment for hyperammonemia in UCDs. Initiate valproate for seizure prophylaxis (Option D) : While seizures can occur in UCDs due to hyperammonemia, Valproate is contraindicated as it suppresses urea cycle enzymes.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 730, 731, 732.

↑ *Back to this question in Part A*

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Q20: A 3-day-old neonate presents with lethargy, poor feeding, and hyperammonemia. Plasma amino acid analysis shows elevated citrulline levels. Which of the following enzyme deficiencies is most likely responsible for this presentation? (Q850109)

A. Ornithine transcarbamylase

B. Argininosuccinate synthetase

C. Carbamoyl phosphate synthetase I

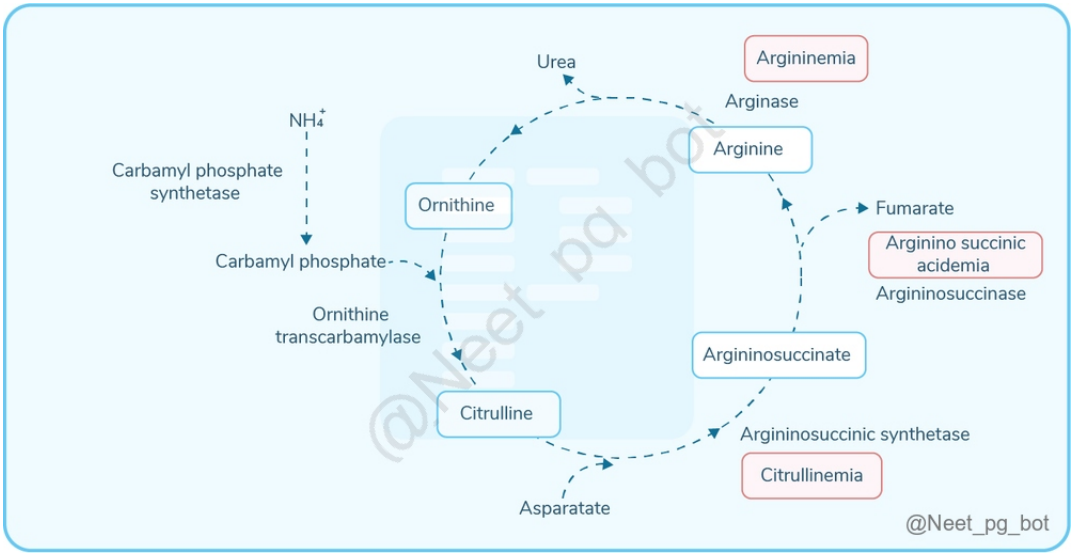
D. Arginase

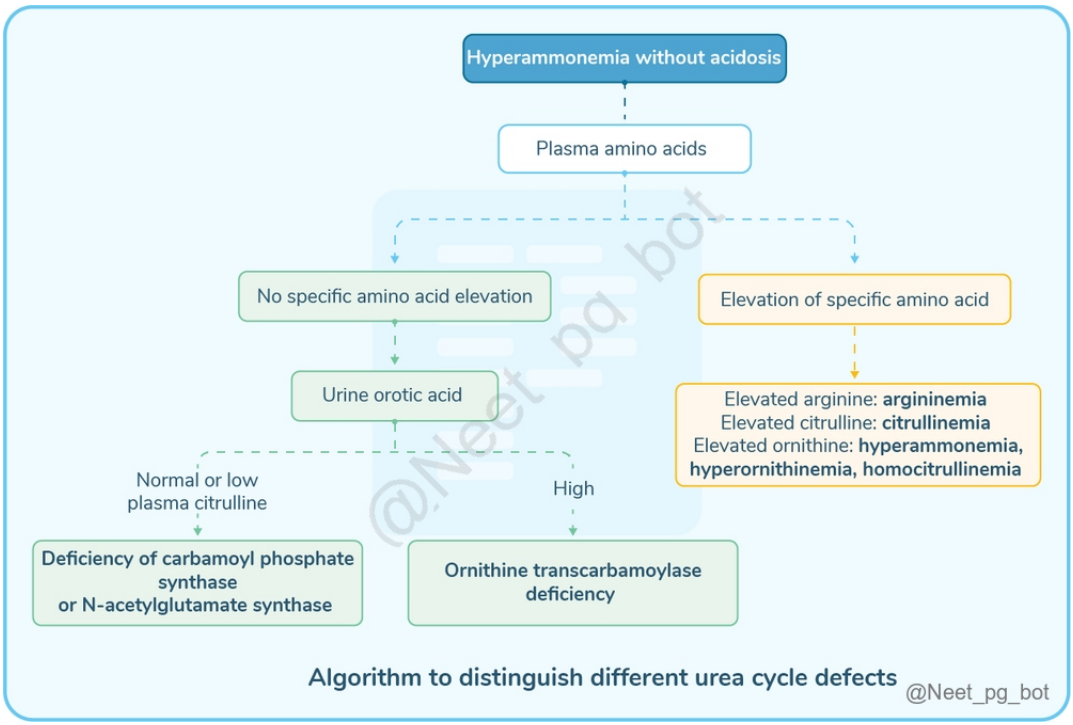
Correct Answer: B. Argininosuccinate synthetase

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Argininosuccinate synthetase enzyme deficiency leads to citrullinemia, a urea cycle disorder characterized by elevated citrulline levels. Urea Cycle Disorders (UCDs): A group of inborn errors of metabolism affecting the urea cycle. Ornithine transcarbamylase (OTC) deficiency (Option A) presents with type 2 hyperammonemia and orotic aciduria. Citrulline levels are characteristically low. Carbamoyl phosphate synthetase I (CPS1) deficiency (Option C) leads to hyperammonemia with low or absent citrulline levels. Arginase deficiency (Option D) presents later in life and primarily causes hyperargininemia, but can also lead to hyperammonemia during metabolic crises. Citrulline levels are not elevated.





References:

Ghai Essentials Paediatrics, 10th Edition, Pages 685

↑ *Back to this question in Part A*

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Q21: A 5-day-old neonate presents with poor feeding, lethargy, and a sweet, maple syrup-like odor in the urine. Initial laboratory tests show metabolic acidosis and ketonuria. Which of the following is the most appropriate next step in management? (Q850108)

A. Initiate a keto diet

B. Administer phenobarbital for seizure prophylaxis

C. Begin immediate hemodialysis

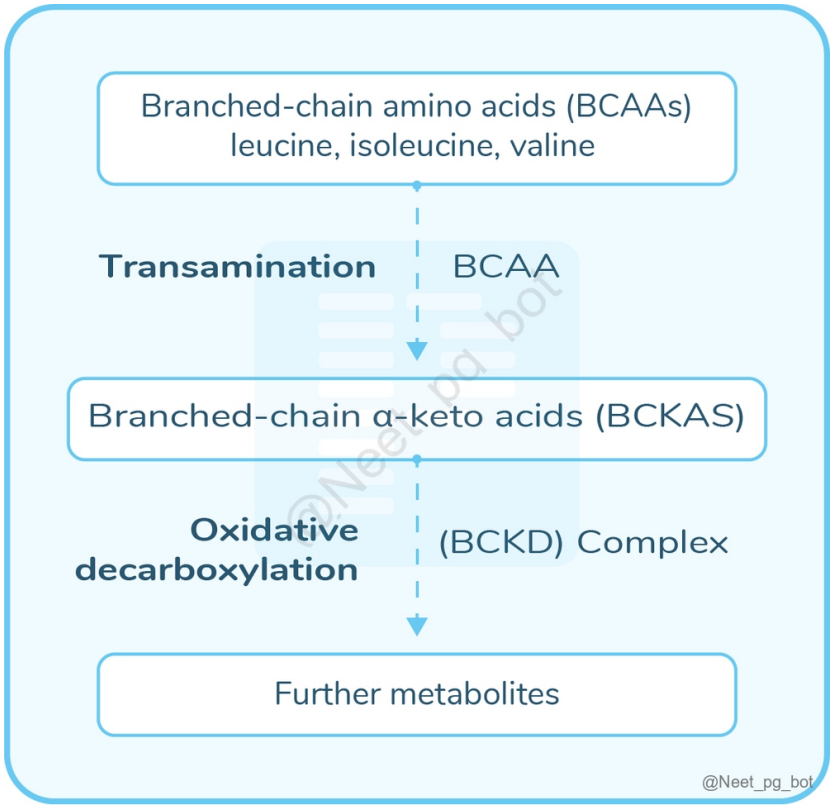
D. Start a leucine-restricted diet and provide thiamine supplementation

Correct Answer: D. Start a leucine-restricted diet and provide thiamine supplementation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The symptoms described for the 5-day-old neonate—poor feeding, lethargy, a sweet, maple syrup-like odor in the urine, metabolic acidosis, and ketonuria—are indicative of Maple Syrup Urine Disease (MSUD) . The most appropriate next step in management is to start a leucine-restricted diet and provide thiamine supplementation. Restricting leucine (and other branched-chain amino acids) helps reduce the accumulation of toxic metabolites. Thiamine supplementation is beneficial as it's a cofactor for the deficient enzyme complex and can enhance residual enzyme activity in some patients. Maple Syrup Urine Disease (MSUD): MSUD affects the catabolic pathway of branched-chain amino acids (leucine, isoleucine, and valine). BCKD - Branched-Chain α-Keto Acid Dehydrogenase Complex is deficient in MSUD . Management: Acute management: Dietary restriction of BCAA. Hemodialysis or hemofiltration in severe cases. Long-term management: Lifelong dietary restriction of BCAAs, particularly leucine. Regular monitoring of plasma amino acid levels. Thiamine supplementation (responsive in some patients). Liver transplantation may be considered in severe cases. A ketogenic (keto) die t (Option A): A keto diet would not address the underlying metabolic defect and could worsen the metabolic acidosis and ketonuria seen in MSUD. Administer phenobarbital for seizure prophylaxis (Option B) : While seizures can occur in MSUD, prophylactic anticonvulsants are not routinely used. Begin immediate hemodialysis (Option C) : While hemodialysis may be necessary in severe cases unresponsive to dietary management and medical therapy, it's not the first Tom cat urine line treatment.



References:

Ghai Essentials Paediatrics, 10th Edition, Page 683

↑ *Back to this question in Part A*

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Q22: Match the following Inborn Errors of Metabolism (IEMs) with their characteristic odors: Column A (IEMs) Column B (Odors) a. Maple Syrup Urine Disease 1. Tom cat urine b. Phenylketonuria 2. Cabbage-like c. Multiple Carboxylase Deficiency 3. Mousy or musty d. Tyrosinemia 4. Burnt sugar (Q850107)

A. a-4, b-3, c-1, d-2

B. a-3, b-4, c-2, d-1

C. a-1, b-2, c-3, d-4

D. a-2, b-1, c-4, d-3

Correct Answer: A. a-4, b-3, c-1, d-2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Inborn Errors of Metabolisms (IEMs) and associated abnormal odors: Inborn Error of Metabolism (IEM) Abnormal Odor of urine Maple Syrup Urine Disease (MSUD) Maple syrup/ burnt sugar Phenylketonuria (PKU) Mousy or musty Multiple Carboxylase Deficiency Tomcat urine odor Tyrosinemia (type I) and Hypermethionemia Boiled Cabbage-like/rancid butter Isovaleric acidemia Sweaty feet/acrid odor Hawkinsuria Swimming pool odor Trimethylaminuria Rotting fish odor Cystinuria Rotten egg/ Sulphur smell

References:

www.ncbi.nlm.nih.gov/pmc/articles/PMC6331353/#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q23: Which of the following is not a common clinical feature of organic acidemias in neonates? (Q850106)

A. Lethargy

B. Vomiting

C. Respiratory acidosis

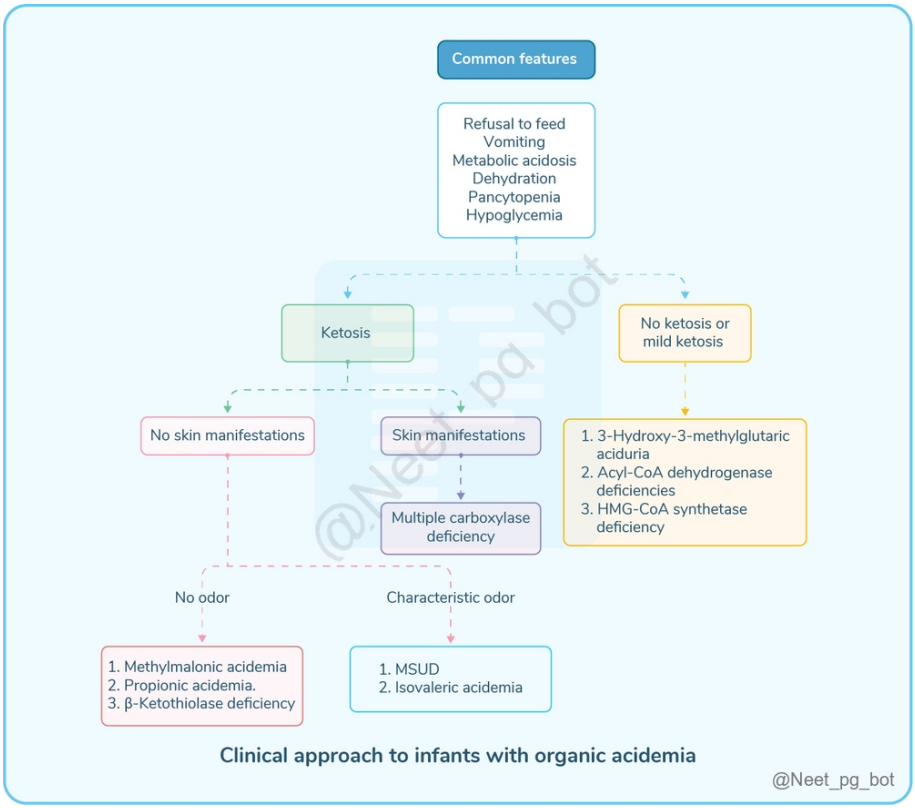
D. Seizures

Correct Answer: C. Respiratory acidosis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Organic acidemias are severe metabolic disorders that often present in the neonatal period with nonspecific symptoms such as lethargy, poor feeding, vomiting, and hypotonia. Due to the accumulation of metabolic organic acids, affected infants develop metabolic acidosis, hypoglycemia, and hyperammonemia. Clinical Features: Lethargy and altered mental status (Option A) Vomiting and poor feeding (Option B) Respiratory distress (typically with compensatory respiratory alkalosis, not acidosis) Seizures (Option D) Hypotonia Metabolic acidosis (not respiratory acidosis) Hyperammonemia Ketosis



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 708

↑ *Back to this question in Part A*

@Neet_pg_bot

Q24: A 2-week-old infant presents with prolonged jaundice, vomiting, and failure to thrive with a history of hepatorenal failure. Preliminary blood tests show elevated liver enzymes and a low platelet count. The infant's urine has a distinctive "cabbage-like" odour. Which of the following investigations helps in the diagnosis? (Q850105)

A. Urine culture and sensitivity

B. Serum ammonia levels

C. Urine succinylacetone test

D. Urine glucose levels

Correct Answer: C. Urine succinylacetone test

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant’s symptoms including prolonged jaundice, vomiting, failure to thrive, hepatomegaly, a distended abdomen, elevated liver enzymes, a low platelet count, and a distinctive "cabbage-like" odor to the urine suggest a diagnosis of tyrosinemia type I. Succinylacetone test: The presence of high succinylacetone in the blood or urine is a hallmark of tyrosinemia type 1 and confirms the diagnosis and it is responsible for hepatorenal failure and HCC. Types of Tyrosinemia: Types Type I Type II Type III Most common Due to a deficiency of the enzyme Fumarylacetoacetate hydroxylase (FAH) FAA accumulates and is converted to succinylacetone Cabbage odor urine Due to a deficiency of the enzyme tyrosine aminotransferase Clinical features: Palmar or plantar hyperkeratosis, corneal ulcers, and intellectual disability Least common Due to a deficiency of the enzyme 4-HPPD (4-Hydroxy Phenyl Pyruvate Dioxygenase) Also known as Hawkinsuria Swimming pool chlorine odor urine Urine culture and sensitivity (Option A): This test is used to identify urinary tract infections, which are not indicated by the infant’s symptoms or distinctive odor. Serum ammonia levels (Option B): Elevated ammonia levels are associated with urea cycle disorders, not Tyrosinemia Type 1. Urine glucose levels (Option D): While important in evaluating metabolic status, urine glucose levels are not specific for diagnosing Tyrosinemia Type 1.

References:

Ghai Essentials Paediatrics, 10th Edition, Pages 682, 683

www.ncbi.nlm.nih.gov/books/NBK578205/

↑ *Back to this question in Part A*

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Q25: A 10-year-old boy is brought to the pediatrician with complaints of chronic back pain and stiffness that have worsened over the past year. On examination, the physician notes bluish-black discoloration in the sclerae and dark pigmentation in the cartilage of the ears. The mother mentions that the child's urine turns dark when left standing for a few hours. Based on these findings, what is the most likely diagnosis? (Q850104)

A. Ehlers-Danlos Syndrome

B. Alkaptonuria

C. Marfan Syndrome

D. Osteogenesis Imperfecta

Correct Answer: B. Alkaptonuria

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's finding of urine darkening upon standing aligns with a hallmark symptom of alkaptonuria. Alkaptonuria is an autosomal recessive disorder caused by a deficiency in the enzyme homogentisate 1,2-dioxygenase (HGD) , also known as homogentisic acid oxidase . When HGD is deficient, HGA accumulates and is excreted in the urine, giving it a characteristic dark color upon standing due to oxidation. Other features like bluish-black discoloration in the sclerae and ear cartilage, strongly suggest ochronosis, with black discoloration with ochre bodies in the dermis of the skin. The patient's chronic back pain and stiffness, which have worsened over time, are consistent with the involvement of intervertebral disc cartilage of the spine commonly seen in alkaptonuria. Urine Analysis for Alkaptonuria: Colour Change, Fehling's or Benedict's Test & Gas Chromatography-Mass Spectrometry (GCMS) Treatment: Nitisinone (Inhibits the enzyme that produces homogentisic acid) & Dietary Restrictions of tyrosine and phenylalanine and vitamin C

References:

Ghai Essentials Paediatrics, 10th Edition, Pages 684

↑ *Back to this question in Part A*

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Q26: A 6-month-old infant is brought to the clinic by their parents reporting that their infant is not meeting developmental milestones, such as rolling over or sitting up. On examination, the infant has a noticeable mousy or musty odor. Hair and skin pigmentation appear lighter. Which of the following enzymes is deficient in this infant? (Q850103)

A. Phenylalanine hydroxylase

B. Homogentisic acid oxidase

C. Sphingomyelinase

D. Glucocerebrosidase

Correct Answer: A. Phenylalanine hydroxylase

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant’s symptoms, like failure to meet developmental milestones, eczema, a musty odor, and lighter hair and skin pigmentation, are characteristic of Phenylketonuria (PKU) . PKU is an autosomal recessive disorder caused by a defect in the enzyme phenylalanine hydroxylase (PAH). This enzyme deficiency disrupts the body's ability to metabolize the amino acid phenylalanine, leading to its accumulation in the body. Phenylalanine hydroxylase (PAH) . Pathophysiology: PAH normally converts the amino acid Phenylalanine into Tyrosine . When this enzyme is deficient, Phenylalanine builds up to toxic levels in the blood and brain. Mousy/Musty Odor: This is the hallmark clinical sign of PKU. It is caused by the accumulation and excretion of phenylacetic acid (a byproduct of phenylalanine metabolism) in the sweat and urine. Hypopigmentation: Since Tyrosine is a precursor for melanin , a deficiency in the pathway leads to lighter skin, hair, and eye color compared to family members. Developmental Delay: High levels of phenylalanine are neurotoxic. If untreated, this leads to intellectual disability, seizures, and failure to meet milestones like sitting or rolling. Management of PKU Intervention Purpose Dietary Restriction Low-phenylalanine diet (avoiding high-protein foods like meat, dairy, and nuts). Tyrosine Supplementation Since Tyrosine becomes an "essential" amino acid in these patients. Avoid Aspartame Aspartame (an artificial sweetener) contains phenylalanine and is toxic to PKU patients. BH4 (Sapropterin) A cofactor that can help increase the activity of residual PAH in some patients. Homogentisic acid oxidase (Option B): Deficiency of this enzyme causes Alkaptonuria . While it involves a "musty" smell in some literature, the classic sign is urine that turns black upon standing and ochronosis (bluish-black pigmentation of connective tissue), not fair skin and developmental delay. Sphingomyelinase (Option C): Deficiency causes Niemann-Pick Disease (Type A/B) . This presents with hepatosplenomegaly and a "cherry-red spot" on the macula, but not a mousy odor or hypopigmentation. Glucocerebrosidase (Option D): Deficiency causes Gaucher Disease . This presents with bone pain, hepatosplenomegaly, and "Gaucher cells" (crinkled paper appearance) in the bone marrow, but not the metabolic odor seen in PKU.

References:

Ghai Essentials Paediatrics, 10th Edition, Pages 684

↑ *Back to this question in Part A*

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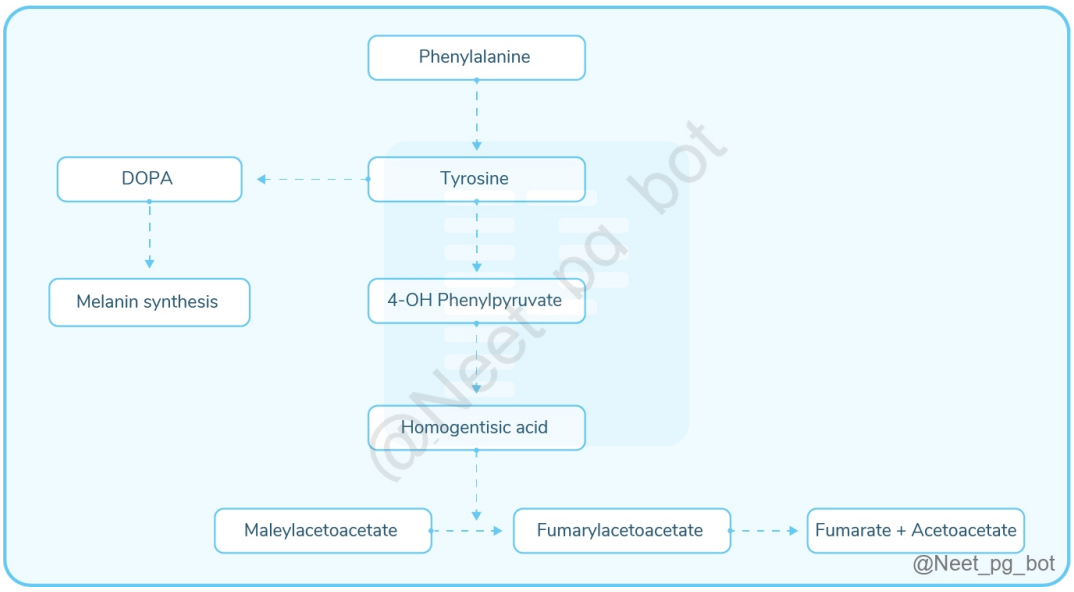
Q27: Which enzyme converts tyrosine to 4-OH Phenylpyruvate? (Q850102)

A. Tyrosinase

B. Tyrosine aminotransferase

C. 4 HPPD (Hydroxy Phenyl pyruvate dioxygenase)

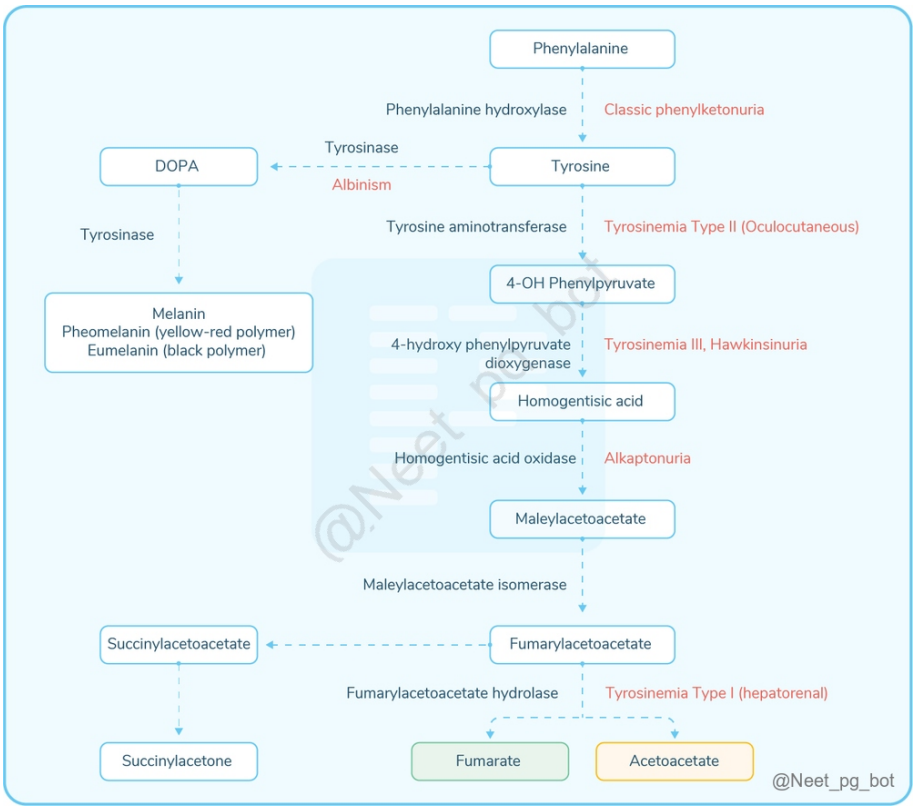
D. None of the above



Correct Answer: B. Tyrosine aminotransferase

- *Listen (English)*
- *Listen (Hindi)*

Explanation: The phenylalanine pathway is crucial for our body, and deficiencies in any of its enzymes can result in serious health disorders like: Phenylketonuria Caused due to the deficiency of phenylalanine hydroxylase causing accumulation of phenylalanine in the body Accumulation of phenylalanine will cause brain damage, and CNS manifestations and gets converted into metabolites like phenylacetate & phenylpyruvate which can be detected in urine and blood. Albinism Caused due to the deficiency of the enzyme tyrosinase Tyrosinemia Caused due to the deficiency of any of the 3 enzymes: Tyrosine aminotransferase Fumarylacetoacetae hydrolase 4 HPPD (Hydroxy phenyl pyruvate dioxygenase) Alkaptonuria Caused due to the deficiency of homogentisic acid oxidase



References:

pubchem.ncbi.nlm.nih.gov/pathway/PathBank:SMP0000008

↑ *Back to this question in Part A*

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Q28: A 7-month-old infant is brought to the clinic for evaluation of vomiting and poor weight gain. The infant started having these symptoms after adding sugar to the diet. The physical exam is notable for hepatomegaly (enlarged liver). Which of the following is the most likely diagnosis? (Q850101)

A. Phenylketonuria

B. Hereditary fructose intolerance

C. Galactosemia

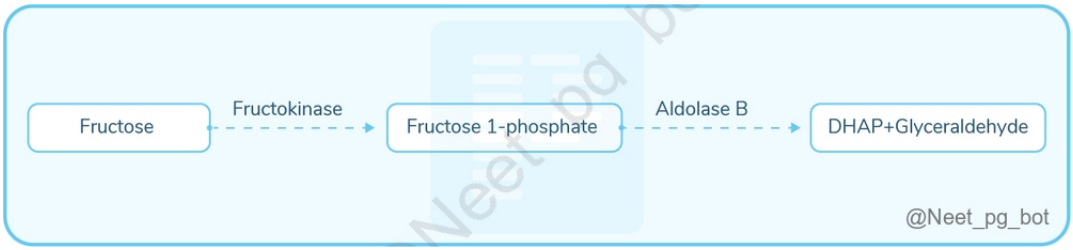
D. Glycogen storage disease type I

Correct Answer: B. Hereditary fructose intolerance

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant's symptoms began after the introduction of sugar. (fructose or sucrose). The sweet odor of the diapers suggests the presence of reducing sugars in the urine, and hepatomegaly is consistent with the accumulation of fructose-1-phosphate in the liver, a key feature of hereditary fructose intolerance. Hereditary fructose intolerance: It is a metabolic disorder characterized by the body's inability to properly break down fructose from a deficiency in the enzyme aldolase B. The deficiency of aldolase B results in the accumulation of fructose-1-phosphate in the liver, leading to liver toxicity and the clinical features characteristic of the disorder. Initial evaluation: Test for reducing substances in urine(Positive Benedict and Selewinoff test for ketose sugar) Management: Complete elimination of foods that contain fructose and sucrose is essential & multivitamin supplementation Phenylketonuria (Option A): Caused by a deficiency in phenylalanine hydroxylase, leading to elevated phenylalanine. Galactosemia (Option C): Due to a deficiency in galactose-1-phosphate uridyltransferase. Glycogen Storage Disease Type I (Option D): Caused by a deficiency in glucose-6-phosphatase.



References:

www.ncbi.nlm.nih.gov/books/NBK559102/#

↑ *Back to this question in Part A*

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Q29: A 3-month-old infant presents with hypotonia, feeding difficulties, and heart failure. Laboratory tests reveal elevated serum creatine kinase and liver enzymes. Which of the following is not a characteristic of this condition? (Q850098)

A. It is caused by a deficiency of acid α-1,4-glucosidase

B. Glycogen accumulates primarily in the cytoplasm of affected cells

C. Enzyme replacement therapy with alglucosidase alfa is available

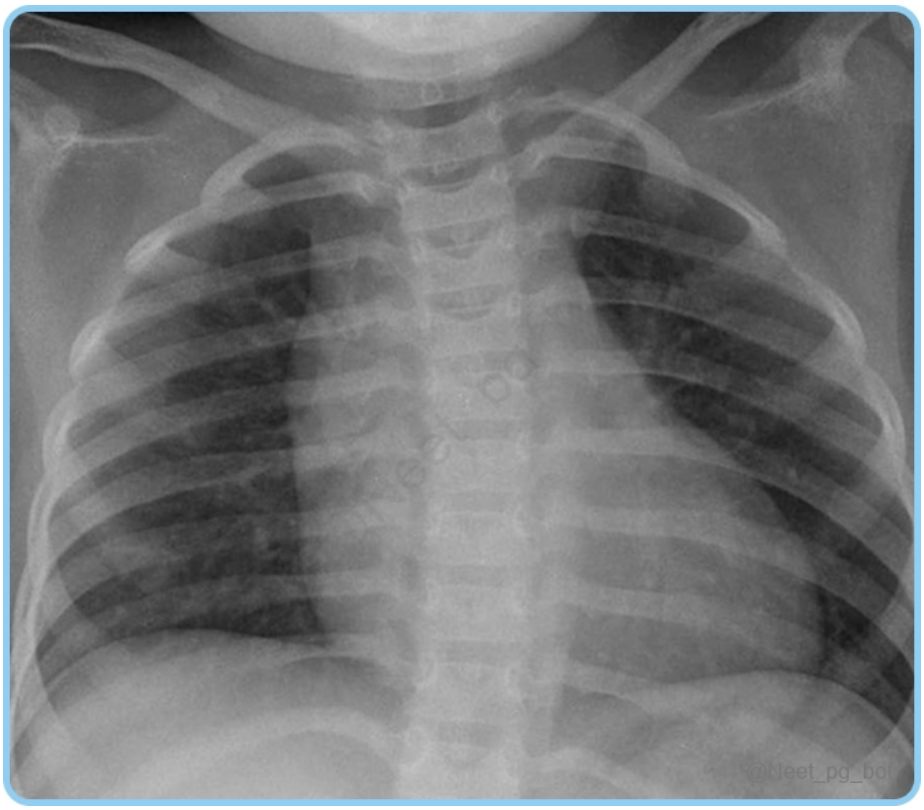
D. Cardiac involvement can include cardiomyopathy

Correct Answer: B. Glycogen accumulates primarily in the cytoplasm of affected cells

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Glycogen accumulates primarily in the cytoplasm of affected cells The given clinical scenario is indicative of Pompe disease (Glycogen storage disease type II) . While cytoplasmic glycogen can be present as the disease progresses due to lysosomal rupture, the primary site of accumulation is within lysosomes. Pompe disease (Glycogen Storage Disease Type II) {{caption_text}} Pompe disease (Glycogen Storage Disease Type II) Definition Glycogen storage disorder caused by deficiency of acid α-1,4-glucosidase (acid maltase) (Option A) Inheritance Autosomal recessive Pathophysiology Accumulation of glycogen in lysosomes, primarily affecting cardiac, skeletal, and smooth muscle cells Forms Infantile Pompe disease (IPD) - Severe Late-onset Pompe disease (LOPD) - Less Severe Clinical Features IPD: Hypotonia, muscle weakness, feeding difficulties, hepatomegaly, hypertrophic cardiomyopathy (Option D) LOPD: Proximal limb girdle muscle weakness, respiratory muscle involvement, cardiac rhythm disturbances Laboratory Findings Elevated serum CK, AST, ALT, LDH Cardiomegaly on chest X-ray (infantile form) ECG changes- shortened P-R interval, tall QRS complexes Histopathology findings Muscle biopsy/ cardiac biopsy has vacuoles within muscle fibers, which stain with PAS strongly (glycogen is PAS positive, diastase sensitive) Treatment Enzyme replacement therapy with alglucosidase alfa (Option C) High-protein diet (for LOPD)



References:

Nelson, Textbook of Paediatrics, 21st Edition, Pages 785, 786, 787

↑ *Back to this question in Part A*

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Q30: Which of the following statements is incorrect with respect to Type 1 (Von Gierke Disease) and Type 3 (Cori Disease) Glycogen Storage Disease? (Q850097)

A. Type 1 GSD is characterized by enlarged kidneys, while Type 3 GSD typically has normal kidney size

B. Muscle involvement is seen in Type 3 GSD but not in Type 1 GSD

C. Lactate levels are typically normal in Type 3 GSD but elevated in Type 1 GSD

D. Liver biopsy in Type 1 GSD shows fibrosis, while in Type 3 GSD it shows distension of hepatocytes by glycogen and fat deposition

Correct Answer: D. Liver biopsy in Type 1 GSD shows fibrosis, while in Type 3 GSD it shows distension of hepatocytes by glycogen and fat deposition

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: On liver histology: Type 1 GSD (Von Gierke Disease): Distension of hepatocytes by glycogen and fat deposition Type 3 GSD (Cori Disease): Fibrosis (branched glycogen acts as a trigger for fibrosis); Paucity of fat The fibrosis and paucity of fat distinguish type III glycogenosis from type I. Type I GSD/Von Gierke Disease Type III GSD/Cori Disease Kidneys Enlarged (Option A) Normal Muscles involvement Not seen (Option B) Seen CPK levels Normal Elevated LFT Normal or slightly elevated SGPT, SGOT levels elevated - Transaminitis & fasting ketosis present Lactate level Elevated (Option C) Normal (Usually) Effect of glucagon No rise in blood glucose but lactic acid levels may increase In fed state: Increase in glucose level In fasting state: No increase in blood glucose level Liver biopsy Distension of hepatocytes by glycogen and fat deposition Fibrosis; Paucity of fat

References:

Nelson, Textbook of Paediatrics, 21st Edition, Pages 778-783

↑ *Back to this question in Part A*

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• [08_Inborn Errors of Metabolism] 020 Lysosomal Storage Disorders

« Back to Folder Directory

[08_Inborn Errors of Metabolism] 020 Lysosomal Storage Disorders — Quick Jump

Q1 (p. 946) *Q2 (p. 948)* *Q3 (p. 949)* *Q4 (p. 950)* *Q5 (p. 951)* *Q6 (p. 952)*
Q7 (p. 954) *Q8 (p. 955)* *Q9 (p. 955)* *Q10 (p. 956)*

Q1: A 4-year-old boy presents with recurrent epistaxis, abdominal distension, and splenomegaly. Laboratory investigations reveal anaemia, thrombocytopenia, and reduced glucocerebrosidase enzyme activity. What is the most likely diagnosis? (Q850119)

A. Krabbe disease

B. Gaucher disease

C. Fabry disease

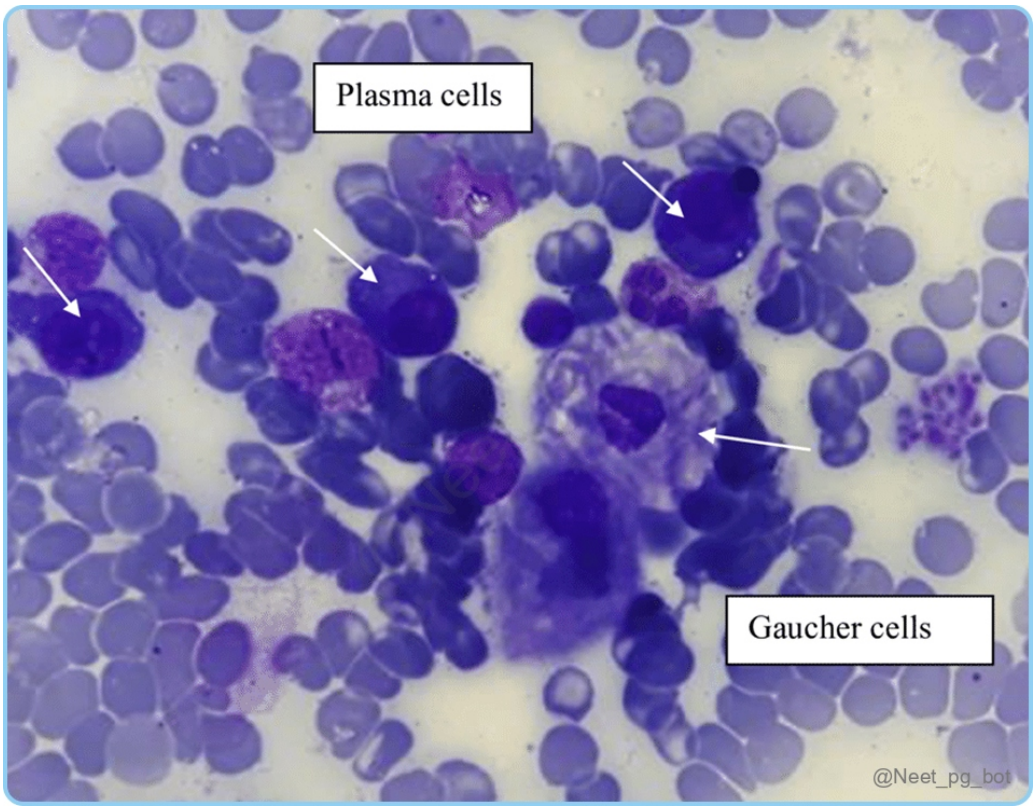
D. Neiman pick disease

Correct Answer: B. Gaucher disease

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given findings are characteristic of Gaucher disease, an autosomal recessive lysosomal storage disorder caused by mutations in the GBA gene , which encodes the enzyme glucocerebrosidase . Clinical Features: Hematologic: Pancytopenia Skeletal: Bone crisis, severe bone pain. Neurological: Parkinsonism, cognitive impairment, neuropathy Investigations: Bone marrow examination: Shows Gaucher cells (macrophages that accumulate with glucocerebroside) with a characteristic wrinkled tissue paper appearance. Enzyme assay: Demonstrates reduced activity of glucocerebrosidase in leukocytes or fibroblasts. Long bone X-rays may show the Erlenmeyer flask deformity. {{caption_text}} {{caption_text}} Krabbe disease(Option A) is due to the deficiency of galactocerebrosidase enzyme, leading to peripheral neuropathy, destruction of oligodendrocytes, developmental delay, and optic atrophy. Fabry disease (Option C) is due to the deficiency of alpha-galactosidase A, leading to angiokeratomas, hyperhidrosis, corneal or lenticular opacities, acroparesthesias, and severe and debilitating pain due to involvement of nerves. Niemann Pick disease (Option D) Type A and B results from the deficiency of the enzyme acid sphingomyelinase.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1130

Ghai Essential Pediatrics, 10th Edition, Pages 655, 656

↑ *Back to this question in Part A*

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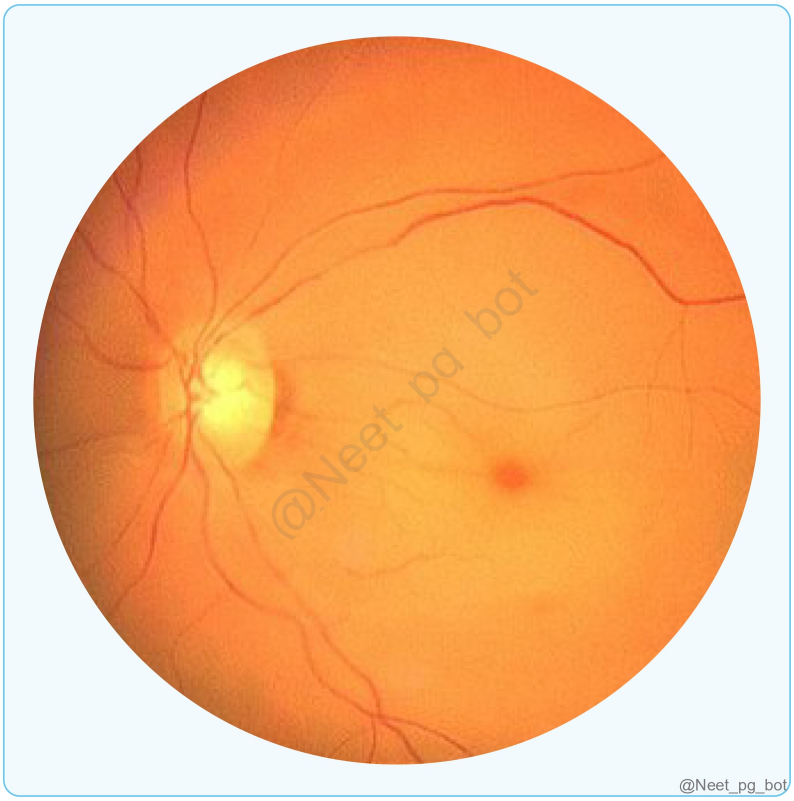
Q2: A 6-month-old infant presents with developmental delay, coarse facial features, and hepatosplenomegaly. Ophthalmological examination reveals a cherry-red spot on the macula. X-rays show skeletal dysplasia with vertebral abnormalities. What is the most likely diagnosis? {{caption_text}} (Q850121)

A. GM1 gangliosidosis

B. Niemann-Pick disease

C. Tay-Sachs disease

D. Krabbe disease



Correct Answer: A. GM1 gangliosidosis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario (bony involvement and cherry red spot) is highly suggestive of GM1 gangliosidosis, a rare inherited lysosomal storage disorder caused by a deficiency of the enzyme beta-galactosidase, resulting in the accumulation of GM1 gangliosides in various tissues, particularly in the central nervous system. Clinical manifestations: Progressive neurodegeneration Developmental delay or regression Seizures Visceromegaly (enlarged liver and spleen) Coarse facial features Cherry-red spot on the macula Skeletal abnormalities Hypotonia Niemann-Pick disease (Option B) presents with hepatosplenomegaly, lung involvement, and neurological deterioration but typically lacks progressive neuropathy and neuro-regression causing intellectual disability seen in GM1 gangliosidosis. Tay-Sachs disease (Option C) features a cherry-red spot on the macula and developmental regression but lacks significant visceromegaly or skeletal abnormalities. Krabbe disease(Option D) is due to the deficiency of galactocerebrosidase enzyme leading to peripheral neuropathy, destruction of oligodendrocytes, developmental delay, and optic atrophy.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3188, 3189

Ghai Essential Pediatrics, 10th Edition, Pages 656, 657, 658

↑ *Back to this question in Part A*

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Q3: A 2-year-old child presents with hepatosplenomegaly, progressive neurological deterioration, and lung involvement. Foam cells are found in the bone marrow, and genetic testing reveals a mutation in the SMPD1 gene. What disease is the child suffering from? (Q850122)

A. Niemann-Pick Disease

B. Gaucher Disease

C. Hunter Disease

D. GM1 Gangliosidosis

Correct Answer: A. Niemann-Pick Disease

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Niemann-Pick Disease (autosomal recessive) is a severe form that typically presents in early childhood with neurological decline, organ enlargement, and lipid-laden foam cells due to a deficiency in sphingomyelinase caused by mutations in the SMPD1 gene. Clinical features: Type A (begins early in life) : feeding difficulties, failure to thrive, developmental delay, later neuroregression, protuberant abdomen with hepatosplenomegaly, and Cherry-red spot on fundus examination in 50% cases Type B (milder disease) : hepatosplenomegaly but no neurological involvement Type C (variable age of onset) : organomegaly,

developmental delay, vertical supranuclear gaze palsy, extrapyramidal manifestations, and psychiatric features Gaucher Disease (Option B) : Due to the deficiency of the tissue enzyme glucocerebrosidase, presenting with visceral (hepatosplenomegaly), and bone marrow involvement leading to anemia, thrombocytopenia, leukopenia, bone pains, fractures, and may be associated with neurological symptoms Hunter Disease (Option C) : Due to the deficiency of the iduronate 2-sulfatase enzyme (IDS), resulting in intracellular and extracellular accumulation of heparan sulfate (HS) and dermatan sulfate (DS) in multiple organs of the body. GM1 gangliosidosis (Option D) : Caused by a deficiency of the enzyme beta-galactosidase, resulting in accumulation of GM1 gangliosides in various tissues, particularly in the central nervous system.

References:

Ghai Essential Pediatrics, 10th Edition, Page 658

https://www.ncbi.nlm.nih.gov/books/NBK560829/

↑ *Back to this question in Part A*

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Q4: A 7-month-old infant presents with developmental regression, loss of head control, spasticity, and an exaggerated startle response. The infant is diagnosed with Tay-Sachs disease. Which of the following regarding this condition is not correct? (Q850124)

A. Inherited in an autosomal recessive pattern

B. Caused by hexosaminidase A deficiency

C. Cherry-red spot on fundus

D. Associated with splenomegaly

Correct Answer: D. Associated with splenomegaly

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Organomegaly is not seen in Tay-Sachs disease. Tay-Sachs Disease: Features Description Inheritance Autosomal recessive (Option A) Cause Deficiency of hexosaminidase A enzyme (Option B) Accumulation GM2 ganglioside in ganglion cells and neurons Clinical Manifestations Initial symptoms include loss of head control, inability to sit, exaggerated startle response to sound, and a disproportionately large head. Progressive features include spasticity, deafness, and blindness. Not associated with organomegaly. Fundus Finding Cherry-red spot (Option C) is caused by GM2 ganglioside accumulation in the ganglion cells of the retina, creating a contrast with the normal red fovea.

References:

Ghai Essentials of Pediatrics, 10th Edition, Page 693

emedicine.medscape.com/article/945966-clinical#b4

https://www.ncbi.nlm.nih.gov/books/NBK564432/#

↑ *Back to this question in Part A*

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Q5: Match the following types of mucopolysaccharidosis (MPS) with their corresponding enzyme deficiencies: Types of MPS Enzyme deficiencies 1.MPS I a. N-acetylgalactosamine-6-sulfatase 2.MPS II b. Iduronate-2-sulfatase 3.MPS IV c. Alpha-L-iduronidase 4.MPS VI d. Arylsulfatase B (Q850127)

A. 1-c, 2-b, 3-a, 4-d

B. 1-b, 2-c, 3-d, 4-a

C. 1-a, 2-d, 3-b, 4-c

D. 1-d, 2-a, 3-c, 4-b

Correct Answer: A. 1-c, 2-b, 3-a, 4-d

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: MPS Type MPS I (Hurler syndrome) MPS II (Hunter syndrome) MPS IV (Morquio syndrome) MPS VI (Maroteaux-Lamy syndrome) Enzyme Deficiency Alpha-L Iduronidase MPS 1= Alpha LID Iduronate-2-sulfatase N-acetylgalactosamine-6-sulfatase Arylsulfatase B Gene IDUA IDS GALNS (Type A) GLB1 (Type B) ARSB Inheritance Autosomal recessive X-linked recessive (Males- Hunters- No corneal clouding (Clear vision for hunting)) Autosomal recessive Autosomal recessive Primary GAGs Accumulated Heparan sulfate, Dermatan sulfate Heparan sulfate, Dermatan sulfate Keratan sulfate, Chondroitin-6-sulfate Dermatan sulfate Types Three subtypes: Hurler Syndrome: Severe form, Type Ia. Hurler-Scheie Syndrome: Intermediate form, Type Ia. Scheie Syndrome : Attenuated form, Type Ib. Two subtypes: Type A (more common) Type B Features Doll like facies Developmental delay Organomegaly Skeletal abnormalities Corneal clouding Primarily affects males It is the same clinically as Hurler except there is no corneal clouding and peppble-like skin present. Skeletal dysplasia Short stature Joint hypermobility Corneal clouding Preserved intelligence Variable progression rate Coarse facial features Skeletal abnormalities Heart valve problems Normal intelligence

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 769, 810, 812, 813, 814

Ghai Essential Pediatrics, 10th Edition, Page 655, 656

↑ *Back to this question in Part A*

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Q6: Which of the following is not a clinical feature of Hunter Syndrome (MPS-II)? (Q850128)

A. Coarse facial features

B. Short stature

C. Dysostosis multiplex

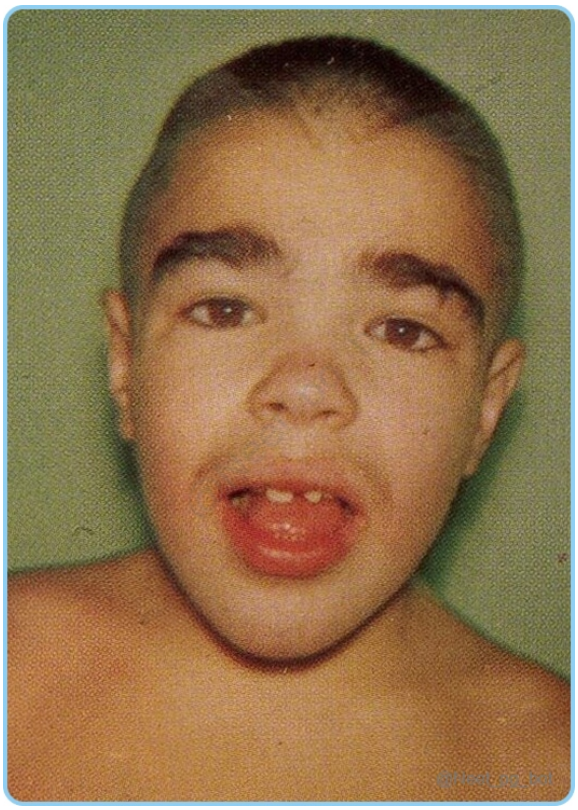
D. Corneal clouding

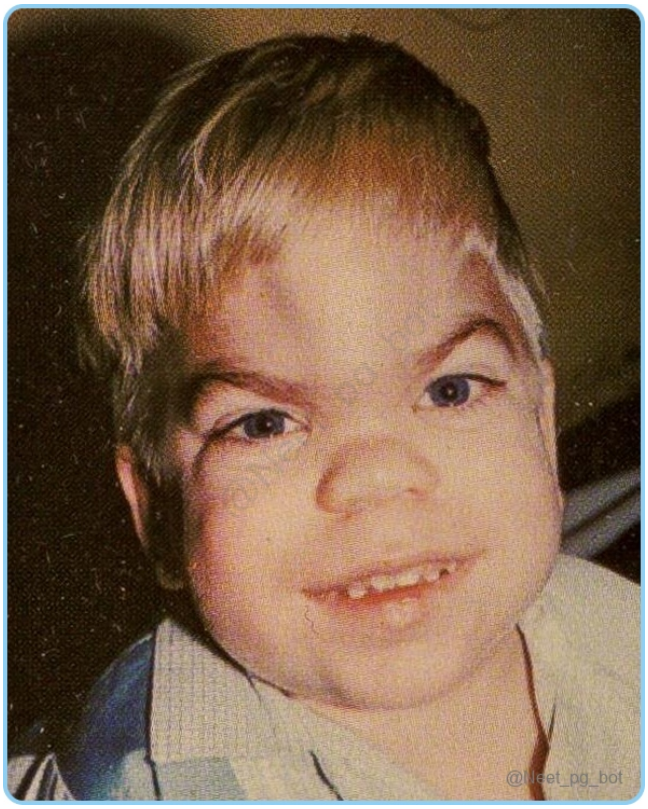
Correct Answer: D. Corneal clouding

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Corneal clouding , is not a clinical feature of Hunter Syndrome and is instead a distinguishing feature of Hurler Syndrome. Feature Hunter Syndrome (MPS-II) Hurler Syndrome (MPS-I) Gene/Enzyme Deficiency Iduronate sulfatase (IDS) α-L-iduronidase Inheritance X-linked recessive Autosomal recessive Corneal Clouding Absent Present Coarse Facial Features Present Present Short Stature Dysostosis Multiplex Joint Stiffness Intellectual Disability Mild to moderate, usually less severe than Hurler syndrome Severe Hepatosplenomegaly Present Present Skeletal Dysplasia Hearing Loss Life Expectancy Variable, often longer than Hurler syndrome Usually fatal before 10 years of age {{caption_text}} {{caption_text}}





References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 812, 813, 814

↑ *Back to this question in Part A*

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Q7: A 10-year-old boy presents with recurrent burning pain in his hands and feet, exacerbated by exercise. He has dark red spots on his skin, particularly on his lower back and thighs, and experiences visual disturbances. Laboratory evaluation revealed uremia. Which of the following enzyme deficiency is associated with this condition? (Q850129)

A. Alpha-galactosidase A

B. Iduronate sulfatase

C. Beta-galactosidase

D. N-acetylgalactosamine-4-sulfatase

Correct Answer: A. Alpha-galactosidase A

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The symptoms described in the case scenario (burning pain, angiokeratomas, hypohidrosis, and visual disturbances) are characteristic of Fabry disease, which is due to the deficiency of alpha-galactosidase A. Fabry's disease Inheritance X-linked recessive Deficient Enzyme α-galactosidase A (α-gal A) Accumulated Substance Globotriaosylceramide (GL-3) Affected Cells Vascular endothelium, smooth muscle cells, cardiac myocytes, renal podocytes Common Clinical Features Angiokeratomas (telangiectatic skin lesions) Hypohidrosis (reduced sweating) Corneal and lenticular opacities Painful acroparesthesias (burning sensations in extremities) Complications Kidney failure (proteinuria) Heart disease (left ventricular hypertrophy, coronary artery disease, valvular infiltrative myopathy) Stroke Treatment Enzyme replacement therapy (ERT) Management of neuropathic pain Iduronate sulfatase (Option B) deficiency leads to Hunter syndrome , characterised by developmental delays and skeletal abnormalities but not burning pain or visual disturbances. Beta-galactosidase(Option C) deficiency leads to GM1 gangliosidosis, presenting as progressive neurodegeneration, developmental delay or regression, and seizures. N-acetylgalactosamine-4-sulfatase (Option D) deficiency is associated with Maroteaux-Lamy syndrome , marked by skeletal abnormalities and organomegaly, but not burning pain or visual disturbances, rather than the symptoms described in the scenario . .

References:

Nelson Textbook of Pediatrics, 21st edition, Page 774,775

↑ *Back to this question in Part A*

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Q8: A 3-year-old boy is diagnosed with a deficiency of hypoxanthine-guanine phosphoribosyltransferase (HGPRT) based on genetic testing. Which of the following findings is not typically associated with this condition? (Q850130)

A. Self-mutilation

B. Hyperuricemia

C. Intellectual disability

D. Hepatomegaly

Correct Answer: D. Hepatomegaly

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Self-mutilation, hyperuricemia, and intellectual disability are all typical findings in Lesch-Nyhan syndrome , whereas hepatomegaly is not commonly associated with this condition. Lesch-Nyhan syndrome Cause Deficiency of hypoxanthine-guanine phosphoribosyltransferase (HPRT) Inheritance X-linked recessive Variants Classic Lesch-Nyhan syndrome : Undetectable HPRT levels. Kelley-Seegmiller syndrome : Partial HPRT deficiency with variable neurological dysfunction. Clinical Features Self-injurious behaviour : Biting lips, fingers, tongue; begins with tooth eruption. Cognitive impairment : Intellectual disability ranging from mild to severe. Movement disorder : Starts with hypotonia, progresses to dystonia, choreoathetosis, oromandibular dystonia, and inspiratory stridor. Oculomotor apraxia : Difficulty controlling eye movements. Dysarthric speech : Difficulty speaking clearly. Complications Hyperuricemia : Causes gout and kidney stones. Neurological symptoms : Abnormalities in the dopamine system, reduced dopamine transporters. Treatment Allopurinol : Reduces uric acid levels and manages hyperuricemia Symptom management : Controls movement disorders and self-injurious behaviours.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 820, 821

↑ *Back to this question in Part A*

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Q9: A 6-month-old male infant presents with developmental delay, hypotonia, and recurrent myoclonic seizures. On examination, he is found to have hypopigmented skin, kinky hair and a distinctive facial appearance with a depressed nasal bridge. Which of the following is true regarding this condition? (Q850131)

A. Deficiency of the enzyme lysyl oxidase

B. Mutations involving the ATP7B gene

C. Treatment with copper-histidine

D. Primarily affects females

Correct Answer: C. Treatment with copper-histidine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Early treatment with copper-histidine can improve outcomes if started within the first six weeks of life. Menkes Disease (Menke's Kinky Hair Disease) Inheritance X-linked recessive and primarily affects males (Option D) Affected Gene ATP7A (codes for copper-transporting P-type ATPase) Gene Location Xq21.1 Pathophysiology Deficiency in copper absorption and transport, copper accumulation in some tissues, and deficiency in others Clinical Features Hypothermia Hypotonia Generalised myoclonic seizures Distinctive facies (chubby cheeks, depressed nasal bridge) Kinky, colourless, brittle hair (trichorrhexis nodosa, pili torti) Hypopigmentation Feeding difficulties (failure to thrive) Severe cognitive impairment (optic atrophy) Neuropathologic changes (tortuous degeneration of grey matter, cerebellar changes) Severity Progressive and often fatal by age three if untreated. Treatment Early initiation of copper-histidine therapy within the first six weeks of life. Deficiency of the enzyme lysyl oxidase (Option A) affects collagen cross-linking and leads to connective tissue disorders like Ehlers-Danlos syndrome. Mutations in the ATP7B gene (Option B) are associated with Wilson's disease , which involves copper accumulation rather than the copper transport deficiency seen in Menke's disease. Primarily affects females (Option D) , as it is X-linked recessive, males are mostly affected

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2008, 3129

↑ *Back to this question in Part A*

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Q10: A 2 year old child presents with hemolytic facies and splenomegaly. What all investigations will you do? 1. Peripheral Smear 2. Hb HPLC 3. Bone marrow aspiration 4. PT, apTT (Q850132)

A. 1, 2

B. 1, 2, 3

C. 1, 3, 4

D. 3, 4

Correct Answer: A. 1, 2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This 2-year-old child presents with a classic "pediatric hematology" triad that strongly suggests a chronic hemolytic anemia, most likely Thalassemia Major : Hemolytic Facies (Chipmunk Facies): This is caused by extramedullary hematopoiesis . Because the bone marrow in the long bones cannot keep up with the demand for red cells, the marrow in the flat bones of the skull and face expands. This leads to frontal bossing, prominent malar (cheek) bones, and dental malocclusion. Splenomegaly: The spleen enlarges because it is overworked - both in filtering out defective red blood cells and as a site for extra blood production. Age of Presentation: Most children with Beta-Thalassemia Major become symptomatic between 6 months and 2 years of age as their fetal hemoglobin (HbF) naturally drops and is not replaced by functional adult hemoglobin (HbA). Peripheral Smear (Investigation 1): This is the essential first step. In Thalassemia, you will see microcytic hypochromic anemia with characteristic target cells , nucleated red blood cells (NRBCs), and teardrop cells. This helps rule out other causes of anemia. Hb HPLC (High-Performance Liquid Chromatography) (Investigation 2): This is the gold standard diagnostic test . It quantifies the types of hemoglobin present. In Beta-Thalassemia Major, HPLC will show a massive increase in HbF and HbA2 , with little to no HbA. Summary of Diagnostic Workup Test Expected Result in Thalassemia Major CBC Low Hemoglobin, Low MCV, Low MCH. Peripheral Smear Target cells , hypochromia, microcytosis. Hb HPLC High HbF (> 90% in some cases) , High HbA2. Iron Studies High Serum Iron/Ferritin (due to chronic hemolysis). X-ray Skull "Hair-on-end" appearance due to marrow expansion. Bone marrow aspiration (Investigation 3): While bone marrow would show erythroid hyperplasia (an overactive marrow), it is not necessary for the diagnosis of Thalassemia. We avoid invasive procedures in children if blood tests (like HPLC) can provide the answer. It is usually reserved for suspected leukemia or aplastic anemia. PT, aPTT (Investigation 4): These are coagulation studies used to check for bleeding disorders (like Hemophilia) or liver failure. They have no diagnostic value for hemolytic anemias or Thalassemia.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 761, 776

↑ *Back to this question in Part A*

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• [08_Inborn Errors of Metabolism] 021 Previous Year Questions

« Back to Folder Directory

[08_Inborn Errors of Metabolism] 021 Previous Year Questions — Quick Jump

Q1 (p. 958) *Q2 (p. 958)* *Q3 (p. 959)* *Q4 (p. 960)* *Q5 (p. 961)* *Q6 (p. 962)* *Q7 (p. 963)*

Q1: A 5-year-old child presents with hepatosplenomegaly and cherry-red spots on the retina. The child exhibits a normal startle reflex but shows developmental regression. Based on these clinical features, which of the following enzymes is deficient in this patient? (Q865440)

A. Hexosaminidase A

B. Sphingomyelinase

C. Glucocerebrosidase

D. Arylsulfatase A

Correct Answer: B. Sphingomyelinase

Explanation: Sphingomyelinase is deficient in Niemann–Pick disease (Type A). Causes hepatosplenomegaly , developmental regression, cherry-red spot , and a normal (not exaggerated) startle reflex — perfectly matching the case. Hexosaminidase A (Option A): Seen in Tay–Sachs disease. Causes cherry-red spot and regression but has exaggerated startle reflex and no hepatosplenomegaly , so it does not match this case. Glucocerebrosidase (Option C): Deficient in Gaucher disease. Causes hepatosplenomegaly and bone crises, but cherry-red spots are rare , making it unlikely for this presentation. Arylsulfatase A (Option D): Deficient in Metachromatic Leukodystrophy. Causes progressive demyelination and neuropathy; no cherry-red spot or hepatosplenomegaly , so it does not fit the findings.

References:

O.P Ghai Essentials of Pediatrics, 10th Edition, Pages 692

↑ *Back to this question in Part A*

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Q2: A child presents with progressive developmental delay, hepatosplenomegaly, and coarse facial features. On examination, corneal clouding is present. An enzyme assay

reveals a deficiency of α-L-iduronidase. Which of the following substances is most likely to accumulate in the lysosomes of this patient? A child presents with developmental delay and coarse facial features. Enzyme assay reveals a deficiency of . Which of the following substances is most likely to accumulate in this condition? (Q866372)

A. Dermatan sulfate + Chondroitin sulfate

B. Only Dermatan sulfate

C. Dermatan sulfate + Heparan sulfate

D. Heparan sulfate + Chondroitin sulfate

Correct Answer: C. Dermatan sulfate + Heparan sulfate

Explanation: Dermatan sulfate + Heparan sulfate Alpha-L-iduronidase deficiency results in Hurler Syndrome (MPS Type I) . This enzyme is responsible for the degradation of specific glycosaminoglycans (GAGs) by cleaving the terminal alpha-L-iduronic acid residues. Both Dermatan sulfate and Heparan sulfate contain these iduronic acid residues in their carbohydrate chains. When the enzyme is missing, the degradation of both molecules is halted at the same step, leading to their toxic accumulation within lysosomes. Dermatan sulfate accumulation is primarily responsible for valvular heart disease and joint stiffness. Heparan sulfate accumulation is primarily linked to progressive neurodegeneration and developmental delay. Incorrect Options: Option A & D (Chondroitin sulfate): Chondroitin sulfate degradation does not require alpha-L-iduronidase; it is handled by enzymes like galactosamine-6-sulfatase (deficient in Morquio syndrome). Therefore, it does not accumulate in Hurler Syndrome. Option B (Only Dermatan sulfate): While Dermatan sulfate is a major component of the storage material, it is never found in isolation in MPS I.

References:

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↑ *Back to this question in Part A*

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Q3: An infant presents with vomiting after feeding. A Benedict's test was performed and returned positive for a non-glucose substance. Which of the following is the most likely diagnosis? (Q844217)

A. Galactosemia due to GAL-1-P uridyl transferase enzyme deficiency

B. Hereditary fructose intolerance due to aldolase B deficiency

C. Glucose-6-Phosphate dehydrogenase (G6PD) deficiency

D. Galactosemia due to galactokinase enzyme deficiency

Correct Answer: A. Galactosemia due to GAL-1-P uridyl transferase enzyme deficiency

Explanation: Correct Option: A) Galactosemia due to GAL-1-P uridyl transferase enzyme deficiency: This is the most likely diagnosis, given the presentation of vomiting after feeding and a positive Benedict's test for a non-glucose substance, consistent with the presence of galactose in the urine. Incorrect Options: Option B) Hereditary fructose intolerance due to aldolase B deficiency: Hereditary fructose intolerance results from a deficiency in aldolase B, leading to the accumulation of fructose-1-phosphate after ingestion of fructose, sucrose, or sorbitol. Symptoms include vomiting, hypoglycemia, and liver damage. The Benedict's test would show a positive result for fructose, but this condition typically presents after the introduction of fructose-containing foods, not in the newborn period. Option C) Glucose-6-Phosphate dehydrogenase (G6PD) deficiency: G6PD deficiency leads to hemolytic anemia, particularly after exposure to certain triggers like infections or certain foods/drugs. This condition does not typically cause a positive Benedict's test for a non-glucose substance, nor does it present with vomiting after feeding. Option D) Galactosemia due to galactokinase enzyme deficiency: This milder form of galactosemia results from a deficiency in galactokinase, leading to the accumulation of galactose, which can cause cataracts. However, it usually does not cause severe systemic symptoms like those seen in GAL-1-P uridyl transferase deficiency, and the Benedict's test would still be positive for galactose.

↑ *Back to this question in Part A*

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Q4: A floppy infant presents with hypotonia, hepatomegaly, and an X-ray showing cardiomegaly. Which of the following is the most likely diagnosis? (Q844240)

A. Pompe disease

B. Transposition of the Great Arteries (TGA)

C. Tetralogy of Fallot (TOF)

D. Ebstein's anomaly

Correct Answer: A. Pompe disease

Explanation: Pompe disease is a glycogen storage disorder (Type II) caused by a deficiency of acid alpha-glucosidase (acid maltase). It leads to the accumulation of glycogen in lysosomes, primarily affecting cardiac and skeletal muscle. Clinical features include: Floppy infant with profound hypotonia ("floppy baby") Cardiomegaly due to hypertrophic cardiomyopathy Hepatomegaly from glycogen accumulation Respiratory distress and feeding difficulties The combination of hypotonia, hepatomegaly, and cardiomegaly on X-ray fits classic infantile Pompe disease. Transposition of the Great Arteries (TGA) (Option B): TGA is a cyanotic congenital heart defect with discordant ventriculoarterial connections. Presents with cyanosis, not hypotonia or hepatomegaly. Cardiomegaly may be present, but hepatomegaly and hypotonia are not typical. Tetralogy of Fallot

(TOF) (Option C): TOF is a cyanotic congenital heart disease with right ventricular outflow obstruction, ventricular septal defect, overriding aorta, and RV hypertrophy. Presents with cyanosis and "tet spells." Hypotonia and hepatomegaly are not usual features. Ebstein's anomaly (Option D): A congenital malformation of the tricuspid valve causing atrialization of the right ventricle. Presents with cyanosis, heart failure signs, but does not typically cause hypotonia or hepatomegaly in infancy.

References:

https://www.ncbi.nlm.nih.gov/books/NBK1261/ https://pmc.ncbi.nlm.nih.gov/articles/PMC2721312/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 10-year-old boy is brought to the OPD with pain, redness, and swelling around his great toe. His serum uric acid level is 9.4 mg/dL. His mother also mentions that he frequently bites his lips and has symptoms of spasticity and dystonia. Which enzyme is most likely deficient in this condition? (Q860280)

A. Cystathionine beta-synthase

B. Dihydrothymidine oxidase

C. Hypoxanthine-guanine phosphoribosyltransferase

D. Xanthine oxidase

Correct Answer: C. Hypoxanthine-guanine phosphoribosyltransferase

Explanation: The clinical manifestations, such as combination of hyperuricemia (leading to gout-like symptoms), neurological manifestations including dystonia and spasticity, and self-mutilating behavior such as lip-biting indicate Lesch-Nyhan syndrome. Lesch-Nyhan syndrome, an X-linked recessive disorder , is caused by a deficiency of hypoxanthine-guanine phosphoribosyltransferase (HGPRT), which results in impaired purine metabolism. Pathophysiology: HGPRT deficiency leads to: Accumulation of purine metabolites Excessive uric acid production Neurological complications (dystonia and spasticity) Lesch-Nyhan syndrome Cause Deficiency of hypoxanthine-guanine phosphoribosyltransferase (HPRT) Inheritance X-linked recessive Variants Classic Lesch-Nyhan syndrome : Undetectable HPRT levels. Kelley-Seegmiller syndrome : Partial HPRT deficiency with variable neurological dysfunction. Clinical Features Self-injurious behaviour : Biting lips, fingers, tongue; begins with tooth eruption. Cognitive impairment : Intellectual disability ranging from mild to severe. Movement disorder : Starts with hypotonia, progresses to dystonia, choreoathetosis, oromandibular dystonia, and inspiratory stridor. Oculomotor apraxia : Difficulty controlling eye movements. Dysarthric speech : Difficulty speaking clearly. Complications Hyperuricemia : Causes gout and kidney stones. Neurological symptoms : Abnormalities in the dopamine system, reduced dopamine transporters. Treatment Allopurinol : Reduces uric acid levels and manages hyperuricemia. Symptom management : Controls movement disorders and self-injurious behaviours. Incorrect Options: Cystathionine beta-synthase (Option A): This enzyme is involved in homocysteine metabolism, and its deficiency would lead to homocystinuria with manifestations like lens dislocation, skeletal abnormalities, and

thromboembolism . It does not cause hyperuricemia or self-mutilating behavior. Dihydrothymidine oxidase (Option B): This enzyme is involved in pyrimidine metabolism, and its deficiency would not cause elevated uric acid levels or neurological symptoms seen in this case. Xanthine oxidase (Option D): Deficiency of this enzyme causes xanthinuria, characterized by low uric acid levels, not elevation as seen in this case. Its manifestations include abdominal pain, recurrent UTI, hematuria & muscle cramping.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3158

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 3-year-old child immediately cries after breastfeeding, followed by vomiting and diarrhea. Which enzyme deficiency might be responsible? (Q860285)

A. Aldolase B

B. Phenylalanine Hydroxylase

C. Galactose-1-Phosphate Uridyl Transferase

D. Glucocerebrosidase

Correct Answer: C. Galactose-1-Phosphate Uridyl Transferase

Explanation: The clinical manifestations indicate Galactosemia , a disorder caused by Galactose-1-phosphate uridyl transferase (GALT) deficiency . The immediate symptoms after breast milk ingestion, including crying, vomiting, and diarrhea, are hallmark features of this condition. Galactosemia Enzyme Deficiency Galactose-1-phosphate uridylyltransferase (GALT) - Classical type Galactokinase - benign disease with only oil drop cataract. Epimerase - SNHL + symptoms of classical type (Low galactose-based diet can be given, which is contraindicated in the classical type) Pathophysiology Accumulation of galactose-1-phosphate (toxic causing jaundice, and liver damage) Inability to metabolize galactose from milk Damage to liver, kidney, and brain Clinical Features Hepatic: Jaundice, hepatomegaly GI: Vomiting, diarrhea, failure to thrive CNS: Seizures, intellectual disability Eyes: Oil drop cataracts Increased risk of E. coli sepsis Diagnosis Reducing substance in urine (positive) (Positive Benedict test but negative glucose oxidase test) Direct enzyme (GALT) assay Genetic testing (Perinatal diagnosis is possible) Management Lactose-free diet Breast Milk contraindicated Soy-based or elemental formulas Calcium supplementation Incorrect Options: Aldolase B (Option A): This enzyme deficiency results in hereditary fructose intolerance, causing symptoms after fructose ingestion rather than milk consumption. The presenting symptoms would be triggered by fruits and sweet foods, not breast milk. Phenylalanine Hydroxylase (Option B): Deficiency of this enzyme causes phenylketonuria (PKU), presenting with developmental delay and neurological symptoms rather than acute post-feeding distress. PKU symptoms are not immediately related to breast milk ingestion. Glucocerebrosidase (Option D): This enzyme deficiency leads to Gaucher disease, characterized by hepatosplenomegaly, bone problems, and hematological abnormalities. It does not cause acute gastrointestinal symptoms after milk ingestion.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 788 and 789

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: Which vitamin deficiency can result in seizures in newborns? (Q856771)

A. Pyridoxine

B. Thiamine

C. Riboflavin

D. Pantothenic acid

Correct Answer: A. Pyridoxine

Explanation: Deficiency of pyridoxine (Vitamin B6) can lead to refractory seizures in neonates and infants. Pyridoxine is essential for the proper functioning of the nervous system, and its deficiency can disrupt normal brain development and function, leading to seizures in newborns. Deficiency of thiamine (Vitamin B1) (Option B) can result in a condition called beriberi, which primarily affects the cardiovascular and nervous systems but does not typically cause neonatal seizures. Riboflavin (Vitamin B2) (Option C) is necessary for energy production and the metabolism of fats, carbohydrates, and proteins. While riboflavin deficiency can lead to various symptoms, including skin and eye abnormalities, it is not typically associated with neonatal seizures. Pantothenic acid (Vitamin B5) (Option D) is involved in the synthesis of coenzyme A, which is essential for energy metabolism. Deficiency of pantothenic acid is not associated with neonatal seizures. Pyridoxine (Vitamin B6): RDA: 0.1-0.3 mg/day Dietary Sources: Banana, wheat germ, rice, sunflower seeds, fish, poultry. Pyridoxine (B6) deficiency Cause High protein intake. Certain medications (eg. Isoniazid) Oral contraceptives. Dialysis. Clinical features: Infants: Irritability, seizures , vomiting, failure to thrive. Adults: Peripheral neuritis, cheilosis, glossitis, seborrheic dermatitis, anemia. Dependency Syndromes: Pyridoxine-dependent epilepsy, Vitamin B6-responsive anemia. Diagnosis: Low AST/ALT, high urinary xanthurenic acid, EEG response to pyridoxine. Treatment: Convulsions: 100 mg pyridoxine IM/IV, then oral intake. Dependency: 2-10 mg IM or 10-100 mg orally daily.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 735, 736, 3099

↑ *Back to this question in Part A*

@Neet_pg_bot

• [09_Diseases of Immune System] 022 Primary Immunodeficiency And Vasculitis In Children

« Back to Folder Directory

[09_Diseases of Immune System] 022 Primary Immunodeficiency And Vasculitis In Children — Quick Jump

Q1 (p. 964)	*Q2 (p. 965)*	*Q3 (p. 966)*	*Q4 (p. 966)*	*Q5 (p. 967)*	*Q6 (p. 968)*
Q7 (p. 969)	*Q8 (p. 970)*	*Q9 (p. 971)*	*Q10 (p. 972)*	*Q11 (p. 973)*	*Q12 (p. 974)*
Q13 (p. 975)	*Q14 (p. 976)*	*Q15 (p. 977)*	*Q16 (p. 979)*		

Q1: A 6-month-old male infant presents with recurrent bacterial infections, including otitis media and pneumonia. Laboratory tests reveal very low levels of immunoglobulins (IgG, IgA, and IgM) and an absence of B cells (CD19+ cells) in the peripheral blood. What is the most likely diagnosis? (Q849849)

A. Severe Combined Immunodeficiency (SCID)

B. DiGeorge Syndrome

C. Common Variable Immunodeficiency (CVID)

D. Bruton's Disease

Correct Answer: D. Bruton's Disease

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Bruton’s Disease Also known as X-linked agammaglobulinemia (XLA), caused by mutations in the BTK (Bruton’s tyrosine kinase) gene present on the q22 long arm of the X chromosome. Defective B-cell maturation leads to an absence of mature B cells and very low levels of all immunoglobulins (IgG, IgA, IgM). Clinical features : Presents after 6-9 months of age. Recurrent bacterial infections (eg, encapsulated bacteria like Streptococcus pneumonia, Haemophilus influenzae) starting around 6 months of age, including otitis media, pneumonia, and sinusitis, Neutropenia, and enterovirus infections. Severe Combined Immunodeficiency (SCID) (Option A): Affects both T-cells and B-cells and causes severe infections early in life but not limited to B-cell deficiency as in Bruton's disease. DiGeorge Syndrome (Option B): Involves T-cell deficiency due to thymic hypoplasia and presents with congenital heart defects and facial anomalies Common Variable Immunodeficiency (CVID) (Option C): Usually presents later in life (adolescence or adulthood) with B cells present but dysfunctional

References:

Nelson Textbook of Pediatrics, 21st Edition, Page1107, 1108

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 5 year old girl presents with a history of recurrent sinopulmonary infections, over the past several years. She also reports chronic diarrhea and has had several episodes of unexplained weight loss. On examination her lymph nodes are palpable and sarcoid like granuloma seen. Laboratory tests reveal low serum immunoglobulin levels (IgG, IgA, and IgM). Which of the following is the most likely diagnosis? (Q849850)

A. Severe Combined Immunodeficiency

B. Common Variable Immunodeficiency

C. IgA Deficiency

D. Hyper IgM Syndrome

Correct Answer: B. Common Variable Immunodeficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Common Variable Immunodeficiency (CVID) CVID is a primary immunodeficiency disorder characterized by hypogammaglobulinemia, where IgG must be <2 standard deviations below the age-adjusted norms with low IgA or IgM levels. Genes known to produce CVID phenotype when mutated include ICOS deficiency, SH2DIA, CD19, CD20, CD21, BAFF-R, and TACI. Both B and T cells are affected Clinical Features : Sinopulmonary infections (e.g., pneumonia, bronchitis, sinusitis, otitis media) are particularly common due to impaired antibody response. Chronic diarrhea, malabsorption, and weight loss are common, Higher risk of developing lymphoma, autoimmune diseases and Non-infectious granulomas can occur in various organs, including the lungs, liver, and spleen. Severe Combined Immunodeficiency (SCID) (Option A): Severe immunodeficiency that typically presents in infancy with life-threatening infections due to profound T-cell dysfunction, not in adulthood with isolated respiratory symptoms. IgA Deficiency (Option C): Typically presents with isolated low IgA levels, while IgG and IgM remain normal, unlike CVID, which involves multiple immunoglobulin deficiencies. Hyper IgM Syndrome (Option D): It presents in early childhood with recurrent infections and is characterized by elevated or normal IgM with low IgG and IgA.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1109, 1110

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: Which of the following values of serum IgA is typically indicative of selective IgA deficiency? (Q849851)

A. < 5 mg/dL

B. < 10 mg/dL

C. < 15 mg/dL

D. < 20 mg/dL

Correct Answer: A. < 5 mg/dL

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Selective IgA Deficiency Isolated absence or near absence(< 5 mg/dL) of serum and secretory IgA is the most common well-defined immunodeficiency disorder. Patients with Selective IgA deficiency also report IgG2 subclass deficiency Diagnosis : Diagnosis cannot be made until 4 years of age, when IgA levels should be mature to adult levels. Based on serum immunoglobulin levels showing low IgA with normal IgG and IgM levels.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1110

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 6-year-old boy presents with recurrent infections, including pneumocystis pneumonia, and has a history of chronic diarrhea. Laboratory tests reveal elevated serum IgM levels and low levels of IgG and IgA. Which of the following genetic mutations is most commonly associated with this condition? (Q849852)

A. RAG1

B. CD40L

C. IL-12Rβ1

D. ADA

Correct Answer: B. CD40L

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above features are suggestive of Hyper IgM syndrome due to mutation in CD40 Ligand gene. X-Linked Hyper IgM Syndrome Autosomal Recessive Hyper IgM Syndrome Mutation in the CD40 ligand on T cells (CD40L) gene Mutations in Activation Induced Cytidine Deaminase(AICDA) and CD40 gene X-linked recessive; predominantly affects males. Autosomal recessive; affects both males and females equally Deficiency in CD40L impairs B cell and T cell communication, affecting immunoglobulin class switching. Defects in class switch recombination due to mutations in AICDA and CD40 gene. Recurrent bacterial infections, opportunistic infections, autoimmune disorders and increased cancer risk. Decreased antigen-specific T-cell function. Marked susceptibility to P. jiroveci pneumonia. Decreased frequency of CD27+ memory B cells. Recurrent infections, Polyarthritis, Autoimmune hepatitis, Crohn's disease and hemolytic anemia. Do not have susceptibility to P. jiroveci pneumonia. Presence of lymphoid hyperplasia. Elevated IgM, low IgG, IgA, and IgE; genetic testing for CD40L mutations. Elevated IgM, low IgG, IgA, and IgE; genetic testing for mutations in CD40, AICDA. Immunoglobulin (IVIG) replacement therapy, prophylactic antibiotics. Immunoglobulin (IVIG) replacement therapy, prophylactic antibiotics. RAG1 (Option A): Mutations in the RAG1 gene are associated with Severe Combined Immunodeficiency (SCID) IL-12Rβ1 (Option C): Mutations in the IL-12 receptor β1 chain are associated with Mendelian Susceptibility to Mycobacterial Disease (MSMD) ADA (Option D): Adenosine deaminase (ADA) deficiency is a cause of SCID

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1111.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A child presents with recurrent respiratory infections, but his total IgG level is normal. Testing reveals a low IgG2 subclass level. What is the most appropriate management strategy? (Q849853)

A. Immediate initiation of intravenous immunoglobulin (IVIG) therapy

B. Administration of live vaccines

C. Prophylactic antibiotics and tailored vaccination schedule

D. Initiation of corticosteroid therapy

Correct Answer: C. Prophylactic antibiotics and tailored vaccination schedule

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: IgG Subclass Deficiency Definition Low levels of one or more IgG subclasses (IgG1, IgG2, IgG3, IgG4) despite normal or elevated total IgG levels. Symptoms Clinical impact varies; some have recurrent

infections, others are asymptomatic. Testing Normal IgG levels do not ensure protection against all infections; specific antibody production is crucial. IgG subclass measurement helps diagnose isolated subclass deficiencies, specific antibody deficiencies, and CVID. Testing Methods: Radial immunodiffusion (RID), ELISA, nephelometry, and turbidimetry. Diagnosis Criteria Requires one or more IgG subclass levels below the 5th percentile with normal IgG, IgA, and IgM levels. Treatment Immunoglobulin Replacement Therapy: For broader antibody deficiency or recurrent infections. Antibiotic Prophylaxis: Used in children to prevent infections. Vaccination: Tailored schedules with monitored responses. Monitoring Regular follow-up to adjust management and monitor for complications like bronchiectasis. Immediate initiation of intravenous immunoglobulin (IVIG) therapy (Option A): IVIG is typically reserved for those with broader antibody deficiencies or severe infections Administration of live vaccines (Option B): Live vaccines can be risky in individuals with certain immune deficiencies. Initiation of corticosteroid therapy (Option D): Corticosteroids are not typically used for managing IgG subclass deficiency.

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5907904/

https://pubmed.ncbi.nlm.nih.gov/26846287/

Nelson Textbook of Pediatrics, 21st Edition, Page 1110

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 6-month-old male infant presents with recurrent ear infections, eczema, and petechiae. He has a history of prolonged bleeding from the umbilical stump. His complete blood count reveals thrombocytopenia with small platelets. Immunoglobulin levels show low IgM and elevated IgA and IgE. What is the most likely diagnosis? (Q849854)

A. Severe Combined Immunodeficiency (SCID)

B. Henoch schonlein purpura

C. Wiskott-Aldrich Syndrome

D. Ataxia-Telangiectasia

Correct Answer: C. Wiskott-Aldrich Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Wiskott-Aldrich Syndrome Definition Rare X-linked recessive disorder affecting males; characterized by eczema, thrombocytopenia, and immunodeficiency. Genetic Basis Caused by mutations in the

WASP gene, affecting actin cytoskeleton in blood cells. Clinical Features Eczema : Develops within the first year; ranges from mild to severe. Thrombocytopenia: Present at birth; leads to prolonged bleeding from the umbilical stump , easy bruising, petechiae , and purpura. Immunodeficiency: Susceptible to infections (bacterial, viral, opportunistic); increased risk of autoimmune disorders and malignancies (lymphomas, leukemia). Diagnosis Clinical Triad: Eczema, thrombocytopenia, and immunodeficiency. Lab Tests: CBC (small, abnormally shaped platelets), immunoglobulin levels (low IgM, high IgA and IgE), lymphocyte subset analysis (low T cells), genetic testing (WASP mutations). Mnemonic: WATER - WA SP gene mutation, T hrombocytopenia, E czema, R ecurrent infections Treatment Supportive Care: Preventative antibiotics, immunoglobulin replacement, eczema management, use of killed vaccines. Curative Treatment: Hematopoietic stem cell transplantation (HSCT) Prognosis Without HSCT: Often fatal in childhood due to infections, bleeding, or malignancies. With HSCT: Can significantly improve life expectancy; risks include graft-versus-host disease (GvHD). Severe Combined Immunodeficiency (SCID) (Option A) presents with severe immunodeficiency but typically lacks thrombocytopenia or small platelets. Henoch-Schonlein purpura (Option B) is characterised by palpable purpura, joint Involvement, abdominal pain, and renal involvement, but does not usually present with eczema or thrombocytopenia. Ataxia-Telangiectasia (Option D) involves cerebellar ataxia, telangiectasia and immunodeficiency but does not present with thrombocytopenia or eczema.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1117

OP Ghai Textbook of Pediatrics, 10th Edition, Page 698

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 10-year-old child presents with unsteady gait, poor coordination, and visible dilated blood vessels on the sclera. The child's history includes recurrent respiratory infections and a family history of a similar condition. What is the most likely diagnosis? (Q849855)

A. Friedreich's Ataxia

B. Ataxia-Telangiectasia

C. Wiskott-Aldrich Syndrome

D. None of the above

Correct Answer: B. Ataxia-Telangiectasia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Ataxia-Telangiectasia is characterized by cerebellar ataxia, telangiectasias, and immunodeficiency. Ataxia-Telangiectasia Definition: Rare, multisystem disorder from ATM gene mutations, causing neurological, immune, endocrine, hepatic, and skin abnormalities. Genetic Basis: Autosomal recessive inheritance of ATM gene mutations, affecting DNA repair and cell cycle regulation. Clinical Features Neurological: Progressive cerebellar ataxia (poor coordination, unsteady gait) Oculocutaneous telangiectasias (dilated blood vessels on sclera and ears). Immunodeficiency: Variable with low immunoglobulins and T cells; common IgA deficiency (selective absence of IgA in 50-80 %); impaired T- and B-cell responses; small, disorganized thymus. Other Features: Chronic respiratory infections, increased risk of cancers (lymphomas, leukemia), endocrine issues (diabetes), liver dysfunction and growth retardation. Diagnosis Clinical signs, family history, and lab tests including genetic testing for ATM mutations, immunoglobulin levels, lymphocyte counts, raised AFP Chromosomal analysis and radiation sensitivity. Treatment Supportive care: physical, occupational, and speech therapy; immunoglobulin replacement; prophylactic antibiotics; cancer screening; genetic counseling. No cure. Friedreich's Ataxia (Option A) typically does not present with telangiectasias or immunodeficiency. Wiskott-Aldrich Syndrome (Option C) includes thrombocytopenia, eczema, and immunodeficiency but lacks cerebellar ataxia and telangiectasias.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1117,1118

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8228802/

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https://www.ncbi.nlm.nih.gov/books/NBK519542/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 2-year child accidentally aspirates a peanut and suddenly starts coughing. He has been brought to the Pediatric Emergency in an unconscious state. What is the appropriate immediate management? (Q849856)

A. Abdominal thrusts (Heimlich maneuver)

B. Back slaps

C. Chest compressions

D. Endotracheal intubation

Correct Answer: C. Chest compressions

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This is a critical "Basic Life Support (BLS)" scenario where the management depends entirely on the patient's level of consciousness . A 2-year-old child (toddler) with a witnessed foreign body aspiration who is now unconscious . For any choking victim (infant, child, or adult) who becomes unresponsive/unconscious , you must immediately stop any rescue maneuvers (like back slaps or abdominal thrusts) and begin High-Quality CPR , starting with chest compressions . Summary of Choking Management by Age and Status Patient Age Status Initial Action Infant (<1 yr) Conscious 5 Back Slaps + 5 Chest Thrusts Child (>1 yr) Conscious Abdominal Thrusts (Heimlich) Any Age Unconscious Start CPR (Chest Compressions) Abdominal thrusts (Heimlich maneuver) (Option A): This is the treatment of choice for a conscious child over 1 year of age who is choking. Once they lose consciousness, you transition to CPR. Back slaps (Option B): This is the treatment of choice for a conscious infant (under 1 year old). It is not the standard for an unconscious 2-year-old. Endotracheal intubation (Option D): While the child will eventually need airway management, this is not the immediate management in the emergency setting. Trying to intubate a child with a foreign body in the airway can actually push the object deeper into the bronchus, making it impossible to retrieve.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1115, 1116, 1117

O.P Ghai Essentials of Pediatrics, 10th Edition, Pages 697, 698

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 5-year-old has a history of chronic eczema and frequent infections. On investigation, he was found to have STAT3 gene mutation. Which of the following is the most likely mode of inheritance? (Q849857)

A. Autosomal dominant

B. Autosomal recessive

C. X linked dominant

D. X linked recessive

Correct Answer: A. Autosomal dominant

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Hyper IgE syndrome (Job syndrome): Inheritance Pattern Autosomal dominant , typically due to mutations in the STAT3 gene Deficiency of Th17 cells Presentation Elevated serum IgE levels (> 2000 IU/mL) Eosinophilia Chronic eczema Frequent infections Recurrent cold staphylococcal abscesses Pneumonia leading to the development of pneumatoceles No shedding of primary (baby) teeth Investigation Screening: Elevated serum IgE levels (> 2000 IU/mL) Confirmatory: STAT3 mutation

References:

O.P Ghai Essentials of Pediatrics, 10th Edition, Page 701

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: An infant is being investigated for DiGeorge syndrome. Which of the following is a feature that is not likely to be seen in DiGeorge syndrome? (Q849858)

A. Thymic aplasia

B. Cleft palate

C. Antimongoloid slant

D. Long philtrum

Correct Answer: D. Long philtrum

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: DiGeorge Syndrome: Mnemonic - CATCH-22 Genetic Cause Microdeletion on chromosome 22 q11.2. TBX1 is an important gene affected Embryonic Defect Arises from defects in embryogenesis of the third and fourth pharyngeal pouches. Features Cardiac - Structural defects in the aortic arch,conotruncal defects A bnormal facies: Hypertelorism (wide-set eyes) Antimongoloid slant (downward slanting eyes) Low-set ears Micrognathia (small jaw) Short philtrum T hymic Hypoplasia/Aplasia C left palate H ypocalcemic Tetany Definitive diagnosis Microdeletions detected by: fluorescence in situ hybridization (FISH), multiplex ligation-dependent probe amplification (MLPA), single nucleotide polymorphism (SNP) array, comparative genomic hybridization (CGH) microarray, or quantitative polymerase chain reaction (qPCR)



References:

O.P Ghai Essential Pediatrics 10th Edition, Page 698

https://www.ncbi.nlm.nih.gov/books/NBK549798/

https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/digeorge-syndrome#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 5-year-old male has been suffering from pneumonia and lymphadenitis since early infancy. He has been recently diagnosed with chronic granulomatous disease. Which of the following is the enzyme defect seen in the disease? (Q849859)

A. NADPH oxidase

B. Lactate dehydrogenase

C. Pyruvate dehydrogenase

D. Glucose-6-phosphate dehydrogenase

Correct Answer: A. NADPH oxidase

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Chronic Granulomatous Disease (CGD) Enzyme Defect Reduced activity of nicotinamide adenine dinucleotide phosphate (NADPH) oxidase , leading to impaired generation of superoxide radical M/c defect is of the subunit NOX-2 Genetic Inheritance X-linked recessive Autosomal recessive Age of Onset Early infancy Clinical Presentations Persistent smoldering pneumonia Prominent lymphadenitis Multiple liver abscesses Osteomyelitis of small bones of hands and feet Recurrent, life-threatening infections usually by catalase-positive bacteria (e.g., Staphylococcus aureus, Serratia) and fungi (e.g., Aspergillus) Diagnosis Screening: Nitroblue tetrazolium (NBT) dye reduction test Definitive test: Dihydrorhodamine assay on flow cytomet Lactate dehydrogenase (Option B) is released from damaged cells and is elevated in conditions like hemolytic anemia and cancer. Pyruvate dehydrogenase (Option C) deficiency , leading to lactic acidosis , neurologic symptoms , and developmental delay . Glucose-6-phosphate dehydrogenase (Option D) deficiency causes hemolytic anemia triggered by oxidative stress (e.g., infections, drugs).

References:

O.P Ghai Essential Pediatrics, 10th Edition, Page 700

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 6-month-old infant with recurrent skin infections and pneumonia is diagnosed with Leukocyte Adhesion Deficiency (LAD) due to a defect in selectins. Which type of LAD does the infant have? (Q849860)

A. LAD I

B. LAD II

C. LAD III

D. LAD IV

Correct Answer: B. LAD II

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Leukocyte Adhesion Deficiency (LAD): Type Genetic/Pathophysiological Defect Clinical Features LAD I Mutations in the CD18 gene resulting in defective or deficient beta-2 integrin Defective steady adhesion of leukocytes to endothelial surfaces. Delayed separation of the umbilical cord Recurrent pyogenic infections (onset in the first weeks of life) Infections mainly by Staphylococcus aureus and Pseudomonas aeruginosa Absent pus formation and neutrophilia Periodontitis LAD II (A/w Bombay blood group) Defective E-selectin (crucial for

proper leukocyte adhesion to the endothelium) Sialyl Lewis X defect Rolling problem of neutrophils Recurrent skin infections Pneumonia Bronchiectasis Tuberculosis Denture abnormalities Infections are less severe and fewer than in LAD I LAD III Defects in beta integrins 1, 2, and 3 Impaired integrin activation cascade Mutation in kindlin-3 , FERMT3 gene. Omphalitis Osteoporosis-like bone features Bleeding complications Hematological abnormalities (e.g., bone marrow failure)

References:

https://www.ncbi.nlm.nih.gov/books/NBK539770/

https://www.ncbi.nlm.nih.gov/medgen/411605

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 9-year-old boy is evaluated for recurrent severe infections, partial albinism, and progressive neurological decline. Family history reveals consanguinity. Genetic testing identifies a mutation in the LYST gene. Which of the following findings is most consistent with the diagnosis? (Q849861)

A. Elevated serum IgE levels and eczema

B. Presence of large peroxisomes in the blood smear

C. Detection of large granules in neutrophils on Wright-stained blood films

D. Low NADPH oxidase levels with hepatosplenomegaly

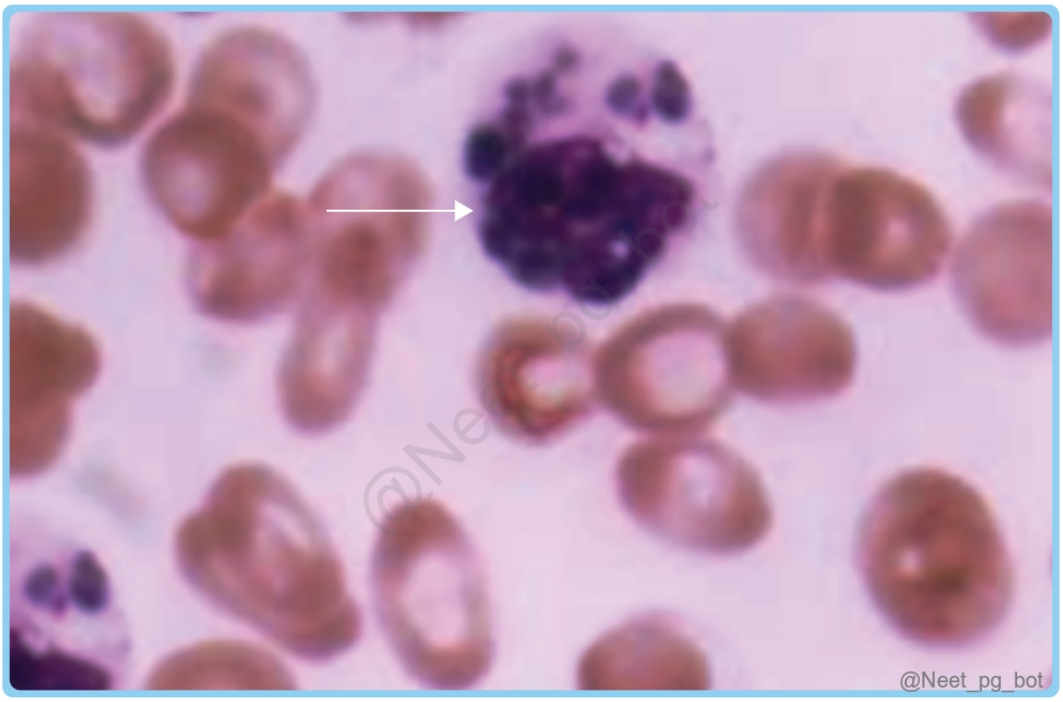
Correct Answer: C. Detection of large granules in neutrophils on Wright-stained blood films

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical scenario indicates Chediak-Higashi syndrome. Chediak-Higashi Syndrome Etiology Caused by mutations in the LYST gene. Autosomal recessive inheritance. Microtubule dysfunction Disrupts lysosome trafficking and fusion Pathophysiology Enlarged, dysfunctional lysosomes. Impaired phagolysosome fusion. Reduced intracellular killing of pathogens. Clinical Features Hypopigmentation: Light skin, silvery hair, partial albinism. Recurrent Infections: Frequent bacterial and viral infections. Neurological Manifestations: Peripheral neuropathy (numbness, tingling, weakness). Diagnosis Laboratory Findings: Giant granules in neutrophils on Wright-stained blood films and accentuated by peroxidase staining Pancytopenia Genetic Testing: Identifies LYST gene mutations. Treatment Ascorbic acid, Controversial yet used. Prophylactic Antibiotics: Long-term antibiotics to prevent infections. Bone Marrow Transplantation: Can be curative for severe cases. Supportive Care: Prompt treatment of infections, antivirals, and management of neurological symptoms. Elevated serum IgE levels and eczema (Option A) . These are more indicative of Hyper-IgE Syndrome (Job's syndrome). Presence of large peroxisomes in the blood smear (Option B) . CHS is characterized by large granules in

neutrophils due to lysosomal dysfunction. Low NADPH oxidase levels with hepatosplenomegaly (Option D) . Low NADPH oxidase levels are not seen in Chediak-Higashi Syndrome.



References:

Nelson’s Textbook of Paediatrics, 21st Edition, Pages 1138, 1146, 3478

https://www.ncbi.nlm.nih.gov/books/NBK507881/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A 9-year-old child presents with a finding, as in the image. He has joint pain, abdominal pain, and blood in the urine. Laboratory tests reveal normal platelet counts. Which of the following statements about condition is true? (Q849862)

A. Females are most commonly affected

B. Palpable purpura predominantly on the trunk and arms

C. Palpable purpura predominantly on lower limbs

D. Acute liver failure is a complication.



Correct Answer: C. Palpable purpura predominantly on lower limbs

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Henoch-Schönlein Purpura (HSP) Etiology Exact cause unknown. Immune-mediated vasculitis, often following an upper respiratory infection. Genetic predisposition, with HLA-B34 and DRB1 observed in some cases. Most common in Males (Option A) . Pathology and Pathophysiology Inflammation of small blood vessels affecting skin, joints, intestines, and kidneys. Triggered by immune system response to infections. Leakage of fluid and blood cells into tissues. Immune complex deposition, particularly IgA , in affected vessels. Clinical Features Palpable Purpura: Raised, purplish-red rash, mainly on lower limbs (Option C) and buttocks. (Option B) Joint Involvement: Joint swelling, commonly in knees and ankles. Abdominal Pain: Often severe, may include vomiting, diarrhea, gastrointestinal bleeding, or intussusception Renal Involvement: Less common, presents as Chronic renal failure. Diagnosis Clinical Criteria: Palpable purpura plus at least one of: Diffuse abdominal pain Arthritis or arthralgia Biopsy-proven IgA deposition Renal involvement Laboratory involvement: Elevated ESR or CRP indicating inflammation. Platelet Counts are normal. Complications Intussusception. Chronic Renal Failure due to Long-term kidney damage, in severe cases. Neurological Complications: Rare; may include seizures, headaches, or peripheral neuropathy. Treatment Mild Cases: Rest, hydration, and pain relievers. Moderate to Severe Cases: Corticosteroids (e.g., prednisone) to reduce inflammation. Severe or Resistant Cases: Additional immunosuppressive medications may be required. Prognosis Full recovery in most cases. Variable based on renal involvement. Acute liver failure is a complication (Option D). Acute liver failure is not a typical complication. Renal involvement, such as hematuria and proteinuria, is a more common and significant concern in HSP

References:

Nelson's Textbook of Paediatrics, 21st Edition, Page 1318-1320

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A 4-year-old child presents with a high fever, unresponsive to antipyretics for 6 days. The child also has a polymorphous rash, swelling of the hands and feet, bilateral conjunctivitis without purulent discharge, and strawberry tongue. Laboratory tests show elevated CRP. What is the most appropriate next step in the management of this child? (Q849863)

A. Initiate Ceftriaxone for a suspected bacterial infection.

B. Perform an echocardiogram to assess for coronary artery involvement.

C. Start high-dose intravenous immunoglobulin (IVIG) and high-dose aspirin.

D. Start corticosteroids

Correct Answer: C. Start high-dose intravenous immunoglobulin (IVIG) and high-dose aspirin.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical scenario is indicative of Kawasaki disease. The primary treatment for KD involves high-dose IVIG along with high-dose aspirin. Kawasaki Disease (KD) Etiology and Pathophysiology Higher incidence in children of Asian descent.. Vasculitis affecting medium-sized arteries, especially coronary arteries. Pathology Acute Phase (Days 1-10): Neutrophilic inflammation of blood vessels. Infiltration of inflammatory cells, vessel wall swelling and damage. Subacute Phase (Weeks 2-4): Risk of fusiform aneurysm formation as inflammation subsides. Convalescent Phase (Weeks >4 weeks): Resolution of inflammation; potential scarring and thickening of arterial walls leading to stenosis. Clinical Features Fever: For at least 5 days. Extremities: Swelling, redness, peeling skin around nails, fingers, and toes. Mucocutaneous : Bilateral conjunctivitis, red and cracked lips, "strawberry tongue," and pharyngeal congestion. Polymorphous Rash: Various forms (macular, papular, target-like lesions). Cervical Lymphadenopathy: Unilateral, painful swelling of neck lymph nodes. Diagnosis Clinical Criteria: Fever lasting at least 5 days. At least 4 of the following: 5-“ CREAM ” features C - Conjunctivitis, B/Lnon-purulent R - Rash involving trunk E- Erythema & Edema of palms & soles along with desquamation A - Adenopathy (usually unilateral, cervical) M- Mucositis (Strawberry Tongue) Laboratory Findings: Elevated CRP and ESR. Elevated WBC count. Echocardiography coronary artery aneurysms. Complications Myocardial infarction. Coronary Artery Aneurysms. Coronary Artery Stenosis: Differential Diagnosis Bacterial Infections (e.g., Scarlet Fever, Staphylococcal Scalded Skin Syndrome): Fever, rash, mucosal involvement with additional features like sore throat or blistering. Treatment Intravenous Immunoglobulin (IVIG): Reduces inflammation and lowers risk of aneurysms. Aspirin: High doses initially to reduce inflammation and fever; then low-dose regimen for anti-platelet effects. IVIG-Resistant KD: Second dose of IVIG, corticosteroids, or other immunosuppressive medications (e.g., infliximab, cyclosporine).

References:

Nelson’s Textbook of Paediatrics, 21st Edition, Page 1310-1316.

↑ *Back to this question in Part A*

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Q16: A 9-year-old boy presents with progressive proximal muscle weakness, difficulty in climbing stairs, Physical findings as below in the image. Which of the following tests is crucial for a definitive diagnosis for the condition? (Q849864)

A. Skin biopsy

B. Muscle Biopsy

C. Antinuclear Antibody (ANA) Test

D. Electromyography (EMG)



Correct Answer: B. Muscle Biopsy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Juvenile Dermatomyositis Etiology Genetic Predisposition: HLA-DQA10501 and DRB10301. Pathophysiology Autoimmune disorder attacking muscle and skin, leading to muscle inflammation (myositis) and skin involvement (dermatomyositis). T lymphocytes involved. Muscle Fiber Damage: Degeneration and necrosis of muscle fibers. Clinical Features Muscle Weakness: Progressive weakness, especially in proximal muscles-Gower's sign positive. Skin Rashes: Heliotrope rash [A] (eyelids), Gottron papules [B] (knuckles, elbows, knees), Mechanic hands[C] and Shawl sign. Fatigue, muscle pain, dysphagia, joint pain, weight loss. Diagnosis Heliotrope rash and Gottron's papules + any of 3 of the following Laboratory Investigations: Muscle Enzymes: Elevated CK, aldolase, AST, ALT, LDH. EMG and Nerve Conduction Studies: Differentiates muscle disease from neuropathy. Muscle Biopsy: Confirms diagnosis. Complications Calcinosis: Calcium deposits causing pain and skin ulcerations. Contractures. Gastrointestinal Issues: Dysphagia, abdominal pain, GI bleeding. Interstitial lung disease. Treatment Corticosteroids: Main treatment, reduces inflammation. Methotrexate, Azathioprine, mycophenolate mofetil, IVIG for severe cases. Sun Protection: Sensitivity to sunlight. Skin Biopsy (Option A): Skin biopsy may show interface dermatitis and perivascular inflammation, which supports dermatomyositis. But, it is not sufficient for definitive diagnosis , as muscle involvement must be confirmed histologically. The diagnosis of juvenile dermatomyositis requires confirmation of myositis , not just skin disease. Antinuclear Antibody Test (Option C): ANA may be positive in juvenile dermatomyositis, but it is: Non-specific Seen in many autoimmune diseases Not diagnostic: A positive ANA does not confirm inflammatory myopathy. Electromyography (Option D): EMG helps differentiate myopathic vs neuropathic weakness and may show

short-duration, low-amplitude motor unit potentials and fibrillations. However, EMG is supportive, not confirmatory .



References:

Nelson’s Textbook of Paediatrics, 21st Edition, Pages 1280-1284

https://www.ncbi.nlm.nih.gov/books/NBK534236/

↑ *Back to this question in Part A*

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• [09_Diseases of Immune System] 023 Previous Year Questions

« Back to Folder Directory

[09_Diseases of Immune System] 023 Previous Year Questions — Quick Jump

Q1 (p. 981) *Q2 (p. 982)* *Q3 (p. 982)* *Q4 (p. 985)* *Q5 (p. 986)* *Q6 (p. 987)*

Q1: A 6-month-old infant presents with recurrent infections and failure to thrive. Laboratory investigations reveal a deficiency of adenosine deaminase (ADA). Which of the following immunodeficiency disorders is most likely associated? (Q866373)

A. Severe Combined Immunodeficiency (SCID)

B. Hypogammaglobulinemia

C. DiGeorge Syndrome

D. Wiskott-Aldrich Syndrome

Correct Answer: A. Severe Combined Immunodeficiency (SCID)

Explanation: Severe Combined Immunodeficiency (SCID) Adenosine deaminase (ADA) is essential for purine metabolism. ADA deficiency → accumulation of deoxyadenosine → toxic to lymphocytes. This causes severe deficiency of both T cells and B cells, leading to SCID. Clinical presentation: Presents in infancy: recurrent bacterial, viral, fungal, and opportunistic infections. Failure to thrive is common due to chronic infections and malnutrition. Management: Lymphopenia, low/absent immunoglobulins, absent thymic shadow on chest X-ray. Treatment: hematopoietic stem cell transplantation; enzyme replacement therapy is also available. Hypogammaglobulinemia (Option B): Only B-cell defect; ADA deficiency affects both B and T cells. DiGeorge Syndrome (Option C): Caused by 22q11.2 deletion → thymic aplasia; not related to ADA metabolism. Wiskott-Aldrich Syndrome (Option D): X-linked defect in WAS gene → eczema, thrombocytopenia, immunodeficiency; not due to purine metabolism defect. Disease Defect Severe Combined Immunodeficiency (SCID) Most commonly IL-2 receptor γ-chain (X-linked) or adenosine deaminase (ADA) deficiency Wiskott–Aldrich syndrome WAS protein defect (X-linked) — cytoskeletal reorganization in lymphocytes impaired Bruton's agammaglobulinemia Bruton tyrosine kinase (BTK) defect (X-linked) — B-cell maturation failure Hyper-IgM syndrome CD40 ligand (CD40L) defect on T-cells (X-linked) — class switching defect Chronic granulomatous disease (CGD) NADPH oxidase defect — absent respiratory burst in neutrophils Leukocyte adhesion deficiency (LAD) type 1 CD18 integrin subunit defect — defective leukocyte migration/chemotaxis Chediak–Higashi syndrome LYST (lysosomal trafficking regulator) defect — microtubule dysfunction in phagosome–lysosome fusion DiGeorge syndrome 22q11 deletion — failure of 3rd/4th pharyngeal pouch development → absent thymus & parathyroids Ataxia–telangiectasia ATM gene defect — impaired DNA double-strand break repair Complement (C1 esterase) inhibitor deficiency C1 esterase inhibitor defect — hereditary angioedema

↑ *Back to this question in Part A*

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Q2: A 9-month-old child was admitted to ICU with a history of recurrent sinusitis and otitis media by Staphylococcus aureus. Blood test shows decreased serum IgA, IgG, IgM, IgE, and plasma B cells. What is the diagnosis? (Q852445)

A. Ataxia telangiectasia

B. Chronic granulomatosis disease

C. Bruton syndrome

D. DiGeorge syndrome

Correct Answer: C. Bruton syndrome

Explanation: The decreased serum IgA, IgG, IgM, IgE, plasma B cells and the recurrent infections suggest the diagnosis of Bruton syndrome which is an X-linked agammaglobulinemia. Brutons's Disease: Also Known as X-linked agammaglobulinemia (XLA) caused by mutations in the BTK (Bruton's tyrosine kinase) gene present on the q22 long arm of the X chromosome. Defective B-cell maturation leads to an absence of mature B cells and very low levels of all immunoglobulins (IgG, IgA, IgM). Clinical features : Presents after 6-9 months of age. Recurrent bacterial infections (eg- encapsulated bacteria like Streptococcus pneumonia, Haemophilus influenzae) starting around 6 months of age including otitis media, pneumonia, and sinusitis, Neutropenia and enterovirus infections. Diagnosis : Absence of B cells (CD19+ cells) in peripheral blood and Markedly low immunoglobulin levels No germinal centres in lymph nodes Ataxia-Telangiectasia (Option A) is characterized by cerebellar ataxia, telangiectasias, and immunodeficiency. The immunodeficiency is variable with low immunoglobulins and T cells. There is common IgA deficiency (selective absence of IgA in 50-80 %); impaired T- and B-cell responses; and small, disorganized thymus. Chronic granulomatous disease (Option B) is due to the reduced activity of nicotinamide adenine dinucleotide phosphate (NADPH) oxidase, leading to impaired generation of superoxide radicals. It presents with persistent smouldering pneumonia, prominent lymphadenitis, multiple liver abscesses, osteomyelitis of small bones of hands and feet, recurrent, life-threatening infections usually by catalase-positive bacteria (e.g., Staphylococcus aureus, Serratia) and fungi (e.g., Aspergillus) DiGeorge syndrome (Option D) is caused by microdeletion on chromosome 22q11.2 and presents with cardiac anomalies, abnormal facies, thymic hypoplasia/ aplasia, cleft palate, and hypocalcemic tetany.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1107, 1108

↑ *Back to this question in Part A*

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Q3: A 4-year-old boy presents with a history of fever, conjunctival congestion, and erythematous desquamation of the skin. A 2D echocardiogram shows coronary aneurysms. What is the first-line treatment for this condition? (Q854746)

A. Aspirin

B. IVIG

C. Clopidogrel

D. LMWH





Correct Answer: B. IVIG

Explanation: The clinical presentation—fever, conjunctival congestion, strawberry tongue, and erythematous desquamation—along with coronary aneurysms on echocardiography, is highly suggestive of Kawasaki disease (mucocutaneous lymph node syndrome). The first-line treatment is intravenous immunoglobulin (IVIG) combined with aspirin, aimed at reducing inflammation and preventing coronary artery complications. Kawasaki Disease (KD) Etiology and Pathophysiology Higher incidence in children of Asian descent. Vasculitis affecting medium-sized arteries, especially coronary arteries. Pathology Acute Phase (Days 1-10): Neutrophilic inflammation of blood vessels. Infiltration of inflammatory cells, vessel wall swelling and damage. Subacute Phase (Weeks 2-4): Risk of fusiform aneurysm formation as inflammation subsides. Convalescent Phase (Weeks >4 weeks): Resolution of inflammation; potential scarring and thickening of arterial walls leading to stenosis. Clinical Features Fever : For at least 5 days. Extremities: Swelling, redness, peeling skin around nails, fingers, and toes. Mucocutaneous: Bilateral conjunctivitis, red and cracked lips, "strawberry tongue," and pharyngeal congestion. Polymorphous Rash : Various forms (macular, papular, target-like lesions). Cervical Lymphadenopathy : Unilateral, painful swelling of neck lymph nodes. Diagnosis Clinical Criteria: Fever lasting at least 5 days. At least 4 of the following: 5-“ CREAM” features C - Conjunctivitis, B/L non-purulent R - Rash involving trunk E- Erythema & Edema of palms & soles along with desquamation A - Adenopathy (usually unilateral, cervical) M- Mucositis (Strawberry Tongue) Laboratory Findings: Elevated CRP and ESR. Elevated WBC count. Echocardiography coronary artery aneurysms. Complications Myocardial infarction. Coronary Artery Aneurysms. Coronary Artery Stenosis: Differential Diagnosis Bacterial Infections (e.g., Scarlet Fever, Staphylococcal Scalded Skin Syndrome): Fever, rash, mucosal involvement with additional features like sore throat or blistering. Treatment Intravenous Immunoglobulin (IVIG): Reduces inflammation and lowers risk of aneurysms. Aspirin: High doses initially to reduce inflammation and fever; then low-dose regimen for anti-platelet effects. IVIG-Resistant KD: Second dose of IVIG, corticosteroids, or other immunosuppressive medications (e.g., infliximab, cyclosporine). Aspirin (Option A): Important in treatment but is not the first-line therapy alone. It

complements IVIG to control inflammation and reduce thrombotic risks. Clopidogrel (Option C): Antiplatelet agent used for specific coronary conditions but not a primary treatment for Kawasaki disease. LMWH (Low Molecular Weight Heparin) (Option D): Used in cases with significant thrombotic complications but not first-line therapy.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 1310-1316

↑ *Back to this question in Part A*

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Q4: A 7-year-old boy has non-blanching rashes on the legs and buttocks. He also complains of joint pains, abdominal pain, vomiting, and blood in the stool. Lab investigations revealed normal platelet count and urine analysis shows haematuria +++ and proteinuria +. What is the diagnosis? (Q857585)

A. Systemic lupus erythematosus (SLE)

B. Henoch Schonlein purpura (HSP)

C. Immune thrombocytopenic purpura (ITP)

D. Polyarteritis nodosa (PAN)

Correct Answer: B. Henoch Schonlein purpura (HSP)

Explanation: Henoch Schonlein purpura (HSP) The clinical scenario of purpura in legs and buttocks, arthritic pain, abdominal pain and normal platelet level are characteristic of Henoch-Schönlein Purpura (HSP).
Henoch-Schönlein Purpura (HSP) Aetiology The exact cause is unknown. Immune-mediated vasculitis, often following an upper respiratory infection. Genetic predisposition, with HLA-B34 and DRB1, was observed in some cases. Most common in Males . Pathology and Pathophysiology Inflammation of small blood vessels affecting skin, joints, intestines, and kidneys. Triggered by immune system response to infections. Leakage of fluid and blood cells into tissues. Immune complex deposition, particularly IgA , in affected vessels. Clinical Features Palpable Purpura: Raised, purplish-red rash, mainly on lower limbs and buttocks. Joint Involvement: Joint swelling, commonly in knees and ankles. Abdominal Pain: Often severe, may include vomiting, diarrhoea, gastrointestinal bleeding, or intussusception Renal Involvement: Less common, presents as Chronic renal failure. Diagnosis Clinical Criteria: Palpable purpura plus at least one of: Diffuse abdominal pain Arthritis or arthralgia Biopsy-proven IgA deposition Renal involvement (hematuria &/ proteinuria) Laboratory involvement: Elevated ESR or CRP indicates inflammation. Platelet Counts are normal. Complications Intussusception. Chronic Renal Failure due to Long-term kidney damage, in severe cases. Neurological Complications: Rare; may include seizures, headaches, or peripheral neuropathy. Treatment Mild Cases: Rest, hydration, and pain relievers. Moderate to Severe Cases: Corticosteroids (e.g., prednisone) to reduce inflammation. Severe or Resistant Cases: Additional immunosuppressive medications may be required. Prognosis Full recovery in most cases. Variable based on renal involvement. Malar rash is virtually pathognomonic in systemic lupus erythematosus (SLE)

(Option A) . It involves the cheek, bridge of the nose, and lower eyelids but characteristically spares the nasolabial folds. In Immune thrombocytopenic purpura (ITP) (Option C) , children present with a sudden appearance of bruises and mucosal bleeding like epistaxis, oral oozing and prolonged bleeds with superficial trauma. The platelet levels are low in this condition unlike the given scenario. Polyarteritis arteritis nodosa (Option D) rare in childhood, is characterised by the presence of either a biopsy showing small and mid-size artery necrotising vasculitis or angiographic abnormalities.

References:

Nelson's Textbook of Paediatrics, Page: 1318, 1319, 1320.

↑ *Back to this question in Part A*

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Q5: A child was brought to OPD with palpable blanching purpura, abdominal pain, and pain in the knee joint. Urine examination showed hematuria and proteinuria. Whereas laboratory tests revealed normal platelet counts. What will be the most probable diagnosis? (Q856151)

A. Immune thrombocytopenic purpura

B. Dengue

C. Churg-Strauss syndrome

D. Henoch-Schonlein purpura

Correct Answer: D. Henoch-Schonlein purpura

Explanation: Henoch-Schonlein purpura The clinical scenario of palpable blanching purpura, arthritic pain, abdominal pain with normal platelet count is characteristic of Henoch-Schönlein Purpura (HSP) . Henoch-Schönlein Purpura (HSP) Henoch-Schonlein purpura (HSP) is a systemic vasculitis that primarily affects small blood vessels, commonly seen in children. The characteristic clinical features include palpable purpura, abdominal pain, joint pain, and renal involvement. Hematuria and proteinuria are common findings in urine examination due to kidney involvement. The symptoms may be preceded by an upper respiratory tract infection Etiology Most common in males. Exact cause unknown. Immune-mediated vasculitis, often following an upper respiratory infection. Genetic predisposition, with HLA-B34 and DRB1 observed in some cases. Pathology and Pathophysiology Inflammation of small vessels affecting skin, joints, intestines, and kidneys. Triggered by immune system response to infections. Leakage of fluid and blood cells into tissues. Immune complex deposition, particularly IgA , in affected vessels. Clinical Features Palpable Purpura: Raised, purplish-red rash, mainly on legs and buttocks Joint Involvement: Joint swelling, commonly in knees and ankles. Abdominal Pain: Often include vomiting, diarrhea, gastrointestinal bleeding, or intussusception . Renal Involvement: Less common, presents as Chronic renal failure. Diagnosis Clinical Criteria: Palpable purpura plus at least one of the following: Diffuse abdominal pain Arthritis or arthralgia Biopsy-proven IgA deposition Renal involvement Laboratory involvement: Elevated ESR or CRP indicating inflammation. Platelet Counts are normal. Complications Intussusception.

Chronic renal failure due to long term kidney damage, in severe cases. Neurological complications: Rare; may include seizures, headaches, or peripheral neuropathy. Treatment Mild Cases: Rest, hydration, and pain relievers. Moderate to Severe Cases: Corticosteroids (e.g., prednisone) to reduce inflammation. Severe or Resistant Cases: Additional immunosuppressive medications may be required. While Immune thrombocytopenic purpura (Option A) can present with purpura and thrombocytopenia, it does not typically involve joint pain, abdominal pain or renal manifestations such as hematuria and proteinuria. Dengue (Option B) is a viral infection that can cause fever, rash, joint pain and thrombocytopenia . Churg Strauss syndrome (Option C) also known as eosinophilic granulomatosis with polyangiitis, is a rare systemic vasculitis that primarily affects medium and small blood vessels. It is characterized by asthma, eosinophilia, and systemic vasculitis.

References:

Nelson textbook of paediatrics, 21st edition, Page 1318,1319, 1320

Ghai Essential Pediatrics, 10th edition, Page 660, 661

↑ *Back to this question in Part A*

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Q6: A male child presented with arthralgia and abdominal pain. On examination, there was palpable purpura over the lower limb. There is a past history of upper respiratory tract infection prior to the onset of presenting symptoms. Which of the following is the treatment for this condition? (Q856111)

A. Azathioprine

B. Methotrexate

C. Cyclosporine

D. Glucocorticoids

Correct Answer: D. Glucocorticoids

Explanation: The clinical scenario of arthralgia, abdominal pain, palpable purpura over the lower limbs, and a history of a preceding upper respiratory tract infection is suggestive of Henoch-Schonlein purpura (HSP). Glucocorticoids are used for the treatment of HSP. Henoch-Schönlein Purpura (HSP): Etiology Exact cause unknown. Immune-mediated vasculitis, often following an upper respiratory infection. Genetic predisposition, with HLA-B34 and DRB1 observed in some cases. Most common in males. Pathology and Pathophysiology Inflammation of small blood vessels affecting skin, joints, intestines, and kidneys. Triggered by immune system response to infections. Leakage of fluid and blood cells into tissues. Immune complex deposition, particularly IgA , in affected vessels. Clinical Features Palpable Purpura : Raised, purplish-red rash, mainly on legs and buttocks. Joint Involvement : Joint swelling, commonly in knees and ankles. Abdominal Pain : Often severe, may include vomiting, diarrhea, gastrointestinal bleeding, or intussusception . Renal Involvement: Less common, presents as Chronic renal failure. Diagnosis Clinical Criteria: Palpable purpura plus at least one of: Diffuse abdominal pain

Arthritis or arthralgia Biopsy-proven IgA deposition Renal involvement Laboratory involvement: Elevated ESR or CRP indicating inflammation. Platelet Counts are normal. Complications Intussusception. Chronic Renal Failure due to Long-term kidney damage, in severe cases. Neurological Complications: Rare; may include seizures, headaches, or peripheral neuropathy. Treatment Mild Cases: Rest, hydration, and pain relievers. Moderate to Severe Cases: Corticosteroids (e.g., prednisone) to reduce inflammation. Severe or Resistant Cases: Additional immunosuppressive medications may be required. Prognosis Full recovery in most cases. Variable based on renal involvement. Azathioprine (Option A) is used as an immunosuppressive agent, generally for autoimmune diseases like systemic lupus erythematosus, not for HSP unless there is severe renal involvement. Methotrexate (Option B) is often used in the treatment of autoimmune conditions such as rheumatoid arthritis, but not a first-line treatment for HSP. Cyclosporine (Option C) is used in organ transplant immunosuppression or autoimmune diseases and may be considered for nephrotic syndrome in certain cases, but is not a first-line therapy for HSP.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1318-1320

↑ *Back to this question in Part A*

@Neet_pg_bot

• [10_Infectious Diseases] 024 Congenital Infections And Bacterial Diseases In Children

« Back to Folder Directory

[10_Infectious Diseases] 024 Congenital Infections And Bacterial Diseases In Children — Quick Jump

Q1 (p. 989)	*Q2 (p. 990)*	*Q3 (p. 991)*	*Q4 (p. 992)*	*Q5 (p. 993)*	*Q6 (p. 994)*
Q7 (p. 997)	*Q8 (p. 1000)*	*Q9 (p. 1002)*	*Q10 (p. 1003)*	*Q11 (p. 1004)*	*Q12 (p. 1006)*
Q13 (p. 1010)	*Q14 (p. 1012)*	*Q15 (p. 1013)*	*Q16 (p. 1015)*	*Q17 (p. 1017)*	*Q18 (p. 1024)*
Q19 (p. 1025)	*Q20 (p. 1027)*				

Q1: A 3-month-old unimmunized infant presents with a history of severe paroxysms of coughing, which are often followed by a high-pitched inspiratory sound and occasional vomiting. The parents report these symptoms have persisted for 2 weeks. Based on these symptoms, which drug is recommended for management? (Q850185)

A. Azithromycin

B. Erythromycin

C. TMP-SMX

D. Penicillin

Correct Answer: A. Azithromycin

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant’s symptoms (severe coughing spells with a "whoop" and vomiting) are classic for pertussis (whooping cough). Pertussis Causative agent Bordetella pertussis, Bordetella parapertussis Secondary attack rate 100% Clinical Stages Catarrhal (1-2 weeks): Cold-like symptoms, worsening cough Paroxysmal (2-6 weeks): Severe cough, "whoop", vomiting Convalescent (1-4 weeks): Recovery Complications Apnea, Otitis media, Pneumonia, Pulmonary hypertension, Cardiogenic shock, Hemorrhage, Seizures, hernia, and malnutrition. Diagnosis Clinical signs, nasopharyngeal swab culture, PCR, and serology. Differential Diagnosis Adenoviral infection, TB, foreign body inhalation, airway compression. Management First-line antibiotics for treating pertussis: Azithromycin is the first-line treatment for pertussis in all age groups. (option A) Erythromycin and clarithromycin are alternative treatments but are not recommended in <1 month old due to the risk for IHPS (option B). Alternative antibiotics: For patients allergic to macrolides or where there is unavailability of azithromycin, trimethoprim-sulfamethoxazole (TMP-SMX) may be used, but it is C/I in <2 months old (due to the risk for kernicterus) (option C) Timing of treatment: Antibiotics are most effective during the catarrhal stage

Isolation: Patients diagnosed with pertussis should be isolated from others, especially vulnerable populations like infants and the elderly, for at least 5 days after starting antibiotics . Prevention DTaP vaccine (Diphtheria, Tetanus, and Pertussis): Given to children under 7 years of age as part of routine childhood vaccinations. Tdap vaccine (Tetanus, Diphtheria, and Pertussis): Recommended for adolescents, adults, and pregnant women (preferably between 27 and 36 weeks gestation) to provide protection and reduce transmission to infants.

References:

Nelson Textbook of Pediatrics 21st edition Pg: 1492- 1496

GHAI Essential Pediatrics 10th edition Pg: 265-266

https://www.ncbi.nlm.nih.gov/books/NBK519008/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 6-day-old newborn presents with difficulty feeding, excessive crying and muscle stiffness. The mother reports that the umbilical cord was cut with an unsterilized blade at home. The baby has spasms triggered by touch. Which of the following is the most appropriate initial management step? (Q850187)

A. Immediate administration of tetanus toxoid (TT)

B. Administration of human tetanus immunoglobulin (TIG)

C. Intravenous administration of broad-spectrum antibiotics

D. Surgical debridement of the wound

Correct Answer: B. Administration of human tetanus immunoglobulin (TIG)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: WHO recommends the immediate administration of human tetanus immunoglobulin (TIG) , which is crucial to neutralize the circulating tetanus toxin. Management of Tetanus in Symptomatic Patients A serum antibody titer of ≥0.01 U/mL is considered protective. Management Step Comments Human Tetanus Immunoglobulin (TIG) (Option B) Neutralizes circulating toxin; Given immediately. If TIG is not available, Human IVIG is given. Tetanus Toxoid (Option A) Provides immunity; complete course of tetanus toxoid given once recovered. Broad-Spectrum Antibiotics (e.g., Metronidazole, Penicillin) (Option C) Metronidazole is the antibiotic of choice. Parenteral penicillin G is an alternative treatment. Total duration: 7-10 days Wound Debridement (Option D) Reduces bacterial load and toxin production

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1550, 1551

Ghai Essential Pediatrics, 10th Edition, Page 270

https://www.who.int/news-room/fact-sheets/detail/tetanus

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 28-year-old pregnant woman at 16 weeks of gestation is diagnosed with varicella. She is concerned about the risk of congenital varicella syndrome (CVS) in her fetus. Which statement regarding CVS in this scenario is most accurate? (Q850196)

A. Risk is 0.4% if varicella is before 16 weeks of gestation.

B. Causes skin scarring and limb hypoplasia.

C. Antiviral treatment prevents further damage in infants.

D. VZV IgG antibodies are highly reliable for diagnosing CVS.

Correct Answer: B. Causes skin scarring and limb hypoplasia.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Congenital Varicella Transmission Results from in utero transmission of varicella-zoster virus (VZV). Incidence Occurs in 0.4% of infants born to women who have varicella before 13 weeks of gestation. (Option A) 2% of those born to women with varicella between 13 and 20 weeks of gestation. Clinical Features Cicatricial zigzag skin scarring in a dermatomal pattern Limb hypoplasia (Option B) Neurological issues: Microcephaly Cortical atrophy Seizures Mental retardation Eye problems: Chorioretinitis Microphthalmia Cataracts Renal issues: Hydroureter Hydronephrosis Autonomic nervous system issues: Neurogenic bladder Swallowing dysfunction Aspiration pneumonia Low birth weight. Diagnosis Based on a history of maternal varicella. Presence of characteristic abnormalities in the newborn. Viral DNA can be detected using polymerase chain reaction (PCR) in tissue samples. VZV IgM antibodies may be found in cord blood, though these are not always reliable (Option D). Ultrasound may help identify limb atrophy. Treatment VZV-specific immune globulin (VZIG) and acyclovir may be administered to the mother to reduce disease severity, but their impact on fetal outcomes is uncertain. Antiviral treatment of infants with CVS is not indicated, as the damage caused by fetal VZV infection does not progress after birth (Option C). Image



References:

Nelson Textbook of Pediatrics Edition 21 page no: 1710,1711

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A baby is brought to the pediatric department after his mother noticed a yellowish discoloration of his skin and small petechial rashes were noted on examination. Which of the following investigations would be the most reliable and sensitive to diagnose congenital CMV infection? (Q850195)

A. Blood PCR

B. IgM detection

C. Viral culture

D. Urine PCR



Correct Answer: D. Urine PCR

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Urine PCR is the most reliable and sensitive test for diagnosing congenital CMV infection. It is preferred over blood PCR, IgM detection, and viral culture due to its high sensitivity and specificity for detecting CMV in newborns. Diagnosis of Congenital CMV Infection Early Diagnosis : It is essential to identify CMV within the first 2-3 weeks of life for accurate diagnosis. Testing Methods: Polymerase Chain Reaction (PCR): The most reliable and sensitive method; Detects viral DNA in bodily fluids and quantifies viral load. Viral Culture (Option C) : Culturing the virus combined with immunofluorescence to detect CMV-specific proteins. Sample Collection: Preferred: Urine and saliva. (Option B) Alternative : Blood , though less sensitive. (Option A) Screening Programs: Some hospitals use saliva samples for newborn screening; positive results should be confirmed with urine tests. Challenges with Antibody Tests: IgM Antibodies (Option D): These may suggest recent infection but can persist and are not always reliable for congenital diagnosis. IgG Antibodies: Persistent throughout life ; their presence does not confirm congenital infection.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1722.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A neonate presents with congenital CMV infection. Which of the following clinical features is least commonly associated with this scenario? (Q850194)

A. Hepatosplenomegaly

B. Purpura

C. Jaundice

D. Petechiae

Correct Answer: B. Purpura

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Purpura is the least common symptom in congenital CMV infection. Congenital CMV infection can be described as follows: Human cytomegalovirus (CMV) Mode of Transmission Bodily fluids: saliva, urine, blood, vaginal fluids, breast milk Community exposure: Daycare centres Perinatal exposure: During birth Breastfeeding Risk of Transmission 30% of women with primary CMV infection during pregnancy transmit the virus to the fetus. In-utero infections also occur in previously immune women but at a reduced rate Transmission by Gestational Age Transmission rates are higher following a primary infection, with the risk increasing as gestational age advances. Clinical Features of congenital CMV infection Asymptomatic Infection (90% of infected newborns): No signs at birth; detected through newborn screening. Symptomatic Infection (10% of infected newborns): Jaundice (direct bilirubin >2 mg/dL) (Option C) Petechiae (small, red, or purple spots on the skin) giving a blueberry muffin appearance (Option D) Hepatosplenomegaly (Option A) Microcephaly Intrauterine growth restriction Chorioretinitis Purpura (3% infants) (larger areas of bleeding under the skin) Less Common Findings: Hearing loss (M/c long-term consequence; may develop later). Lab findings align with the clinical presentation: Direct hyperbilirubinemia, ■ ALT, thrombocytopenia, and Head CT abnormalities

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1719-1721

↑ *Back to this question in Part A*

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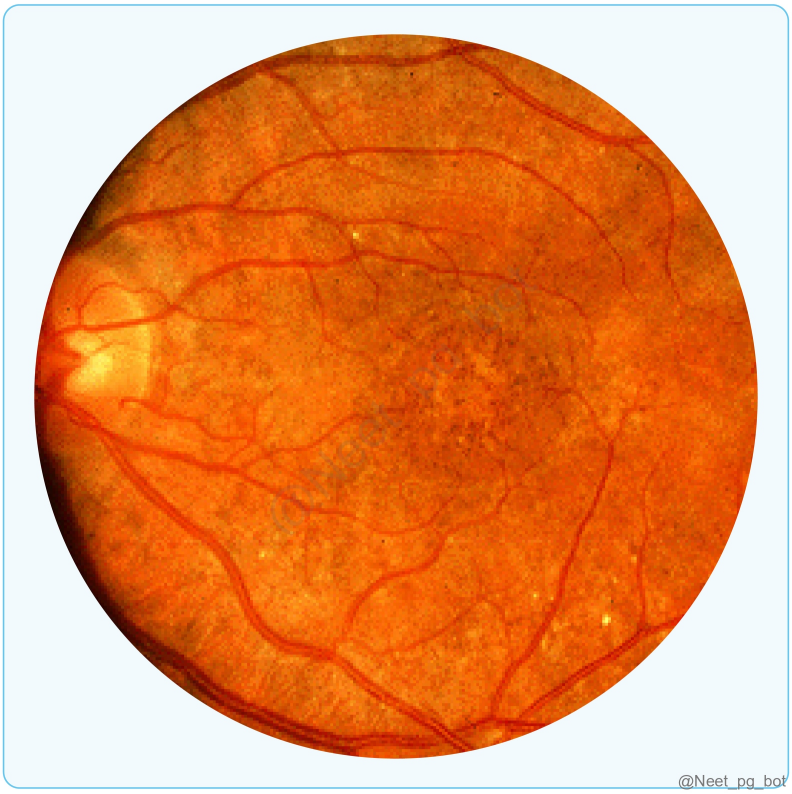
Q6: A neonate on examination has bilateral cataracts and, after investigations, is found to have a patent ductus arteriosus. The baby had a low birth weight and is diagnosed with congenital rubella syndrome. On examination, the retina appears as follows. Which of the following retinal changes is seen here? (Q850193)

A. Macular star

B. Retinal tear

C. Salt and pepper retinopathy

D. Macular edema



Correct Answer: C. Salt and pepper retinopathy

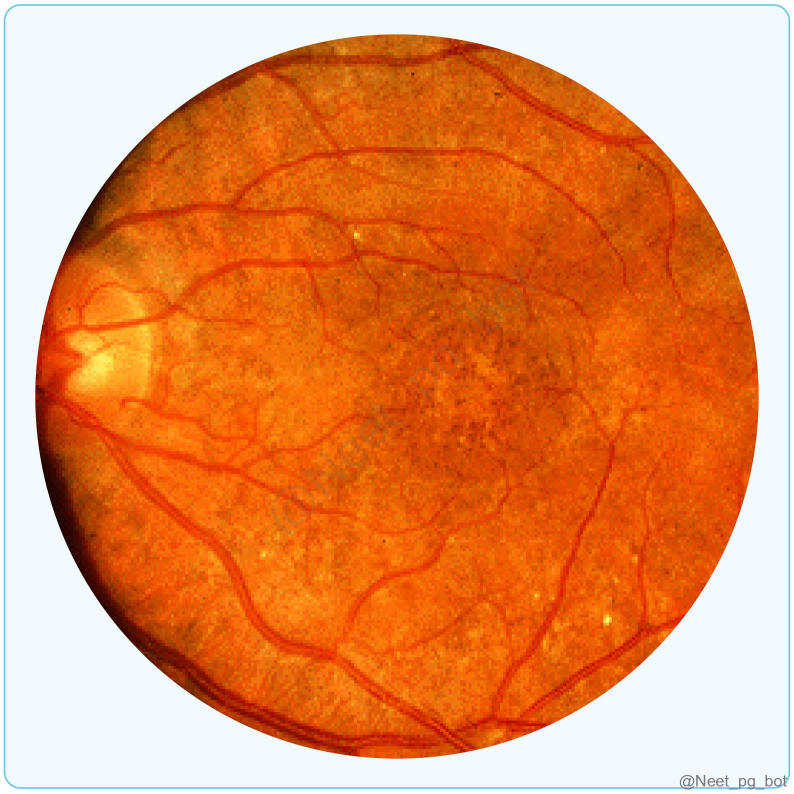
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The retinal change seen in congenital rubella is “salt and pepper” retinopathy. Congenital rubella Rubella (German measles) is a mild disease in infants and children but can cause congenital rubella syndrome (CRS) if contracted during pregnancy. The risk is highest in the first trimester, especially within the first 8 weeks. Pathogenesis Viremia is most intense from 10 to 17 days after infection. Viral shedding is from day 10 of infection up to 2 weeks. Risk of Defects by Gestational Age Highest in the first 12 weeks of gestation and decreases significantly thereafter, with defects being rare after 20 weeks. Clinical features of congenital rubella syndrome Hearing loss (most common) Vision problems (cataracts , glaucoma, salt and pepper retinopathy). Cataracts are the most common ocular abnormality associated with congenital rubella. Heart defects (patent ductus arteriosus > pulmonary artery stenosis (right > left) > ventricular septal defect) Low birth weight Neurological issues (microcephaly, intellectual disabilities, encephalitis, behavioral issues) Chronicity and Complications Chronic presence of the virus can cause ongoing damage The risk of progressive rubella panencephalitis (PRP) years later is a rare complication. Less common complications: Growth retardation, hepatitis, bone lesions. Risk of diabetes and thyroid dysfunction Diagnosis Rubella IgM enzyme immunosorbent assay (detects antibodies) Viral isolation (growing the virus from samples) Polymerase chain reaction (PCR) (detects viral RNA) Management No specific treatment for CRS; supportive care is key Early intervention for complications (e.g., hearing loss) is crucial

Prevention Standard with droplet precaution in hospitalized cases Rubella vaccination RA 27/3 live attenuated vaccine (MMR or MMRV with varicella) effectively prevents rubella and CRS MMR vaccine has a 95% efficacy after one dose and 99% after two doses Vaccination side effects: fever, rash, joint pain Considerations for Pregnant Women Immunoglobulin may be considered if pregnancy is not terminated, though it does not guarantee prevention of fetal infection





References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1676-1680.

https://www.ncbi.nlm.nih.gov/books/NBK570627/

https://www.ncbi.nlm.nih.gov/books/NBK576396/

https://www.ncbi.nlm.nih.gov/books/NBK551502/

↑ *Back to this question in Part A*

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Q7: A 10-year-old child presents with bilateral hearing loss of high tones and has episodes of vertigo. On examination, he has a prominent forehead and linear scars in a spoke-like pattern around his mouth. Which of the following signs is not seen in this stage of the disease? (Q850192)

Correct Answer: Unknown

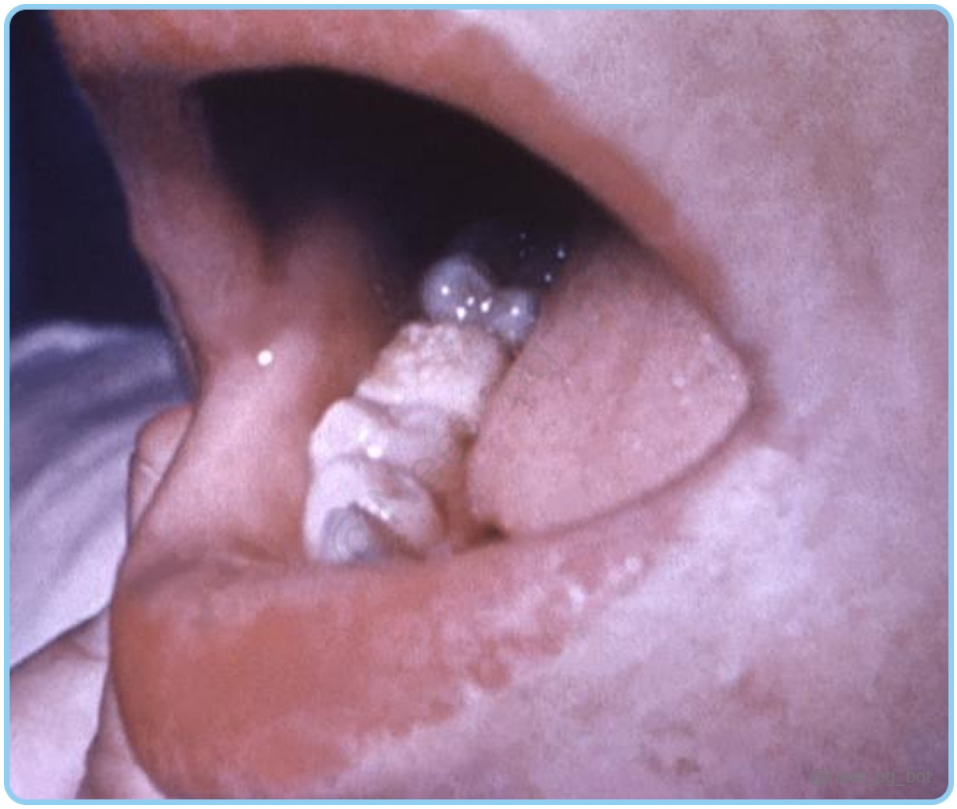
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical scenario points to the diagnosis of congenital syphilis with late-onset symptoms, but Gottron’s papules are seen in dermatomyositis. Late-onset manifestations are: Feature Description Olympian brow Bony prominence of the forehead caused by persistent or recurrent periostitis Clavicular or Higoumenaki’s sign Unilateral or bilateral thickening of the sternoclavicular third of the clavicle Saber shins (Option C) Anterior bowing of the midportion of the tibia Hutchinson's teeth (Option A) Peg-shaped upper central incisors, abnormal enamel, a notch along the biting surface Mulberry molars Abnormal 1st lower molars, small biting surface, and excessive number of cusps Saddle nose Depression of nasal root, syphilitic rhinitis destroying adjacent bone and cartilage Rhagades (Option D) Linear scars in a spoke-like pattern from previous mucocutaneous fissures of the mouth, anus, and genitalia Juvenile paresis Latent meningovascular infection Juvenile tabes Rare spinal cord and cardiovascular involvement (aortitis) Hutchinson triad Hutchinson teeth, interstitial keratitis, and 8th nerve deafness Clutton joint Unilateral or bilateral painless joint swelling from synovitis with sterile synovial fluid Interstitial keratitis Intense photophobia and lacrimation, followed by corneal opacification and complete blindness within weeks or months 8th nerve deafness Unilateral or bilateral, presents at any age as vertigo and high-tone hearing loss, and later with permanent deafness.




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References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1594, 1597, 1599

↑ *Back to this question in Part A*

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Q8: An 8-month-old baby is brought to the hospital after her mother noticed rashes all over the baby's body, as shown in the image. The mother gives a history of syphilis during pregnancy. Which of the following is NOT an early onset sign of syphilis? (Q850191)

A. Mucocutaneous rashes

B. Osteochondritis

C. Hepatosplenomegaly

D. Saddle nose



Correct Answer: D. Saddle nose

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Saddle nose is a late - onset sign of congenital syphilis that presents after the age of 2 years. Early signs of congenital syphilis (within the first 2 years of age) Hepatosplenomegaly (Option C), Jaundice Coombs-negative hemolytic anemia Thrombocytopenia Radiological findings: Osteochondritis (Option B) and Periostitis : Painful and refusal to move the affected limb leading to pseudoparalysis of the Parrot. Wimberger's corner sign is a specific radiographic finding where localized bony destruction to the medial side of the proximal tibia metaphysis is seen. Mucocutaneous rash (Option A): Characterized by erythematous maculopapular or vesiculobullous lesions involving hands and feet, often followed by desquamation . Mucous patches: Highly infectious, with high concentrations of spirochetes Persistent rhinitis (snuffles) Condylomatous lesions: Highly infectious Failure to thrive, Chorioretinitis, Nephritis, and Nephrotic syndrome can also be seen Less common manifestations: Gastroenteritis, peritonitis, pancreatitis, pneumonia, eye involvement (glaucoma and chorioretinitis), nonimmune hydrops, and testicular masses.





References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1593, 1594

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4660578/

↑ *Back to this question in Part A*

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Q9: Which of the following maternal treatments for syphilis is most likely to effectively prevent the transmission to the baby? (Q850190)

A. Doxycycline for 2 weeks before delivery

B. Doxycycline for 30 days before delivery

C. Penicillin for 2 weeks before delivery

D. Penicillin for 30 days before delivery

Correct Answer: D. Penicillin for 30 days before delivery

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Penicillin is the recommended treatment for syphilis during pregnancy (Option D) if clinical or serologic findings indicate active syphilis, or if active infection cannot be confidently ruled out. It is crucial to initiate treatment at least 30 days before delivery, not 2 weeks (Option C), to effectively prevent congenital syphilis. Doxycycline and tetracycline should not be given during pregnancy. (Options A and B) Clues Suggesting Diagnosis of Congenital Syphilis Epidemiologic Background Untreated early syphilis in the mother Untreated latent syphilis in the mother Mother has contact with a known syphilitic during pregnancy and remains untreated Mother was treated less than 30 days before delivery Mother treated with a non-penicillin drug for syphilis during pregnancy Mother treated for syphilis during pregnancy but lacks follow-up, demonstrating a 4-fold decrease in titer Mother coinfected with HIV

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1598.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3730472/

↑ *Back to this question in Part A*

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Q10: A newborn presents with hydrocephalus, chorioretinitis, and intracranial calcifications. Given these findings and a positive Toxoplasma-specific IgM in the CSF, what is the most appropriate treatment regimen for this condition? (Q850189)

A. Pyrimethamine and sulfadiazine with folinic acid

B. Intravenous acyclovir

C. Ganciclovir and valganciclovir

D. Spiramycin

Correct Answer: A. Pyrimethamine and sulfadiazine with folinic acid

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario is consistent with congenital toxoplasmosis. Pyrimethamine and Sulfadiazine with Folinic Acid (Option A) is the standard treatment for congenital toxoplasmosis. Diagnosis Diagnosis Method Details Fetal Ultrasound Performed every 2 weeks during gestation after diagnosis of maternal infection. PCR Analysis of Amniotic Fluid Used for prenatal diagnosis of fetal infection. Serologic Tests Persistent or rising titers in dye/IFA tests, positive IgM-ELISA. Newborn Evaluation General, ophthalmologic, and neurologic exams; head CT scan for intracranial calcifications. CSF Analysis Lumbar puncture with analysis for Toxoplasma-specific IgG and IgM, total IgG, cells, glucose, and protein. Toxoplasma Isolation Isolation from the placenta, the infant’s leukocytes, and CSF using PCR Management Treatment Details Pyrimethamine and

Sulfadiazine, along with Folinic Acid (Calcium Leucovorin) Synergistic action against Toxoplasma gondii . Standard treatment for congenital toxoplasmosis. Folinic Acid is administered to prevent bone marrow suppression caused by pyrimethamine Spiramycin Used in pregnant women during the first trimester to prevent vertical transmission. Monitoring Regular leukocyte counts twice weekly to detect neutropenia and other hematologic effects. Acyclovir (Option B) is the treatment of choice for neonatal herpes simplex virus (HSV) infection. Ganciclovir and Valganciclovir (Option C) are antiviral agents used to treat congenital cytomegalovirus (CMV) infection. Spiramycin (1 g PO every 8 hr without food) is recommended for the prevention of fetal infection if the mother develops toxoplasmosis during pregnancy .

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1666, 1874, 1875.

↑ *Back to this question in Part A*

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Q11: An infant presents with the following clinical findings: poor feeding, lethargy, and hydrocephalus. A CT Brain is performed, and the image below shows characteristic intracranial calcifications. Given these findings, which of the following conditions is most likely? (Q850188)

A. Cytomegalovirus (CMV) infection

B. Congenital rubella syndrome

C. Congenital toxoplasmosis

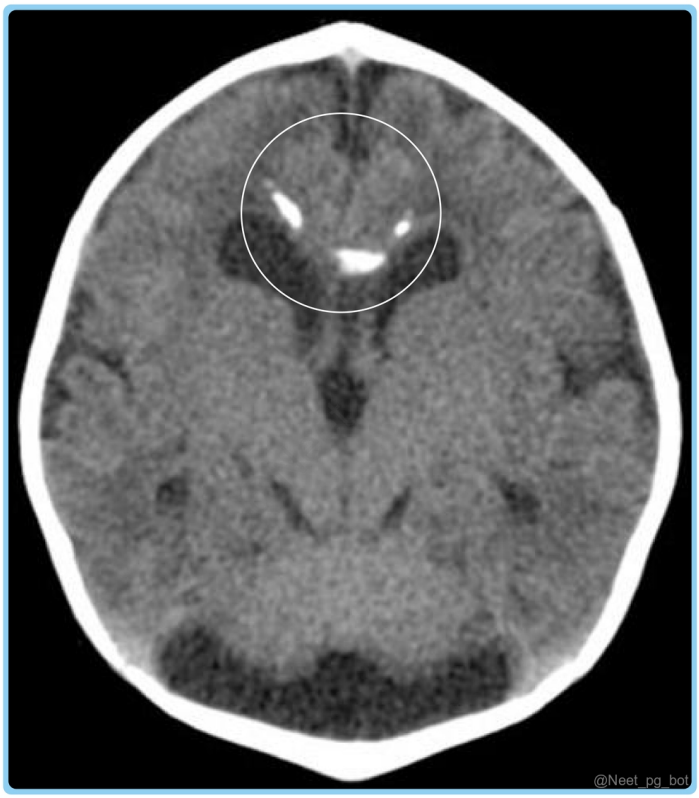
D. Neonatal herpes simplex virus (HSV) infection



Correct Answer: C. Congenital toxoplasmosis

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Congenital toxoplasmosis caused by Toxoplasma gondii often presents with the classic triad of intracranial calcifications, hydrocephalus, and chorioretinitis. Etiology and Clinical Features of Congenital Toxoplasmosis Category Details Etiology Primary maternal infection with Toxoplasma gondii during pregnancy is the primary cause Risk Factors Infection during the first trimester: severe outcomes, lower transmission rate (~17%) Infection during third trimester: milder outcomes, higher transmission rate (~65%) Clinical Features CNS: Hydrocephalus, intracranial calcifications, seizures, developmental delays, microcephaly in severe brain damage Ocular: Chorioretinitis, vision impairment, strabismus, photophobia, epiphora Systemic: Hepatosplenomegaly, lymphadenopathy, prematurity Other: Jaundice, thrombocytopenia, rash, hearing loss Cytomegalovirus (CMV) Infection (Option A) can also cause intracranial calcifications; however, these are more commonly seen in a periventricular pattern. Congenital Rubella Syndrome (Option B) is typically associated with cataracts, heart defects, and sensorineural deafness rather than intracranial calcifications. Neonatal Herpes Simplex Virus (HSV) Infection (Option D) may cause encephalitis and lead to brain lesions.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1550, 1551.

Ghai Essential Pediatrics, 10th Edition, Page 284.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4164182/

↑ *Back to this question in Part A*

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Q12: A 4-year-old child has a history of night sweats, mild fever, and recent weight loss. The child also has a nonproductive cough and mild dyspnea. Chest X-ray is taken and shown below. What is the most likely diagnosis? (Q850177)

A. Primary Tuberculosis

B. Miliary Tuberculosis

C. Bacterial Pneumonia

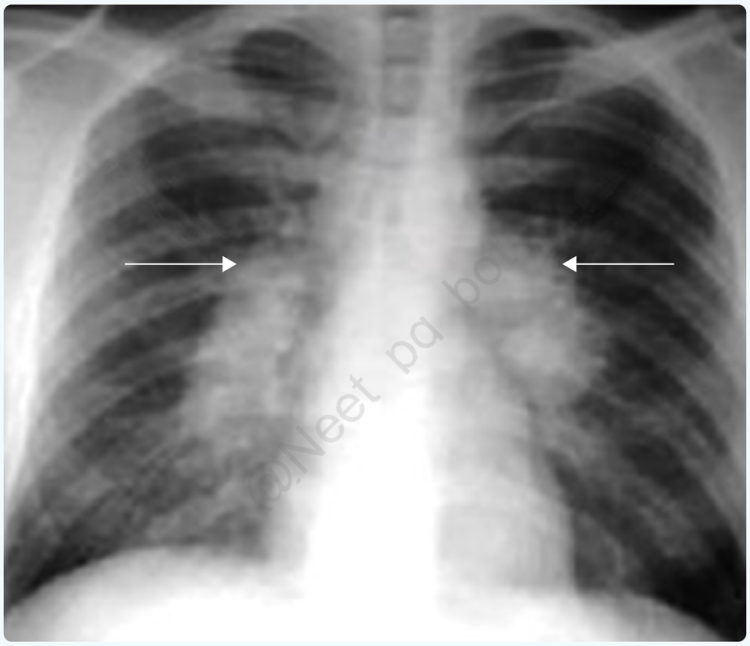
D. Bronchiectasis



Correct Answer: A. Primary Tuberculosis

- *Listen (English)*
- *Listen (Hindi)*

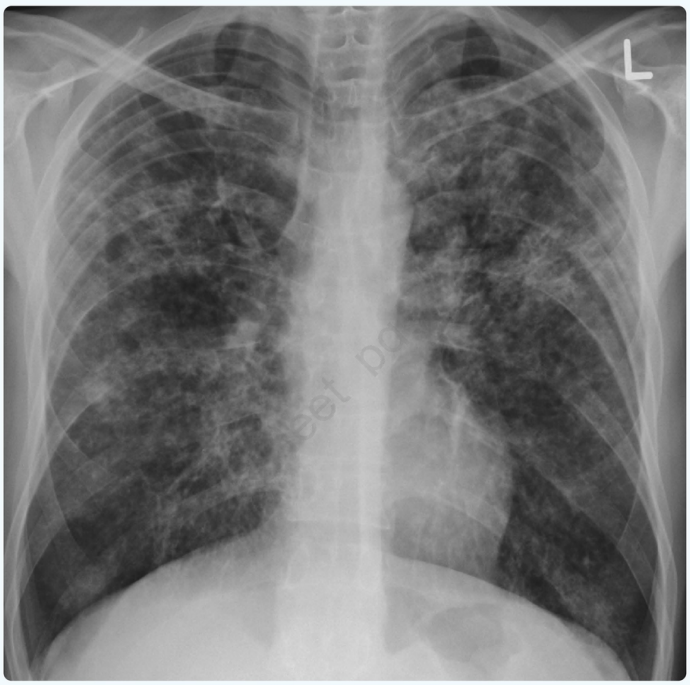
Explanation: The chest x-ray describes a localized lesion and prominent left hilar lymph nodes, consistent with the Ghon focus and Ghon complex . These features, along with symptoms like cough and weight loss, match the typical presentation of Primary Tuberculosis . Primary Tuberculosis Infection Location: Always begins in the lungs. Typically, the bacilli implant in the lower part of the upper lobe or upper part of lower lobe close to pleura. Ghon Focus: A 1 - 1.5 cm area of gray-white inflammation with consolidation, often undergoing caseous necrosis. Ghon Complex: A combination of the parenchymal lung lesion and caseating regional lymph nodes. Miliary Tuberculosis (Option B) is characterized by stippling-like lesions on X-ray. Bacterial Pneumonia (Option C) does not present with B/L bulky hilum, but presents as either patchy consolidation (bronchopneumonia) or widespread consolidation of a lobe (lobar pneumonia). Bronchiectasis (Option D) is characterized by cystic shadows in the X-ray.



Chest x-ray showing bilateral hilar adenopathy of primary pulmonary TB

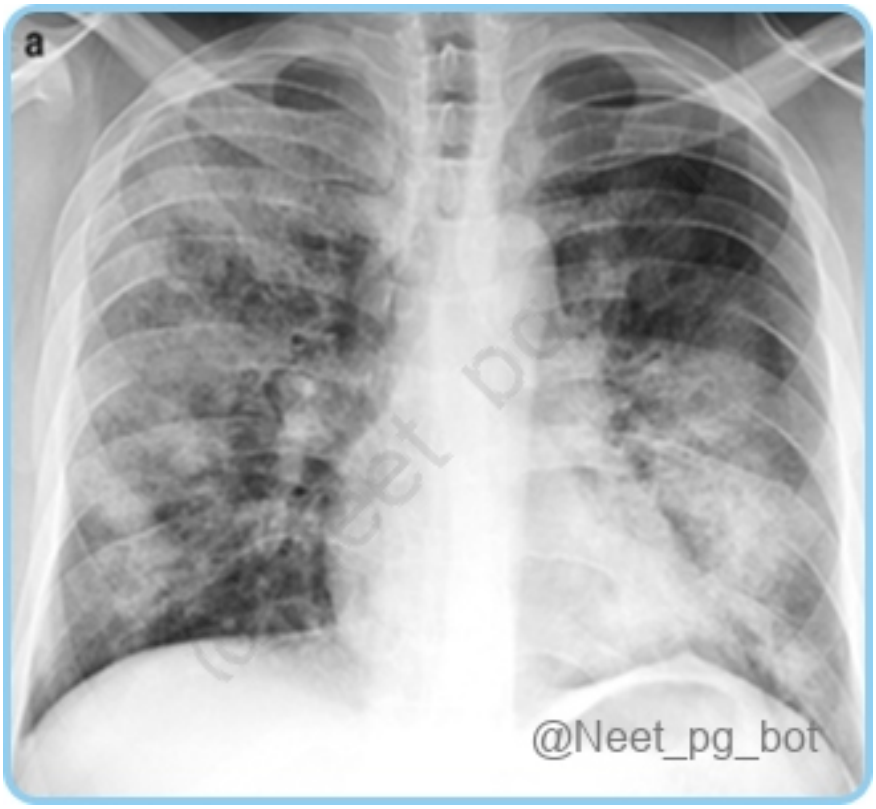
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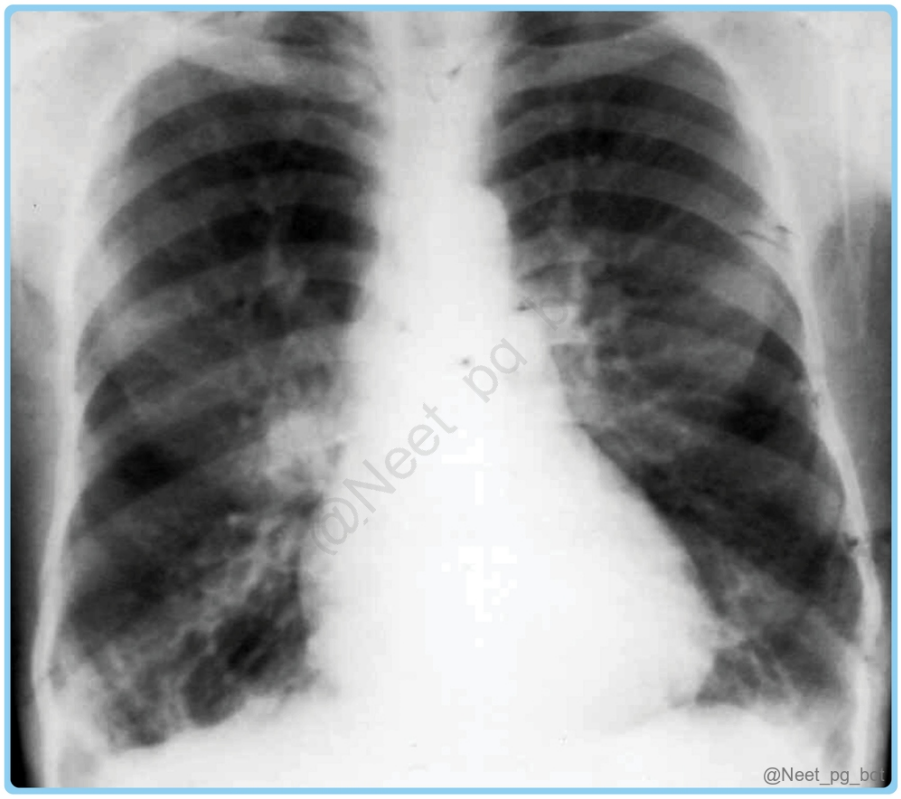




Chest X ray showing miliary tuberculosis

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References:

Nelson Textbook of Pediatrics Edition 21 page no: 1566,1568,1569,1570

https://www.sciencedirect.com/science/article/pii/S2173511517301665

Robbins & Cotran Pathologic Basis of Disease Edition 10 page no: 371,373,687,707,708

↑ *Back to this question in Part A*

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Q13: A 10-day-old male is brought to the emergency department by his parents, who report that he has been feeding poorly and has had episodes of rigidity. The mother says that she did not receive any antenatal care and delivered the baby at home. On examination, the infant is irritable, has a clenched jaw, and is experiencing frequent, painful muscle spasms. What is the most likely diagnosis? (Q850186)

A. Generalized tetanus

B. Cephalic tetanus

C. Neonatal tetanus

D. Localized tetanus

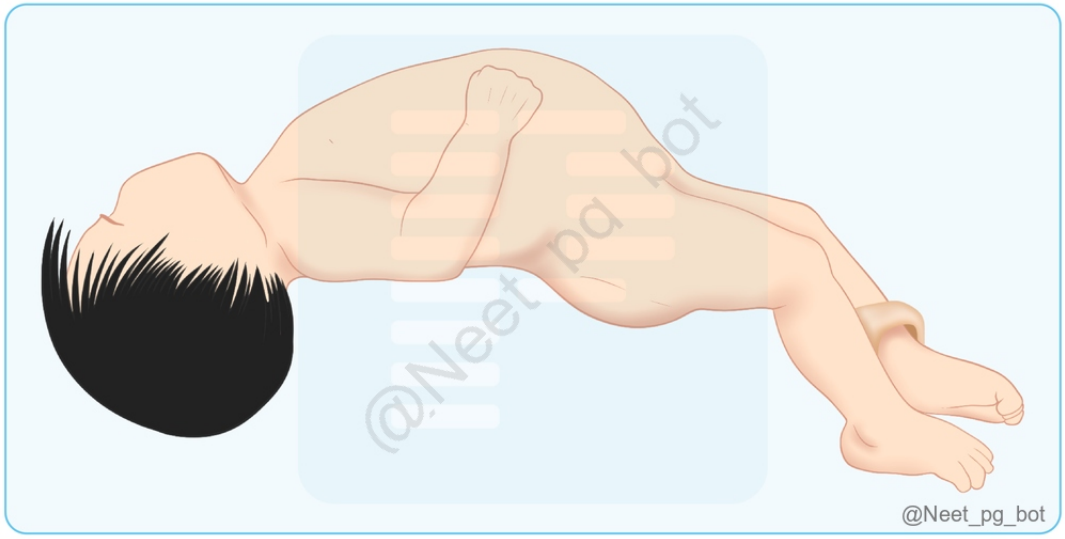


Correct Answer: C. Neonatal tetanus

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Tetanus Types Type of Tetanus Clinical Features Comments Generalized Tetanus (Option A) Trismus/locked jaw (classical manifestation) Risus sardonicus (from intractable spasms of facial and buccal muscles) Opisthotonic posturing (arched posture of extreme hyperextension of the body) Headache, restlessness, and irritability are early symptoms. Common form in older children and adults. Incubation period: 2–14 days Neonatal Tetanus (Option C) Caused by tetanus toxin , a neurotoxin produced by Clostridium tetani Presents during 3–12 days of life Progressive difficulty in feeding (sucking and swallowing) Associated with hunger and crying Paralysis or reduced movement Stiffness and rigidity to touch May present with opisthotonosis High mortality, linked to a lack of maternal immunization. The umbilical stump, often the entry point for the infection, may show signs of dirt, clotted blood, or serum, but can also appear relatively normal. Cephalic Tetanus (Option B) Cranial nerve involvement Facial paralysis Difficulty swallowing Poor prognosis, rare. In association with chronic otitis media, injury to the head Localized Tetanus (Option D) Rigidity and pain are confined to the muscles near the wound. Less severe, may progress to generalized tetanus.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1550, 1551.

↑ *Back to this question in Part A*

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Q14: A 6-year-old child, fully vaccinated against diphtheria but not having received a booster dose in the past 5 years, is identified as an asymptomatic contact of a confirmed diphtheria case. What is the most appropriate management for this child? (Q850184)

A. Administer a single dose of diphtheria antitoxin

B. Administer benzathine penicillin G

C. Administer a booster dose of diphtheria toxoid vaccine

D. No treatment or vaccination needed as the child is asymptomatic

Correct Answer: C. Administer a booster dose of diphtheria toxoid vaccine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Diphtheria - Management of contacts Asymptomatic Case Contacts Includes household members and close contacts. Monitored for 7 days for symptoms. Prophylaxis: IM benzathine penicillin G (600,000 units for <6 years, 1,200,000 units for ≥6 years) or 10-day oral erythromycin (40-50 mg/kg/day, max 2 g/day). Assess and update immunization status. Booster Dose : Administer the diphtheria toxoid vaccine to individuals who have not received a booster within the past 5 years. (Option C) Vaccinate children who have not yet received their 4th dose of diphtheria toxoid. Incomplete or Uncertain Immunization : For those who have received fewer than 3 doses of diphtheria toxoid or have an uncertain immunization status, provide the vaccine according to the primary immunization schedule with an age-appropriate preparation Asymptomatic Carriers Receive 10-14 days of antimicrobial prophylaxis. Administer diphtheria toxoid vaccine if no booster has been given in the past year. Droplet precautions for respiratory carriers; contact precautions for cutaneous carriers. Precautions continue until two negative cultures (24 hours apart) post-treatment. Antitoxin is not recommended for asymptomatic carriers. Follow-up & Repeat Cultures Repeat cultures for cases and carriers 2 weeks post-treatment. If positive, repeat a 10-day erythromycin course and further cultures. Complete eradication is not guaranteed after one course of antibiotics. Casual Contacts Routine investigation is not recommended due to low carriage rates. Hospital-Acquired Transmission Rare; only those with direct contact with respiratory/oral secretions need management as contacts. Administer a single dose of diphtheria antitoxin (Option A): Diphtheria antitoxin is used to treat individuals with symptomatic diphtheria, not for prophylaxis in asymptomatic contacts. Administer benzathine penicillin G (Option B): Benzathine penicillin G is used for prophylaxis in individuals who have not been fully vaccinated. No treatment or vaccination needed as the child is asymptomatic (Option D): Even asymptomatic contacts need to have their vaccination status reviewed and updated.

References:

Nelson Textbook of Pediatrics 21st edition Pg: 1461

↑ *Back to this question in Part A*

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Q15: An unimmunized 7-year-old child presents to the emergency department with a sore throat, fever, and a thick grayish membrane covering the tonsils. The physician suspects diphtheria and begins treatment. What is the most appropriate initial step in management? (Q850183)

A. Administer erythromycin

B. Perform throat culture and wait for results

C. Administer diphtheria antitoxin immediately

D. Administer DPT vaccine

Correct Answer: C. Administer diphtheria antitoxin immediately

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Diphtheria antitoxin is crucial for treating diphtheria because it neutralizes the diphtheria toxin that is causing the disease's symptoms. Diphtheria - Diagnosis and management Clinical Suspicion High index of suspicion in exudative pharyngitis with greyish-white pseudomembrane (bleeds on removal). Symptoms: Fever, malaise, sore throat, dysphagia, muffled voice, "bull neck". Specimen Collection Collect from nose, throat, mucocutaneous lesions, and membrane exudate (if present). Laboratory Confirmation Albert Stain: Rapid visualization of Corynebacterium diphtheriae from oropharynx/larynx swabs. Culture: Definitive identification (8 hours) from affected area swabs nose, throat, lesions). Species-level identification, toxigenicity, antimicrobial susceptibility testing for Coryneform organisms. Send isolates to reference labs. MANAGEMENT Diphtheria Antitoxin Role: Cornerstone of treatment; administer immediately. Dosage: 20,000-100,000 units based on toxicity and illness duration. Sensitivity testing required; not effective for asymptomatic carriers. Antibiotic Therapy Aims: Stop toxin production, treat infection, prevent transmission. Regimens: Erythromycin (40-50 mg/kg/day) or Penicillin G (100,000-150,000 units/kg/day) for 14 days; shorter for cutaneous diphtheria. 2 negative cultures 24 hours apart confirm elimination of organisms. If C.Diphtheria is still present, erythromycin is repeated. Supportive Care Precautions: Droplet (pharyngeal), contact (cutaneous) until negative cultures. Wound Cleaning: Soap and water for cutaneous diphtheria. Rest: Bed rest during the acute phase; gradual recovery. Vaccination Administer diphtheria toxoid post-infection to complete the primary series or provide booster doses. Administer erythromycin (Option A): Erythromycin is necessary, but it is not the first step alone. They do not neutralize already circulating toxins. Since toxin-mediated complications are life-threatening, antitoxin must be given first and immediately. Perform throat culture and wait for results (Option B): Diphtheria is a clinical diagnosis initially. Waiting for culture confirmation delays treatment and allows the toxin to continue damaging tissues. Laboratory tests support diagnosis but must not delay antitoxin administration. Administer DPT vaccine (Option D): The DPT vaccine (diphtheria toxoid) is for prevention , not acute treatment. It stimulates active immunity, but it does not neutralize the toxin.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1460, 1461

Ghai Essential of Paediatrics, 10th edition, Pages 264, 265

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 13 y/o girl presents with a sore throat, fever, and dysphagia. On examination, her oropharynx appears as shown below. The patient also exhibits symptoms of airway obstruction and has a "bull-neck" appearance. Which of the following is the most likely etiology of these symptoms? (Q850182)

A. Streptococcus pneumoniae

B. Corynebacterium diphtheriae

C. Haemophilus influenzae

D. Adenovirus



Correct Answer: B. Corynebacterium diphtheriae

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Corynebacterium diphtheriae causes diphtheria, which is characterized by the formation of a greyish-white pseudomembrane in the throat, airway obstruction, and systemic effects. Diphtheria Etiology Caused by Corynebacterium diphtheriae or, rarely, toxigenic C. ulcerans. Aerobic, nonencapsulated, non-spore-forming, pleomorphic, gram-positive bacilli. Incubation Period 2-4 days (can range from 1-10 days for respiratory diphtheria) Transmission Through respiratory droplets, direct contact with secretions or skin lesions, fomites, or contaminated food/milk. Asymptomatic Carriers Carry for up to 6 months. Clinical Manifestations Respiratory tract (tonsillar/pharyngeal): Sore throat, fever, dysphagia, pseudomembrane, airway obstruction. Cutaneous: Superficial, ecthyma-like, non-healing ulcer with a grey-brown membrane. (Extremities > Trunk/head) Other sites: Ear (otitis externa), eye (purulent and ulcerative conjunctivitis), and genital tract (purulent and ulcerative vulvovaginitis). Toxin Effects Mechanism: Inhibits protein synthesis, causing cell death and local tissue necrosis. Local Effects: Paralysis of the palate and hypopharynx (early local effect of toxin), Pseudomembrane formation, airway obstruction, "bull-neck" appearance. Systemic Effects (Heart, nervous system, kidney): Cardiomyopathy, Demyelination of nerves, Thrombocytopenia, Acute tubular necrosis Complications of Diphtheria Risk of complications ∝ Severity of local infection Respiratory Tract Obstruction by the Pseudomembrane Toxic Cardiomyopathy Toxic Neuropathy (Corticosteroids are ineffective) Rarely septicemia (often fatal), endocarditis, and pyogenic arthritis. Differential diagnosis of a membrane over the tonsil Diseases with membrane formation Membranous tonsillitis Vincent angina Infectious mononucleosis Agranulocytosis Leukaemia Aphthous ulcers Malignancy tonsil A traumatic ulcer due to any injury heals by forming a membrane. Candidal infection of the tonsil The above image depicts a greyish-white pseudomembrane in the throat Streptococcal (Option A) membranous tonsillitis patients have high fever, but the membrane is confined to the tonsils. Hemophilus influenza (Option C) presents with pneumonia with high-grade fever, chills, productive cough, lethargy, shortness of breath, chest pain, and generalized body aches. Viral membranous tonsillitis (Option D) caused by adenovirus presents with high fever, sore throat, and membranous tonsillitis with normal leukocyte count and is a self-limiting disease with a course of 4-8 days.



Bull neck appearence

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References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1458- 1461.

Ghai's Essential Paediatrics, 9th Edition, Page 237.

https://www.ncbi.nlm.nih.gov/books/NBK562176/

↑ *Back to this question in Part A*

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Q17: A 5-year-old girl presents with fever, sore throat, and a red, finely papular rash that started on her neck and spread to her body. The rash is more pronounced in the skin creases, and her examination reveals the findings in the image. What is the most likely diagnosis? (Q850181)

A. Measles

B. Kawasaki disease

C. Scarlet fever

D. Hand, foot and mouth disease





Correct Answer: C. Scarlet fever

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical features mentioned most likely indicates Scarlet fever Scarlet Fever Group A Streptococcus (GAS) pharyngitis is associated with a characteristic rash caused due to a pyrogenic exotoxin (erythrogenic toxin) produced by GAS in individuals lacking antitoxin antibodies. Caused By Group A Streptococcus (GAS) Incidence and Virulence Less common and less virulent now compared to the past, with incidence depending on toxin strains and the population's immunity. Clinical Features Rash appears within 24-48 hours, starting around the neck and spreading to the trunk and extremities. Rash is a diffuse, finely papular, erythematous eruption causing bright-red discoloration, which blanches on pressure. Rash is accentuated in the creases of the elbow, axilla, and groin (Pastia lines) and gives the skin a goose-pimple appearance. Erythematous cheeks with pallor around the mouth. After 3-4 days, the rash fades, followed by desquamation starting on the face and progressing downward. Desquamation may occur around fingernails, palms, and soles. Tongue is coated with swollen papillae, which later give a "strawberry tongue" appearance after desquamation. Pharyngitis. Diagnosis

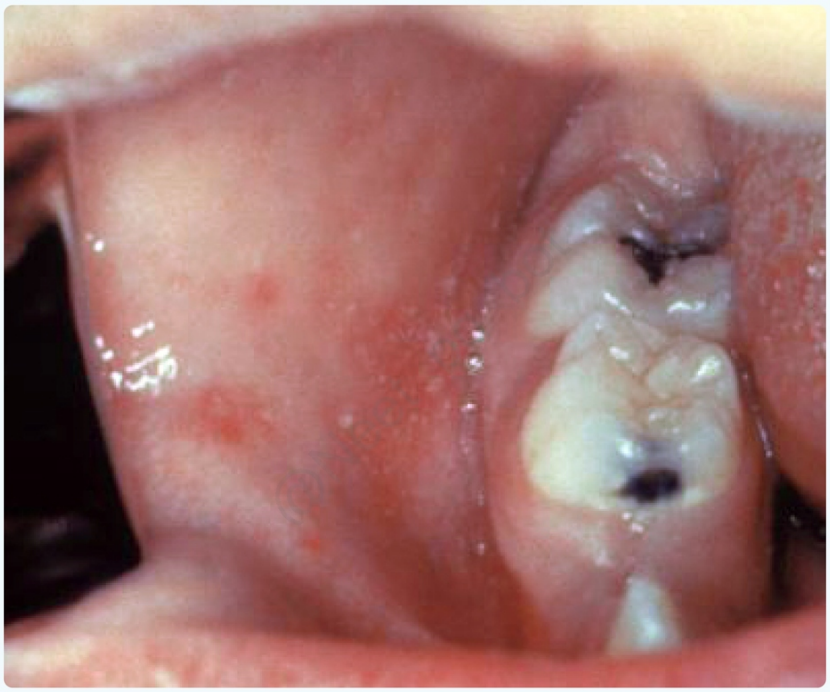
Classic scarlet fever is typically straightforward to diagnose. A history of recent exposure to GAS is helpful. Diagnosis is confirmed by identifying GAS in the pharynx. Treatment Antibiotic therapy should be started immediately. Drug of choice: Penicillin or amoxicillin for 10 days. Alternative for Penicillin Allergy: Oral cephalosporins, clindamycin, Macrolides (erythromycin, clarithromycin) for 10 days or azalide (azithromycin) for 5 days. Injection: Benzathine penicillin G single dose intramuscular injection for those unlikely to complete oral therapy. Complication Suppurative Complications: Cervical lymphadenitis Peritonsillar abscess Retropharyngeal abscess Otitis media Mastoiditis Sinusitis Group A Streptococcus (GAS) pneumonia Nonsuppurative Complications: Acute rheumatic fever Acute post-streptococcal glomerulonephritis Image White strawberry tongue (first day) Red strawberry tongue (third day) Symptoms/ Signs Measles (Option A) Scarlet Fever Kawasaki Disease (Option B) Fever + With prodromal symptoms + + Rash Maculopapular Maculopapular Maculopapular Distribution of rash Cephalocaudal and centrifugal spread, may become confluent Begins in the axillary and inguinal region, spreading throughout. Linear petechiae in antecubital and axilary folds (Lines of Pastia) Erythematous and polymorphous rash. Commonly on hands and feet Desaquamation Dry desquamation Desquamative rash begins 1 week after onset Periungual desquamation Eye involvement Conjunctivitis - Non-exudative conjunctivitis Mucosal Involvement Koplik's spots Pharyngitis, strawberry tongue Strawberry tongue, fissured or erythematous lips Adenopathy ± ± Cervical Lymphadenopathy Oedema - - Oedema of hands and feet Image Hand, foot, and mouth disease (HFMD) (Option D) presents with low-grade fever, sore throat, followed by oral ulcers or blisters in the oral cavity, and a papulovesicular rash on the palms and soles, which are not mentioned in the scenario.







Measles with red blotchy pattern



Koplik spots on buccal mucosa on day 3 of rash

@Neet_pg_bot



Punctate erythmatous rash on Day 2

@Neet_pg_bot





Erythematosus polymorphic rash on feet

@Neet_pg_bot



Strawberry tounge in kawasaki disease

@Neet_pg_bot



Vesicles are seen on ventral
aspect of 4th toe of right foot

@Neet_pg_bot



Superficially erroded papules on lips

@Neet_pg_bot

References:

Nelson Textbook of Pediatrics Edition 21 page no:1311,1434,1441,1442,1444

https://www.researchgate.net/figure/Clinical-features-of-measles-scarlet-fever-and-Kawasaki-disease_fig2_347490092

↑ *Back to this question in Part A*

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Q18: A 3-year-old child is a household contact of a relative with active tuberculosis (TB). The child is asymptomatic and has been evaluated, confirming no active TB disease. The child is also HIV-negative. What is the most appropriate management for this child according to current recommendations? (Q850180)

A. Pyrazinamide daily for 6 months.

B. Isoniazid daily for 6 months.

C. BCG vaccine.

D. Ethambutol daily for 3 months.

Correct Answer: B. Isoniazid daily for 6 months.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Isoniazid Prophylaxis: Indications: Asymptomatic contacts under 6 years old of a smear-positive TB case, irrespective of their BCG or nutritional status, after ruling out active disease. HIV-infected children who either had a known exposure to an infectious TB case or a tuberculin skin test (TST) positive (induration ≥5 mm), with no active TB disease. All TST-positive children receiving immunosuppressive therapy. Children born to mothers with TB during pregnancy after ruled out to have congenital TB. Dosage and Duration: Isoniazid Dosage: 10 mg/kg per day, with a range of 7-15 mg/kg and a maximum dose of 300 mg/day. Treatment Duration: 6 months. Administration: Single isoniazid dispersible tablets of 100 mg are available from the Global Drug Facility (GDF). Pyrazinamide daily for 6 months (Option A): Pyrazinamide causes hepatitis more often in children than isoniazid. It is used to treat active TB, not for preventive therapy. BCG vaccine (Option B) is used for preventing severe forms of TB in highly endemic settings. Ethambutol daily for 3 months (Option C): Using Ethambutol alone for prevention can lead to drug resistance, so it is not recommended for latent TB infection management.

References:

Park’s Textbook of Preventive and Social Medicine Edition 27 page no:229https://www.ncbi.nlm.nih.gov/books/NBK214436/

https://www.sciencedirect.com/topics/neuroscience/pyrazinamide

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2838947/

↑ *Back to this question in Part A*

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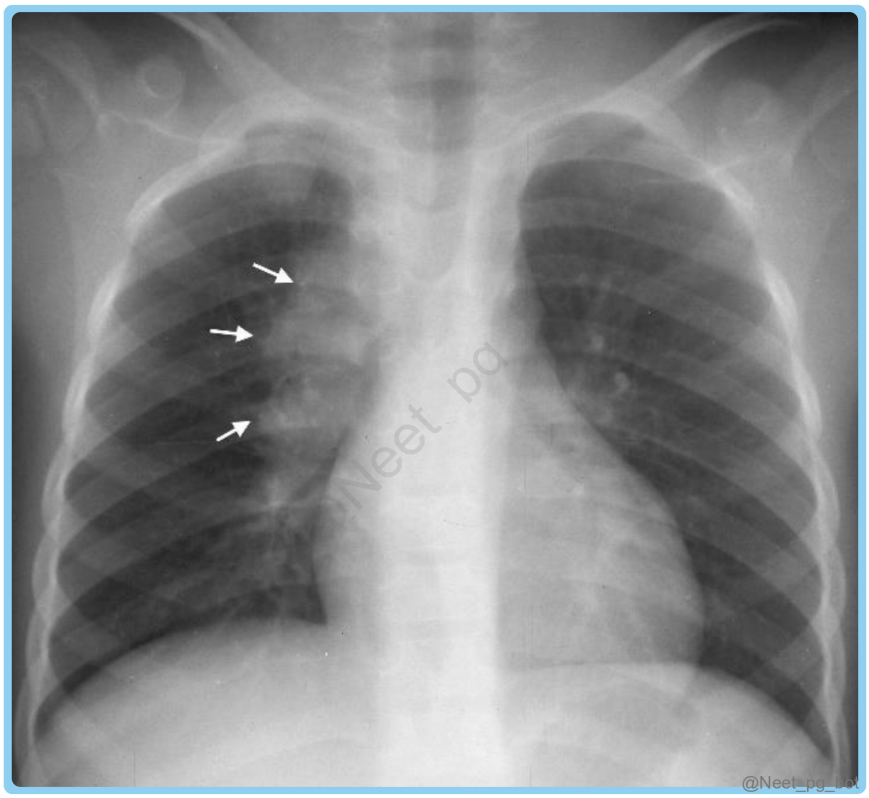
Q19: A 4-year-old child presents with a persistent cough and low-grade fever for 2 weeks. Chest X-ray was taken, and the image is shown below. Based on the X-ray findings, the child was started on a treatment regimen but later developed optic neuritis as a side effect. Which drug from the treatment regimen is most likely responsible for this adverse effect? (Q850179)

A. Isoniazid

B. Rifampin

C. Ethambutol

D. Pyrazinamide



Correct Answer: C. Ethambutol

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child has primary tuberculosis, indicated by right-sided hilar lymphadenopathy and collapse-consolidation lesions on the chest X-ray & the drug causing optic neuritis among att drugs is Ethambutol Standard Regimen for Intrathoracic Tuberculosis: 6-month regimen : Intensive Phase (2 months) Continuation Phase (4 months) Isoniazid (H) Rifampin (R) Pyrazinamide (Z) Ethambutol (E) Isoniazid (H) Rifampin (R) Ethambutol (E) H, R, Z: Bactericidal drugs E: Bacteriostatic drug Medication Dose (mg/kg/day) Maximum Dose (per day) Side Effects Ethambutol (Option C) 15 - 25 2.5 g Optic neuritis (usually reversible) Decreased red-green color discrimination Gastrointestinal tract disturbances Hypersensitivity Isoniazid (Option A) 7 - 15 300 mg Mild hepatic enzyme elevation Hepatitis Peripheral neuritis Hypersensitivity Pyrazinamide (Option D) 30 - 40 2 g Hepatotoxic effects Hyperuricemia Arthralgias Gastrointestinal tract upset Rifampicin (Option B) 10 - 20 600 mg Orange discoloration of secretions or urine Staining of contact lenses Vomiting Hepatitis Influenza-like reaction Thrombocytopenia Pruritus

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1578,1580

Ghai Essential of Paediatrics, 10th Edition, Page 259

Park's Textbook of Preventive and Social Medicine, 27th Edition, Page 230

↑ *Back to this question in Part A*

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Q20: A study was conducted on the tuberculin skin test (TST) in a population of children. The researchers aimed to identify groups of children at increased risk of developing tuberculosis. Which of the following groups of children is at an increased risk even with TST induration ≥5 mm? (Q850178)

A. Children in close contact with tuberculosis patient

B. Children born in high tuberculosis prevalence areas

C. Children who travel to high tuberculosis prevalence areas

D. Children ≥ 4 years old without any risk factors

Correct Answer: A. Children in close contact with tuberculosis patient

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Children in close contact with a tuberculosis patient or an adult with a high risk of TB are at an increased risk of developing tuberculosis. Size of Induration Group ≥ 5 mm (Option A) Children in close contact with known or suspected contagious people with tuberculosis disease Children suspected to have tuberculosis disease: Findings on chest radiograph consistent with active or previously tuberculosis disease Clinical evidence of tuberculosis disease Children receiving immunosuppressive therapy or with immunosuppressive conditions, including HIV infection ≥10 mm (Options B and C ruled out) Children at increased risk of disseminated tuberculosis disease: Children <4 yr old Children with other medical conditions, including Hodgkin disease, lymphoma, diabetes mellitus, chronic renal failure, or malnutrition Children with increased exposure to tuberculosis disease: Children born in high-prevalence regions of the world Children often exposed to adults with HIV infection, homeless, users of illicit drugs, residents of nursing homes, incarcerated or institutionalized, or migrant farm workers Children who travel to high-prevalence regions of the world ≥15 mm (Option D ruled out) Children ≥4 yr old without any risk factors

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1576-1578

Ghai Essential of Paediatrics, 10th Edition, Pages 256-258

↑ *Back to this question in Part A*

@Neet_pg_bot

• [10_Infectious Diseases] 025 Viral Diseases Covid-19 In Children

« Back to Folder Directory

[10_Infectious Diseases] 025 Viral Diseases Covid-19 In Children — Quick Jump

Q1 (p. 1028)	*Q2 (p. 1029)*	*Q3 (p. 1030)*	*Q4 (p. 1031)*	*Q5 (p. 1031)*	*Q6 (p. 1032)*
Q7 (p. 1033)	*Q8 (p. 1034)*	*Q9 (p. 1035)*	*Q10 (p. 1036)*	*Q11 (p. 1040)*	*Q12 (p. 1041)*
Q13 (p. 1043)	*Q14 (p. 1043)*	*Q15 (p. 1044)*	*Q16 (p. 1045)*	*Q17 (p. 1046)*	*Q18 (p. 1050)*
Q19 (p. 1050)	*Q20 (p. 1054)*	*Q21 (p. 1055)*	*Q22 (p. 1058)*		

Q1: A 5-year-old girl is brought to the outpatient department with complaints of fever, cough, and redness of both eyes for 2 days. The patient did not complete the vaccination according to the EPI schedule. Bluish-white spots are present on the buccal mucosa of the child. The patient is given appropriate medications for measles. Which of the following statements is correct about measles? (Q882192)

A. Koplik spots appear after the prodromal stage

B. Fever stops before the onset of rash

C. Vaccine is given at 9 weeks

D. It is infectious before the rash appears

Correct Answer: D. It is infectious before the rash appears

Explanation: Option D: It is infectious before the rash appears Measles is caused by an infection with the Rubeola virus. The measles virus is a single-stranded, lipid-enveloped RNA virus . The measles virus enters the body through the respiratory tract or conjunctivae following contact with large droplets or small-droplet aerosols. The maculopapular rash appears 2-4 days after the onset of prodromal symptoms of the measles infection. The patient is infectious from 4 days prior to the onset of the rash to 4 days after the rash erupts. . The maculopapular measles rash begins on the forehead, behind the ears, and on the upper neck. Prodromal symptoms begin to subside after the onset of the rash. Option A: Koplik spots appear after the prodromal stage After the incubation period, prodromal symptoms of the measles virus infection appear. Cough, coryza, conjunctivitis, and low-grade fever are seen in the prodromal phase of measles infection . Discrete red lesions with bluish-white spots in the centre are called koplik spots. Koplik spots are first present on the buccal mucosa in front of the lower second molars . Koplik spots appear 1–4 days before the onset of the rash. Option B: Fever stops before the onset of rash Low-grade fever develops in the prodromal phase of measles. The fever keeps increasing in intensity till the onset of the rash. The fever and other prodromal symptoms of the infection begin to subside after the onset of the rash . Option C: Vaccine is given at 9 weeks The measles vaccine can be given as a monovalent preparation or combined with the measles-rubella or measles-mumps-rubella vaccine. The latest recommendations regarding vaccination against measles include 2 doses: First dose at 9-15 months of age Second dose at 4-6 years of age

References:

Nelson's 20th edition, page no. 1542-1547 Ghai 9th edition page no. 209

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 5-year-old girl is brought to the outpatient department with complaints of fever, cough, and redness of both eyes for 2 days. The patient did not complete the vaccination according to the EPI schedule. Bluish-white spots are present on the buccal mucosa of the child. The patient is given appropriate medications for measles. Which of the following statements is correct about measles? (Q882108)

A. Koplik spots appear after the prodromal stage

B. Fever stops before the onset of rash

C. Vaccine is given at 9 weeks

D. It is infectious before the rash appears

Correct Answer: D. It is infectious before the rash appears

Explanation: Option D: It is infectious before the rash appears Measles is caused by an infection with the Rubeola virus. The measles virus is a single-stranded, lipid-enveloped RNA virus . The measles virus enters the body through the respiratory tract or conjunctivae following contact with large droplets or small-droplet aerosols. The maculopapular rash appears 2-4 days after the onset of prodromal symptoms of the measles infection. The patient is infectious from 4 days prior to the onset of the rash to 4 days after the rash erupts. . The maculopapular measles rash begins on the forehead, behind the ears, and on the upper neck. Prodromal symptoms begin to subside after the onset of the rash. Option A: Koplik spots appear after the prodromal stage After the incubation period, prodromal symptoms of the measles virus infection appear. Cough, coryza, conjunctivitis, and low-grade fever are seen in the prodromal phase of measles infection . Discrete red lesions with bluish-white spots in the centre are called koplik spots. Koplik spots are first present on the buccal mucosa in front of the lower second molars . Koplik spots appear 1–4 days before the onset of the rash. Option B: Fever stops before the onset of rash Low-grade fever develops in the prodromal phase of measles. The fever keeps increasing in intensity till the onset of the rash. The fever and other prodromal symptoms of the infection begin to subside after the onset of the rash . Option C: Vaccine is given at 9 weeks The measles vaccine can be given as a monovalent preparation or combined with the measles-rubella or measles-mumps-rubella vaccine. The latest recommendations regarding vaccination against measles include 2 doses: First dose at 9-15 months of age Second dose at 4-6 years of age

References:

Nelson's 20th edition, page no. 1542-1547 Ghai 9th edition page no. 209

↑ *Back to this question in Part A*

Q3: An HIV-positive lady presented in Labour. She was not on any Antiretroviral therapy. What is the first-line treatment regimen for her child? (Q850168)

A. Nevirapine for 12 weeks

B. Zidovudine only for 6 weeks

C. Zidovudine + Nevirapine for 12 weeks

D. Nevirapine for 6 weeks

Correct Answer: C. Zidovudine + Nevirapine for 12 weeks

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This scenario describes a High-Risk Infant . According to the World Health Organisation (WHO) and NACO (National AIDS Control Organisation) guidelines, a baby is considered high-risk for vertical transmission if the mother: Did not receive Antiretroviral Therapy (ART) during pregnancy. Received ART for less than 4 weeks before delivery. Has a high viral load (>1000 copies/mL) near delivery. Prophylaxis Protocol Because the mother in this case was not on ART, the risk of transmission during labor is very high. Dual prophylaxis is required: Zidovudine (AZT): A nucleoside reverse transcriptase inhibitor (NRTI). Nevirapine (NVP): A non-nucleoside reverse transcriptase inhibitor (NNRTI). Duration: For high-risk infants, the combination is extended to 12 weeks to provide maximum protection during the early breastfeeding period or until the mother's own ART (which should be started immediately) suppresses her viral load. Nevirapine for 6 or 12 weeks (Options A and D): Nevirapine monotherapy for 6 weeks is the standard protocol for Low-Risk Infants (where the mother has been on stable ART with a suppressed viral load). It is insufficient for this high-risk scenario. Zidovudine monotherapy (Option B) is no longer the preferred first-line choice for high-risk neonates in modern integrated guidelines; the combination with Nevirapine is significantly more effective. Summary of Neonatal Prophylaxis Risk Category Maternal Status Regimen Low Risk On ART for > 4 weeks, Viral Load suppressed NVP for 6 weeks High Risk No ART , ART < 4 weeks, or High Viral Load AZT + NVP for 12 weeks Note: If the mother is breastfeeding, the prophylaxis continues. If the infant is strictly formula-fed (and the mother was on ART), the duration might be shortened to 6 weeks in some specific local protocols, but for an untreated mother, the 12-week dual regimen remains the standard for the highest safety margin. Regimen preferred for 1st line ART therapy: Age 1st Line Treatment Infants ■ 2 weeks of age Zidovudine + Lamivudine + Nevirapine Children ■ 3 years of age Abacavir/Zidovudine + Lamivudine + Lopinavir/Ritonavir 3-10 years of age Abacavir + Lamivudine + Efavirenz Adolescents Tenofovir + Lamivudine + Efavirenz

References:

Nelson Textbook of Pediatrics, 21st Edition, pg 1788-1800

O.P. Ghai Essential Pediatrics, 10th edition,pg 250, 251.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 10-year-old child with a history of COVID-19 with significant symptoms is diagnosed with Multisystem Inflammatory System in Children (MIS-C). What is the recommended management to improve outcomes? (Q850176)

A. Intravenous immunoglobulin (IVIG) alone

B. IVIG plus Methylprednisolone

C. Corticosteroids alone for suspected toxic shock phenotype

D. Low-dose aspirin therapy

Correct Answer: B. IVIG plus Methylprednisolone

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The recommended initial treatment for managing MIS-C, with significant symptoms, involves a combination of intravenous immunoglobulin (IVIG) and corticosteroids (such as Methylprednisolone). This combined approach improves outcomes by reducing the hyper-inflammatory response. Management of MIS-C: Lab Diagnosis: Test for antibodies to nucleocapsid protein (avoid anti-spike protein as it may indicate past vaccination) Management: Supportive Care First-line treatment: A combination of IVIG and steroids is preferred. Steroids alone may be used in non-Kawasaki phenotypes (Option B) Treatment typically involves 3-5 days of IVIG and steroids, followed by a tapering course of oral steroids over 2-3 weeks. Additional Therapies: Low-Dose Aspirin: Administer 3-5 mg/kg (maximum 75 mg) for 6 weeks (Option D). Anticoagulation: Reserved for severe cases with low ejection fraction, documented thrombosis, or giant coronary aneurysms. Biologics: Consider infliximab, tocilizumab, or anakinra for refractory cases. Follow-up: Echocardiography: Recommended at 2 and 6 weeks, then as needed. Prognosis: Short-term mortality between 0-5%.

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Pg - 230

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 7-year-old child presents with a 4-day history of fever, abdominal pain, and rash following a COVID-19 infection three weeks ago. Laboratory tests show elevated ESR, C-reactive protein, and d-dimers. Which of the following is NOT included in the

WHO diagnostic criteria for Multisystem Inflammatory Syndrome in Children (MIS-C)? (Q850175)

A. Persistent fever >3 days

B. Elevated D-dimers

C. Evidence of staphylococcal shock syndrome

D. Recent COVID-19 infection

Correct Answer: C. Evidence of staphylococcal shock syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Evidence of staphylococcal shock syndrome is NOT part of the MIS-C criteria and suggests a bacterial cause rather than the post-viral inflammatory syndrome seen in MIS-C. Multisystem Inflammatory Syndrome in Children (MIS-C): Common Symptoms: Persistent fever (>3 days) Gastrointestinal issues, Mucocutaneous symptoms Neurocognitive symptoms (headache, lethargy, confusion) Severe Cases may include encephalopathy, seizures, acute kidney injury, serositis, and various cardiac issues (e.g., ventricular dysfunction, coronary artery dilation). Phenotypes: Kawasaki Phenotype: Prominent mucocutaneous manifestations in children under the age of 5. Toxic Shock Phenotype: Shock and myocarditis seen in older children. Febrile Inflammatory Phenotype: Fever without organ involvement; may resolve or evolve into other phenotypes. Diagnostic Criteria (WHO) of MIS-C: Fever >3 days (Option A) Two or more of the following: Rash or conjunctivitis (Mucocutaneous Inflammation) Hypotension or Shock Myocardial dysfunction or Coronary abnormalities Evidence of Coagulopathy (Elevated D-dimers) (Option B) Gastrointestinal symptoms. (abdominal pain, vomiting, diarrhoea) Elevated inflammatory markers (ESR, CRP, procalcitonin). No alternative microbial cause. (Option C) Evidence of COVID-19 exposure or infection. (Option D)

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Pg - 229

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 5-year-old child with COVID-19 presents with mild symptoms, including fever and cough. As the child progresses through the illness, which of the following complications is most commonly associated with COVID-19 in children? (Q850174)

A. Acute respiratory distress syndrome

B. Myocarditis

C. Multisystem inflammatory syndrome in children

D. Chronic kidney disease

Correct Answer: C. Multisystem inflammatory syndrome in children

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Multisystem inflammatory syndrome in children (MIS-C) is a known and significant complication associated with COVID-19 in children, characterised by severe inflammation affecting multiple organ systems. Acute Complications of COVID-19: Multisystem Inflammatory Syndrome in Children (MIS-C) (Most common) Acute Respiratory Distress Syndrome (ARDS) Septic Shock Acute Kidney Injury (AKI) Liver Dysfunction Thrombosis Disseminated Intravascular Coagulation (DIC) Myocarditis

References:

O.P. Ghai Essential Pediatrics, 10th Edition,Pg - 226

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8420266/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 7-year-old child with COVID-19 presents to the hospital with 92% oxygen saturation without any danger signs and experiencing persistent fever and cough. What is the most appropriate management for this patient? (Q850173)

A. Home management with paracetamol and hydration

B. Admit and administer O2, Remdesivir

C. Immediate ICU admission and invasive ventilation

D. Use of antibiotics and convalescent plasma.

Correct Answer: B. Admit and administer O2, Remdesivir

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child with 92% oxygen saturation without any danger signs indicates Moderate disease for which hospital admission is required, and remdesivir is administered for saturation < 94% as it can help reduce the severity and duration of the illness. Management of COVID-19 in Children: Supportive Care: Primarily symptomatic and supportive. Avoid polypharmacy. Azithromycin, hydroxychloroquine, doxycycline, ivermectin, antibiotics, favipiravir, and convalescent plasma are not recommended . Monitoring: Parents should watch for red flags like persistent high fever, rapid breathing, and low oxygen saturation (<94%). Isolation: Mild cases can be

deisolated 7 days from symptom onset, while severe cases require 14 days of isolation. Treatment Protocols: Mild Disease Home Management & Hydration Medications: Use paracetamol for fever and nasal saline drops for congestion. Avoid antibiotics and multivitamins (no proven benefit). Monitoring: Watch for red flag signs like rapid breathing, oxygen saturation below 95%, persistent fever, lethargy, or poor feeding. Moderate Disease Admit in Covid ward SpO2 > 94: Hydration, paracetamol and antimicrobials SpO2 < 94: Oxygen, IV Steroids, Remdesivir, Antimicrobials Severe/Critical Covid - 19 ICU / HDU ward Oxygen, CPAP, Invasive ventilation if required IV Steroids, Remdesivir, Enoxaparin, Antimicrobials Manage Shock, ARDS, AKI, and Myocarditis as per protocol Steroids: Administer IV dexamethasone at 0.15 mg/kg (max 6 mg) once daily for 5-14 days. Remdesivir should be administered only in a hospital setting. Enoxaparin: For <2 months: 1.5 mg/kg/dose every 12 hours. For >2 months: 1 mg/kg/dose every 12 hours.

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Pg - 227,228

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 10-year-old boy with COVID-19 presents with fever, cough, and difficulty breathing. His oxygen saturation is 88%, and he exhibits intercostal retractions. How would you classify his COVID-19 severity based on ICMR criteria? (Q850172)

A. Mild

B. Moderate

C. Severe

D. Critical

Correct Answer: C. Severe

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: According to ICMR, COVID-19 is classified as "Severe" when oxygen saturation is below 90% with signs of respiratory distress, such as intercostal retractions, which require immediate medical management. ICMR Criteria of COVID-19 Disease Severity: Features Saturation Mild URTI without lower respiratory tract involvement. > 94% Moderate Fast breathing (age-dependent) or hypoxemia 90-93% Severe Retractions, severe dehydration, drowsiness, or seizures. (Danger signs) <90% Critical Severe disease with ARDS, shock, multiorgan dysfunction syndrome, or acute thrombosis. -

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Pg - 226,227

↑ *Back to this question in Part A*

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Q9: A toddler presents to the emergency department with a 2-day history of cough, high fever, and difficulty breathing. She is irritable, has reduced appetite and fluid intake, and appears lethargic and unconscious. Her respiratory rate is 60 breaths per minute. What is the next step in management? (Q850171)

A. IV antibiotic + Hospital admission

B. Oral antibiotic and 48 hours observation

C. Supportive care at home

D. Reassurance and sending home

Correct Answer: A. IV antibiotic + Hospital admission

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario is a case of severe pneumonia having danger signs and fast breathing which requires immediate hospital admission after 1st dose of IV antibiotics, preferably ampicillin and gentamicin. Acute lower respiratory tract infection (LRTI) is a leading cause of mortality in children below 5 years of age. Common bacteria causing LRTI in preschool children include H. influenzae, S. pneumoniae and. Staphylococci. According to the latest IMNCI (Integrated Management of Neonatal & Childhood Illness) guidelines, assessing a child with breathing difficulties or a cough involves counting breaths per minute, checking for chest indrawing, observing for stridor and wheeze and identifying any danger signs. Danger signs include convulsions, lethargy, inability to drink or breastfeed, persistent vomiting, unconsciousness, stridor in a calm child . Fast breathing is assessed as, < 2 months: > 60/ min 2-12 months: > 50/ min 1-5 years: > 40/ min Management: Category Signs/symptoms Treatment No Pneumonia (cough or cold only) (Option C) No signs of rapid breathing, chest indrawing, or general danger signs. Home-based supportive care Pneumonia (Option B) Presence of either chest indrawing or rapid breathing, but no danger signs. Start oral Amoxicillin for 5 days. The child is sent home and will be reassessed after 48 hours. If the child has improved, continue with the same treatment. If the child's condition has worsened, refer to a higher level of care. Severe Pneumonia (Option A) Presence of danger signs Administer the first dose of Inj. Ampicillin and Gentamicin, then urgently refer the patient to the hospital. Reassurance and sending home (Option D) won’t be enough as this is an emergency situation which requires hospital admission.

References:

Nelson Textbook of Pediatrics, 21st Edition, pg 29.

O.P. Ghai Essential Pediatrics, 10th edition,pg 405.

↑ *Back to this question in Part A*

Q10: A female brought her infant to the clinic with a low-grade fever and a rash as depicted in the image below. What is the causative organism of this condition? (Q850170)

A. Parvovirus B19

B. Coxsackie A16 virus

C. Rickettsia prowazekii

D. Paramyxovirus



Correct Answer: B. Coxsackie A16 virus

- *Listen (English)*
- *Listen (Hindi)*

Explanation: The given clinical presentation is suggestive of Hand Foot Mouth Disease (HFMD) caused by Coxsackie A16 virus. Hand Foot Mouth Disease (HFMD) Causative organism Coxsackie A16 virus Age group <5 years Clinical features Low grade fever, feeling of being unwell, sore throat are commonly observed. Characterized by papulovesicular skin rash commonly on buttocks, knees, elbows and genital area. Ulcers/blisters

are also seen in the oral cavity, mostly on the posterior aspect. Management Resolves on its own in 5-7 days, till then symptomatic and conservative treatment is given. Isolation of affected children at home and promotion of hand hygiene to prevent disease spread is important. Parvovirus B19 (Option A) is the causative agent of erythema infectiosum which is an erythematous illness characterized by slapped cheek appearance. Rickettsia prowazekii (Option C) is the causative agent of Epidemic typhus , a rickettsial disease characterised by fever and a maculopapular rash. It is transmitted primarily by body lice (Pediculus humanus corporis). Paramyxovirus (Option D) causes measles, which is a disease characterized by fever before rash along with its characteristic Koplik spots (grey-white lesions in buccal mucosa).

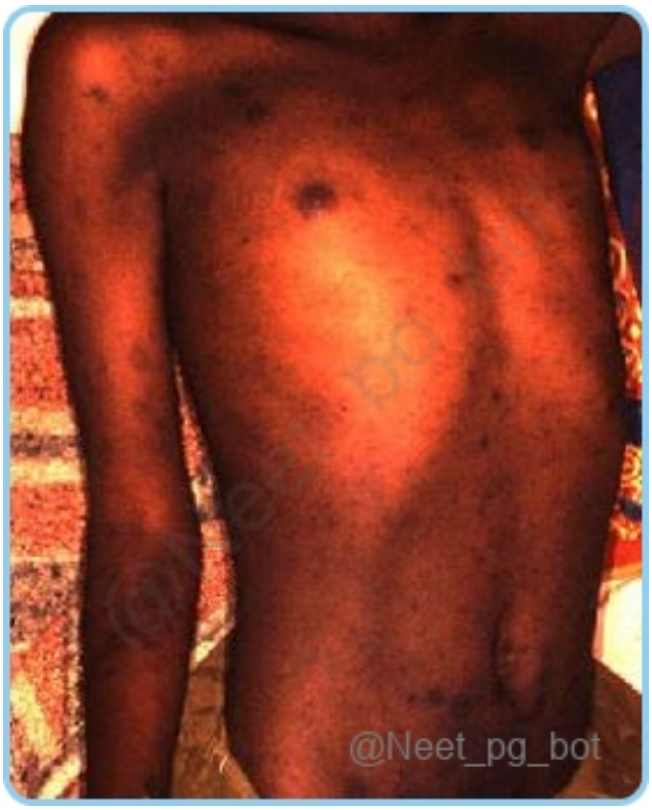


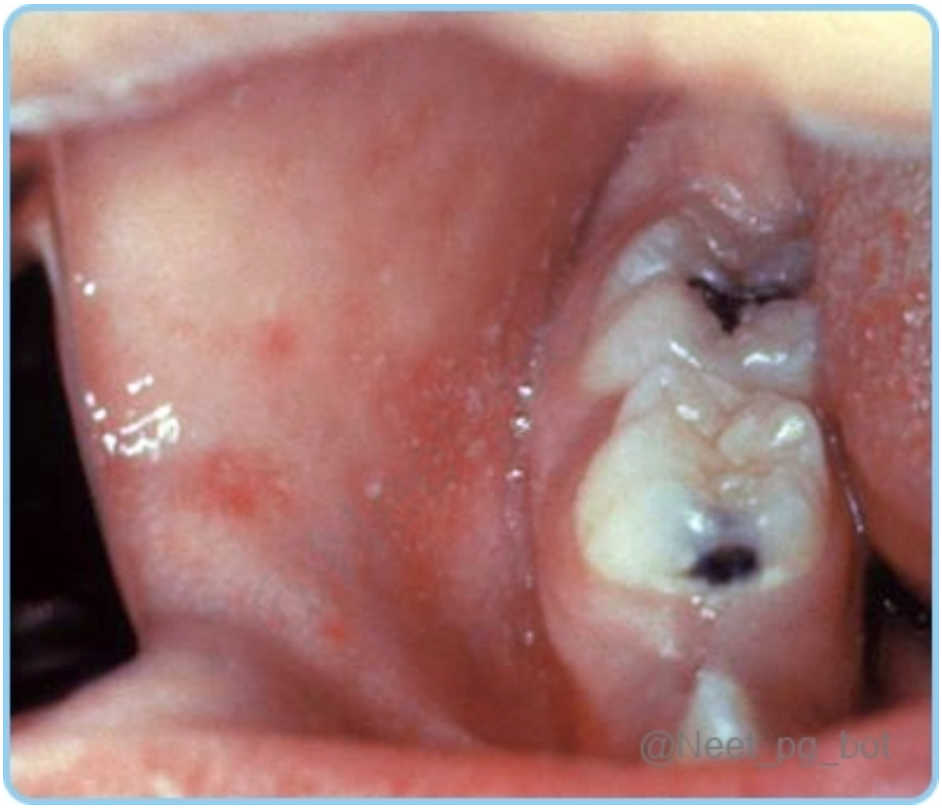


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References:

Nelson Textbook of Pediatrics, 21st Edition, pg 1692, 1693.

O.P. Ghai Essential Pediatrics, 10th edition,pg 237.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A child presented with decreased pulse in lower limb and delay as compared to pulse felt in upper limb. What can be the underlying condition? (Q850169)

A. Transposition of great arteries

B. Ventricular septal defect

C. Tetralogy of Fallot

D. Coarctation of Aorta

Correct Answer: D. Coarctation of Aorta

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The scenario describes radio-femoral delay , which is a classic physical examination finding for Coarctation of the Aorta (CoA). Coarctation is a congenital narrowing of the aorta, typically occurring near the insertion of the ductus arteriosus (juxtaductal). Because the narrowing occurs after the branches that supply the head and arms (brachiocephalic, carotid, and subclavian arteries) but before the descending aorta that supplies the legs, blood flow to the lower body is obstructed. Key Findings: Upper Limbs: Strong, bounding pulses and high blood pressure (hypertension). Lower Limbs: Weak, "thready" pulses and lower blood pressure. Radio-femoral Delay: When palpating the radial (wrist) and femoral (groin) pulses simultaneously, the femoral pulse is felt significantly later than the radial pulse. If this condition isn't caught in infancy, older children may develop "collateral circulation." This leads to a unique finding on a chest X-ray known as Rib Notching. This occurs because the intercostal arteries enlarge to bypass the blockage, eventually eroding the underside of the ribs. Transposition of the Great Arteries (TGA) (Option A): This is a cyanotic heart defect where the aorta and pulmonary artery are switched. While the baby would be very blue (cyanosis) shortly after birth, the pulses in the upper and lower limbs would generally be equal. Ventricular Septal Defect (VSD) (Option B): This is a hole in the wall between the ventricles. It causes a loud pansystolic murmur, but it does not cause a pressure or pulse difference between the arms and legs. Tetralogy of Fallot (TOF) (Option C): This involves four defects (VSD, pulmonary stenosis, overriding aorta, and right ventricular hypertrophy). It causes "Tet spells" and cyanosis, but again, pulses are typically symmetrical across all four limbs.

References:

Nelson Textbook of Pediatrics, 21st Edition, pg 1730.

O.P. Ghai Essential Pediatrics, 10th edition,pg 251, 252.

↑ *Back to this question in Part A*

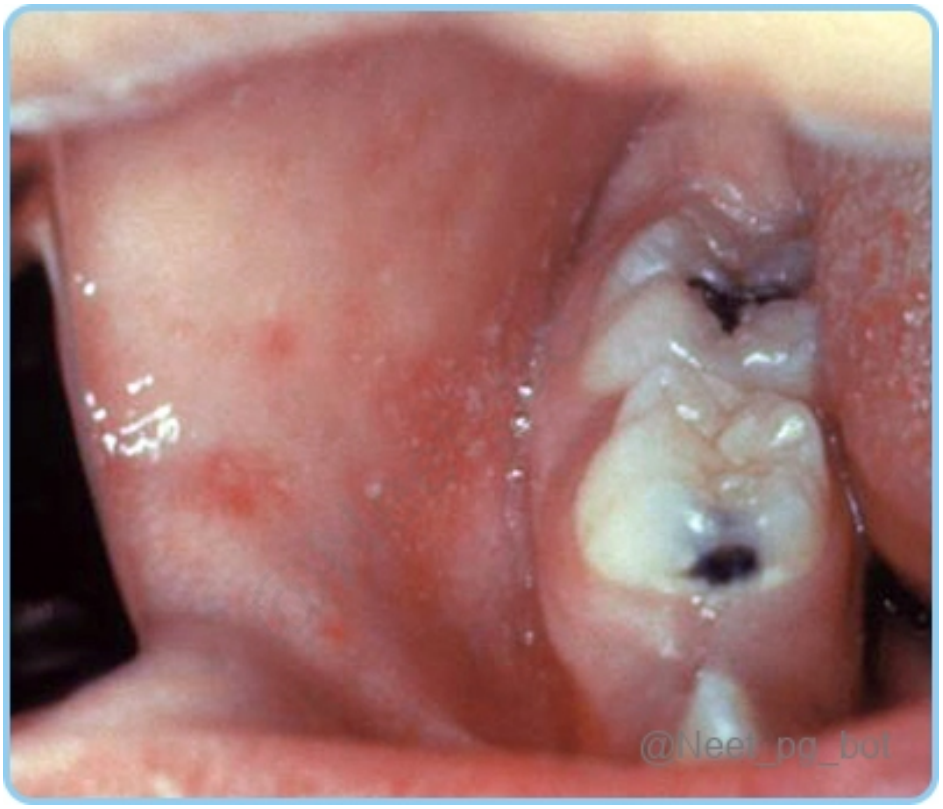
Q12: A mother brings her unimmunized toddler to the doctor with a 5-day history of fever, cough, and conjunctivitis, along with a rash that first appeared behind the ears and then spread to the face and chest over the past two days. Based on the observed lesion (as shown in the image), which of the following should be administered to the baby? (Q850157)

A. Vitamin C

B. Zinc

C. Vitamin A

D. Calcium

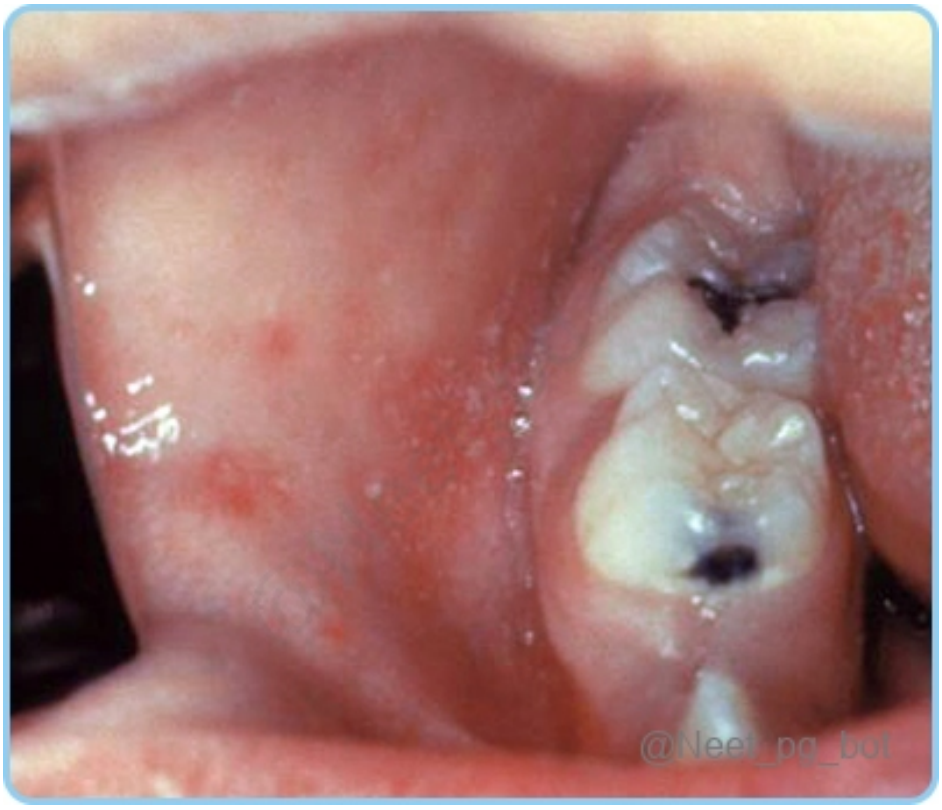


Correct Answer: C. Vitamin A

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario suggests Measles, with the image showing its characteristic, Koplik spots. Vitamin A supplementation is recommended in all cases of measles. Vitamin A reduces: Morbidity and mortality Risk of complications (pneumonia, blindness) Aspects Description Causative agent Measles (rubeola) is a highly communicable childhood exanthematous illness caused by the measles virus, an RNA virus from the Paramyxoviridae family. Transmission Contact with droplet aerosols (through the respiratory tract or conjunctiva) Pathogenesis Primary viremia occurs, resulting in infection of the reticuloendothelial system, followed by secondary viremia, which results in systemic symptoms. Incubation period 8-12 days Period of infectivity From 3 days before to 4 days after the rash onset . Clinical manifestations Common in preschool children Prodromal phase: Fever (before rash), rhinorrhea, conjunctival congestion and a dry hacking cough. Koplik spots , pathognomonic for measles, appear on the 2nd or 3rd day of illness as grey-white, sand-like lesions with surrounding erythema on the buccal mucosa opposite the lower second molars. Rash The erythematous maculopapular rash in measles appears on the 4th day, starting behind the ears, along the hairline, and posterior cheeks, then spreading to the rest of the body over the next 2-3 days. Management Symptomatic and conservative (antipyretics, maintenance of hygiene, ensuring adequate fluid and caloric intake, and humidification). Vitamin C (Option A): While often used for general immune support, it has no specific role or proven benefit in the treatment or outcome of measles. Zinc (Option B): Zinc is crucial for treating diarrhea in children (it reduces the duration and severity), but it is not the primary vitamin replacement indicated for measles itself. Calcium (Option D): Calcium levels are not typically affected by the measles virus, and supplementation is not part of the management protocol.



References:

Nelson Textbook of Pediatrics, 21st edition, pg 1670-1675 (including images)

O.P. Ghai Essential Pediatrics, 10th edition,pg 230, 231, 232.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: An HIV-positive primigravida delivered a baby at 37 weeks of gestation. The baby cried immediately after birth, and samples for HIV testing were collected. The mother has been advised to exclusively breastfeed the baby. What is the recommended prophylactic regimen in this situation? (Q850167)

A. Nevirapine +/- Zidovudine

B. Zidovudine + Lamivudine + Nevirapine

C. Tenofovir + Lamivudine + Efavirenz

D. No prophylaxis needed

Correct Answer: A. Nevirapine +/- Zidovudine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In the above case, the preferred prophylaxis for the infant born to an HIV-positive mother is Nevirapine +/- Zidovudine for at least 12 weeks Risk Category Maternal Factors Low Risk On effective ART with suppressed viral load < 1,000 copies/mL High Risk Not on ART or high viral load ≥ 1,000 copies/mL Preterm delivery Rupture of membranes > 4 hours Low maternal CD4 count Maternal drug use HIV acquired during pregnancy Prophylaxis for infants born to HIV-positive mother Baby should receive prophylaxis irrespective of whether the mother has received ART or not. (Option D) The risk of HIV transmission through breastfeeding is highest during the early months, and if safe and sustainable alternatives are available, breastfeeding should be avoided. Currently, exclusive breastfeeding is recommended during the first months of life, as the benefits of breastfeeding far outweigh the risks. The regimen for prophylaxis is, Nevirapine +/- Zidovudine for at least 6 weeks In breastfed babies, Nevirapine +/- Zidovudine for at least 12 weeks Zidovudine + Lamivudine + Nevirapine (Option B) is the 1st line treatment regimen of HIV positive for infants ■ 2 weeks of age. Tenofovir + Lamivudine + Efavirenz (Option C) is the 1st line treatment regimen for HIV-positive adolescents.

References:

Nelson Textbook of Pediatrics, 21st Edition, pg 1787, 1788,1804

O.P. Ghai Essential Pediatrics, 10th edition,pg 249, 250.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: Which of the following are Nada’s minor criteria for congenital heart disease? i. Low BP ii. Systolic murmur grade < III iii. Abnormal ECG iv. Abnormal 2nd heart sound (Q850166)

A. i, ii, iii

B. ii, iii, iv

C. i, iii

D. i, ii, iii, iv

Correct Answer: Unknown

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Nada’s criteria actually looks for systemic hypertension (high blood pressure) as a minor sign, often associated with conditions like coarctation of the aorta. Low blood pressure is generally a sign of acute shock or late-stage failure rather than a primary screening criterion for CHD. Nada's Criteria is a clinical screening tool used to identify potential congenital heart disease (CHD) in children. It categorizes clinical findings into Major and Minor criteria. To suggest a high probability of CHD, a patient typically needs one major criterion or two minor criteria. Category Criteria Major Criteria * Systolic murmur grade ≥ III/VI * Diastolic murmur * Cyanosis * Congestive heart failure Minor Criteria * Systolic murmur grade < III/VI * Abnormal 2nd heart sound * Abnormal ECG * Abnormal chest X-ray (e.g., cardiomegaly or abnormal vascularity) * Abnormal Blood Pressure (specifically systemic hypertension , not "low BP")

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 1787,1788

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A 6-year-old child comes in with sudden weakness in the legs, a recent fever, and muscle pain. Poliomyelitis is suspected. What type of paralysis is this child most likely experiencing? (Q850165)

A. Spastic paralysis with hyperreflexia

B. Flaccid paralysis with absent reflexes

C. Rigid paralysis with limited movement

D. Ataxic paralysis with coordination issues

Correct Answer: B. Flaccid paralysis with absent reflexes

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Poliomyelitis often leads to flaccid paralysis because it primarily affects the anterior horn cells in the spinal cord , which are responsible for motor control resulting in muscle weakness and atrophy. Reflexes may be diminished or absent due to the disruption of the motor neurons. Poliovirus (Family: Picornaviridae) Transmission: Fecal-oral route Incubation Period: 8-12 days from exposure to the onset of symptoms. It has three serotypes: PV1, PV2, and PV3 Pathogenesis: The virus spreads from the intestinal tract to the central nervous system (CNS), potentially causing aseptic meningitis and poliomyelitis. Types of Poliovirus Infections: Inapparent Infection 90-95% of cases; asymptomatic Abortive Poliomyelitis Mild, flu-like symptoms with full recovery Nonparalytic Poliomyelitis More severe symptoms, including neck stiffness and pain, with a good prognosis Paralytic Poliomyelitis Includes spinal, bulbar, and polio encephalitis forms, presenting with various degrees of paralysis Diagnosis: Consider polio in any unimmunised child with acute flaccid paralysis , particularly in areas with past or current polio cases. Isolation of poliovirus from stool specimens collected 24-48 hours apart. Management: Supportive care is primary; ventilatory support may be necessary for severe respiratory involvement. Prevention (Vaccination): Oral Polio Vaccine (OPV): Live attenuated vaccine administered orally that induces both systemic & mucosal immunity with a risk of vaccine-associated polio. Inactivated Polio Vaccine (IPV): Killed virus vaccine. Given via injection that provides systemic immunity without the risk of vaccine-derived polio. Spastic paralysis with hyperreflexia (Option A) is more characteristic of upper motor neuron lesions , which are not typical of poliomyelitis. Rigid paralysis with limited movement (Option C) is not typical of poliomyelitis and is more associated with other neurological conditions like Parkinsonism and multiple sclerosis. Ataxic paralysis with coordination issues (Option D) describes a problem with motor coordination, often seen in cerebellar dysfunction, not poliomyelitis.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 1684,1685,1688

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 7-year-old boy presents with a high-grade fever, headache, and progressively enlarged swelling near the right ear. Physical examination shows tender parotid gland swelling, raising suspicion of mumps. What is the most common neurological complication of mumps? (Q850164)

A. Encephalitis

B. Meningitis

C. Transverse myelitis

D. Facial palsy

Correct Answer: B. Meningitis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most common neurological complication of mumps is Aseptic meningitis. Mumps Causative Organism Mumps virus (Paramyxoviridae family) Age Group 5-9 years Transmission Respiratory droplets Period of communicability 7 days before to 7 days after the onset of symptoms Symptoms High-grade fever, Headache, Parotitis (Often Bilateral) Complications Most Common complication in child : Aseptic Meningitis Most Common complication in Adult : Orchitis (does not lead to infertility) Oophoritis, pancreatitis, myocarditis, arthritis, thyroiditis & conjunctivitis. Mumps during early pregnancy increases fetal wastage but not malformations. Neurological Complications Meningitis (Most Common) - 10-30% of cases. Encephalitis, transverse myelitis, and facial palsy are less common. (Option B, C, D) Treatment Self-limiting Management focuses on symptom relief—pain reduction, hydration, and antipyretics.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 1680,1682

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: A 10-month-old child is brought to the pediatric clinic with a 3-day history of high fever. On the fourth day, the fever abruptly subsided, and the child developed a rash as given in the image. Oral examination revealed ulcers and small red papules at uvulopalatoglossal junction as shown. What are these called? (Q850163)

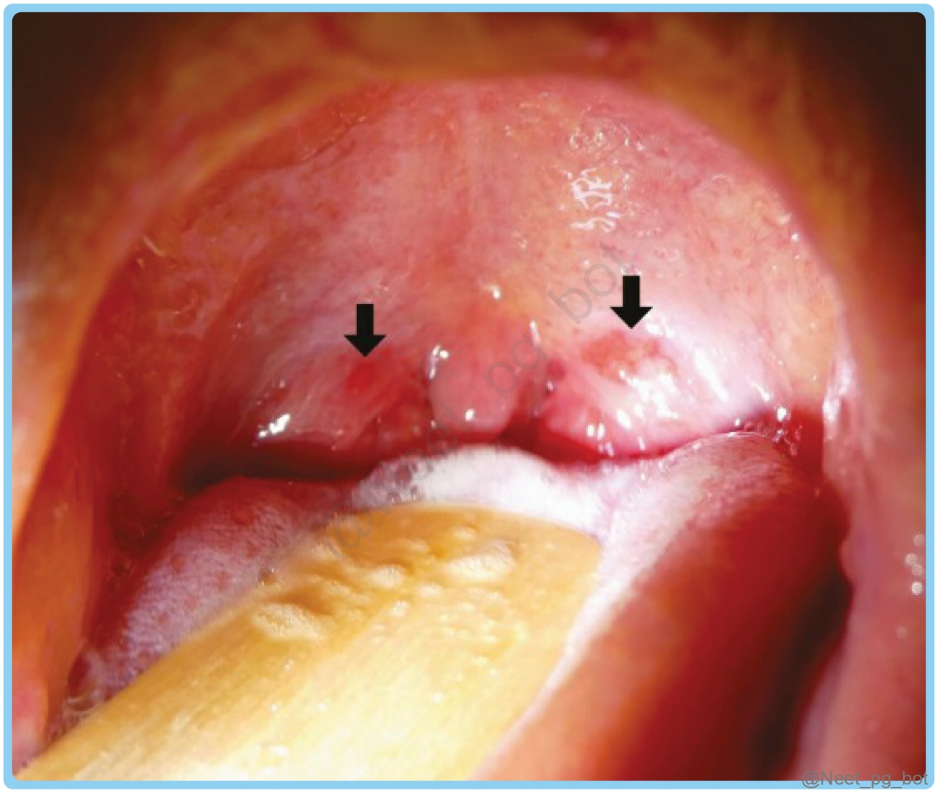
A. Koplik spots

B. Nagayama spots

C. Forchheimer spots

D. Café au Lait spots



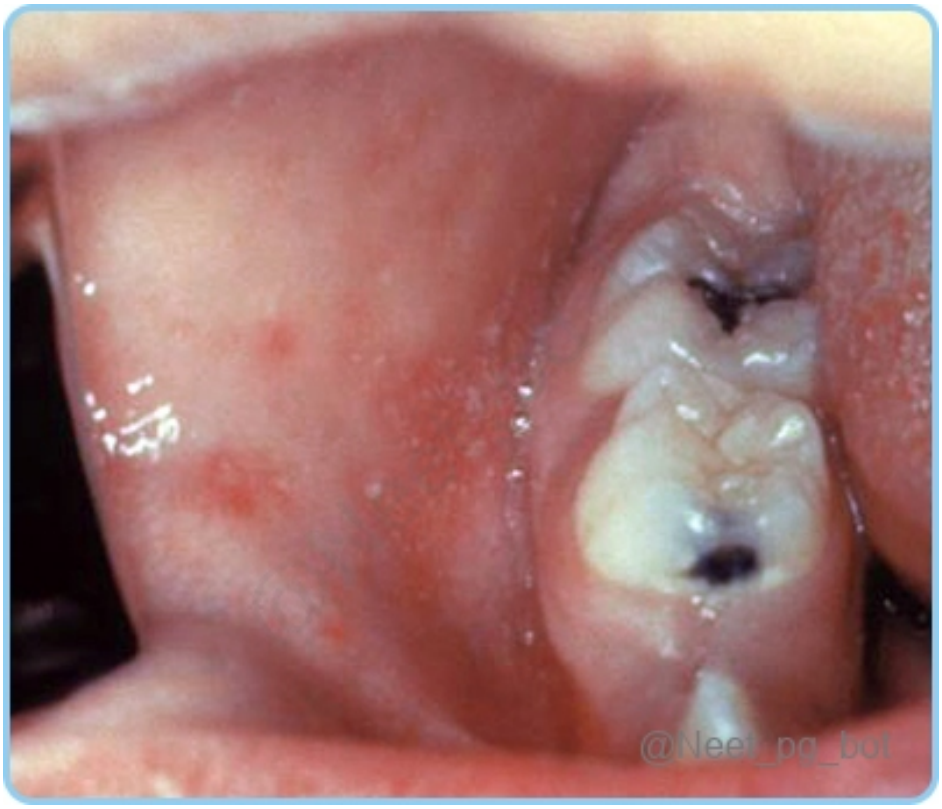


Correct Answer: B. Nagayama spots

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Nagayama spots are small red papules or ulcers found at the uvulopalatoglossal junction and are characteristic of Roseola infantum (sixth disease). They typically appear following a high fever that abruptly resolves, accompanied by the development of a rash. Roseola Infantum or Exanthem subitum or Sixth disease Causative agent: Human Herpesvirus 6 (HHV-6B). Nearly all children are infected by age 2, and peak infection occurs between 6 and 9 months of age. Spread via saliva or respiratory droplets from asymptomatic individuals. Characterised by a sudden high fever lasting 3-5 days, followed by the abrupt onset of a maculopapular rash that begins on the trunk and spreads to the extremities. Koplik Spots (Option A) are small, bluish-white spots with a red halo located on the buccal mucosa at the level of premolars and are diagnostic for measles (Rubeola). Forchheimer spots (Option C) are small reddish spots on the soft palate or uvula, indicative of rubella (German measles). Café au Lait Spots (Option D) are light brown skin patches with irregular borders, often associated with neurofibromatosis type 1.







References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 1724,1725

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A 5-year-old child with sickle cell disease presents with sudden onset of pallor, fatigue, mild fever, and a rash. Investigations reveal a significant drop in haemoglobin levels. What is the most likely causative agent of this condition? (Q850162)

A. Parvovirus B19

B. Epstein-Barr virus

C. Cytomegalovirus

D. Human Herpesvirus 6

Correct Answer: A. Parvovirus B19

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presentation of pallor, fatigue, mild fever, rash, and a significant decrease in haemoglobin, suggests an aplastic crisis due to parvovirus B19. This virus causes cell lysis and depletion of erythroid precursors, leading to transient arrest of erythropoiesis , which exacerbates anemia in children with sickle cell disease . Clinical Manifestations and Complications of Parvovirus B19 Infection Low grade fever, malaise, URTI. Erythema infectiosum (Fifth Disease): Characterized by a "slapped-cheek" rash followed by a lacy, reticular rash on the body. Arthropathy: Common in adults, presenting as arthritis or arthralgia. Transient Aplastic Crisis: Severe anaemia in individuals with chronic hemolytic anaemia. Fetal Infection: Risk of nonimmune fetal hydrops and stillbirth typically results in normal deliveries. Papular purpural gloves and socks syndrome Myocarditis Epstein-Barr virus (Option B) causes infectious mononucleosis, characterised by fever, sore throat, lymphadenopathy, and splenomegaly. It mainly infects B cells and does not target erythroid progenitor cells like Parvovirus B19. Cytomegalovirus (Option C) typically causes asymptomatic or mild illness in immunocompetent individuals but leads to severe disease and anemia in immunocompromised patients due to bone marrow suppression, without causing an aplastic crisis. Human Herpesvirus 6 (Option D) (HHV-6) causes roseola in young children, characterised by high fever and rash, and can cause febrile seizures. It affects T cells without disrupting erythropoiesis.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 1698 - 1700

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: A 6-year-old child presents with a history of mild fever and a rash. The rash began with red, flushed cheeks, as shown in the image below and has now developed into a lacy, reticular pattern on the arms and legs. The child has no significant respiratory symptoms or joint pain. What is the most likely diagnosis? (Q850161)

A. First disease

B. Second disease

C. Fifth disease

D. Sixth disease



Correct Answer: C. Fifth disease

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical presentation and image depicting rash, starting with a "slapped cheek" appearance and progressing to a lacy, reticular pattern, is characteristic of the fifth disease, or erythema infectiosum , caused by parvovirus B19. Clinical features of erythema infectiosum Prodromal phase: Low-grade fever, headache, and mild upper respiratory tract infection symptoms. The characteristic rash in this condition is a "slapped cheek appearance", presenting as erythematous flushing on the face. The erythematous rash spreads to the trunk and proximal extremities as a lacy or reticulated pattern. First disease (Option A) is another name for Measles / Rubeola , an exanthematous illness caused by an RNA virus belonging to the paramyxovirus family. Here, fever occurs before the onset of rash. Second disease (Option B) is scarle t fever , which is characterised by fever and an erythematous rash along with strawberry tongue , caused by Group A βStreptococcus. Sixth disease (Option D) is

also known as Roseola infantum or erythema subitum, in which a rash appears once the fever disappears. It is commonly caused by human herpes virus (HHV)-6 and less commonly by HHV-7 and echovirus 16.









References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1697-1701

O.P. Ghai Essential Pediatrics, 10th Edition, Page 234, 235

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: A 6-year-old child presents with a 3-day history of fever and a rash that started on the trunk and spread to the face and extremities, progressing to fluid-filled vesicles with crusting. The parent reports that the child's rash has become increasingly painful, with signs of severe swelling and redness spreading rapidly from the initial rash sites. Which of the following complication is most likely? (Q850160)

A. Reye syndrome

B. Necrotising fasciitis

C. Purpura fulminans

D. Impetigo

Correct Answer: B. Necrotising fasciitis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This question is designed to highlight the urgency of necrotizing fasciitis as a severe and specific complication of chickenpox that requires prompt medical attention. Necrotizing fasciitis is a severe, life-threatening infection characterized by rapid tissue destruction and systemic toxicity. It often presents with intense pain, swelling, redness, and fever. The infection can spread quickly along the fascial planes, leading to extensive tissue necrosis. Early recognition and prompt surgical debridement combined with antibiotics targeting Group A streptococci and Staphylococcus aureus are critical to prevent mortality. Chickenpox (Varicella) Causative agent Varicella-zoster virus (VZV) Incubation period 10-21 days. Clinical manifestations Fever along with rash. Rash It appears 24-48 hours after prodromal symptoms, starting as pruritic erythematous macules on the trunk and spreading to the face and extremities. It progresses through papules to vesicles and then crusts, with various stages of lesions (macules, papules, vesicles, and pustules) present simultaneously (Pleomorphic rash) It lasts 3-7 days and leaves hypopigmented or hyperpigmented macules that persist for weeks. Management Symptomatic & supportive treatment.- Antipyretics like paracetamol is used (Aspirin avoided due to risk of Reye's syndrome) The child should not attend school until no new lesions appear and all lesions have crusted Complications Secondary bacterial infections of the skin lesions like Impetigo (self-limiting) Cellulitis Necrotising fasciitis (Associated with the use of Ibuprofen) Lymphadenitis Subcutaneous abscesses Purpura fulminans (life-threatening condition) Reye syndrome Neurological symptoms like, Stroke Optic neuritis Meningoencephalitis Cerebellar ataxia Progressive varicella syndrome is a dreaded complication of chickenpox. Chickenpox in pregnancy is associated with an increased risk of severe disease in the mother, while in the fetus, congenital varicella syndrome may occur. Prevention MMRV (measles-mumps-rubella-varicella) vaccine, administered as, 1st dose: 12-15 months of age 2nd dose: 28 days after the 1st dose. Reye syndrome(Option A) is a

rare but serious condition that can occur in children following viral infections, especially if aspirin is used. It involves liver failure and brain inflammation. Purpura fulminans(Option C) is a severe, acute condition involving widespread skin necrosis and purpura, often due to bacterial infections like meningococcemia. Impetigo (Option D): A secondary bacterial infection, which can develop from scratching or secondary infection of the chickenpox lesions, is typically self-limiting with appropriate treatment.



References:

Nelson Textbook of Pediatrics, 21st edition, pg 1708-1713.

O.P. Ghai Essential Pediatrics, 10th edition, pg 232, 233

↑ *Back to this question in Part A*

@Neet_pg_bot

Q21: A 32-year-old woman who contracted rubella during her first trimester is worried about the potential effects on her baby. Which of the following findings is not typically associated with congenital rubella syndrome? (Q850159)

A. Patent ductus arteriosus

B. Cataract

C. Pleomorphic rash

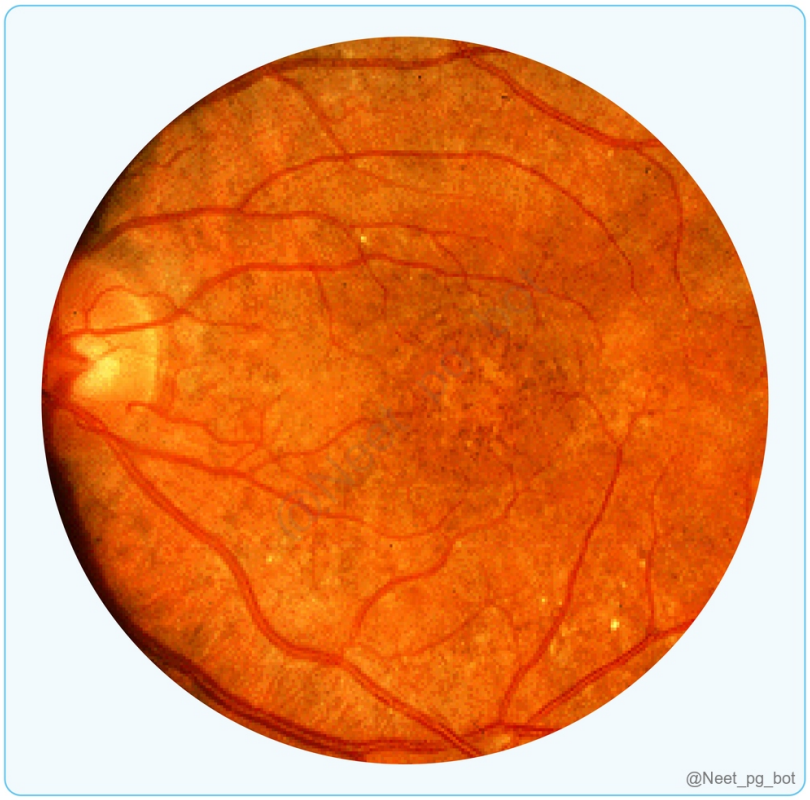
D. Deafness

Correct Answer: C. Pleomorphic rash

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The classical triad of congenital rubella syndrome consists of deafness, cataracts and congenital heart disease (commonly patent ductus arteriosus). Transmissibility is highest earliest before 11 weeks of gestation . Other clinical features include glaucoma, hepatosplenomegaly, salt and pepper retinopathy , blueberry muffin lesions (Bluish-red nodular lesions), jaundice, etc. No treatment exists. Diagnosis of rubella in the first trimester of pregnancy is an indication for maternal termination of pregnancy. Pleomorphic rash (Option C) described as having various kinds of lesions simultaneously (e.g., papules, macules, vesicles, and pustules) is characteristic of chickenpox (varicella) .







References:

Nelson Textbook of Pediatrics, 21st edition, 1679, 1680.

O.P. Ghai Essential Pediatrics, 10th edition, pg 285

↑ *Back to this question in Part A*

@Neet_pg_bot

Q22: A 4-year-old child is diagnosed with measles and presents with persistent fever and cough. The child is at risk for complications associated with measles. Which of the following is the most common complication of measles? (Q850158)

A. Pneumonia

B. Otitis media

C. Subacute Sclerosing Panencephalitis

D. Reye syndrome

Correct Answer: B. Otitis media

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Otitis media is the most common complication of Measles. Complications are more frequent in the very young, the malnourished and the immunocompromised. Complications of Measles: Otitis media (most common complication) (Option B) Pneumonia (most common cause of death) (Option A) Other respiratory complications - bronchitis, laryngitis, etc. Subacute Sclerosing Panencephalitis (SSPE): rare, fatal and long term complication. (Option C) Acute encephalitis Prevention Measles is a preventable and potentially eradicable disease. Maternal antibodies protect infants until 6-9 months of age, so administering the vaccine at 9 months in endemic countries ensures early protection and seroconversion. The measles vaccine, derived from the Edmonston-Zagreb strain , is available as a monovalent preparation or in combination with rubella (MR), mumps (MMR), and varicella (MMR-V). The vaccine schedule is as follows: Vaccine MR (Measles-Rubella) Type Live attenuated Dose 0.5 ml Site Anterolateral thigh or right upper arm (at the insertion of deltoid) Schedule 1st dose - 9 months; 2nd dose - 16-24 months Reye syndrome (Option D) is a rare condition associated with aspirin use in children recovering from a viral illness. It is characterised by sudden onset of vomiting, encephalopathy, hepatic dysfunction, and hypoglycemia and can occur as a complication of chickenpox.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1673, 1674

Ghai Essentials of Pediatrics, 10th Edition, Pages 231, 232, 197, 198

↑ *Back to this question in Part A*

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• [10_Infectious Diseases] 026 Previous Year Questions

« Back to Folder Directory

[10_Infectious Diseases] 026 Previous Year Questions — Quick Jump

Q1 (p. 1059)	*Q2 (p. 1062)*	*Q3 (p. 1062)*	*Q4 (p. 1063)*	*Q5 (p. 1064)*	*Q6 (p. 1067)*
Q7 (p. 1068)	*Q8 (p. 1069)*	*Q9 (p. 1071)*	*Q10 (p. 1072)*	*Q11 (p. 1072)*	*Q12 (p. 1073)*
Q13 (p. 1074)	*Q14 (p. 1077)*	*Q15 (p. 1078)*	*Q16 (p. 1079)*	*Q17 (p. 1080)*	*Q18 (p. 1081)*
Q19 (p. 1083)	*Q20 (p. 1084)*	*Q21 (p. 1085)*	*Q22 (p. 1088)*	*Q23 (p. 1089)*	*Q24 (p. 1091)*
Q25 (p. 1093)	*Q26 (p. 1094)*	*Q27 (p. 1098)*	*Q28 (p. 1098)*	*Q29 (p. 1100)*	*Q30 (p. 1101)*
Q31 (p. 1102)					

Q1: A child presents with complaints of fever, rash, body ache, and throat ache. He has a history of thorn prick injury a week back. What antibiotics would you give empirically to this child? (Q855727)

A. Ceftriaxone

B. Amoxicillin + clavulanate

C. Vancomycin

D. Meropenem

Correct Answer: B. Amoxicillin + clavulanate

Explanation: The child's presentation of fever, rash, body ache, and throat ache, along with a history of thorn prick injury, points towards a likely diagnosis of scarlet fever. Amoxicillin + clavulanate is the preferred empirical antibiotic as it provides effective coverage for Group A Streptococcus, the most common cause of scarlet fever. Scarlet Fever Group A Streptococcus (GAS) pharyngitis is associated with a characteristic rash caused due to a pyrogenic exotoxin (erythrogenic toxin) produced by GAS in individuals lacking antitoxin antibodies. Caused By Group A Streptococcus (GAS) Incidence and Virulence Less common and less virulent now compared to the past, with incidence depending on toxin strains and the population immunity. Clinical Features Rash appears within 24-48 hours , starting around the neck and spreading to the trunk and extremities. Rash is a diffuse, finely papular, erythematous eruption causing bright-red discoloration, which blanches on pressure. Rash is accentuated in the creases of the elbow, axilla, and groin (Pastia lines) and gives the skin a goose-pimple appearance. {{caption_text}} Erythematous cheeks with pallor around the mouth. After 3-4 days, the rash fades, followed by desquamation starting on the face and progressing downward. Desquamation may occur around fingernails, palms, and soles. Tongue is coated with swollen papillae, which later give a "strawberry tongue" appearance after desquamation. Pharyngitis. Diagnosis Classic scarlet fever is typically straightforward to diagnose. A history of recent exposure to GAS is helpful. Diagnosis is confirmed by identifying GAS in the pharynx. Treatment Antibiotic therapy should be started immediately. Drug of choice: Penicillin or amoxicillin for 10 days. Alternative

for Penicillin Allergy: Oral cephalosporins, clindamycin, Macrolides (erythromycin, clarithromycin) for 10 days or azalide (azithromycin) for 5 days. Injection: Benzathine penicillin G single dose intramuscular injection for those unlikely to complete oral therapy. Complication Suppurative Complications: Cervical lymphadenitis Peritonsillar abscess Retropharyngeal abscess Otitis media Mastoiditis Sinusitis Group A Streptococcus (GAS) pneumonia Nonsuppurative Complications: Acute rheumatic fever Acute post-streptococcal glomerulonephritis Image {{caption_text}} {{caption_text}}







References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1311,1434,1441,1442,1444

https://www.researchgate.net/figure/Clinical-features-of-measles-scarlet-fever-and-Kawasaki-disease_fig2_347490092

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A child with fever and abdominal pain tested positive for Dengue on day 5 f fever. His BP was 110/70 mm Hg, platelet counts were 20000/ mm3 but there were no bleeding manifestations. The chid has dengue with warning signs. What is the next step? (Q879277)

A. Platelet transfusion

B. 10 ml/kg/hr RL

C. 7 ml/kg/hr RL

D. 20 ml/kg RL

Correct Answer: C. 7 ml/kg/hr RL

Explanation: The child has dengue with warning signs (abdominal pain, thrombocytopenia, no shock). The management is aimed at careful fluid resuscitation to prevent progression to dengue shock syndrome (DSS) while avoiding fluid overload. Fluid therapy: Begin with crystalloid fluids (Ringer Lactate or Normal Saline) at 5–7 mL/kg/hr for 1–2 hours . Then reassess clinically and adjust the rate as per response (5 → 3 → 1.5 mL/kg/hr gradually). Platelet transfusion: Not indicated unless there is active bleeding or platelet count <10,000/mm³ without bleeding. (Option A ruled out) Monitoring: Continuous assessment of vitals, urine output, hematocrit, and clinical signs to titrate fluids appropriately. Incorrect Options: Platelet transfusion (Option A): Indicated only for bleeding or platelet count <10,000/mm³; this child has no bleeding. 10 mL/kg/hr RL (Option B): Too high - may cause fluid overload in compensated dengue with warning signs. 20 mL/kg RL (Option D): Used only in dengue shock syndrome (DSS) or hypotensive shock, not in compensated cases.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1764.

↑ *Back to this question in Part A*

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Q3: A 2-month-old infant born to an HIV-positive mother presents with recurrent diarrhea. What is the next best step? (Q856084)

A. Test stool for giardia and give antibiotics

B. Dried spot sample for HIV DNA PCR

C. Antibody test for HIV

D. Aerobic culture

Correct Answer: B. Dried spot sample for HIV DNA PCR

Explanation: ntibodies: Infants born to HIV-positive mothers will test positive for HIV antibodies due to passive transfer from the mother. These antibodies typically disappear in uninfected infants by 6-18 months, but some may persist up to 24 months. Diagnosis of HIV in Infants: < 24 Months Antibody Tests: Not reliable for definitive diagnosis due to maternal antibody presence. IgA & IgM Tests: Not clinically useful d/t poor sensitivity and specificity. Viral Diagnostic Tests: HIV DNA PCR: Highly sensitive and specific by two weeks of age. HIV RNA PCR: Similar to DNA PCR. > 24 Months IgG Antibody Tests: Reliable if repeatedly positive, confirmed with HIV PCR. Testing Protocols Rapid HIV Tests are useful for immediate diagnosis in newborns, but positive results must be confirmed with a second test or PCR. For breastfed infants , test 12 weeks after breastfeeding ends to detect any potential infection acquired through lactation. High-Risk Infants: Initial viral testing within the first 12-24 hours, followed by additional tests at 2-3 weeks, 4-8 weeks, and 4-6 months if needed. Definitive Diagnosis For nonbreastfed infants, HIV infection can be excluded with Two negative virologic tests at ≥1 month and ≥4 months Two negative antibody tests at ≥6 months. Test stool for giardia and give antibiotics (Option A) : While testing for giardia and administering antibiotics may be appropriate in cases of infectious diarrhea, it would not address the primary concern of diagnosing HIV in a newborn born to an HIV-positive mother. The HIV diagnosis should be confirmed first before addressing secondary infections. Antibody test for HIV (Option C) is not recommended for infants under 18 months, as they may still have maternal antibodies circulating, which can interfere with the test's accuracy, making it unsuitable for diagnosing HIV in a newborn. Aerobic culture (Option D) is typically used to detect bacterial infections, but it would not help in diagnosing the underlying cause of diarrhea in this scenario, where HIV-related issues are the primary concern.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1787,1788

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: What is the rare and hazardous complication associated with Subacute Sclerosing Panencephalitis? (Q859956)

A. Measles

B. Mumps

C. Rubella

D. Varicella

Correct Answer: A. Measles

Explanation: Subacute Sclerosing Panencephalitis is a rare fatal, severe, long-standing complication of measles . It is a progressive neurological disorder that affects the central nervous system. It typically develops 7-13 years after primary measles infection. Complications of Measles: Otitis media (m/c complication), Pneumonia (m/c cause of death), other respiratory complications - bronchitis, laryngitis, etc. Subacute Sclerosing Panencephalitis (SSPE) : Rare, fatal and long term complication. Acute encephalitis Prevention Measles is a preventable and potentially eradicable disease. Maternal antibodies protect infants until 6-9 months of age, so administering the vaccine at 9 months in endemic countries ensures early protection and seroconversion. The measles vaccine, derived from the Edmonston-Zagreb strain , is available as a monovalent preparation or in combination with rubella (MR), mumps (MMR), and varicella (MMR-V). The vaccine schedule is as follows: Vaccine MR (Measles-Rubella) Type Live attenuated Dose 0.5 ml Site Anterolateral thigh or right upper arm (at the insertion of deltoid) Schedule 1st dose - 9 months; 2nd dose - 16-24 months

References:

Nelson Textbook of Pediatrics, 21st edition, Pages 1673, 1674

Ghai Essential Pediatrics, 10th edition, Pages 231, 232, 197, 198

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 5-year-old boy, as shown in the image, presents with fever and painful sores in the mouth, along with a rash on his hand. Which of the following is the causative agent? (Q859508)

A. Pox virus

B. Coxsackie virus

C. HHV 7 virus

D. HIV virus



Correct Answer: B. Coxsackie virus

Explanation: The characteristic presentation of fever accompanied by painful oral sores and hand rash is the classic triad of Hand Foot Mouth Disease . Coxsackie virus , particularly type A16 , is the causative agent of this condition. {{caption_text}} Hand Foot Mouth Disease (HFMD) Causative organism Coxsackie A16 virus, Enterovirus 71 Age group <5 years Clinical features Low grade fever, feeling of being unwell, sore throat are commonly observed. Characterized by papulovesicular skin rash commonly on buttocks, knees, elbows and genital area. {{caption_text}} Ulcers/blisters are also seen in the oral cavity, mostly on the posterior aspect. Management Resolves on its own in 5-7 days, till then symptomatic and conservative treatment is given. Isolation of affected children at home and promotion of hand hygiene to prevent disease spread is important. Incorrect Options: Pox virus (Option A): While pox viruses can cause skin lesions, they typically present with pustular lesions rather than the papulovesicular rash characteristic of HFMD. HHV 7 virus (Option C): Human Herpesvirus 7 causes roseola infantum (6th disease) , characterized by fever and maculopapular rash that begins on the trunk and spreads to the extremities. It does not cause oral sores or the characteristic hand lesions seen in this case. HIV virus (Option D): While HIV can cause various skin manifestations, it does not present with oral sores along with the typical hand rash as seen in the patient, which is more consistent with HFMD.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1692, 1693.

O.P. Ghai Essential Pediatrics, 10th edition,Page 237.

↑ *Back to this question in Part A*

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Q6: What would be the most appropriate course of action for the care of child Ajay, the 3-year-old brother of Anuj, who resides in the same household and received diphtheria vaccination approximately 16 months ago, while Anuj is currently undergoing treatment for diphtheria in the ward? (Q858508)

A. One booster dose

B. Nothing, as the child is already exposed

C. Erythromycin + diphtheria toxoid

D. Erythromycin only

Correct Answer: D. Erythromycin only

Explanation: In situations where there is a known case of diphtheria in the household, it is recommended to administer erythromycin to individuals who have been in close contact with the infected person. Since Ajay, the younger sibling, has not developed symptoms but has been exposed , administering erythromycin alone is appropriate to prevent the development of the infection. Diphtheria - Management of contacts Asymptomatic Case Contacts Includes household members and close contacts. Monitored for 7 days for symptoms. Prophylaxis: IM benzathine penicillin G (600,000 units for <6 years, 1,200,000 units for ≥6 years) or 10-day oral erythromycin (40-50 mg/kg/day, max 2 g/day). Assess and update immunization status. Booster Dose : Administer the diphtheria toxoid vaccine to individuals who have not received a booster within the past 5 years. Vaccinate children who have not yet received their 4th dose of diphtheria toxoid. Incomplete or Uncertain Immunization : For those who have received fewer than 3 doses of diphtheria toxoid or have an uncertain immunization status, provide the vaccine according to the primary immunization schedule with an age-appropriate preparation Asymptomatic Carriers Receive 10-14 days of antimicrobial prophylaxis (oral erythromycin). Administer diphtheria toxoid vaccine if no booster has been given in the past year. Droplet precautions for respiratory carriers; contact precautions for cutaneous carriers. Precautions continue until two negative cultures (24 hours apart) post-treatment. Antitoxin is not recommended for asymptomatic carriers. Follow-up & Repeat Cultures Repeat cultures for cases and carriers 2 weeks post treatment. If positive, repeat a 10 day erythromycin course and further cultures. Complete eradication is not guaranteed after one course of antibiotics. Casual Contacts Routine investigation is not recommended due to low carriage rates. Hospital-Acquired Transmission Rare; only those with direct contact with respiratory/oral secretions need management as contacts. While one booster dose (Option A) of the diphtheria vaccine is generally recommended as part of routine immunization schedules, it is not the next best step in this case. As the child is 3 years old, he would have received the 4th dose (1st booster dose) of diphtheria vaccine between 16- 24 months of age. Since he has received a booster dose in the last 5 years, only Erythromycin is needed in this patient. Nothing as the child is already exposed (Option B): Even though the younger sibling has received vaccination against diphtheria 16 months ago, it does not ensure complete protection or eliminate the risk of infection. Vaccination

provides immunity, but it may not be 100% effective in preventing infection. Therefore, appropriate measures should be taken to minimize the risk of transmission and potential illness. Administering both erythromycin and diphtheria toxoid (Option C) is not the recommended next step in this case. In the case of the younger sibling who has not developed symptoms, administration of erythromycin alone is sufficient as a preventive measure.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1461

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: Which maternal antibodies do not confer substantial immunity in a newborn? (Q858504)

A. Tetanus

B. Polio

C. Diphtheria

D. Measles

Correct Answer: B. Polio

Explanation: In polio, maternal antibodies do not provide significant immunity to the neonate. This is because the transfer of polio-specific antibodies from the mother to the fetus is limited and the protection offered by these antibodies against polio infection is not as robust. Poliovirus (Family: Picornaviridae) Transmission: Fecal-oral route Incubation Period: 8-12 days from exposure to the onset of symptoms. It has three serotypes: PV1, PV2, and PV3 Pathogenesis: The virus spreads from the intestinal tract to the central nervous system (CNS), potentially causing aseptic meningitis and poliomyelitis. Poliomyelitis often leads to flaccid paralysis because it primarily affects the anterior horn cells in the spinal cord , which are responsible for motor control resulting in muscle weakness and atrophy. Reflexes may be diminished or absent due to the disruption of the motor neurons. Types of Poliovirus Infections: Inapparent Infection 90-95% of cases; asymptomatic Abortive Poliomyelitis Mild, flu-like symptoms with full recovery Nonparalytic Poliomyelitis More severe symptoms, including neck stiffness and pain, with a good prognosis Paralytic Poliomyelitis Includes spinal, bulbar, and polio encephalitis forms, presenting with various degrees of paralysis Diagnosis: Consider polio in any unimmunised child with acute flaccid paralysis , particularly in areas with past or current polio cases. Isolation of poliovirus from stool specimens collected 24-48 hours apart. Management: Supportive care is primary; ventilatory support may be necessary for severe respiratory involvement. Prevention (Vaccination): Oral Polio Vaccine (OPV): Live attenuated vaccine administered orally that induces both systemic & mucosal immunity with a risk of vaccine-associated polio. Inactivated Polio Vaccine (IPV): Killed virus vaccine. Given via injection that provides systemic immunity without the risk of vaccine-derived polio. Maternal antibodies formed from Tdap vaccination during pregnancy will provide immunity against tetanus (Option A), diphtheria (Option C), and pertussis in the newborn. Administering the Tdap vaccine earlier, between the 27th and 36th week of gestation, maximizes the

transfer of passive antibodies to the infant. Maternal antibodies generally protect infants less than 6 months from measles (Option D).

References:

Nelson textbook of pediatrics, 21st edition, Page 1353, 1377, 1684,1685,1688

↑ *Back to this question in Part A*

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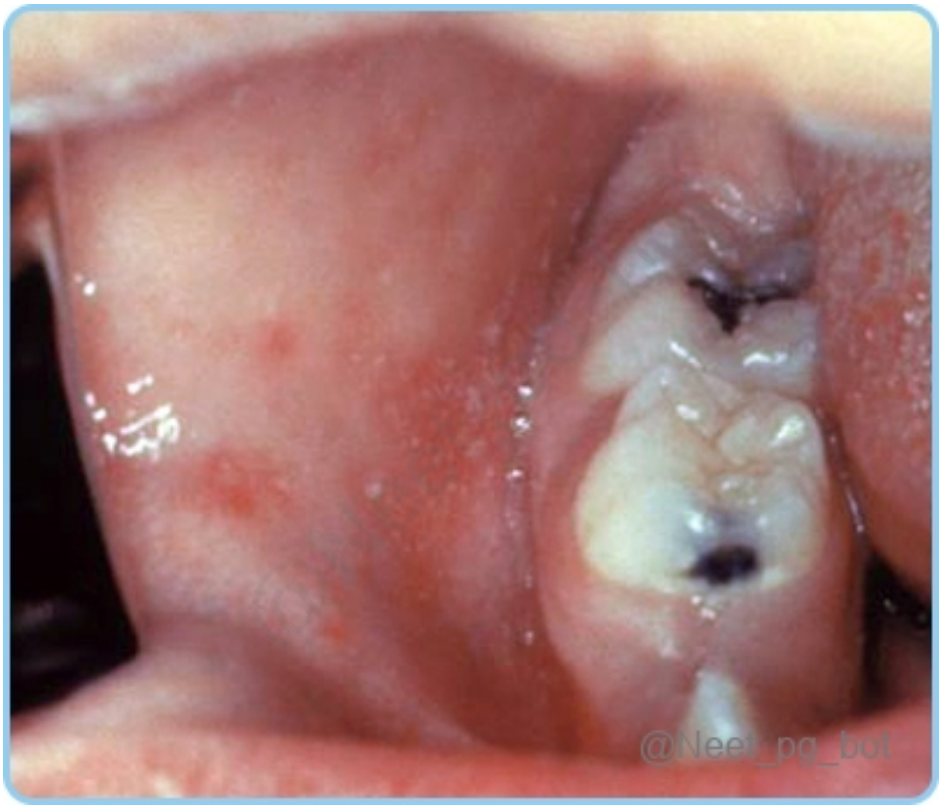
Q8: What would be your diagnosis for a 3-year-old male who has the given buccal mucosa findings and subsequently develops a rash after three days? (Q854948)

A. Measles

B. Leukoplakia

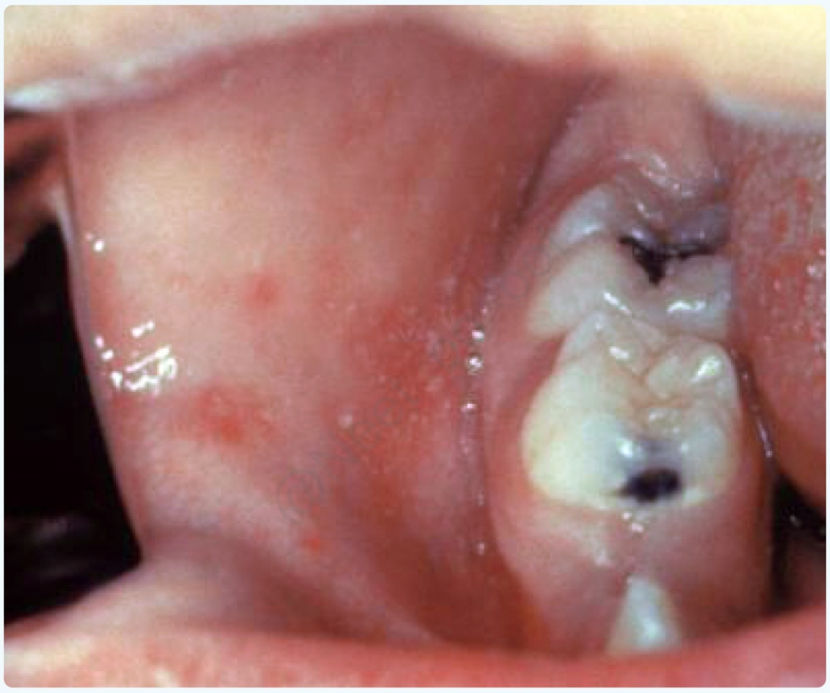
C. Scarlet fever

D. Kawasaki disease



Correct Answer: A. Measles

Explanation: The image shows Koplik’s spot on the buccal mucosa, which is pathognomonic of measles . Koplik's spots are small, white spots with a bluish-white centre and red halo that appear on the buccal mucosa. Aspects Description Causative agent Measles (rubeola) is a highly communicable childhood exanthematous illness caused by the measles virus, an RNA virus from the Paramyxoviridae family. Transmission Contact with droplet aerosols (through the respiratory tract or conjunctiva) Pathogenesis Primary viremia occurs, resulting in infection of the reticuloendothelial system, followed by secondary viremia, which results in systemic symptoms. Incubation period 8-12 days Period of infectivity From 3 days before to 4 days after the rash onset. Clinical manifestations Common in preschool children Prodromal phase: Fever (before rash), rhinorrhea, conjunctival congestion and a dry hacking cough. Koplik spots , pathognomonic for measles, appear on the 2nd or 3rd day of illness as grey-white, sand-like lesions with surrounding erythema on the buccal mucosa opposite the lower second molars. {{caption_text}} Rash The erythematous maculopapular rash in measles appears on the 4th day, starting behind the ears, along the hairline, and posterior cheeks, then spreading to the rest of the body over the next 2-3 days. Management Symptomatic and conservative (antipyretics, maintenance of hygiene, ensuring adequate fluid and caloric intake, and humidification). Vitamin A reduces the morbidity and mortality of measles. Leukoplakia (Option B) appears as a white patch in the oral cavity that cannot be wiped off. Scarlet fever (Option C) is group A Streptococcal (GAS) pharyngitis and is characterized by a distinctive sandpaper rash. The rash appears as a diffuse, finely papular, erythematous eruption that turns the skin bright red and blanches on pressure. It starts around the neck and spreads to the trunk and extremities and strawberry tongue is also seen. Kawasaki disease (Option D) is a systemic inflammatory disorder with arteritis of medium to large-sized vessels. It presents with fever, rash (maculopapular, erythema multiforme), conjunctivitis, and cervical lymph nodes and strawberry tongue is also seen.



Koplik spots on buccal mucosa on day 3 of rash

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1310, 1441, 1442, 1670- 1675

Ghai Essential Pediatrics, 10th edition,Page 230, 231, 232

↑ *Back to this question in Part A*

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Q9: What guidance should be provided to the students who have been exposed to meningococcal meningitis, considering that two girls in their class have been diagnosed with the disease? (Q854941)

A. Two doses of polysaccharide vaccine

B. Antibiotic prophylaxis

C. Two doses of conjugate vaccine

D. Single dose of meningococcal vaccine

Correct Answer: B. Antibiotic prophylaxis

Explanation: Meningococcal meningitis is a bacterial infection that can spread through close contact with respiratory and throat secretions of an infected person. It is important to take precautions to prevent the spread of the disease among other students by taking antibiotic prophylaxis . Antibiotics can be given to individuals who have been in close contact with someone diagnosed with meningococcal meningitis to help prevent the spread of the bacteria . Chemoprophylaxis following meningococcal exposure: Close contacts warranting chemoprophylaxis: Household contacts (including persons who ate or slept in the same dwelling as the patient during the 7 days prior to disease onset) Child-care and nursery-school contacts Persons having contact with patient’s oral secretions during the 7 days prior to disease onset: Sharing of toothbrushes Sharing of eating utensils Mouth-to-mouth resuscitation Kissing Unprotected contact during endotracheal intubation Aircraft contacts for persons seated next to the patient for > 8 hrs Prophylaxis is provided to contacts within 24 hours of identification of the index case. The antibiotics effective include Rifampicin - 600 mg 12 hourly for 2 days Ciprofloxacin - 500 mg single dose Azithromycin - 500 mg single dose Ceftriaxone - 250 mg Intramuscular single dose Vaccines are available for most meningococcal subgroups but not group B, which is one of the most common serogroups isolated in many countries Persons at low risk in whom chemoprophylaxis is not recommended Casual contact (e.g. at school or work) without direct exposure to the patient’s oral secretions Indirect contact only (contact with a high-risk contact and not a case) Health-care worker without direct exposure to patient’s oral secretions

References:

Nelson textbook of pediatrics, 21st edition, Page 1474- 1477, 3225

Park’s Textbook of Preventive and Social Medicine, 26th edition, Page 182

Davidson’s Principles and Practice of Medicine, 24th edition, Page 1120,1121

↑ *Back to this question in Part A*

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Q10: The most common heart defect in congenital rubella syndrome is: (Q856517)

A. ASD

B. VSD

C. PDA

D. Pulmonary stenosis

Correct Answer: C. PDA

Explanation: Patent ductus arteriosus (PDA) is the most common congenital heart disease associated with rubella, followed by pulmonary artery stenosis (PS). Cardiac anomalies are observed in 50% of children infected during the first 8 weeks of gestation. The incidence of heart defects in congenital rubella syndrome follows this order: PDA > PS (right > left) > VSD > ASD. Etiology Associated Heart Defects (Order) Infections Rubella Virus (German Measles) Patent Ductus Arteriosus (PDA) > Pulmonary Artery Stenosis > Ventricular Septal Defect (VSD) / Atrial Septal Defect (ASD) Cytomegalovirus (CMV) Infection Ventricular Septal Defect (VSD) > Atrial Septal Defect (ASD) > Patent Ductus Arteriosus (PDA) Toxoplasmosis Ventricular Septal Defect (VSD) > Patent Ductus Arteriosus (PDA) Metabolic Defects Maternal Diabetes Transposition of the Great Vessels (TGV) > Ventricular Septal Defect (VSD) / Atrial Septal Defect (ASD) Genetic Disorders Down Syndrome (Trisomy 21) Atrioventricular Septal Defect (AVSD) > Ventricular Septal Defect (VSD) > Patent Ductus Arteriosus (PDA) Turner Syndrome (45,X) Coarctation of the Aorta > Bicuspid Aortic Valve > Aortic Stenosis Noonan Syndrome Pulmonary Stenosis > Atrial Septal Defect (ASD) > Hypertrophic Cardiomyopathy (HCM) Williams Syndrome Supravalvular Aortic Stenosis (SVAS) > Pulmonary Artery Stenosis > Aortic Stenosis DiGeorge Syndrome (22q11.2 Deletion) Tetralogy of Fallot (TOF) > Interrupted Aortic Arch > Truncus Arteriosus Drugs Thalidomide Tetralogy of Fallot (TOF) > Ventricular Septal Defect (VSD) > Pulmonary Artery Stenosis Lithium Ebstein Anomaly > Atrial Septal Defect (ASD)

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1679.

↑ *Back to this question in Part A*

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Q11: Which of the following investigations would be most beneficial in diagnosing the condition of a 10-year-old boy who is experiencing seizures along with a medical history of fever accompanied by a rash at the age of 1 year, which was resolved on its own? (Q856175)

A. lgG measles in CSF

B. MRI mesial temporal lobe sclerosis

C. IgM measles in CSF

D. C1Q4 antibodies in the CSF

Correct Answer: A. lgG measles in CSF

Explanation: SF: The child's history of fever with rash at 1 year of age, which resolved spontaneously, suggests a possible previous measles infection. Subacute sclerosing panencephalitis (SSPE) is a rare complication of measles that can occur years after a measles infection. In SSPE, there is persistent measles virus infection in the central nervous system, leading to inflammation and progressive neurological deterioration. To diagnose SSPE, the presence of elevated measles-specific IgG antibodies in the cerebrospinal fluid (CSF) is considered a helpful investigation. IgG antibodies are produced in response to previous infection and can persist in the CSF for an extended period. Complications of Measles: Complications of measles are more frequent in the young, malnourished and immunocompromised individuals. Otitis media (most common complication) Pneumonia (most common cause of death) Other respiratory complications - bronchitis, laryngitis, etc. Subacute Sclerosing Panencephalitis (SSPE): rare, fatal (most common long term complication. Acute encephalitis Prevention of Measles: Measles is a preventable and potentially eradicable disease. Maternal antibodies protect infants until 6-9 months of age, so administering the vaccine at 9 months in endemic countries ensures early protection and seroconversion. The measles vaccine, derived from the Edmonston-Zagreb strain , is available as a monovalent preparation or in combination with rubella (MR), mumps (MMR), and varicella (MMR-V). The vaccination schedule is as follows: Vaccine MR (Measles-Rubella) Type Live attenuated Dose 0.5 ml Site Right upper arm (at the insertion of deltoid) Schedule 1st dose - 9 months; 2nd dose - 16-24 months MRI mesial temporal lobe sclerosis (Option B) is a specific finding on MRI associated with temporal lobe epilepsy. It is characterized by atrophy and abnormal signal intensity in the mesial temporal structures, particularly the hippocampus. The detection of lgM measles in CSF (Option C) may indicate recent or ongoing measles infection. However, in the case of SSPE, the initial measles infection usually occurred several years before the onset of symptoms. Therefore, the presence of IgM antibodies in CSF is not helpful in diagnosing SSPE. C1Q4 antibodies in the CSF (Option D) are not associated with SSPE or measles infection. These antibodies are typically associated with certain autoimmune diseases, such as systemic lupus erythematosus (SLE).

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1670-1675, 3097

Ghai Essential Pediatrics, 10th edition,Page 197,198, 230, 231, 232

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: An 18-month-old baby was brought to the hospital with complaints of poor feeding and abnormal twitching of his lower limbs. On examination, he has fever with fontanelle bulging, and the child was lethargic. The most probable cause is: (Q856787)

A. Febrile seizures

B. Meningitis

C. Pseudotumor cerebri

D. Intracranial haemorrhage

Correct Answer: B. Meningitis

Explanation: The clinical features of poor feeding, fever, bulging fontanelle, lethargy, and abnormal twitching of his lower limb (seizure) strongly suggest meningitis. Bacterial Meningitis: Etiological agents: In India Overall Neonates Gram-negative organisms (E.Coli > Acinetobacter > Klebsiella) Group B streptococci Infants and older children Streptococcus Pneumoniae > Neisseria Meningitidis > Haemophilus influenzae. Streptococcus pneumoniae Risk Factors for Bacterial Meningitis: Lack of preexisting immunity Close Contact with infected individuals Crowding Low Socioeconomic Factors Congenital or Acquired CSF Leak Cochlear Implant Category Clinical Manifestations Nonspecific Findings Fever, anorexia, poor feeding Headache, upper respiratory symptoms Myalgias, arthralgias Tachycardia, hypotension Cutaneous signs: Petechiae, purpura, or erythematous macular rash Meningeal Irritation Nuchal rigidity Back pain Kernig sign : Pain with extension of the leg after hip flexion Brudzinski sign : Involuntary flexion of the knees and hips upon neck flexion Increased Intracranial Pressure (ICP) Signs Headache, emesis Bulging fontanel or diastasis of sutures Cranial nerve involvement: anisocoria, ptosis, abducens nerve paralysis Hypertension with bradycardia, apnea, or hyperventilation Decorticate or decerebrate posturing, stupor, coma, or herniation signs Papilledema Focal Neurologic Signs Seizures Altered mental status Photophobia Tâche cérébrale: Raised red streak appearing 30-60 seconds after stroking the skin with a blunt object Diagnosis: Lumbar puncture and CSF analysis: Gold standard. CSF shows Neutrophilic pleocytosis, increased proteins and decreased glucose. Treatment: Antibiotics: Third-generation cephalosporins (Ceftriaxone) x 10 to 14 days Steroids: Inj. Dexamethasone started 1-2 hr before antibiotics and continued for 48 hrs - Prevents cytokine-mediated CNS injury. Febrile seizures (Option A) typically occur in response to fever, but in the absence of other features of central nervous system infection like bulging fontanelle, poor feeding, and lethargy, they are less likely to be the cause. These symptoms suggest a more severe condition like meningitis. Pseudotumor cerebri (Option C) is a rare condition in children under 10 years old and is often associated with obesity, female gender, and certain medications (like lithium, tetracyclines, steroid withdrawal and hypervitaminosis A). It presents with increased intracranial pressure but does not typically cause fever, bulging fontanelle, or abnormal twitching. It usually has a chronic course and presents with papilledema in most cases. Intracranial hemorrhage (Option D) can lead to seizures or abnormal movements, it generally presents with more pronounced neurological deficits such as altered consciousness, focal neurological findings, or altered tone, and is less likely to cause fever and bulging fontanelle, which are more indicative of meningitis.

References:

Nelson Textbook of Paediatrics, 21st Edition, Page 3224, 3225

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A child presents with fever and vesicular lesions on the upper and lower limbs. Neck stiffness was present. Similar lesions were present on the palms, soles, and oral cavity. CSF analysis revealed normal glucose levels and elevated lymphocytes and protein. What is the most likely diagnosis? (Q855460)

A. Bacterial meningitis with sepsis

B. Coxsackie viral meningitis and Hand Foot Mouth disease

C. Herpes simplex gingivostomatitis and meningoencephalitis

D. Tuberculous meningitis



Correct Answer: B. Coxsackie viral meningitis and Hand Foot Mouth disease

Explanation: The given clinical presentation and images are suggestive of Coxsackie viral meningitis and Hand Foot Mouth Disease (HFMD) caused by the Coxsackie A16 virus. The fever and neck stiffness with CSF examination showing normal glucose level and elevated protein and lymphocytes is suggestive of viral meningitis. Hand Foot Mouth Disease (HFMD) Causative organism Coxsackie A16 virus and Enterovirus A71 Age group <5 years Clinical features Low-grade fever, feeling of being unwell, and sore throat are commonly observed. Characterized by papulovesicular skin rash commonly on buttocks, knees, elbows, around the mouth, and genital area. {{caption_text}} {{caption_text}} Ulcers/blisters are also seen in the oral cavity, mostly on the posterior aspect Management Resolves on its own in 5-7 days, till then symptomatic and conservative treatment is given. Isolation of affected children at home and promotion of hand hygiene to prevent disease spread is important.

Bacterial meningitis with sepsis (Option A) presents with cutaneous signs like petechiae, purpura or erythema and not with maculopapular lesions. Herpes simplex gingivostomatitis and meningoencephalitis (Option C) : Herpes gingivostomatitis is a very painful condition that presents with sudden onset of pain in the mouth, drooling, refusal to eat or drink, and fever. The oral lesions begin as hyperemia of the mucosa to rapidly spreading vesicles that ulcerate and eventually rupture. Herpes meningoencephalitis is an acute necrotizing infection and presents with fever, headache, nuchal rigidity, vomiting, etc. This is not the given clinical scenario. Tuberculous meningitis (Option D) is a serious condition that can be fatal, and the child occasionally has a history of TB. The rupture of the tubercles (Rich's foci) in the brain leads to this condition and may present with acute hydrocephalus, seizures, and cerebral oedema. These do not align with the clinical scenario given.





Superficially erroded papules on lips

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References:

Nelson Textbook of Pediatrics, 21st edition, Page 1573, 1692, 1693, 1703, 1705, 3225.

↑ *Back to this question in Part A*

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Q14: Which of the following is given as a part of the therapy for a child with severe COVID-19? (Q855457)

A. Corticosteroids

B. Ivermectin

C. Remdesivir

D. All of the above

Correct Answer: A. Corticosteroids

Explanation: In case of severe COVID, where SpO2 < 90%, due to inflammatory damage to alveoli, the corticosteroid is administered to reduce inflammation and improve oxygenation. Treatment Protocols for

COVID-19 Mild Disease Home Management & Hydration Medications: Use paracetamol for fever and nasal saline drops for congestion. Avoid antibiotics and multivitamins (no proven benefit). Monitoring: Watch for red flag signs like rapid breathing, oxygen saturation below 95%, persistent fever, lethargy, or poor feeding. Moderate Disease Admit to Covid ward SpO2 > 94: Hydration, paracetamol and antimicrobials SpO2 < 94: Oxygen, IV Steroids, Remdesivir, Antimicrobials Severe/Critical Covid - 19 ICU / HDU ward Oxygen, CPAP, Invasive ventilation if required IV corticosteroids , Remdesivir (controversial) , Enoxaparin, Antimicrobials Manage Shock, ARDS, AKI, and Myocarditis as per protocol Steroids: Administer IV dexamethasone at 0.15 mg/kg (max 6 mg) once daily for 5-14 days. Remdesivir should be administered only in a hospital setting. Enoxaparin: For <2 months: 1.5 mg/kg/dose every 12 hours. For >2 months: 1 mg/kg/dose every 12 hours. Ivermectin (Option B) was earlier thought to have antiviral properties, but evidence shows there is no decrease in mortality and hospital stay. Hence it is not recommended to be used for COVID-19. There is controversy in the use of Remdesivir (Option C) between guidelines given by IAP and MoHFW. As per IAP, Remdesivir can be used at more than 1 month of age, for moderate to severe COVID-19 disease in hospital settings. However, as per MOHFW, remdesivir is not recommended in children. There is a lack of sufficient evidence on safety and efficacy concerning Remdesivir in children below 18 years of age.

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page: 227, 228.

↑ *Back to this question in Part A*

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Q15: Which of the statements below accurately describes congenital CMV infection? (Q855452)

A. About 20-30% of the infections are symptomatic

B. Triad of SNHL, periventricular calcification and enamel hypoplasia

C. Most children asymptomatic at birth can develop conductive hearing loss later in life

D. If the mother is lgG positive for CMV, the child is unlikely to develop an infection

Correct Answer: D. If the mother is lgG positive for CMV, the child is unlikely to develop an infection

Explanation: IgG antibodies can cross the placenta and provide passive immunity to infants . In the case of congenital CMV infection, if the mother was previously infected and is IgG positive , she would provide passive immunity to the fetus thus making it unlikely for the fetus to develop an infection. Congenital CMV infection can be described as follows: Human cytomegalovirus (CMV) Mode of Transmission Bodily fluids: saliva, urine, blood, vaginal fluids, breast milk Community exposure: Daycare centres Perinatal exposure: During birth Breastfeeding Risk of Transmission 30% of women with primary CMV infection during pregnancy transmit the virus to the fetus. In-utero infections also occur in previously immune women but at a reduced rate Transmission by Gestational Age Transmission rates are higher following a primary infection, with the risk increasing as

gestational age advances. Clinical Features of congenital CMV infection Asymptomatic Infection (90% of infected newborns): No signs at birth; detected through newborn screening. Symptomatic Infection (10% of infected newborns (Option A ruled out)) : Jaundice (direct bilirubin >2 mg/dL) Petechiae (small, red, or purple spots on the skin) giving a blueberry muffin appearance Hepatosplenomegaly Microcephaly Intrauterine growth restriction Chorioretinitis Purpura (3% infants) (larger areas of bleeding under the skin) Less Common Findings: Hearing loss (M/c long-term consequence; may develop later). Lab findings align with the clinical presentation: Direct hyperbilirubinemia, ■ ALT, thrombocytopenia, and Head CT abnormalities Triad of SNHL, periventricular calcification and enamel hypoplasia (seen in congenital syphilis) (Option B) is not seen in congenital CMV infection. It presents with jaundice, petechiae (blueberry muffin rash), microcephaly, SNHL, chorioretinitis, periventricular calcification, and hepatosplenomegaly . Most children asymptomatic at birth can develop conductive hearing loss later in life (Option C): This is a false statement since this pattern is seen in late-onset congenital syphilis.

References:

Nelson Textbook of Pediatrics, 21st edition, Page: 1719, 1720, 1721.

↑ *Back to this question in Part A*

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Q16: A young man is brought to the hospital with high-grade fever and altered consciousness. On examination, the patient had neck rigidity and pain when bending the neck. A lumbar puncture was performed and it showed a WBC count of 1500 cells/µL, the majority being neutrophils, elevated pressure with protein of 120 mg/dL, and a glucose level of 70 mg/dL (blood glucose level - 300 mg/dL). How will you manage the index case? (Q855734)

A. Piperacillin + tazobactum

B. Amphotericin + flucytosine

C. Vancomycin + ceftriaxone

D. Antitubercular therapy

Correct Answer: C. Vancomycin + ceftriaxone

Explanation: The young man’s presentation of high-grade fever, altered consciousness, neck rigidity, and lumbar puncture findings (elevated neutrophils, high protein, low glucose relative to blood glucose, and elevated pressure) is suggestive of bacterial meningitis. The first line of management involves the administration of a third-generation cephalosporin along with vancomycin for 10-14 days. Bacterial meningitis in neonates and children Common Causes by Age Group Neonates Pre-school Children Older Children Escherichia coli (gram-negative bacilli) Group B streptococci Listeria monocytogenes Haemophilus influenzae type b Neisseria meningitidis Streptococcus pneumoniae Neisseria meningitidis Streptococcus pneumoniae Clinical Features

Lethargy Fever Hypothermia Seizure Headache Stiff neck Irritability Drowsiness Vomiting Diagnosis Lumbar puncture (CSF analysis): CSF Appearance: Cloudy or purulent CSF Pressure: Elevated WBC Count: Elevated (1000-5000 cells/µL) Predominant Cells: Neutrophils Protein: Elevated (>100 mg/dL) Glucose: Low (<40 mg/dL or <40% of blood glucose) Gram Stain: Positive for bacteria Treatment Immediate Management: Start with intravenous broad-spectrum antibiotics to cover pathogens. Third generation cephalosporins (Ceftriaxone) along with vancomycin x 10 to 14 days Adjunctive Therapy: Inj. Dexamethasone started 1-2 hr before antibiotics and continued for 48 hrs - Prevents cytokine mediated CNS injury. Supportive Care: Manage complications like raised intracranial pressure and seizures. Prevention Vaccines for H. influenzae type b, N. meningitidis, and S. pneumoniae. No vaccine currently exists for group B meningococcal infections. Chemoprophylaxis : Close contacts of individuals with meningococcal meningitis should receive prophylactic antibiotics like rifampicin, ciprofloxacin, azithromycin or ceftriaxone to reduce the risk of secondary infections. Rifampicin - 600 mg 12 hourly for 2 days Ciprofloxacin - 500 mg single dose Azithromycin 500 mg single dose Ceftriaxone - 250 mg Intramuscular single dose Complications Hearing loss (common with H. influenzae and S. pneumoniae), seizures, memory impairment, decreased intellectual function, hydrocephalus, sepsis, and risk of death

References:

Harrison’s Principles of Internal Medicine, 21st Edition, Page 975,1101,1102,1103,1105,1106

Davidson’s Principles and Practice of Medicine, 24th Edition, Page 1119,1120,1121

Nelson Textbook of Pediatrics, 21st Edition, Page 3225

↑ *Back to this question in Part A*

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Q17: An HIV-positive mother with a viral load of 1200 copies/mL delivers a baby. What is the most appropriate antiretroviral prophylaxis for the newborn? (Q866391)

A. Nevirapine for 6 weeks

B. Nevirapine + Zidovudine for 6 weeks

C. Nevirapine for 12 weeks

D. Zidovudine for 4 weeks

Correct Answer: B. Nevirapine + Zidovudine for 6 weeks

Explanation: Nevirapine + Zidovudine for 6 weeks In this case, the maternal viral load is 1200 copies/mL, hence, the infant is considered high risk, and since the mother’s treatment is not known, dual prophylaxis with Nevirapine + Zidovudine for 6 weeks is aimed at covering both intrapartum and early postpartum exposure. Nevirapine (NVP) — NNRTI that inhibits reverse transcriptase, preventing viral replication soon after exposure. Zidovudine (AZT) — NRTI that interferes with viral DNA synthesis, offering a complementary mechanism. The dual regimen is more effective than single-drug prophylaxis in reducing perinatal HIV transmission in babies born to mothers with detectable viremia. Early infant diagnosis with HIV DNA PCR at 6 weeks is mandatory. Incorrect Options:

Nevirapine for 6 weeks (Option A): Reserved for truly low-risk infants (maternal viral load <50 copies/mL close to delivery). Nevirapine for 12 weeks (Option C): Used for high-risk breastfed infants when the mother is not virally suppressed. Zidovudine for 4 weeks (Option D) : Older protocol, no longer preferred in detectable maternal viral load scenarios per updated Indian recommendations.

References:

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↑ *Back to this question in Part A*

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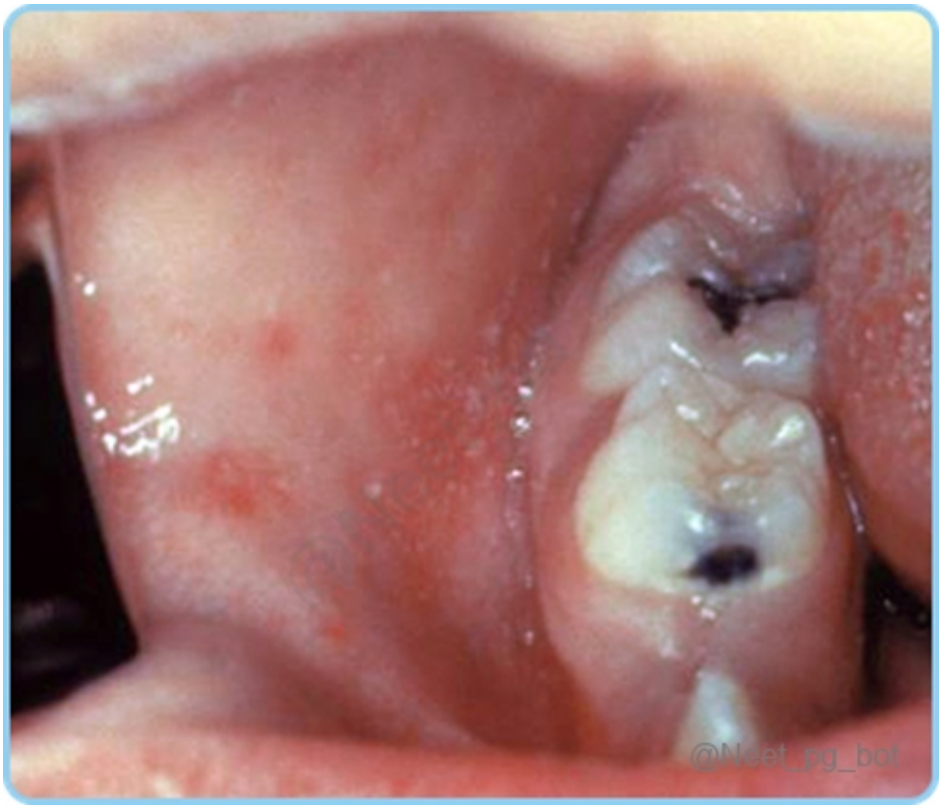
Q18: What is the diagnosis of a 5-year-old girl presented to the clinic with symptoms of fever, cough, red eyes, running nose, and rash, as depicted in the image of the child's appearance? (Q858063)

A. Mumps

B. Measles

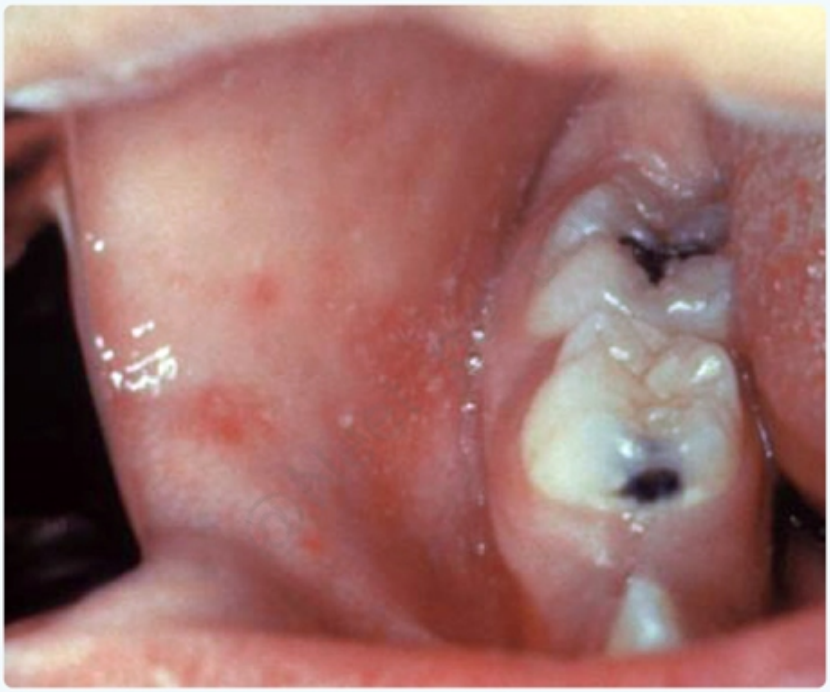
C. Chickenpox

D. Erythema infectiosum



Correct Answer: B. Measles

Explanation: ommon in preschool children Prodromal phase: Fever (before rash), rhinorrhea, conjunctival congestion and a dry hacking cough. Koplik spots , pathognomonic for measles, appear on the 2nd or 3rd day of illness as grey-white, sand-like lesions with surrounding erythema on the buccal mucosa opposite the lower second molars. Rash The erythematous maculopapular rash in measles appears on the 4th day, starting behind the ears, along the hairline, and posterior cheeks, then spreading to the rest of the body over the next 2-3 days. {{caption_text}} Management Symptomatic and conservative (antipyretics, maintenance of hygiene, ensuring adequate fluid and caloric intake, and humidification). Mumps (Option A) primarily presents with parotid gland swelling and does not have the characteristic progression of respiratory symptoms and rash seen in this case. The absence of parotid involvement makes this diagnosis unlikely. Chickenpox (Option C) typically presents with vesicular lesions in different stages of development and does not have the prodromal respiratory symptoms or Koplik spots. The rash in chickenpox is characteristically pruritic and appears in crops. Erythema infectiosum (Option D) presents with a characteristic "slapped cheek" appearance and lace-like rash on the trunk, without the prodromal symptoms or Koplik spots seen in this case. The absence of the typical facial rash pattern rules out this condition.



Koplik spots on buccal mucosa on day 3 of rash

References:

Nelson Textbook of Pediatrics, 21st edition, Pages 1670-1675

O.P. Ghai Essential Pediatrics, 10th edition,Pages 230, 231, 232.

↑ *Back to this question in Part A*

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Q19: A 3-week-old infant presents with a cough and sore throat. The mother reports that the infant develops a paroxysm of cough followed by apnea. The total leukocyte count is >50,000 cells/μL. Which of the following drugs will you prescribe for this patient? (Q855506)

A. Azithromycin

B. Amoxicillin

C. Cotrimoxazole

D. Clarithromycin

Correct Answer: A. Azithromycin

Explanation: An infant presenting with paroxysmal cough, apnea, and marked leukocytosis (>50,000 cells/μL) is suggestive of pertussis (whooping cough). Azithromycin is the first-line treatment for pertussis in all age groups. Pertussis Causative agent Bordetella pertussis, Bordetella parapertussis Secondary attack rate 100% Clinical Stages Catarrhal (1-2 weeks): Cold-like symptoms, worsening cough Paroxysmal (2-6 weeks): Severe cough, "whoop", vomiting Convalescent (1-4 weeks): Recovery Complications Apnea, Otitis media, Pneumonia, Pulmonary hypertension, Cardiogenic shock, Hemorrhage, Seizures, hernia and malnutrition. Diagnosis Clinical signs, nasopharyngeal swab culture, PCR, serology. Differential Diagnosis Adenoviral infection, TB, foreign body inhalation, airway compression. Management First-line antibiotics for treating pertussis: Azithromycin is the first-line treatment for pertussis in all age groups. Erythromycin and clarithromycin are alternative treatments but are C/I in <1 month old due to risk for infantile hypertrophic pyloric stenosis (IHPS). (Option D) Alternative antibiotics: For patients allergic to macrolides or there is unavailability of azithromycin, trimethoprim-sulfamethoxazole (cotrimoxazole) may be used, but it is C/I in <2 months old (due to the risk for kernicterus) (Option C) Timing of treatment: Antibiotics are most effective during the catarrhal stage Isolation: Patients diagnosed with pertussis should be isolated from others, especially vulnerable populations like infants and the elderly, for at least 5 days after starting antibiotics . Prevention DTaP vaccine (Diphtheria, Tetanus, and Pertussis): Given to children under 7 years of age as part of routine childhood vaccinations. Tdap vaccine (Tetanus, Diphtheria, and Pertussis): Recommended for adolescents, adults, and pregnant women (preferably between 27 and 36 weeks gestation) to provide protection and reduce transmission to infants. Amoxicillin (Option B) is not used in pertussis because it is ineffective against Bordetella pertussis in the nasopharynx.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1492- 1496

O.P. GHAI Essential Pediatrics, 10th Edition, Page 265-266

https://www.ncbi.nlm.nih.gov/books/NBK519008/

↑ *Back to this question in Part A*

Q20: A child presents with fever and a rash spreading from the face, behind cheeks and buccal mucosa to other body parts. On examination, Koplik's spot is present. What is the likely diagnosis? (Q855504)

A. Measles

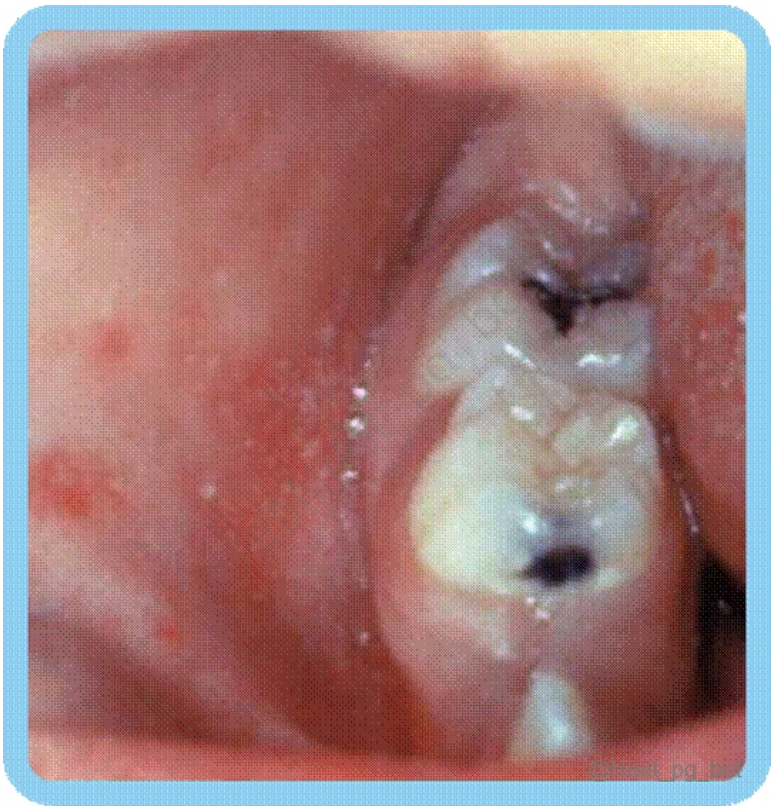
B. Rubella

C. Varicella

D. Mumps

Correct Answer: A. Measles

Explanation: The clinical scenario of fever, rash spreading from the face to other body parts, and the presence of Koplik's spots in a child points towards a diagnosis of measles. Measles: Aspects Description Causative agent Measles (rubeola) is a highly communicable childhood exanthematous illness caused by the measles virus, an RNA virus from the Paramyxoviridae family. Transmission Contact with droplet aerosols (through the respiratory tract or conjunctiva) Pathogenesis Primary viremia occurs, resulting in infection of the reticuloendothelial system, followed by secondary viremia, which results in systemic symptoms. Incubation period 8-12 days Period of infectivity From 3 days before to 4 days after the rash onset Clinical manifestations Common in preschool children Prodromal phase: Fever (before rash), rhinorrhea, conjunctival congestion and a dry hacking cough. Koplik spots , pathognomonic for measles, appear on the 2nd or 3rd day of illness as grey-white, sand-like lesions with surrounding erythema on the buccal mucosa opposite the lower second molars. {{caption_text}} Rash The erythematous maculopapular rash in measles appears on the 4th day, starting behind the ears, along the hairline, and posterior cheeks , then spreading to the rest of the body over the next 2-3 days. Management Symptomatic and conservative (antipyretics, maintenance of hygiene, ensuring adequate fluid and caloric intake, and humidification). Rubella (Option B) presents with low-grade fever, a centrifugal macular rash, and prominent lymphadenopathy, with tiny rose-colored lesions on the soft palate (Forchheimer spots), which are different from Koplik's spots seen in measles. Varicella (Option C) presents with a characteristic pruritic rash that evolves in stages (macules, papules, vesicles, and crusts) and does not present with Koplik's spots. Mumps (Option D) presents with fever, headache, parotitis, and ipsilateral auricular pain, with a morbilliform rash that may occur, but it is not associated with Koplik's spots.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1670-1675

O.P. Ghai Essential Pediatrics, 10th Edition,Page 230, 231, 232.

↑ *Back to this question in Part A*

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Q21: A 3-month-old baby comes with complaints of deafness, cataract, and patent ductus arteriosus. Which of the following is the most likely diagnosis? (Q855500)

A. Congenital herpes simplex virus infection

B. Congenital toxoplasmosis

C. Congenital cytomegalovirus infection

D. Congenital rubella syndrome

Correct Answer: D. Congenital rubella syndrome

Explanation: The clinical presentation of deafness, cataract, and patent ductus arteriosus in an infant is most suggestive of Congenital rubella syndrome . Congenital rubella Rubella (German measles) is a mild disease in infants and children but can cause congenital rubella syndrome (CRS) if contracted during pregnancy. The risk is highest in the first trimester, especially within the first 8 weeks. Pathogenesis Viremia is most intense from 10 to 17 days after infection. Viral shedding is from day 10 of infection up to 2 weeks. Risk of Defects by Gestational Age Highest in the first 12 weeks of gestation and decreases significantly thereafter, with defects being rare after 20 weeks. Clinical features of congenital rubella syndrome Sensorineural hearing loss (SNHL) (most common) Vision problems (cataracts , glaucoma, salt and pepper retinopathy). Cataracts are the most common ocular abnormality associated with congenital rubella. {{caption_text}} \ {{caption_text}} Heart defects (patent ductus arteriosus > pulmonary artery stenosis (right > left) > ventricular septal defect) Low birth weight Neurological issues (microcephaly, intellectual disabilities, encephalitis, behavioral issues) Chronicity and Complications Chronic presence of the virus can cause ongoing damage The risk of progressive rubella panencephalitis (PRP) years later is a rare complication. Less common complications: Growth retardation, hepatitis, bone lesions. Risk of diabetes and thyroid dysfunction Diagnosis Rubella IgM enzyme immunosorbent assay (detects antibodies) Viral isolation (growing the virus from samples) Polymerase chain reaction (PCR) (detects viral RNA) Management No specific treatment for CRS; supportive care is key Early intervention for complications (e.g., hearing loss) is crucial Prevention Standard with droplet precaution in hospitalized cases Rubella vaccination RA 27/3 live attenuated vaccine (MMR or MMRV with varicella) effectively prevents rubella and CRS MMR vaccine has a 95% efficacy after one dose and 99% after two doses Vaccination side effects: fever, rash, joint pain Considerations for Pregnant Women Immunoglobulin may be considered if pregnancy is not terminated, though it does not guarantee prevention of fetal infection Congenital herpes simplex virus infection (Option A) can be transmitted in utero, during delivery, or in the neonatal period. Intrauterine infection leads to skin vesicles, eye abnormalities such as chorioretinitis and keratoconjunctivitis, and neurological complications like microcephaly or hydranencephaly. Infection acquired at birth can present as localized disease affecting the skin, eyes, and mouth, as encephalitis , or as disseminated infection resembling neonatal sepsis. Congenital toxoplasmosis (Option B) results from maternal infection, particularly during pregnancy. The severity depends on the timing of transmission, with early pregnancy infections leading to more severe outcomes, while later infections tend to be milder. The classic presentation includes a triad of chorioretinitis, hydrocephalus, and intracranial calcifications. Congenital cytomegalovirus (CMV) infection (Option C) is often acquired when maternal infection occurs during pregnancy, with the highest transmission risk in the third trimester. Affected newborns may have growth restriction, microcephaly, periventricular calcifications, chorioretinitis, developmental delays, hepatosplenomegaly, hemolytic anemia, and thrombocytopenia. While many neonates are asymptomatic at birth, sensorineural hearing loss is a common long-term complication.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1676-1680

↑ *Back to this question in Part A*

Q22: The causative agent of this condition is associated with which of the following conditions? (Q854745)

A. Gingivostomatitis

B. Pure red cell aplasia

C. Molluscum contagiosum

D. Kaposi sarcoma



Correct Answer: B. Pure red cell aplasia

Explanation: The condition described is erythema infectiosum, also known as fifth disease , caused by Parvovirus B19 . This virus is strongly associated with pure red cell aplasia, especially in certain high-risk groups. Erythema Infectiosum (Fifth Disease) Causative Agent Parvovirus B19 Age Group Predominantly 5 to 15 years (70% of cases) Incubation Period 4–28 days Transmission Respiratory droplets; transmission rate 15–30% among close contacts Clinical Features Prodromal Phase: Low-grade fever, headache, mild URTI symptoms Rash: "Slapped-cheek" erythema on face, spreading as a lacy pattern to trunk and extremities {{caption_text}} Management Self-limiting disease Complications Aplastic Crisis: Severe anemia due to erythropoiesis suppression in chronic hemolytic anemia Arthropathy: Arthritis/arthralgia, more common in adults Fetal Infection: Nonimmune fetal hydrops, stillbirth risk Other Manifestations: Papular purpural gloves and socks syndrome, myocarditis Childhood Exanthems: The "First to Sixth" Diseases Order Disease Pathogen Clinical Features First

Disease Measles Measles virus (Paramyxoviridae) High fever, Koplik spots, maculopapular rash spreading cephalocaudally (head to trunk and limbs). Second Disease Scarlet Fever Streptococcus pyogenes (Group A) Sandpaper-like rash, strawberry tongue, pharyngitis. Third Disease Rubella Rubella virus (Togaviridae) Mild fever, maculopapular rash starting on face, posterior auricular lymphadenopathy. Fourth Disease Duke's Disease Staphylococcus aureus or unknown Rare; characterized by mild rash and fever. Fifth Disease Erythema Infectiosum Parvovirus B19 "Slapped cheek" rash, lacy erythematous rash on trunk and limbs, mild fever. Sixth Disease Roseola Infantum/ Exanthem subitum Human Herpesvirus 6/7 (HHV-6/HHV-7) High fever followed by maculopapular rash after fever subsides. Gingivostomatitis (Option A): Commonly caused by Herpes Simplex Virus (HSV-1), not Parvovirus B19. Molluscum contagiosum (Option C): Caused by a poxvirus, presenting with dome-shaped, umbilicated papules. Kaposi sarcoma (Option D): Associated with Human Herpesvirus 8 (HHV-8), typically seen in immunocompromised individuals (e.g., HIV/AIDS).



References:

Ghai Essential Pediatrics, 10th Edition, Page: 234, 235. Nelson Textbook of Pediatrics, 21st Edition, Page: 1697-1700.

↑ *Back to this question in Part A*

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Q23: The perinatal transmission of infection shows the spectrum of anaemia, possibly myocarditis, high-output cardiac failure, and ascites. Identify the causative agent. (Q854733)

A. Treponema pallidum

B. CMV

C. Parvovirus B19

D. Toxoplasma gondii

Correct Answer: C. Parvovirus B19

Explanation: The clinical presentation described, including anemia, myocarditis, high output cardiac failure, and ascites, in the setting of hydrops fetalis , points to Parvovirus B19 infection. Parvovirus B19 is the causative agent of erythema infectiosum (also known as Fifth disease), and its perinatal transmission can cause serious complications. Erythema Infectiosum (Fifth Disease) Causative Agent Parvovirus B19 Age Group Predominantly 5 to 15 years (70% of cases) Incubation Period 4–28 days Transmission Respiratory droplets; transmission rate 15–30% among close contacts Clinical Features Prodromal Phase: Low-grade fever, headache, mild URTI symptoms Rash: "Slapped-cheek" erythema on face, spreading as a lacy pattern to trunk and extremities {{caption_text}} Management Self-limiting disease Complications Aplastic Crisis: Severe anemia due to erythropoiesis suppression in chronic hemolytic anemia arthropathy: Arthritis/arthralgia, more common in adults Fetal Infection: Nonimmune fetal hydrops, stillbirth risk Other Manifestations: Papular purpural gloves and socks syndrome, myocarditis Childhood Exanthems: The "First to Sixth" Diseases Order Disease Pathogen Clinical Features First Disease Measles Measles virus (Paramyxoviridae) High fever, Koplik spots, maculopapular rash spreading cephalocaudally (head to trunk and limbs). Second Disease Scarlet Fever Streptococcus pyogenes (Group A) Sandpaper-like rash, strawberry tongue, pharyngitis. Third Disease Rubella Rubella virus (Togaviridae) Mild fever, maculopapular rash starting on face, posterior auricular lymphadenopathy. Fourth Disease Duke’s Disease Staphylococcus aureus or unknown Rare; characterized by mild rash and fever. Fifth Disease Erythema Infectiosum Parvovirus B19 "Slapped cheek" rash, lacy erythematous rash on trunk and limbs, mild fever. Sixth Disease Roseola Infantum/ Exanthem subitum Human Herpesvirus 6/7 (HHV-6/HHV-7) High fever followed by maculopapular rash after the fever subsides. Treponema pallidum (Option A): This is the causative agent of syphilis, which can cause congenital syphilis, It presents with early signs like mucocutaneous lesions, snuffles, hepatosplenomegaly, and skeletal abnormalities, or late manifestations like Hutchinson's triad (notched teeth, deafness, interstitial keratitis). CMV (Option B): Cytomegalovirus can cause a variety of congenital infections, but it is more commonly associated with SNHL, microcephaly, and chorioretinitis. Toxoplasma gondii (Option D): This parasite can cause congenital toxoplasmosis with symptoms like hydrocephalus, chorioretinitis, and intracranial calcifications.



References:

O.P Ghai Essential Paediatrics, 10th Edition, Page: 234, 235. Nelson Textbook of Paediatrics, 21st Edition, Page: 1697-1700.

↑ *Back to this question in Part A*

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Q24: Which of the following has the least risk of perinatal transmission? (Q854718)

A. HSV

B. CMV

C. Rubella

D. Hepatitis B

Correct Answer: C. Rubella

Explanation: Rubella (German measles) has the least risk of perinatal transmission among the options provided. Although rubella can cause significant intrauterine transmission, especially in the first trimester of pregnancy, its overall risk of perinatal transmission is lower compared to other infections. Congenital Rubella Syndrome (CRS) Causative Agent Rubella virus Transmission Vertical transmission from mother to fetus during pregnancy; highest risk during the first trimester Risk Period Highest fetal risk occurs when the mother contracts rubella in the first

trimester Classical Triad 1. Sensorineural deafness 2. Cataracts 3. Congenital heart disease (commonly patent ductus arteriosus) Other Clinical Features Salt and pepper retinopathy (speckled retinal appearance) {{caption_text}} Blueberry muffin lesions (bluish-red nodular lesions) {{caption_text}} Microcephaly Micrognathia Developmental delay Thrombocytopenic purpura Jaundice Hepatosplenomegaly Diagnosis Clinical findings and laboratory tests (rubella-specific IgM antibodies, rubella virus RNA detection) Management No specific antiviral treatment; prevention through rubella vaccination (MMR) before pregnancy Complications Developmental delay and cognitive deficits Neurological sequelae (e.g., seizures) Ophthalmic (e.g., cataracts) Cardiac defects (e.g., patent ductus arteriosus) Prevention MMR vaccination prior to pregnancy is crucial to avoid CRS Herpes Simplex Virus (HSV) (Option A) can be transmitted to the newborn in utero, intrapartum, or perinatally. It causes severe complications, such as skin vesicles, eye findings (chorioretinitis, keratoconjunctivitis), and neurological sequelae (microcephaly/hydranencephaly) if acquired early, or skin, eye, mouth disease, encephalitis, or disseminated disease if acquired intrapartum. Cytomegalovirus (CMV) (Option B) is the most common congenital infection with perinatal transmission, and it is associated with a variety of complications including hepatosplenomegaly, petechial rashes, jaundice, chorioretinitis, and microcephaly. Long-term sequelae include sensorineural deafness and developmental delay. Hepatitis B (Option D) has a significant risk of perinatal transmission, especially in cases with high viral load (HBeAg-positive mothers). Neonates infected with hepatitis B can develop chronic infection, which can lead to long-term liver complications.





References:

O.P. Ghai Essential Paediatrics, 10th Edition, Page: 285.

Nelson Textbook of Paediatrics, 21st Edition, Page: 1679, 1680, 1942, 1951.

↑ *Back to this question in Part A*

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Q25: Which of the following is correct about congenital CMV? (Q857391)

A. 40-50% of the cases are symptomatic at birth

B. Optimum sample for PCR is blood/urine/saliva sample within 2-3 weeks of birth

C. If asymptomatic at birth, then there is a 25.7% higher risk of developing SNHL later

D. Most common congenital infection after congenital syphilis

Correct Answer: B. Optimum sample for PCR is blood/urine/saliva sample within 2-3 weeks of birth

Explanation: The correct statement is that the optimal sample for PCR in diagnosing congenital CMV infection is blood, urine, or saliva collected within the first 2-3 weeks of life. Testing after this period cannot reliably

distinguish between congenital and acquired infection. Saliva and urine samples are more sensitive than blood because not all infants with congenital CMV are viremic at birth. Congenital Cytomegalovirus (CMV) Causative Agent Cytomegalovirus (CMV), a member of the herpesvirus family Transmission Vertical transmission from mother to fetus during pregnancy, delivery, or breastfeeding. Incidence CMV is the most common congenital viral infection, affecting approximately 0.5-2% of all live births. (Option D ruled out) Incubation Period 3–12 weeks Risk Period Highest fetal risk occurs when the mother contracts CMV during pregnancy, particularly in the first trimester Classical Triad 1. Sensorineural deafness 2. Microcephaly 3. Chorioretinitis Clinical Features in Neonates Asymptomatic in 80-90% of cases (Option A ruled out) Symptomatic in 10-20% of cases, with signs such as: Hepatosplenomegaly Jaundice Petechial rash, Microcephaly Chorioretinitis Seizures Intracranial periventricular calcifications. Long-Term Sequelae Hearing loss (most common) Developmental delay Visual impairment (e.g., chorioretinitis) Cerebral palsy Seizure disorders Diagnosis Diagnosis is confirmed by detecting CMV DNA using PCR in urine, saliva, or blood collected within the first 2-3 weeks of life. Preferred sample: Urine > saliva > blood IgM antibody detection in fetal blood is less reliable. Management Ganciclovir or valganciclovir may be used in symptomatic infants with progressive neurologic disease or hearing loss. Prognosis Asymptomatic infants generally have a normal long-term outcome Symptomatic infants may have developmental and neurological impairments If asymptomatic at birth, then there is a 25.7% higher risk of developing SNHL later (Option C): About 10–15% of asymptomatic infants may develop sensorineural hearing loss (SNHL) later, not 25.7%.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 1720,1721.

↑ *Back to this question in Part A*

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Q26: A 5-year-old male child was brought to the OPD with complaints of low-grade fever, headache and mild upper respiratory tract symptoms for the last 4 days. On examination, an erythematous rash was found on the cheeks. The parents said the rash developed on the cheeks first and then spread out to involve his trunk and limbs. The causative agent of this disease has a single-stranded DNA. What is the diagnosis? (Q860292)

A. Hand, foot and mouth disease

B. Measles

C. Erythema infectiosum

D. Rubella



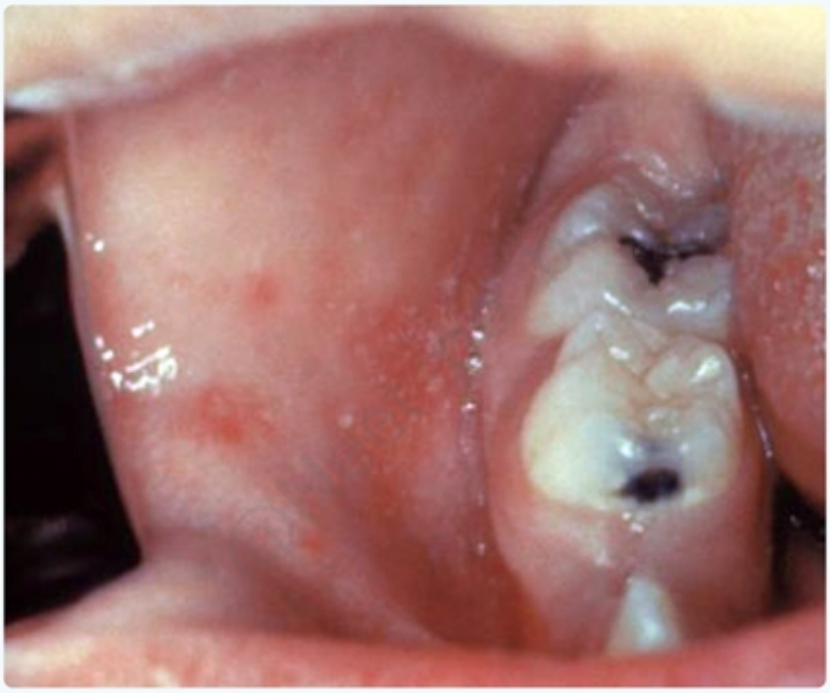
Correct Answer: C. Erythema infectiosum

Explanation: The clinical manifestations indicate Erythema infectiosum (Fifth disease) , caused by Parvovirus B19 , a single-stranded DNA virus (Parvoviridae family) The disease presents with characteristic features, including low-grade fever, headache, and mild upper respiratory symptoms, followed by the distinctive "slapped cheek" appearance of facial erythema that spreads to involve the trunk and extremities in a lacy or reticulated pattern. The progression of symptoms and the age of presentation (5 years) are classic for this self-limiting condition. Erythema Infectiosum (Fifth disease) Causative agent Parvovirus B19 Age group affected 5 to 15 years (70% of cases) Incubation period 4-28 days Transmission Respiratory droplets. Transmission rates among contacts are 15-30%. Clinical features Prodromal phase: Low-grade fever, headache, and mild upper respiratory tract infection symptoms. The characteristic rash in this condition is a "slapped cheek appearance", presenting as erythematous flushing on the face. The erythematous rash spreads to the trunk and proximal extremities as a lacy or reticulated pattern. {{caption_text}} {{caption_text}} Management Self-limiting disease Hand, foot and mouth disease (Option A): This condition is caused by Coxsackievirus A & Enterovirus71, types of ss-RNA virus from Picronaviridae family, and presents with vesicular lesions primarily on hands, feet, and mouth. The pattern and type of rash are different, and the causative agent is not a DNA virus. Measles (Option B): Caused by a single-stranded RNA virus from Paramyxoviridae family, measles presents with high fever, cough, conjunctivitis, and a rash that begins behind the ears and spreads downward. The characteristic lesion Koplik spots (on buccal mucosa) appear on 1 day before onset of rash and persist for 2-3 days. {{caption_text}} Rubella (Option D): caused by an ss-RNA virus from Togaviridae family, it presents with a fine, pink-red maculopapular rash that follows a descending pattern. Characteristic Forchheimer spots are a fleeting enanthem seen as small petechiae on the soft palate in 20% of patients with rubella. However, the virus type and the characteristic "slapped cheek" appearance are not features of rubella. {{caption_text}} Forchheimer spots





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Koplik spots on buccal mucosa on day 3 of rash

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References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1697-1701.

GhaiEssential Paediatrics, 10th edition, Page 234, 235.

↑ *Back to this question in Part A*

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Q27: A 3-year-old boy presents with a rash, bleeding gums, and a positive tourniquet test. His platelet count is 25,000. Which of the following is the most important prognostic feature in this clinical scenario? (Q844244)

A. Low platelet count

B. Elevated total leukocyte count (TLC)

C. Hematocrit

D. Peripheral smear

Correct Answer: C. Hematocrit

Explanation: Correct Option: C) Hematocrit The most important prognostic feature in a child with dengue presenting with rash, bleeding gums, positive tourniquet test, and thrombocytopenia (platelet count 25,000) is Hematocrit. Hematocrit reflects plasma leakage and hemoconcentration in dengue and is a key marker of disease severity and prognosis, indicating the risk of shock and severe complications due to capillary leak syndrome. Incorrect Options: Option A - Low platelet count: While low platelet count (thrombocytopenia) is common in dengue and an important diagnostic clue, platelet count alone is not the best predictor of severity or prognosis, as bleeding risk depends on multiple factors including vascular integrity and platelet function. Option B - Elevated total leukocyte count (TLC) : An elevated total leukocyte count (TLC) is less common in dengue and, when present, often suggests a secondary bacterial infection, thus not a primary prognostic marker.■ Option D - Peripheral smear : Peripheral smear mainly helps rule out other causes like malaria; it is not a direct prognostic indicator in dengue.

↑ *Back to this question in Part A*

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Q28: A 4-year-old unvaccinated child presents with fever, rash, and Bitot spots. What is the appropriate line of management? (Q852709)

A. Measles Vaccine + Vitamin A Supplementation

B. Only Measles Vaccine

C. Only Vitamin A Supplementation

D. Supportive Care

Correct Answer: C. Only Vitamin A Supplementation

Explanation: The child already has measles, so the priority is to address the vitamin A deficiency (as evidenced by Bitot spots) to reduce the risk of complications and support recovery. The measles vaccine is not required at this stage because the child has already been infected and will develop lifelong immunity. Measles Causative agent ssRNA paramyxovirus Incubation period 10 days from exposure to onset of fever and 14 days to the appearance of rash Source of infection Person with measles Infective material Period of communicability 4 days before and 4 days after the appearance of rash Clinical features Prodromal stage : Fever Cough Coryza with sneezing Conjunctivitis with lacrimation Koplik's spots- grayish-white spots on the buccal mucosa (Pathognomonic feature) Eruptive stage : Dusky red macular/maculopapular rash, which starts behind the ears and progresses to the face, neck and then to trunks and limbs. In the absence of complications, the lesions and fever disappear after 3-4 days. Post measles stage: After the eruptive stage, it leads to weight loss, weakness, fatigue, diarrhea. Isolation period 7 days from the onset of rash Difference between measles and rubella rash Both rashes are maculopapular The rash in measles is more confluent and botchy, whereas the rash in rubella is discrete or non-confluent. Diagnosis Clinically diagnosed based on rash and koplik's spots Gold standard: PCR Treatment No specific treatment Symptomatic management only Measles Rash Measles Vaccine + Vitamin A Supplementation (Option A) : The measles vaccine is not needed after measles infection, as the child will have lifelong immunity. The vaccine is for prevention, not for post-infection management. Only Measles Vaccine (Option B) : The vaccine is unnecessary post-infection, and vitamin A supplementation is critical in this case. Supportive Care (Option D) : While supportive care is part of the management, it does not address the important need for vitamin A supplementation in a measles case.



References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC7076287/#:~:text Park’s Textbook of Preventive and Social Medicine, 27th Edition, Page 164-165

↑ *Back to this question in Part A*

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Q29: A baby is born with microcephaly, periventricular calcification and chorioretinitis. Which teratogenic infections is the mother suffering from? (Q852508)

A. Toxoplasma

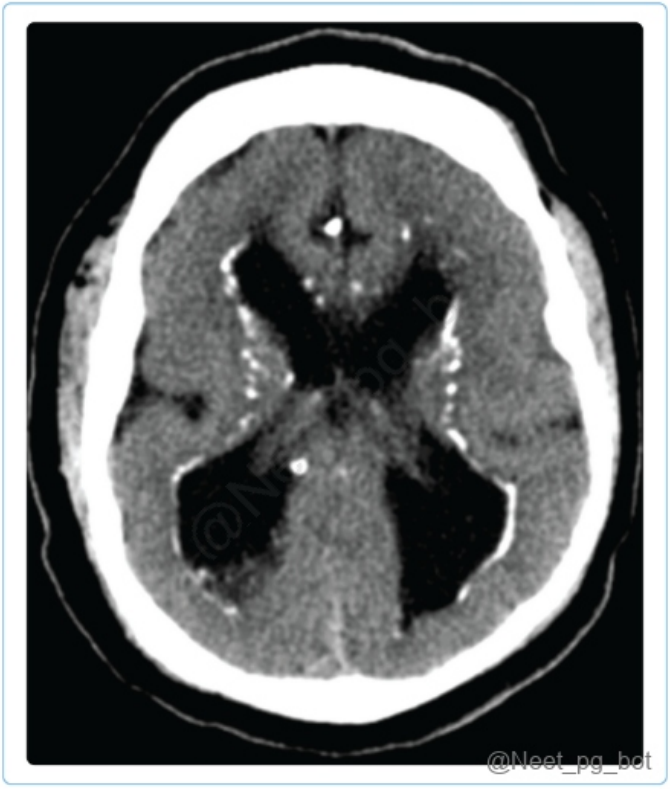
B. CMV

C. Varicella

D. Rubella

Correct Answer: B. CMV

Explanation: The baby presents with the classic triad of congenital CMV infection: Microcephaly Periventricular (intracerebral) calcifications Chorioretinitis These findings result from intrauterine infection by cytomegalovirus , a member of the Herpesviridae family, transmitted transplacentally from the mother to the fetus. Clinical Features of Congenital CMV Infection: Neurological: Microcephaly, seizures, developmental delay, intracranial calcifications (periventricular pattern). Ophthalmic: Chorioretinitis, optic atrophy, blindness. Auditory: Sensorineural hearing loss. Hepatic: Hepatosplenomegaly, jaundice, elevated transaminases. Hematologic: Thrombocytopenia, petechial “blueberry muffin” rash due to extramedullary hematopoiesis. Toxoplasmosis (Option A) : Hydrocephalus, diffuse intracerebral calcifications, chorioretinitis Calcifications are diffuse, not periventricular Varicella (Option C) presents with microcephaly and chorioretinitis. But it is associated with microphthalmia, cataracts, cortical atrophy, seizures, mental retardation, etc. as well. Rubella (Option D) presents with patent ductus arteriosus, bilateral cataracts, and salt & pepper retinopathy, which are classical signs of congenital rubella syndrome



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1550, 1551, 1666, 1874, 1875 Ghai Essential Pediatrics, 10th Edition, Page 284 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4164182

↑ *Back to this question in Part A*

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Q30: An unvaccinated 5-year-old child of a migrant worker family was brought to the casualty with fever and a widespread erythematous maculopapular rash and coryza. Upon ocular examination, Bitot's spot was seen. What is the appropriate immediate management? (Q852501)

A. Oral Antibiotics and Vitamin A

B. Give measles vaccine and vitamin A supplement

C. Isolation, nutritional management with vitamin A supplement

D. Only measles vaccine

Correct Answer: C. Isolation, nutritional management with vitamin A supplement

Explanation: The child has clinical features suggestive of measles (fever, rash) and Bitot's spots (vitamin A deficiency). Measles is highly contagious and requires institutional isolation to prevent spread, especially in unvaccinated populations.■ (Option A ruled out) Measles is transmitted via contact with droplet aerosols (through the respiratory tract or conjunctiva). The erythematous maculopapular rash in measles appears on the 4th day, starting behind the ears, along the hairline, and posterior cheeks, then spreading to the rest of the body over the next 2-3 days. Vitamin A deficiency increases the risk of severe complications from measles. Vitamin A supplementation is recommended for all children with measles as per WHO and IMNCI guidelines.■ Nutritional support is necessary due to malnutrition risk in migrant populations and to assist recovery.■ Treatment of vitamin A deficiency : Age Group Treatment Under 6 months 50,000 IU once daily on D1, D2, and 4 weeks later 6 to 12 months 100,000 IU once daily on D1, D2, and 4 weeks later Over 1 year 200,000 IU once daily on D1, D2, and 4 weeks later Giving a measles vaccine and vitamin A supplement (Option B) or only a measles vaccine (Option D) is not appropriate since the child is already suffering from measles.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 364, 1670-1675 O.P. Ghai Essential Pediatrics, 10th Edition, Page 101, 102, 230, 231, 232 WHO Treatment for Vit A Deficiency RETINOL = VITAMIN A oral | MSF Medical Guideline

↑ *Back to this question in Part A*

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Q31: A neonate on examination has bilateral cataracts and, after investigations, is found to have a patent ductus arteriosus and salt & paper retinopathy. What is the most likely congenital infection? (Q852487)

A. Rubella

B. CMV

C. Toxoplasma

D. Varicella

Correct Answer: A. Rubella

Explanation: The patent ductus arteriosus, bilateral cataracts, and salt & pepper retinopathy are classical signs of congenital rubella syndrome. Congenital Rubella Rubella (German measles) is a mild disease in infants and children but can cause congenital rubella syndrome (CRS) if contracted during pregnancy. The risk is highest in the first trimester, especially within the first 8 weeks. Pathogenesis Viremia is most intense from 10 to 17 days after infection. Viral shedding is from day 10 of infection up to 2 weeks. Risk of Defects by Gestational Age Highest in the first 12 weeks of gestation and decreases significantly thereafter, with defects being rare after 20 weeks. Clinical features of congenital rubella syndrome Hearing loss (most common) Vision problems (cataracts , glaucoma, salt and pepper retinopathy). Cataracts are the most common ocular abnormality associated with congenital rubella. Heart defects (patent ductus arteriosus > pulmonary artery stenosis (right > left) > ventricular

septal defect) Low birth weight Neurological issues (microcephaly, intellectual disabilities, encephalitis, behavioural issues) Chronicity and Complications Chronic presence of the virus can cause ongoing damage The risk of progressive rubella panencephalitis (PRP) years later is a rare complication. Less common complications: Growth retardation, hepatitis, bone lesions. Risk of diabetes and thyroid dysfunction Diagnosis Rubella IgM enzyme immunosorbent assay (detects antibodies) Viral isolation (growing the virus from samples) Polymerase chain reaction (PCR) (detects viral RNA) Management No specific treatment for CRS; supportive care is key Early intervention for complications (e.g., hearing loss) is crucial Prevention Standard with droplet precaution in hospitalized cases Rubella vaccination RA 27/3 live attenuated vaccine (MMR or MMRV with varicella) effectively prevents rubella and CRS MMR vaccine has a 95% efficacy after one dose and 99% after two doses Vaccination side effects: fever, rash, joint pain Considerations for Pregnant Women Immunoglobulin may be considered if pregnancy is not terminated, though it does not guarantee prevention of fetal infection Congenital CMV infection (Option B) is usually asymptomatic at birth. If symptomatic, these neonates present with jaundice, petechiae, hepatosplenomegaly, microcephaly, and chorioretinitis. Congenital toxoplasmosis (Option C) caused by Toxoplasma gondii often presents with the classic triad of intracranial calcifications, hydrocephalus, and chorioretinitis Congenital varicella (Option D) presents with cicatricial zigzag skin scarring in a dermatomal pattern, limb hypoplasia, microcephaly, seizures, mental retardation, chorioretinitis, microphthalmia, cataracts, etc.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1676-1680 https://www.ncbi.nlm.nih.gov/books/NBK570627/ https://www.ncbi.nlm.nih.gov/books/NBK576396/ https://www.ncbi.nlm.nih.gov/books/NBK551502

↑ *Back to this question in Part A*

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• [11_Pediatric Respiratory Disorders] 027 Respiratory Disorders In Children - I

« Back to Folder Directory

[11_Pediatric Respiratory Disorders] 027 Respiratory Disorders In Children - I — Quick Jump

Q1 (p. 1105)	*Q2 (p. 1106)*	*Q3 (p. 1107)*	*Q4 (p. 1108)*	*Q5 (p. 1109)*	*Q6 (p. 1112)*
Q7 (p. 1113)	*Q8 (p. 1114)*	*Q9 (p. 1115)*	*Q10 (p. 1117)*	*Q11 (p. 1120)*	*Q12 (p. 1121)*
Q13 (p. 1122)	*Q14 (p. 1123)*	*Q15 (p. 1124)*	*Q16 (p. 1126)*	*Q17 (p. 1128)*	*Q18 (p. 1128)*
Q19 (p. 1129)	*Q20 (p. 1132)*	*Q21 (p. 1133)*	*Q22 (p. 1134)*	*Q23 (p. 1135)*	*Q24 (p. 1136)*
Q25 (p. 1138)	*Q26 (p. 1141)*	*Q27 (p. 1143)*			

Q1: A female infant is born prematurely at 28 weeks gestation. Shortly after birth, she shows signs of Dyspnea, cyanosis, and tachypnea. She is placed on a ventilator for assisted breathing, and neonatal respiratory distress syndrome (hyaline membrane disease) is diagnosed. Which of the following is the cause of this syndrome? (Q882109)

A. Pulmonary hypoplasia

B. Intraventricular brain haemorrhage

C. Lack of fetal pulmonary maturity and deficiency of surfactant

D. Necrotizing enterocolitis

Correct Answer: C. Lack of fetal pulmonary maturity and deficiency of surfactant

Explanation: Option C: Lack of fetal pulmonary maturity and deficiency of surfactant Neonatal respiratory distress syndrome (hyaline membrane disease) is the most common cause of respiratory failure in newborns and results from a deficiency of surfactant. Immature development of the lungs occurs in deficiency of surfactant Predisposing factors include Prematurity, Maternal diabetes mellitus, and Birth by cesarean section. Treatment includes supplemental oxygen. Complications of giving supplementary oxygen are retinopathy of prematurity, interventricular haemorrhage and bronchopulmonary dysplasia. Option A: Pulmonary hypoplasia Pulmonary hyperplasia is a poorly developed bronchial tree. It is strongly associated with a congenital diaphragmatic hernia at the left side, bilateral renal Genesis (potter sequence) . Option B: Intraventricular brain haemorrhage Neonatal interventricular haemorrhage is bleeding into ventricles. Cranial ultrasound shows blood in the right ventricular blood extending into Peri ventricular white matter. Risk factors are prematurity and low birth weight. Bleeding originates in the germinal Matrix, a highly vascularized structure within the subventricular zone . Option D: Necrotizing enterocolitis Necrotizing enterocolitis is seen in premature formula infants with immature immune system. The most common sites are the terminal ileum proximal colon . The common manifestations are pneumatosis intestinalis, pneumoperitoneum, and Venous portal gas.

References:

Robbins 10th ed/p 458 https://emedicine.medscape.com/article/976034-overview

↑ *Back to this question in Part A*

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Q2: A 2-year-old child is brought to the clinic with a history of chronic productive cough, recurrent respiratory infections, and poor weight gain despite an adequate diet. Additionally, the parents report that the child's sweat is very salty. Which of the following sets of clinical features would most likely indicate the diagnosis? (Q850211)

A. Bronchial asthma, nasal polyps, and aspirin intolerance

B. Chronic sinusitis, meconium ileus in infancy, and rectal prolapse

C. Bronchiectasis, thrombocytopenia, and abdominal pain

D. Frequent diarrhea, poor weight gain, and recurrent otitis media

Correct Answer: B. Chronic sinusitis, meconium ileus in infancy, and rectal prolapse

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The history of: Chronic productive cough + recurrent respiratory infections Failure to thrive despite adequate diet Salty sweat Classic triad suggesting Cystic Fibrosis (CF) Clinical Features of Cystic Fibrosis System Clinical Features Respiratory Chronic productive cough Recurrent respiratory infections Nasal polyps Bronchiectasis Chronic sinusitis (due to persistent inflammation and obstruction in the sinuses) Gastrointestinal Greasy stools (steatorrhea) Failure to thrive Rectal prolapse (due to increased intra-abdominal pressure from chronic coughing) Malabsorption Meconium ileus in newborns (first sign of cystic fibrosis, caused by thick, sticky meconium obstructing the intestines) Genitourinary Infertility in males (due to congenital absence of vas deferens), delayed puberty Others Digital clubbing, salt loss syndromes (hypochloremic metabolic alkalosis) Bronchial asthma, nasal polyps, and aspirin intolerance (Option A): This triad is characteristic of Aspirin-Exacerbated Respiratory Disease (AERD) or Samter's Triad , not CF Bronchiectasis, thrombocytopenia, and abdominal pain (Option C): Thrombocytopenia is not commonly associated with CF, and abdominal pain alone is too nonspecific to indicate CF. Frequent diarrhea, poor weight gain, and recurrent otitis media (Option D): These are generalized symptoms of poor health and poor nutrition and could be seen in many conditions (e.g., Celiac disease, primary immunodeficiencies) but lack the specific CF features like meconium ileus or salty sweat.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2282

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5951071/

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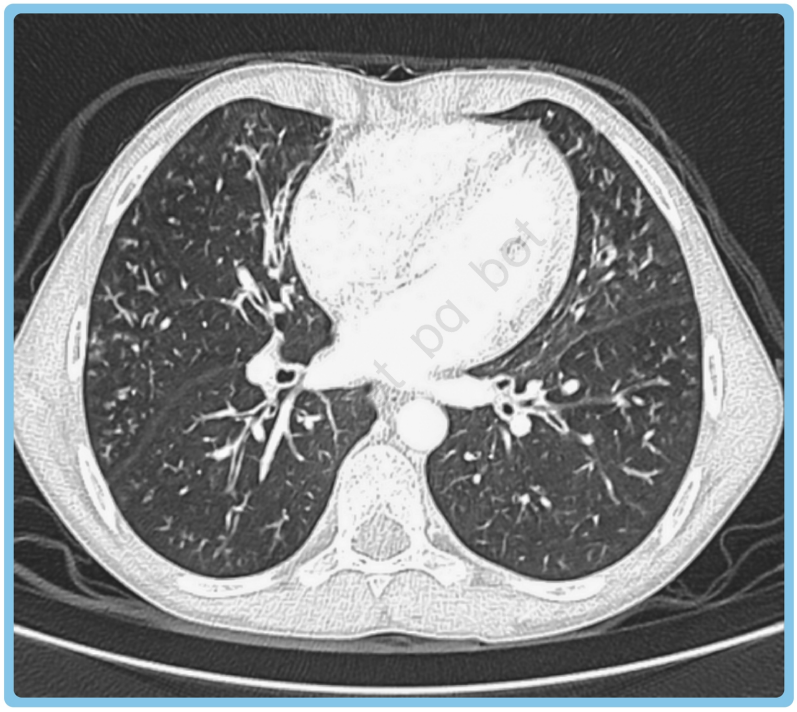
Q3: A 7-year-old child presents with a chronic productive cough, recurrent respiratory infections, and poor weight gain. A high-resolution computed tomography (HRCT) scan of the chest is taken and shown below. What is the most likely diagnosis? (Q850223)

A. Bronchial asthma

B. Bronchiectasis

C. Pneumonia

D. Chronic bronchitis



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Correct Answer: B. Bronchiectasis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The HRCT shows cylindrical bronchiectasis with a "tram line" appearance, and the symptoms of chronic cough, copious purulent sputum, and recurrent infections are consistent with diagnosis of bronchiectasis. Bronchiectasis Chronic suppurative disease characterized by destruction of the bronchial and peribronchial tissues, dilatation of the bronchi and accumulation of infected material in the dependent bronchi. Predisposing Conditions Proximal Airway Narrowing Airway Injury Altered Pulmonary Host Defenses: Cystic fibrosis Ciliary dyskinesia Altered Immune States Other: Allergic bronchopulmonary aspergillosis Plastic bronchitis Right middle lobe syndrome Pathogenesis Three basic mechanisms involved: Obstruction: Due to tumors, foreign bodies, impacted mucus, external compression, bronchial webs, or atresia. Infection: Induce chronic inflammation, progressive bronchial wall damage and dilation. Chronic Inflammation Progression Early Stages: Leads to bronchial dilation. Later Stages: Results in pulmonary hypertension. Pathologic Forms Cylindrical: Regular bronchial outlines with diffuse dilation and mucous plugging. Varicose: Greater dilation with irregular bronchial outlines and local constriction cause irregularity of outline resembling varicose veins. Saccular (Cystic): Severe dilation with ballooning of bronchi, ending in fluid or mucus-filled sacs. Symptoms Cough Copious, purulent sputum Hemoptysis occasionally Fever Anorexia Poor Weight Gain Irritability Recurrent infections Physical Examination Crackles: Localized to the affected area Wheezing Digital Clubbing Investigation Chest X-ray: Increased size and loss of definition of bronchovascular markings, crowded bronchi, loss of lung volume. High-Resolution Computed Tomography (HRCT): Gold Standard Cylindrical: Tram lines, signet ring appearance. Varicose: Beaded contour of bronchi. Cystic: Cysts in strings and clusters appearance. Sputum Culture and Sensitivity Tuberculin Skin Test: Used to exclude tuberculosis. Pilocarpine iontophoresis: Measures sweat chloride levels to diagnose cystic fibrosis in suspected cases. Treatment Airway Clearance Techniques Antibiotics: 2-4 weeks of parenteral antibiotics for acute exacerbations Effective Antibiotics: Amoxicillin/clavulanic acid (22.5 mg/kg/dose twice daily) is commonly used Bronchodilators Treat underlying disorders Surgical Options: Resection: Segmental or lobar resection for severe or resistant cases Lung Transplantation: Considered for advanced cases. Bronchial asthma (Option A) primarily presents with reversible airway obstruction and may show hyperinflation on HRCT Pneumonia (Option C) generally presents with consolidation or infiltrates on imaging Chronic bronchitis (Option D) is unlikely in children because it primarily affects adults and is linked to smoking or pollution

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2221,2278, 2279

Ghai Essential Pediatrics, 10th Edition, Pages 416, 417

↑ *Back to this question in Part A*

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Q4: A 4-year-old child presents with multiple episodes of pneumonia over the past year. The pediatrician is concerned about the possibility of an underlying disorder contributing to these recurrent infections. Which of the following best describes the criteria for diagnosing recurrent pneumonia in children? (Q850222)

A. Two or more episodes in six months, with radiographic clearing.

B. Three or more episodes in a year, regardless of radiographic findings.

C. Two or more episodes in a year, with radiographic clearing.

D. Three or more episodes in six months, with or without radiographic clearing.

Correct Answer: C. Two or more episodes in a year, with radiographic clearing.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Recurrent Pneumonia Defined as two or more episodes in a single year or three or more episodes ever, with radiographic clearing between occurrences. (Option C) (Option A, B, and D ruled out) Persistent Pneumonia Defined as the persistence of symptoms and radiographic abnormalities for more than one month, despite appropriate antibiotic treatment Potential Underlying Disorders Hereditary Disorders Cystic fibrosis Sickle cell disease Disorders of Immunity HIV/AIDS Bruton agammaglobulinemia Common variable immunodeficiency syndrome Severe combined immunodeficiency syndrome Chronic granulomatous disease Hyper immunoglobulin E syndromes Leukocyte adhesion defect Disorders of Cilia Primary ciliary dyskinesia Kartagener syndrome Anatomic Disorders Pulmonary sequestration Lobar emphysema Congenital cystic adenomatoid malformation Gastroesophageal reflux Foreign body Tracheoesophageal fistula (H type) Bronchiectasis Aspiration (oropharyngeal incoordination) Aberrant bronchus

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2268, 2269

https://www.ijirm.org/journal-article-file/3490

↑ *Back to this question in Part A*

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Q5: Which of the following radiological findings is most characteristic of Staphylococcal pneumonia in children? (Q850221)

A. Interstitial pneumonia

B. Perihilar and peribronchial infiltrates

C. Pneumatoceles

D. Hazy or fluffy exudates radiating from the hilar region

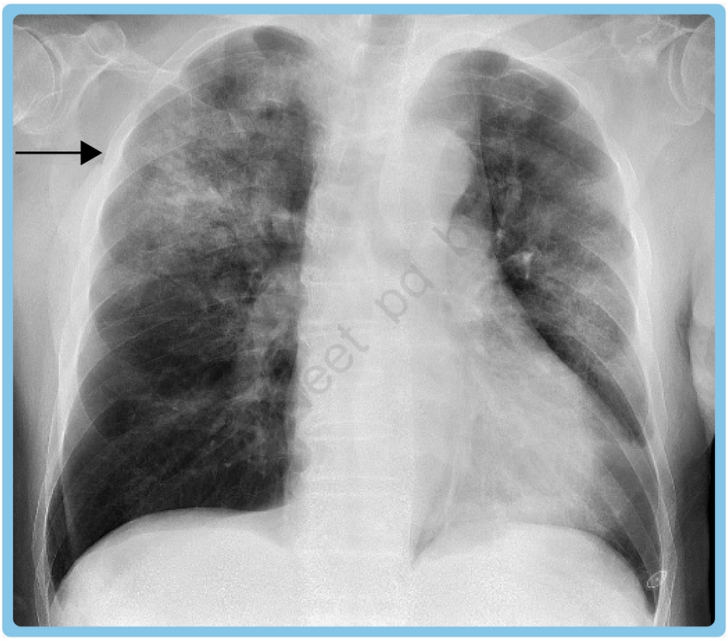
Correct Answer: C. Pneumatoceles

■ *Listen (English)*

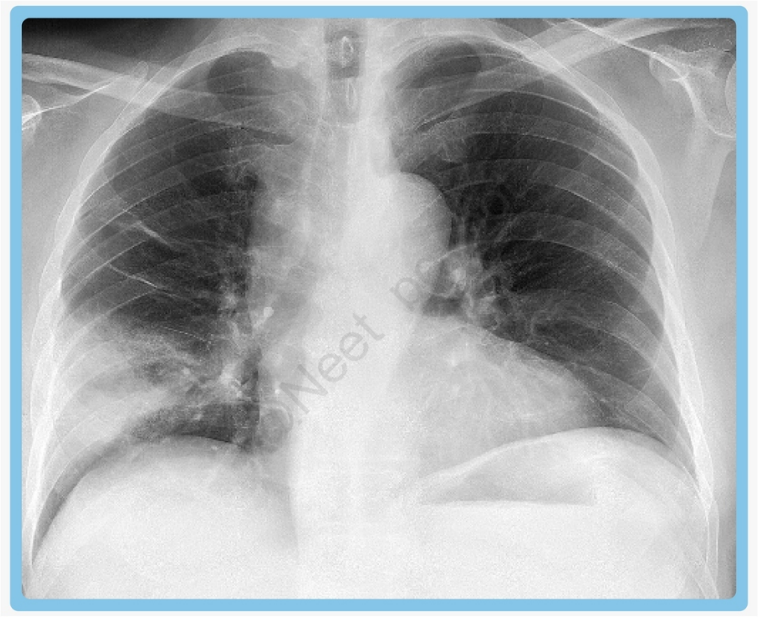
■ *Listen (Hindi)*

Explanation: Pneumatoceles are commonly seen in Staphylococcal pneumonia, resulting from the formation of air-filled cavities within the lung due to the destruction of bronchoalveolar tissue and subsequent abscess

formation. Type of Pneumonia X-ray Findings Staphylococcal Pneumonia Confluent bronchopneumonia, often unilateral (affecting one lung). Multiple microabscesses leading to pneumatoceles (Option C) Possible lung abscesses. ■■■■■■■ Streptococcal Pneumonia Confluent lobar consolidation S.pneumoniae produces local edema that aids in the spread of organisms, often resulting in the characteristic focal lobar involvement. ■■■■■■■ Primary Atypical Pneumonia Bilateral interstitial infiltrates with bronchial wall thickening Poorly defined hazy or fluffy exudates radiating from the hilar regions. Possible enlarged hilar lymph nodes and pleural effusion. Viral Pneumonia Bilateral interstitial infiltrates Hyperinflation of lungs Peribronchial cuffing (thickening of the airway walls). ■■■■■■■ Type of Pneumonia Etiology Clinical Features Treatment Staphylococcal Pneumonia Staphylococcus (Primary/Secondary to septicemia) Predisposing factors: malnutrition, diabetes, macrophage dysfunction. Can complicate measles, influenza, cystic fibrosis, or follow staphylococcal pyoderma. Hospitalization IV fluids for hydration Oxygen for dyspnea/cyanosis Antibiotics: Penicillin G, Co-amoxiclav, Cloxacillin, or Ceftriaxone. Alternative: Vancomycin, Teicoplanin, Linezolid Drainage for empyema/pyopneumothorax Streptococcal Pneumonia Group A beta-hemolytic streptococci May follow measles, varicella, influenza, or pertussis. Interstitial pneumonia, often hemorrhagic. Abrupt onset with fever, chills, cough, dyspnea, rapid respiration, and blood-streaked sputum. Outpatient Treatment (Mild Cases): High-dose amoxicillin (90 mg/kg/day divided twice daily) Alternative options include cefuroxime or amoxicillin/clavulanate. Inpatient Treatment: Ampicillin or penicillin G Ceftriaxone or cefotaxime in cases with penicillin resistance Primary Atypical Pneumonia Mycoplasma pneumoniae, Chlamydia, Legionella spp. Common in winter epidemics among children in overcrowded living conditions. Rare under 4 years old. Incubation: 12-14 days. Macrolide antibiotics (Erythromycin, Azithromycin, Clarithromycin) Tetracycline for 7-10 days. Viral Pneumonia Respiratory syncytial virus (RSV), Parainfluenza, Influenza, Adenovirus RSV is common under 6 months old. Extensive interstitial pneumonia. Supportive care.



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References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2268-2271

Ghai Essential Pediatrics, 10th Edition, Page 378-379

↑ *Back to this question in Part A*

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Q6: A 3-year-old child is brought to the clinic with a cough and difficulty breathing. The mother reports that the child has been lethargic and unable to drink or breastfeed. On examination, you find that the child's oxygen saturation is 88%, and there is stridor when the child is calm. The AVPU scale indicates a response to painful stimuli only. Based on the signs observed, how should this child's condition be classified? (Q850220)

A. Pneumonia

B. No Pneumonia: Cough or Cold

C. Severe Pneumonia or Very Severe Disease

D. Mild Respiratory Infection

Correct Answer: C. Severe Pneumonia or Very Severe Disease

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Assessment and Classification of the Sick Child (Age 2 Months Up to 5 Years) Initial Assessment: A thorough history from the mother is essential Check for General Danger Signs: Ask Look Action Able to drink or breastfeed? Does the child vomit everything? H/O convulsions during this illness? Lethargic or unconscious? Currently convulsing? If any danger signs are present, the child needs URGENT attention. Look for chest in-drawing Look and listen for stridor, wheeze Check for central cyanosis Check oxygen saturation Check the AVPU scale (Alert, Voice, Pain, Unresponsive) Assess for possible asthma/TB if wheezing with chest in-drawing or fast breathing is present. Classify the cough: Classification Signs Treatment Severe Pneumonia or Very Severe Disease Any general danger sign OR Oxygen saturation <90% Stridor in a calm child Central cyanosis Convulsions AVPU = V, P, or U Start oxygen therapy if saturation < 90%. Administer Benzyl Penicillin & Gentamicin. Give diazepam if convulsing. Prevent low blood sugar. Treat wheeze if present. Urgent referral or admission. Pneumonia (Option A) Chest indrawing in calm child OR Fast breathing AND No signs of severe pneumonia Administer Amoxicillin Dispersible Tablet. Give Vitamin A. Treat wheeze if present. Follow up in 5 days Advise on immediate return signs. No Pneumonia: Cough or Cold (Option B) No signs of pneumonia or very severe disease Treat wheeze if present - salbutamol for 5 days Advise on immediate return signs. Mild Respiratory Infection (Option D): Mild respiratory infections do not cause hypoxemia, altered consciousness, or stridor at rest. The presence of low oxygen saturation and poor responsiveness imply a far more serious condition.

References:

https://platform.who.int/docs/default-source/mca-documents/policy-documents/operational-guidance/KEN-CH-20-01-OPERATIONALGUIDANCE-2017-eng-IMNCI-Guidelines-Healthcare-Providers.pdf

Nelson Textbook of Pediatrics, 21st Edition, Page 2268

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↑ *Back to this question in Part A*

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Q7: A 6-month-old infant presents with a 4-day history of cough, wheezing, and difficulty breathing. On examination, the infant has a respiratory rate of 65/min and an oxygen saturation of 90% on room air. A chest X-ray shows hyperinflation but no focal infiltrates. What is the most appropriate management? (Q850219)

A. Start oral corticosteroids and bronchodilators

B. Administer antibiotics and nebulized hypertonic saline

C. Provide moist oxygen and ensure proper hydration

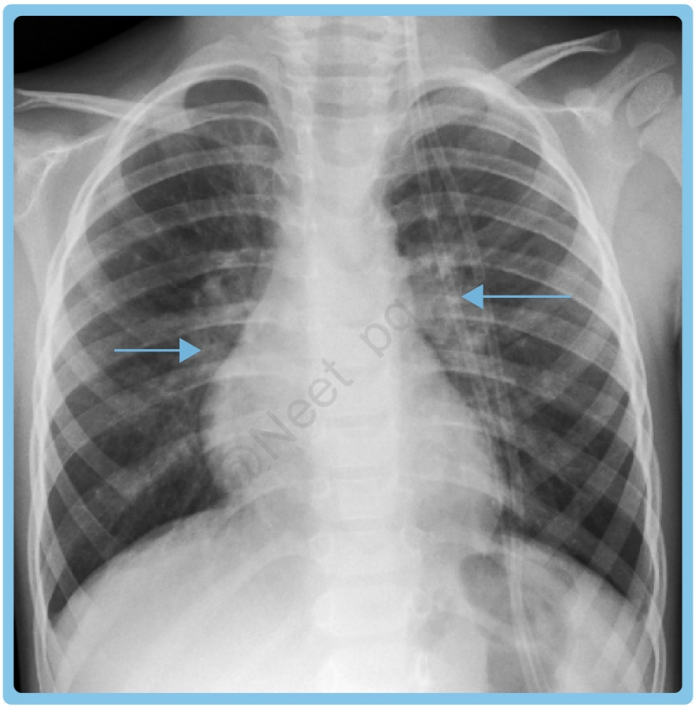
D. Initiate ribavirin therapy in all infants with bronchiolitis

Correct Answer: C. Provide moist oxygen and ensure proper hydration

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario is diagnostic of acute bronchiolitis Supportive care with moist oxygen and hydration is the mainstay of treatment of bronchiolitis Investigation X-ray chest: Hyperinflation, minimal infiltrates, lowered diaphragm, and lung fields appear abnormally translucent. ■■■■■■■ Rapid RSV test: Using monoclonal antibodies against respiratory syncytial virus (RSV) on nasopharyngeal aspirate. Leukocyte count: Normal or slightly elevated. Course and Prognosis Self-limiting. Resolves in 3-7 days. Mortality in severe cases is around 1%. Treatment General: Symptomatic, the child should be nursed in a humidified atmosphere in a sitting position. Home Care: For mild cases. Hospital Care: Moist oxygen inhalation (mainstay of treatment) Fluid and electrolyte balance (Option C) Very sick infants: 60% oxygen given through a hood. Pulse oximetry is performed regularly to maintain oxygen saturation >92%. Medications: Antibiotics have no role (Option B) Ribavirin: Shortens the course of illness in high-risk infants with underlying congenital heart disease, chronic lung disease, and immunodeficiency (Option D) Bronchodilators and steroids are generally not useful. (Option A) Inhaled hypertonic saline is useful (Option B) Severe Cases: May need CPAP (continuous positive airway pressure), mechanical ventilation, or ECMO (extracorporeal membrane oxygenation). Prevention Hand Hygiene: Effective for preventing virus transmission. Palivizumab (IM): Monoclonal antibody to RSV F protein (Protects only against RSV); Prophylactically given to reduce hospitalization risk in high-risk infants.



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References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2219

Ghai Essential Pediatrics, 10th Edition, Page 407

↑ *Back to this question in Part A*

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Q8: A 3-month-old infant is brought with a 2-day history of cough, wheezing, and poor feeding after an upper respiratory tract infection 1 week ago. On examination, the infant has intercostal retractions, hyperinflated chest, diffuse crackles, and a respiratory rate of 56/min. Oxygen saturation is 95% on room air. What is the most likely diagnosis? (Q850218)

A. Bronchial asthma

B. Bacterial pneumonia

C. Acute Bronchiolitis

D. Foreign body aspiration

Correct Answer: C. Acute Bronchiolitis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The give scenario points towards a diagnosis of acute Bronchiolitis. Bronchiolitis Age Group Infants between 1 and 6 months, but can affect children up to 2 years old. Seasonality Occurs primarily in winter and spring. Causative Agent Respiratory syncytial virus (RSV) (Most common) Others include: Parainfluenza virus Adenovirus Influenza virus Rarely Mycoplasma pneumoniae. Risk factors M/c in male infants. Infants exposed to tobacco smoke, not breastfed, or living in crowded conditions. Maternal smoking Older family members/siblings (common source of infection) Protection IgG3 antibodies (short half-life, limited placental transfer) Breastfeeding provides IgA antibodies. Pathophysiology Bronchiolar obstruction with edema, mucus and cellular debris. Increased airway resistance during both inspiration and exhalation. Leads to expiratory wheezing, air trapping, lung hyperinflation and possible atelectasis. Hypoxemia due to ventilation-perfusion mismatch. With severe obstructive disease hypercapnia develops. Clinical Manifestations First develop upper respiratory symptoms: Sneezing and clear rhinorrhea. Fever (±) Diminished appetite Persistent Cough Dyspnea Irritability Respiratory distress Cyanosis. Physical Examination Prolonged expiratory time Wheezing Increased work of breathing with nasal flaring and retractions Accessory muscles of respiration are working Auscultation: Fine crepitations and rhonchi Faint or inaudible breath sounds in severe disease Bronchial asthma (Option A) is unlikely because it is uncommon in infants under one year, often has a family history, usually involves multiple episodes, may occur without preceding respiratory infection and responds well to bronchodilators. Bacterial pneumonia (Option B) often presents with fever and localized lung findings. The diffuse crackles and wheezing here are more characteristic of bronchiolitis. Foreign body aspiration (Option D) is unlikely because there is no history of aspiration of foreign body. It typically presents with localized wheezing and signs of collapse or localized obstructive emphysema.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2217, 2219

Ghai Essential Pediatrics, 10th Edition, Page 406

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↑ *Back to this question in Part A*

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Q9: A 3-year-old child presents with a 3-day history of a barking cough, hoarseness, and low-grade fever. The child has intermittent stridor, particularly at night, and exhibits mild respiratory distress. An X-ray PA view of the neck shows subglottic narrowing. What is the most likely diagnosis? (Q850217)

A. Epiglottitis

B. Bacterial tracheitis

C. Croup

D. Retropharyngeal abscess



Correct Answer: C. Croup

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario and the X-ray showing the steeple sign are diagnostic of croup Laryngotracheobronchitis (Croup): Refers to viral infection of the glottic and subglottic regions. Causative Agent Parainfluenza viruses (types 1,2, and 3) cause about 75% cases. Other Viruses: Influenza A and B, Adenovirus, Respiratory syncytial virus, Measles. Age Group Most common in children aged 3 months to 5 years. Peak incidence occurs in the 2nd year of life. Initial Symptoms These symptoms last 1-3 days before the development of upper airway obstruction signs and symptoms. Upper Respiratory Tract Infection Rhinorrhea, Pharyngitis, Mild cough, Low-grade fever. Progressive Symptoms Barking cough, Hoarseness, Inspiratory stridor, Fever may reach 39-40°C (102.2-104°F) or be absent. Child prefers to sit up in bed or be held upright. Symptoms worsen at night, recur over days and resolve within a week. Physical Examination Findings Hoarse voice, Coryza, Normal to moderately inflamed pharynx. Slightly increased respiratory rate. Hypoxia and low oxygen saturation are seen only in complete airway obstruction. Diagnosis Clinical diagnosis X-ray PA view of neck: Steeple sign, which is characteristic of subglottic narrowing Treatment Mainstay of Treatment: Focus on airway management and hypoxia treatment. Mild croup: Single dose dexamethasone. Moderate to severe croup: Nebulized epinephrine in addition to dexamethasone. Nebulized Racemic Epinephrine: Used for moderate to severe stridor at rest, possible need for intubation, respiratory distress and hypoxia. Corticosteroids: Decrease edema in laryngeal mucosa Oral

steroids beneficial in mild croup Dexamethasone 0.6 mg/kg single dose; as low as 0.15 mg/kg may be effective. Antibiotics are not indicated. Epiglottitis (Option A) presents with an acute onset of severe sore throat, drooling, difficulty breathing, and may show a thumb sign on X-ray. Bacterial tracheitis (Option B) is marked by a brassy cough, biphasic stridor, and an irregular tracheal wall on X-ray. Retropharyngeal abscess (Option C) results from a suppurative complication of bacterial pharyngitis or dental infection.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2202-2205

Ghai Essential Pediatrics, 10th Edition, Pages 391, 392

https://www.ncbi.nlm.nih.gov/books/NBK441873/

https://www.ncbi.nlm.nih.gov/books/NBK431070/

↑ *Back to this question in Part A*

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Q10: A 5-year-old child presents with sudden high fever, severe sore throat, drooling, and labored breathing. The child assumes a tripod position and shows cyanosis. A lateral neck X-ray is performed. Which of the following X-ray findings is most consistent with this clinical presentation? (Q850216)

A. Steeple sign

B. Thumb sign

C. Coiled spring sign

D. Double bubble sign

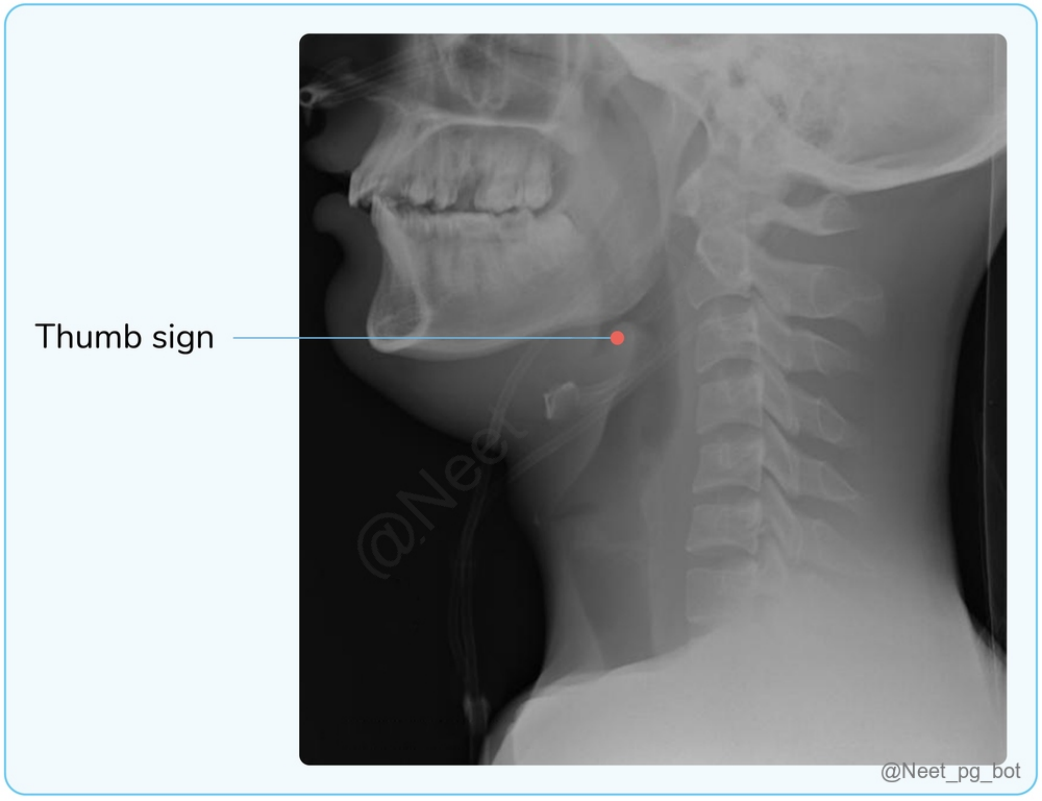
Correct Answer: B. Thumb sign

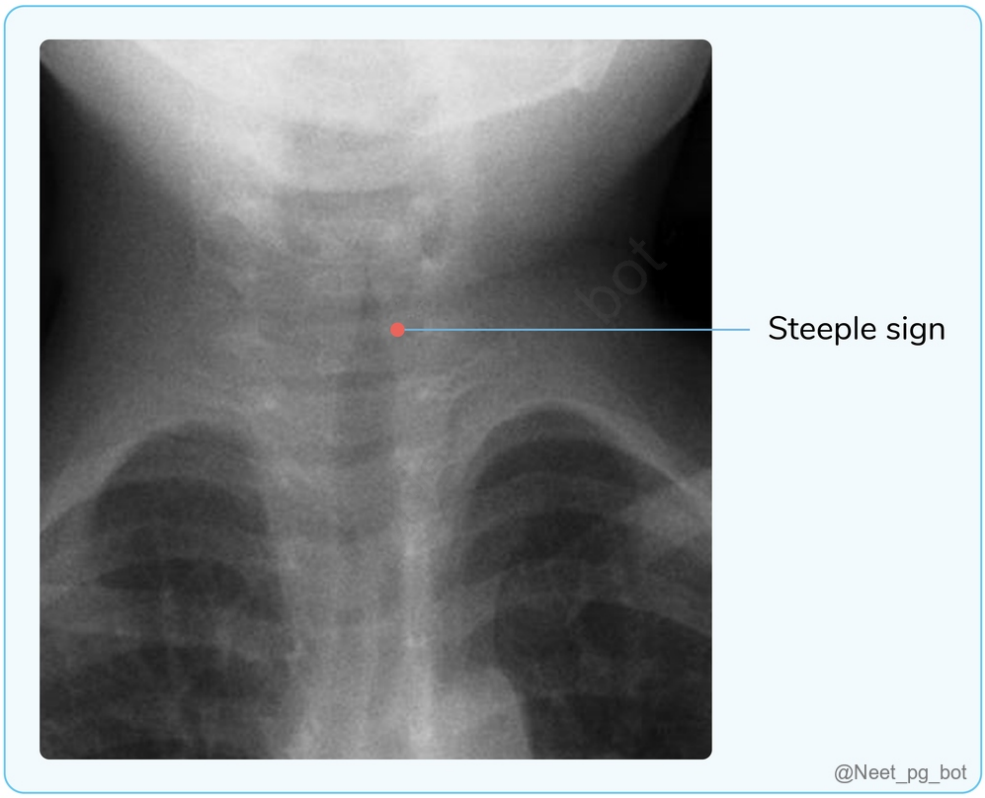
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Sudden high fever, severe sore throat, drooling with tripod position and labored breathing with cyanosis are classic presentations of Acute Epiglottitis. In a lateral X-ray, a swollen, edematous epiglottis appears like a thumb projecting posteriorly, giving rise to the "Thumb sign" Acute Epiglottitis Life-threatening infection that causes profound swelling of the upper airways, which can lead to asphyxia and respiratory arrest. Causative Agent Past Era (Pre-vaccine): Haemophilus influenzae type b (Hib) Post-vaccine Era: Streptococcus pneumoniae (M/c), Streptococcus pyogenes, non-typeable H. influenzae, and Staphylococcus aureus Hib cases have decreased by 99% due to widespread vaccination. Clinical Features High fever, Sore throat, Dyspnea, Respiratory obstruction, Respiratory distress, Child appears toxic, Difficulty swallowing, Labored breathing, Drooling, Neck hyperextension to maintain airway, Tripod position (sitting upright, leaning forward) Stridor is a late sign

indicating near-complete airway obstruction. Cyanosis, Coma. Diagnosis Laryngoscopy: Large, cherry-red, swollen epiglottis Lateral neck X-ray: Thumb sign Treatment Immediate Treatment: Secure the airway with endotracheal or nasotracheal intubation or, less often, with tracheostomy. Intubation is generally for 2-3 days. Intubation decreases mortality from 6% to <1% in epiglottitis cases. Culture Collection: Blood, epiglottic surface and CSF in certain cases after the airway is stabilized. Antibiotics: Ceftriaxone, cefepime or meropenem given parenterally for 10 days. Recovery Symptoms improve with a few days of antibiotics, and the patient may be extubated. Steeple sign (Option A) indicates acute laryngotracheobronchitis (croup) Coiled spring sign (Option C) is a finding in Intussusception seen during a contrast enema, where the contrast outlines the invaginated bowel. Double bubble sign (Option D) indicates duodenal atresia







References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2203-2205

Ghai Essential Pediatrics, 10th Edition, Pages 391

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↑ *Back to this question in Part A*

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Q11: A 10-year-old boy presents with a sore throat, fever, headache, tonsillar exudates, and tender anterior cervical lymph nodes. A classmate was recently diagnosed with streptococcus pharyngitis. What is the best initial management? (Q850215)

A. Symptomatic treatment with antipyretics

B. Throat swab and start penicillin if positive

C. Start oral penicillin immediately

D. Treat with erythromycin

Correct Answer: C. Start oral penicillin immediately

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario points towards a diagnosis of acute pharyngitis Aspect Bacterial pharyngitis Viral pharyngitis Causative Agents Streptococcus pyogenes (Most common), Arcanobacterium haemolyticum, Fusobacterium necrophorum, Corynebacterium diphtheriae, Neisseria gonorrhoeae, Group C and G streptococci, Francisella tularensis, Chlamydophila pneumoniae, Chlamydia trachomatis, Mycoplasma pneumoniae. Adenovirus, Coronavirus, Cytomegalovirus, Epstein-Barr virus, Enteroviruses, Herpes simplex virus, Human metapneumovirus, Influenza viruses, Measles virus, Parainfluenza viruses, Respiratory syncytial virus, Rhinoviruses. Features Sudden onset of sore throat Age 5-15 yr Fever Headache Nausea, vomiting, abdominal pain Tonsillopharyngeal inflammation Patchy tonsillopharyngeal exudates Palatal petechiae Anterior cervical adenitis (tender nodes) Winter and early spring presentation History of exposure to strep pharyngitis Scarlatiniform rash. Conjunctivitis Coryza Cough Diarrhea Hoarseness Discrete ulcerative stomatitis Viral exanthema Diagnosis Throat swab Throat culture Rapid antigen detection tests (RADTs) Molecular tests: PCR, Nucleic acid amplification tests Molecular tests: PCR Treatment DOC: Oral Penicillin (Option C) Amoxicillin is preferred in children, with once-daily dosing for 10 days A single dose of IM benzathine penicillin or

benzathine-procaine penicillin G can ensure compliance. Penicillin Allergy: Use 1st generation cephalosporins (cephalexin or cefadroxil) or macrolides (erythromycin,clarithromycin or clindamycin) for 10 days or azithromycin for 5 days. Main goal of antibiotic therapy is to prevent acute rheumatic fever, if started within 9 days of illness onset. Symptomatic treatment like oral antipyretics/ analgesics. Complication Parapharyngeal abscesses Acute Rheumatic Fever (ARF) Acute Poststreptococcal Glomerulonephritis (APSGN) Post-streptococcal Reactive Arthritis PANDAS (Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococci) Secondary bacterial infections: Middle ear infections (otitis media) and bacterial sinusitis.



References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2192-2196

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 10-year-old child diagnosed with Cystic Fibrosis presents with recurrent lung infections, poor weight gain, and steatorrhea. Which of the following is the most appropriate combination of therapies for managing this patient's condition? (Q850214)

A. Inhaled bronchodilators, insulin therapy

B. Chest physiotherapy, Ursodeoxycholic acid

C. CFTR modulators, antibiotics, chest physiotherapy

D. Inhaled corticosteroids, bone health management

Correct Answer: C. CFTR modulators, antibiotics, chest physiotherapy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Management Strategies for Cystic Fibrosis Management Aspect Therapies Airway Clearance Chest physiotherapy, Percussion, Postural drainage Infection Control Antibiotics, CFTR modulators Nutritional Support High-calorie diet, Pancreatic Enzyme Replacement Therapy (PERT), Vitamin supplementation (A, D, E, K) CFTR Modulation CFTR modulators (e.g., ivacaftor, lumacaftor) directly target the defective CFTR protein , improving its function and thereby helping to alleviate symptoms of CF. Gastrointestinal Management Ursodeoxycholic acid, laxatives, enemas Other Therapies Insulin therapy (for CFRD), Bone health management (calcium, vitamin D) Inhaled bronchodilators, insulin therapy (Option A): Insulin therapy is not required until the patient develops diabetes Chest physiotherapy, Ursodeoxycholic acid (Option B): Ursodeoxycholic acid is required only if the child develops cholestasis Inhaled corticosteroids, bone health management (Option D): No role of inhaled corticosteroids in treating cystic fibrosis

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2291, 2292, 2293.

https://www.ncbi.nlm.nih.gov/books/NBK599836/

↑ *Back to this question in Part A*

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Q13: A 6-year-old boy presents with recurrent respiratory infections, failure to thrive, and greasy stools. His older sibling was diagnosed with cystic fibrosis (CF). Which of the following is not a part of the diagnostic criteria of Cystic fibrosis in this patient? (Q850213)

A. Abnormal nasal potential difference measurement

B. Presence of two CFTR mutations

C. Two elevated sweat chloride concentration on separate days

D. Sputum culture positive for Burkholderia cepacia

Correct Answer: D. Sputum culture positive for Burkholderia cepacia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Although Burkholderia cepacia is one of the most common microbiome for Respiratory tract infections in Cystic Fibrosis, it is not a diagnostic criterion. Diagnostic Criteria for Cystic Fibrosis Diagnostic Criteria Requirement Any ONE of the following: Clinical Features Presence of typical features (respiratory, gastrointestinal, or genitourinary) Family History A sibling with diagnosed cystic fibrosis Newborn Screening Test Positive result indicating risk for cystic fibrosis Immunoreactive trypsinogen (IRT) is the first-line screen, which identifies babies with pancreatic insufficiency, one of the hallmarks of CF. PLUS at least ONE: Laboratory Evidence of CFTR Dysfunction Two elevated sweat chloride concentrations on separate days (Option C) Pilocarpine iontophoresis : Used to diagnose cystic fibrosis in infants by estimating sweat chloride ion levels; elevated chloride levels (≥60 mMol/L) in sweat are indicative of the condition. Identification of two CFTR mutations (Option B) An abnormal nasal potential difference measurement (Option A)

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2285, 2288.

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https://www.sciencedirect.com/science/article/abs/pii/S0022354920300708#

↑ *Back to this question in Part A*

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Q14: A 3-month-old infant is brought to the pediatric OP for evaluation of failure to thrive, frequent greasy stools, and a persistent cough. The infant was diagnosed with an autosomal recessive disease via a sweat test. Which of the following is most likely to be associated with this patient's condition? (Q850212)

A. Hemoptysis

B. Pancreatic insufficiency

C. Paralytic ileus

D. Cor pulmonale

Correct Answer: B. Pancreatic insufficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant has failure to thrive, frequent greasy (steatorrheic) stools, and a persistent cough, all classic for cystic fibrosis , an autosomal recessive disorder confirmed by a sweat test. Pancreatic insufficiency is a hallmark of cystic fibrosis in infants, due to blocked pancreatic ducts causing deficient enzyme release, leading to malabsorption and greasy stools. Clinical Features of Cystic Fibrosis by Age Group Age Group Sinopulmonary Gastrointestinal Renal, Endocrine, Other Infancy Infection Fetal echogenic bowel Meconium ileus Pancreatic insufficiency (seen in 85% pt's) Rectal prolapse Dehydration Hyponatremic hypochloremic metabolic alkalosis Childhood Infection ABPA Polyposis Sinusitis DIOS (Distal Intestinal Obstruction Syndrome) Intussusception Hepatic steatosis, biliary fibrosis Rectal prolapse Renal calculi Hyponatremic hypochloremic metabolic alkalosis Adolescence/Adulthood Infection ABPA Haemoptysis Pneumothorax Respiratory failure Sinusitis, Polyposis, Anosmia DIOS Intussusception Biliary fibrosis, cirrhosis Digestive tract cancer (adenocarcinoma) Delayed puberty, osteoporosis, CFRD (Cystic Fibrosis-Related Diabetes) Renal calculi, renal failure CBAVD (Congenital Bilateral Absence of the Vas Deferens), HPOA (Hypertrophic Pulmonary Osteoarthropathy) Arthritis, vasculitis Hyponatremic hypochloremic metabolic alkalosis Hemoptysis (Option A) is a complication of advanced lung disease in CF and is more common in older children or adolescents rather than infants. Paralytic ileus (Option C) refers to a lack of bowel movement due to impaired motility of the intestines Cor pulmonale (Option D) is a late-stage complication of CF due to chronic lung disease and is not typically seen in infants but rather in older children or adolescents.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2286, 2287, 2288.

↑ *Back to this question in Part A*

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Q15: A 5-year-old child is brought to the emergency department following a road traffic injury with a low GCS score. The decision to intubate the child is made during the primary intervention. Which of the following facts should be considered while intubating a child? (Q850197)

A. The subglottis is the narrowest part of the pediatric airway.

B. The cricoid cartilage is situated at the level of vocal cords in children.

C. The pediatric trachea is less prone to collapse.

D. The functional residual capacity is higher than the closing capacity.

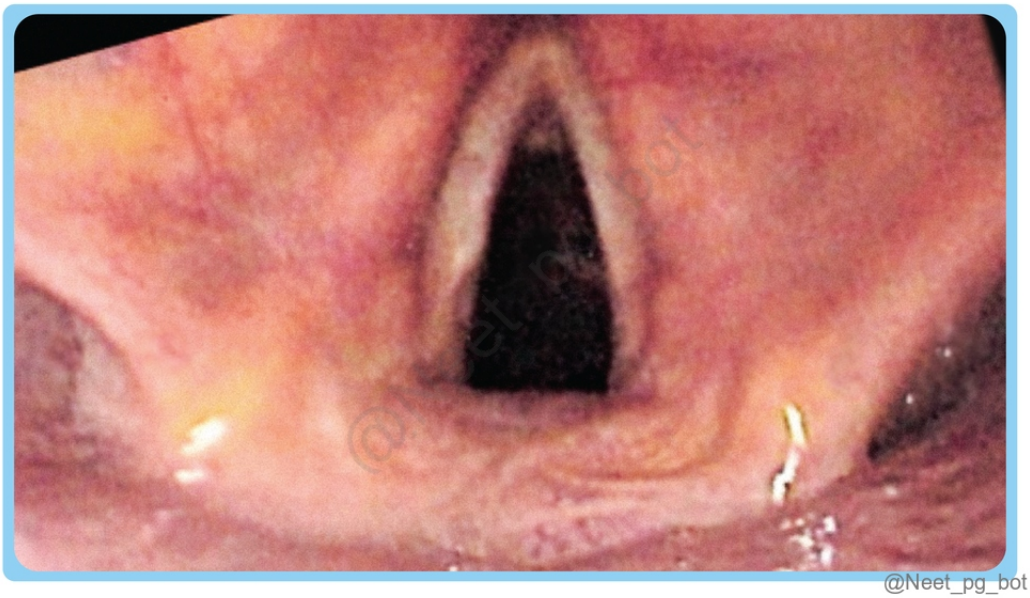
Correct Answer: A. The subglottis is the narrowest part of the pediatric airway.

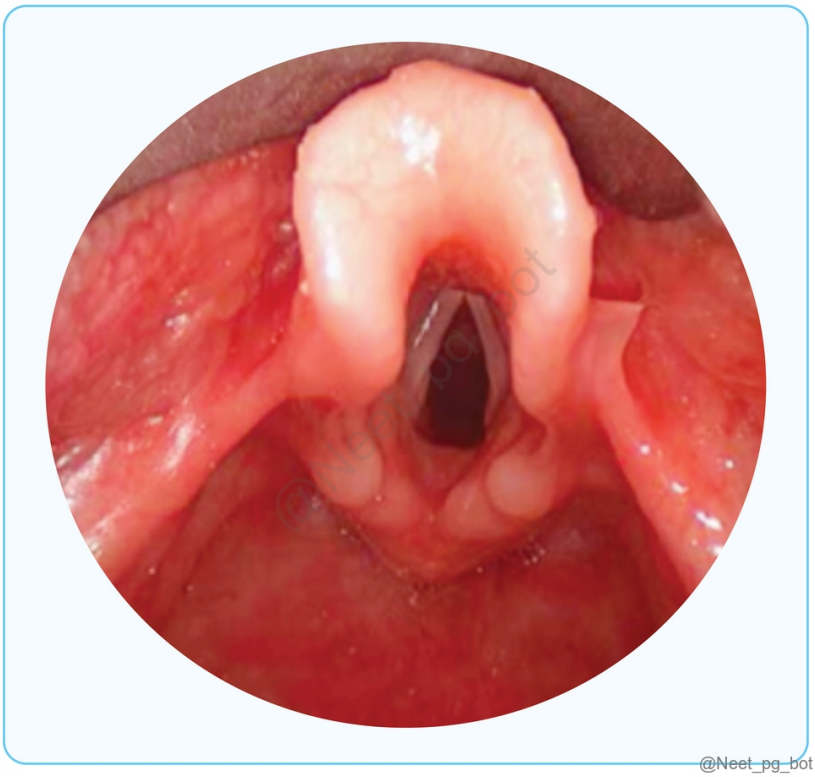
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Feature Pediatric airway Adult airway Diameter and Resistance A smaller diameter increases airway resistance significantly A larger diameter results in lower resistance Shape Funnel-shaped Cylindrical Carina At

T2 At T4 Epiglottis Long, floppy, and U-shaped Flat, spade-shaped Narrowest point Subglottis (begins below the true vocal cords and ends at the inferior margin of the cricoid cartilage) (Option B) At the level of the vocal cords Tracheal Compliance Higher tracheal compliance , more prone to collapse (e.g., tracheomalacia) (Option C) Less compliant trachea, less prone to collapse Breathing Pattern Obligate nasal breathers ; nasal obstruction can cause significant distress Can breathe through the mouth if the nasal passages are obstructed Chest Wall Compliance Higher compliance leads to air trapping and potential hyperinflation Lower compliance with less air-trapping Closing Capacity Higher closing capacity compared to functional residual capacity (FRC), leading to potential ventilation-perfusion mismatch (Option D) Lower closing capacity relative to FRC, reducing mismatch risk Susceptibility to Respiratory Distress More susceptible to respiratory distress from infections, foreign body aspiration, and congenital anomalies Less susceptible to the rapid onset of respiratory distress from the same conditions





References:

Nelson Textbook of Pediatrics, 21st edition, Pages 2155-2156, 2180, 2202, 2213, 2217.

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: Which of the following best explains the pathophysiological basis for the chronic lung infections seen in patients with CFTR ΔF508 mutation? (Q850210)

A. Increased bicarbonate secretion leading to decreased mucus viscosity

B. Impaired chloride transport resulting in dehydrated airway surfaces

C. Enhanced ciliary function due to overactivation of ENaC channels

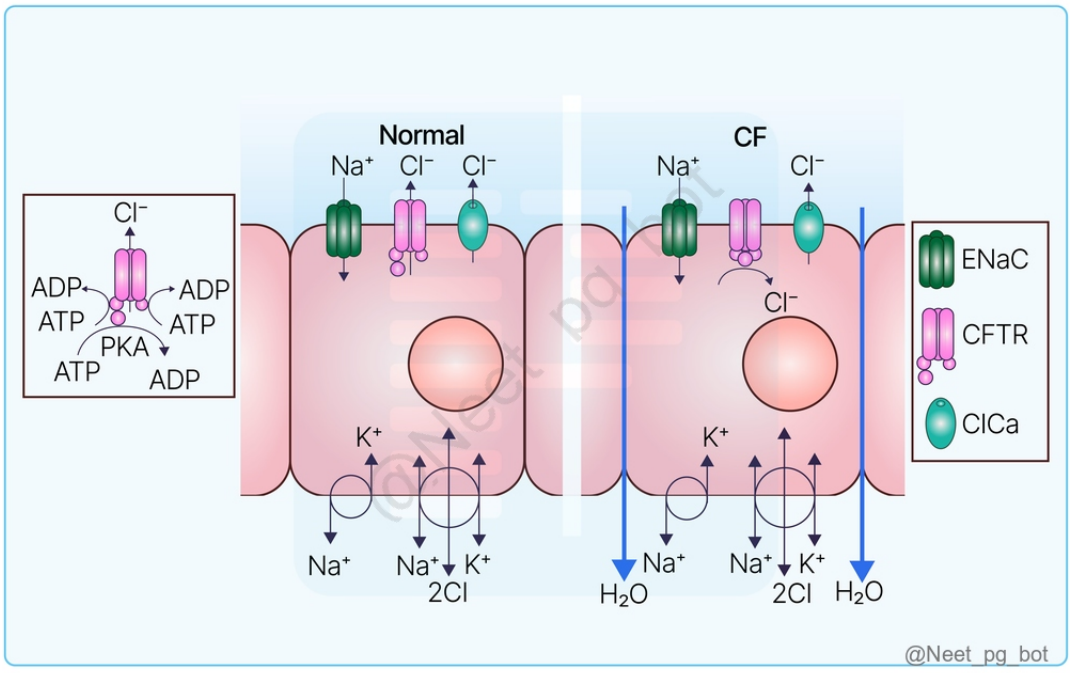
D. Decreased oxidative stress reducing bacterial clearance

Correct Answer: B. Impaired chloride transport resulting in dehydrated airway surfaces

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Genetic Basis of Cystic Fibrosis: Gene Involved CFTR (Cystic Fibrosis Transmembrane Conductance Regulator) gene Chromosome Located on chromosome 7q31.2 Common Mutations ΔF508 (deletion of phenylalanine at position 508) is the most common mutation. Classes of Mutations Class I : No functional CFTR protein Class II : CFTR trafficking defect Class III : Defective channel regulation Class IV : Decreased channel conductance Class V : Reduced synthesis of CFTR Class VI : Decreased CFTR stability Inheritance Pattern Autosomal recessive Pathophysiology of Cystic Fibrosis: CFTR Protein Dysfunction Defective chloride transport across epithelial cells Increased sodium absorption Decreased water movement leading to dehydrated mucous surfaces Respiratory System Thick, viscous mucus leads to airway obstruction and bacterial colonization Chronic infection and inflammation Bronchiectasis, atelectasis, and respiratory failure Gastrointestinal System Thick secretions block pancreatic ducts, leading to enzyme insufficiency Malabsorption of fats and proteins Meconium ileus in neonates Distal Intestinal Obstruction Syndrome (DIOS) Hepatobiliary System Bile duct obstruction leading to biliary cirrhosis Sweat Glands Impaired chloride reabsorption leading to salty sweat Reproductive System Congenital absence of the vas deferens in males leading to azoospermia and infertility. Defective CFTR in the cervix leads to the production of thick, dehydrated cervical mucus that blocks the cervical os, impairing sperm entry and reducing fertility. Increased bicarbonate secretion leading to decreased mucus viscosity (Option A): In cystic fibrosis, bicarbonate secretion is actually decreased , not increased Enhanced ciliary function due to overactivation of ENaC channels (Option C): Ciliary function is impaired , not enhanced, in cystic fibrosis Decreased oxidative stress reduces bacterial clearance (Option D) : Cystic fibrosis is characterized by increased oxidative stress , not decreased



References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2284, 2285.

https://www.sciencedirect.com/science/article/pii/S1569199319308811

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: Which of the following clinical indicators is most characteristic of life-threatening asthma? (Q850209)

A. Mild wheezing

B. Oxygen saturation of 92%

C. Silent chest

D. Peak expiratory flow (PEF) of 60% predicted

Correct Answer: C. Silent chest

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A silent chest, where breath sounds are minimal or absent, is a critical indicator of life-threatening asthma. Life-Threatening Asthma Management Overview Most severe asthma exacerbation; requires immediate attention. Indicators: Cyanosis, silent chest, poor respiratory effort, exhaustion, altered mental state, PEF <30%, oxygen saturation <90%. Immediate Management Oxygen Therapy: Administer for hypoxemia. Systemic Bronchodilators: Terbutaline or adrenaline subcutaneously; inhaled bronchodilators (salbutamol, ipratropium). Systemic Corticosteroids: IV hydrocortisone (5 mg/kg). ICU Transfer: For monitoring and advanced care. ICU Management Continuous Monitoring: Vital signs, oxygen saturation, PEF. If Improvement Noted: Continue inhaled bronchodilators (salbutamol/terbutaline) every 20-30 minutes. Maintain hydrocortisone at 2-3 mg/kg every 6-8 hours until the patient can take oral medication. If No Improvement or Deterioration: Consider slow intravenous infusion of magnesium sulfate (50 mg/kg). Alternatively, administer a loading dose of theophylline. If these measures fail, prepare for mechanical ventilation. Address Underlying Causes: Check for acidosis, pneumothorax, electrolyte imbalance, and infection.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1206-1209

Ghai Essential Pediatrics, 10th Edition, Page 415

↑ *Back to this question in Part A*

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Q18: A 7-year-old boy presents to the emergency department with severe shortness of breath and wheezing unresponsive to his rescue inhaler. His vitals include a respiratory rate of 34/min, heart rate of 125/min, and oxygen saturation of 91% on

room air. After giving oxygen and albuterol, what is the next step in management? (Q850208)

A. Intubation and mechanical ventilation

B. Start systemic corticosteroids

C. Administer intravenous magnesium sulfate

D. Provide inhaled anticholinergics like ipratropium bromide

Correct Answer: B. Start systemic corticosteroids

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Systemic corticosteroids should be administered early in the management of an acute asthma attack to reduce inflammation and prevent further deterioration. Management of Acute Asthma attacks Immediate Treatment Oxygen Therapy: Administer via mask or nasal cannula to maintain SpO2 > 92%. Inhaled SABAs Albuterol: 2.5 mg/3 mL nebulized every 20 minutes for 3 doses; Levalbuterol: 1.25 mg/0.5 mL up to 3 doses every 20 minutes. Systemic Corticosteroids (to reduce inflammation and prevent further deterioration) Prednisone: 1-2 mg/kg/day orally (max 60 mg/day); Methylprednisolone: 1-2 mg/kg IV, then oral dosing. Adjunctive Treatments Inhaled Anticholinergics, Ipratropium Bromide: 0.5 mg nebulized every 6-8 hours as needed. Intravenous Magnesium Sulfate: 25-75 mg/kg IV over 20 minutes (max 2 grams). Escalation of Care Continuous Nebulization Albuterol: 10-15 mg/hour via nebulizer. Intravenous β-Agonists Terbutaline: 2-10 microgram/kg IV loading dose followed by 0.1-0.4 microgram/kg/min titrate in 0.1-0.2 microgram/kg/min increments every 30 min Epinephrine: 0.01 mg/kg SC or IM, repeat every 15-30 min if needed. Monitoring & Management Close Monitoring Continuous monitoring of vital signs, oxygen saturation, and clinical response. Assess improvement in symptoms, PEF, and lung function. Risk Assessment for Discharge Criteria: Sustained improvement, PEF > 70% predicted, oxygen saturation > 92% on room air. Ensure home capability for medication administration. Intubation (Option A): Considered only if the patient is in respiratory failure or if all other treatments have failed. Administer intravenous magnesium sulfate (Option C): Used as an adjunct in severe cases, but corticosteroids are necessary at this stage. Inhaled anticholinergics like ipratropium bromide (Option D): Can be used in conjunction with other treatments, but corticosteroids are a priority.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1204-1206

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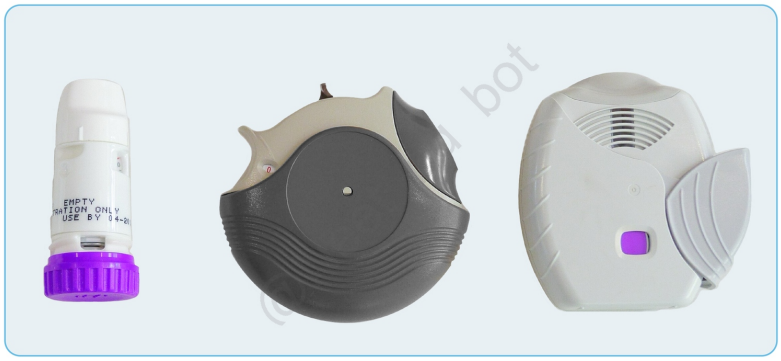
Q19: Match the following asthma medication devices with its corresponding image. 1. Metered Dose Inhaler (MDI) a. 2. MDI with Spacer b.■■■■■■■ 3. Dry Powder Inhaler (DPI) c.■■■■■■■ 4. Nebulizer d.■■■■■■■ (Q850207)

A. 1-b, 2-a, 3-c, 4-d

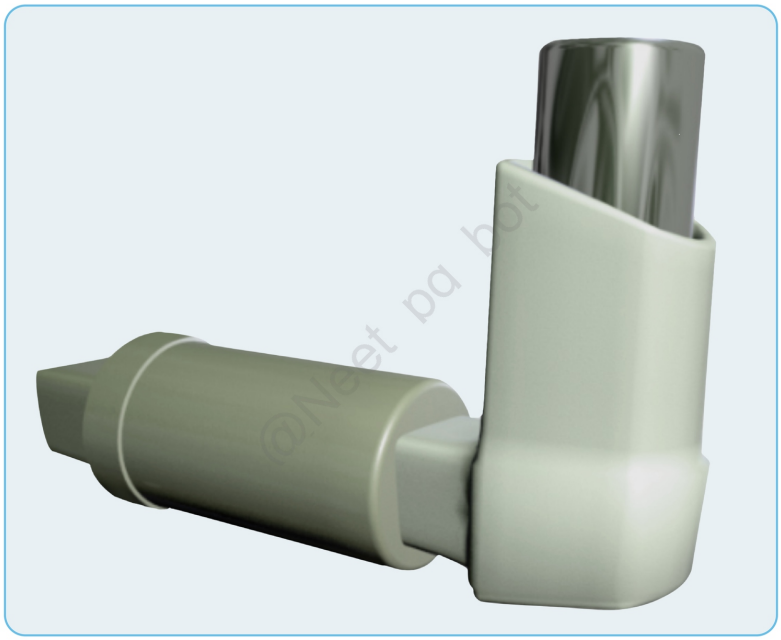
B. 1-a, 2-b, 3-d, 4-c

C. 1-d, 2-c, 3-a, 4-b

D. 1-c, 2-b, 3-a, 4-d



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Correct Answer: D. 1-c, 2-b, 3-a, 4-d

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Table of Asthma Medication Devices Device Features Metered Dose Inhaler (MDI) Fixed aerosol dose, requires coordination, oropharyngeal deposition is possible, and may lead to oropharyngeal candidiasis. While using it, at the start of inspiration that is slow and deep, press the canister down and continue to inhale deeply. MDI with Spacer Improves lung delivery, reduces oropharyngeal deposition, bulky, costly MDI with Spacer & Facemask Facilitates administration for young children Dry Powder Inhaler (DPI) Breath-activated, easy for older children, less effective during acute episodes Nebulizer Delivers large doses, useful in acute asthma

References:

Ghai Essential Pediatrics, 10th Edition, Pages 386, 387.

↑ *Back to this question in Part A*

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Q20: A 10-year-old child with persistent asthma is currently on a low-dose inhaled corticosteroid (ICS) but is still experiencing symptoms. What is the next step in the management of this child according to the stepwise approach for long-term asthma management? (Q850206)

A. Increase to medium-dose ICS

B. Add a long-acting beta-agonist (LABA) to the low-dose ICS

C. Add a leukotriene receptor antagonist (LTRA) or theophylline to the low-dose ICS

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Stepwise Approach for Long-Term Management of Asthma in Children Age Group Step 1 Step 2 Step 3 (Option D) Step 4 Step 5 Step 6 0-4 years SABA as needed Low-dose ICS Medium-dose ICS Medium-dose ICS + LABA or LTRA High-dose ICS + LABA or LTRA High-dose ICS + LABA or LTRA + OCS 5-11 years SABA as needed Low-dose ICS Low-dose ICS +/- LABA, LTRA, or theophylline, or medium-dose ICS Medium-dose ICS + LABA or LTRA or theophylline High-dose ICS + LABA or LTRA or theophylline High-dose ICS + LABA + OCS ≥12 years SABA as needed Low-dose ICS Low-dose ICS + LABA or medium-dose ICS Medium-dose ICS + LABA High-dose ICS + LABA + consider omalizumab for allergies High-dose ICS + LABA + OCS + consider omalizumab for allergies and mepolizumab for eosinophilic asthma

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1198, 1199

↑ *Back to this question in Part A*

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Q21: A 10-year-old child presents with symptoms of asthma that occur more than twice a week but not daily. The child has nighttime symptoms 3-4 times a month. Pulmonary function tests reveal an FEV1 of 85% of the predicted value. How would you classify the severity of this child's asthma? (Q850205)

A. Mild Intermittent

B. Mild Persistent

C. Moderate Persistent

D. Severe Persistent

Correct Answer: B. Mild Persistent

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This child's symptoms align with mild persistent asthma, which includes symptoms more than twice a week but not daily, nighttime symptoms 3-4 times a month, and an FEV1 > 80% predicted. Asthma Classification by Severity Severity Symptoms Nighttime Symptoms Lung Function Interference with Normal Activity Frequency of SABA Use Age 0-4 yrs Age ≥5 yrs Mild Intermittent ≤2 days/wk 0 ≤2 times a month FEV1 > 80% predicted, normal between episodes None During exacerbations Mild Persistent (Option B) >2 days/wk but not daily 1-2 times a month 3-4 times a month FEV1 ≥ 80% predicted, variability of 20-30% Minor limitation During exacerbations Moderate Persistent Daily 3-4 times a month >1 time a week but not nightly FEV1 60-80% predicted, variability > 30% Some limitation Daily Severe Persistent Throughout the day >1 time a week Often 7 times a week FEV1 < 60% predicted, variability > 30% Extremely limited Several times per day

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1194

↑ *Back to this question in Part A*

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Q22: A 10-year-old child presents with a history of recurrent wheezing and cough. The physician suspects asthma and decides to perform some diagnostic tests. Which test result would most strongly support the diagnosis of asthma? (Q850204)

A. FEV1/FVC ratio of 0.9

B. Increase in FEV1 by ≥12% post-bronchodilator

C. Daily peak expiratory flow <20%

D. FEV1 <12% after exercise challenge

Correct Answer: B. Increase in FEV1 by ≥12% post-bronchodilator

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: An increase in FEV1 by ≥12% after using a bronchodilator confirms the reversibility of airflow limitation, which is characteristic of asthma. Investigations of Asthma: Spirometry: Airflow limitation: Low FEV1 (relative to the percentage of predicted norms) FEV1/FVC ratio <0.80 (Option A) Bronchodilator response (to inhaled ß-agonist) assesses reversibility of airflow limitation. Reversibility is determined by an increase in either FEV1 >12% or Predicted FEV1 >12% after inhalation of a short-acting ß-agonist (SABA) (Option B) Exercise challenge: Worsening in FEV1 ≥15% (Option D) Daily peak expiratory flow (PEF) or FEV1 monitoring: Day-to-day and/or AM-to-PM variation ≥ 20% (Option C) Exhaled nitric oxide (FeNO): A value of >20 ppb supports the clinical diagnosis of asthma in children FeNO can be used to predict response to ICS therapy: <20 ppb: Unlikely to respond to ICS because eosinophilic inflammation is unlikely 20-35 ppb: Intermediate, may respond to ICS >35 ppb: Likely to respond to ICS because eosinophilic inflammation is likely. Chest Radiographs:

Chest radiographs in children with asthma often appear normal. May show subtle signs such as hyperinflation (e.g., flattening of the diaphragms) and peribronchial thickening Allergy Testing: Assesses sensitization to inhalant allergens.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1190,1191,1192

Ghai Essential Pediatrics, 10th Edition, Page408

↑ *Back to this question in Part A*

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Q23: A 5-year-old with recurrent wheezing, coughing, and shortness of breath, worsened by cold air and with a history of eczema and allergic rhinitis, is experiencing persistent symptoms despite antihistamines. Which type of asthma is most likely? (Q850203)

A. Transient nonatopic asthma

B. Seasonal allergic asthma

C. Late-onset asthma

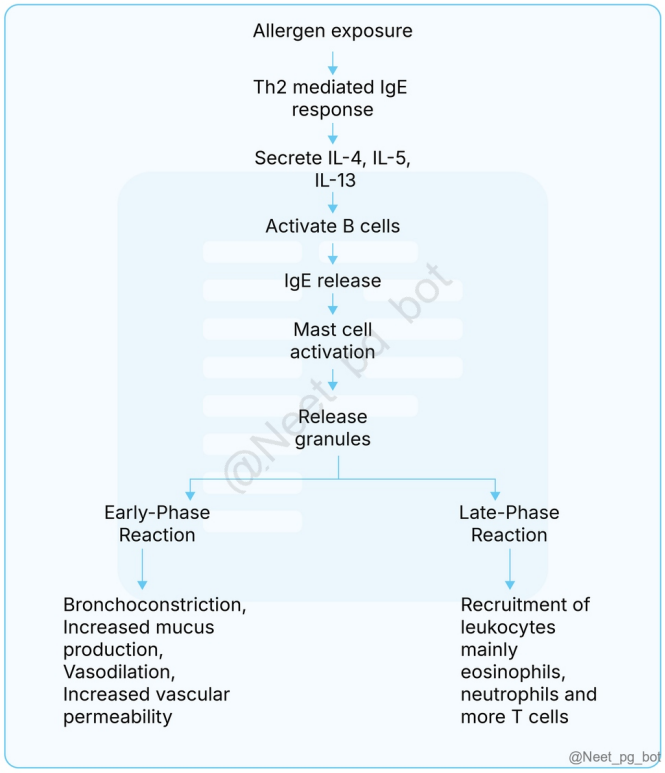
D. Persistent atopy-associated asthma

Correct Answer: D. Persistent atopy-associated asthma

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Symptoms start in early childhood with a history of atopy (eczema, allergic rhinitis) and are associated with persistent wheezing and other symptoms point towards diagnosis of persistent atopy-associated asthma . Types of Asthma: 1. Transient non-atopic wheezing (Option A) 2. Persistent atopy-associated asthma (Option D) Common in early preschool years. Starting in early preschool years. Triggered by respiratory viral infections. Associated with atopy and involves clinical signs (like atopic dermatitis or allergic rhinitis) and biological markers (such as high serum IgE and eosinophils). Resolves by school age without increasing asthma risk later in life. Persists into later childhood and adulthood. Seasonal allergic asthma (Option B) is typically triggered by seasonal allergens, which do not fully capture the year-round nature of the child’s symptoms and their history of atopic conditions. Late-onset asthma (Option C) usually begins in adolescence or adulthood and is inconsistent with the early onset and atopic history of this child.



References:

Harrison’s Principles of Internal Medicine, 21 Edition, Page 2147

Robbins & Cotran Pathologic Basis of Disease, 10th Edition, Page 684

Nelson Textbook of Pediatrics, 21st Edition, Pages 1188,1189

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5810515/

https://www.medicalnewstoday.com/articles/what-to-know-about-seasonal-asthma

↑ *Back to this question in Part A*

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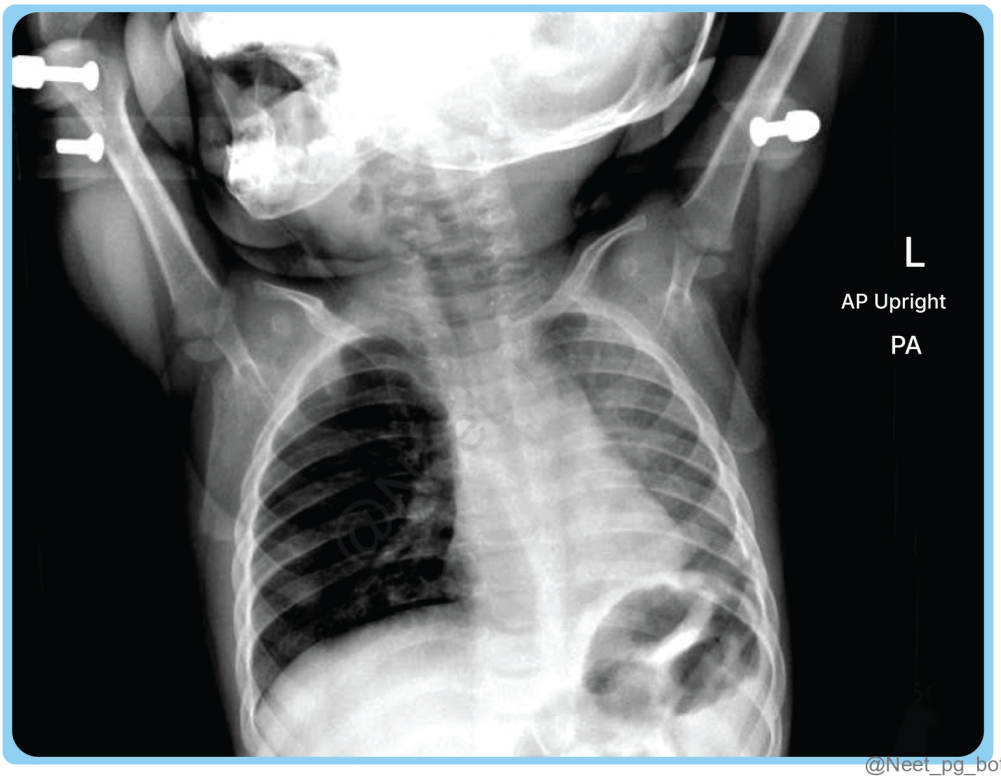
Q24: A 10-month-old child is brought with complaints of sudden coughing, wheezing, and difficulty breathing after playing with small toys. On examination, there are decreased breath sounds on one side. A chest X-ray was taken, which is shown below. What is the most appropriate initial management? (Q850202)

A. Administer supplemental oxygen.

B. Administer systemic corticosteroids.

C. Perform rigid bronchoscopy.

D. Perform emergency cricothyrotomy.



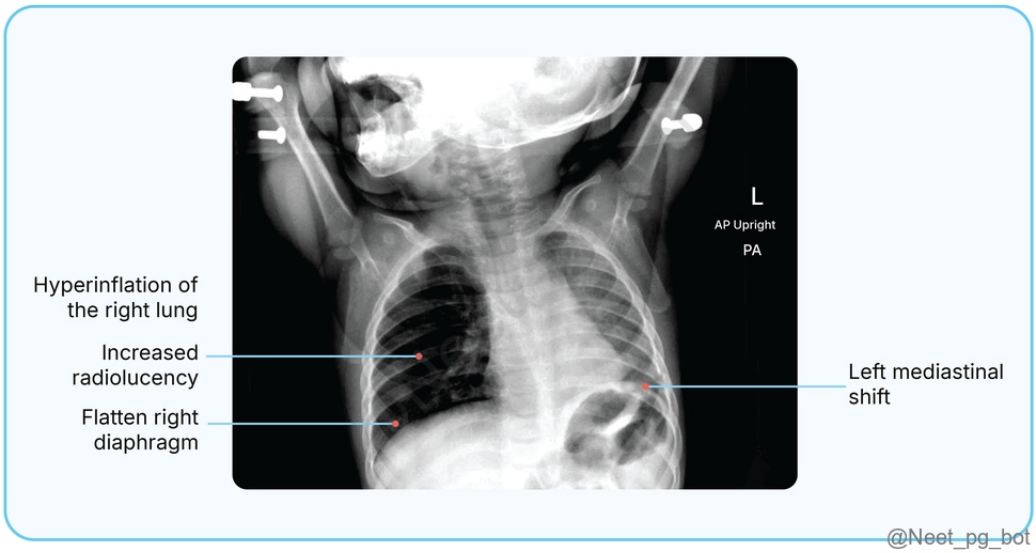
Correct Answer: C. Perform rigid bronchoscopy.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Based on the presentation and the findings in the X-ray, indicate an obstruction. Immediate rigid bronchoscopy is the best course of action as it allows for the direct removal of the foreign body, resolving the obstruction and alleviating the child’s symptoms. Lower Airway Foreign Body Aspiration: Prevalence Choking is a leading cause of morbidity and mortality in children, especially those under 4 years old. Most victims are older infants and toddlers. Common Objects Food items: Nuts, seeds, hard candy, gum, bones, raw fruits, and vegetables. Inorganic objects: Coins, latex balloons, pins, jewelry, magnets, pen caps, and toys. Location Bronchus > Trachea > Larynx Types Partial obstruction: This causes a ball valve effect that leads to localized hyperinflation of the affected lung area (a bronchial foreign body blocks the exit of air from the obstructed lung during expiration). Overlying the chest wall shows hyperresonance, diminished vocal resonance, and poor air entry. Complete Obstruction: Cause distal atelectasis and suppuration of the surrounding parenchyma of the lungs result in bronchiectasis. Clinical Manifestation Initial Event: Coughing, choking, gagging, potential airway obstruction. Some children may expel the foreign body during this stage. Asymptomatic Interval: Immediate symptoms subside; foreign body remains lodged. It can be misleading and lead to delayed diagnosis. Complications: Fever, cough, hemoptysis, pneumonia, atelectasis. Diagnosis Positive history is crucial. Plain Films: Recommended first; may miss radiolucent objects (80-96%). Expiratory Films: Reveal secondary findings like air trapping, asymmetric

hyperinflation. CT Scan: High sensitivity and specificity, but involves radiation. Bronchoscopy: Should be performed if suspicion remains despite negative or inconclusive imaging. Treatment Prompt endoscopic removal with a rigid bronchoscope. Appropriate antibiotics are given for secondary infection. Administer supplemental oxygen (Option A): While supplemental oxygen can be useful in cases of hypoxia, it does not address the underlying issue of a foreign body obstructing the airway. Administer systemic corticosteroids (Option B): Systemic corticosteroids are often used to reduce inflammation, but they are ineffective in immediately removing a foreign body from the airway. Emergency cricothyrotomy (Option C) is a last-resort procedure for severe airway obstruction when other methods fail.



References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2211, 2212

Ghai Essential Pediatrics, 10th Edition, Page416

↑ *Back to this question in Part A*

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Q25: A 9-month-old infant presented with sudden choking on a small toy part while playing. The infant appears cyanotic and is making weak, ineffective attempts to breathe. What is the most appropriate initial intervention for this infant? (Q850201)

A. Perform heimlich maneuver.

B. Start CPR with chest compressions.

C. Deliver five back blows.

D. Give rescue breaths.

Correct Answer: C. Deliver five back blows.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Back blows are the first step to relieve airway obstruction in infants under 1 year. Upper Airway Foreign Body Aspiration: Causes Choking on small objects such as toy parts, seeds, nuts, grapes, pebbles, or buttons. Presentation Sudden onset of cough, gagging or stridor with or without respiratory distress. Type of Obstruction Severe Obstruction: Universal choking sign (clutching the neck), weak or no cough, inability to speak or breathe, cyanosis. Mild Obstruction: Breathing is possible, with possible wheezing, coughing, and stridor. Immediate Removal Indication Severe obstruction requires urgent intervention. Procedure for Infants (<1 year) Back Blows: Place the infant face down over the rescuer's arm, head lower than the trunk, and deliver five back blows between the scapulae. (Option C) Chest Compressions: If obstruction persists, turn the infant over and perform five chest compressions. (Option B) Sequence: Repeat back blows and chest compressions until the obstruction is relieved or the infant becomes unconscious. Procedure for Children (>1 year) (Option A) Heimlich Maneuver: Perform abdominal thrusts. ■■■■■■■ Complications Chest Compressions: May cause rib or cardiac damage, though rare. Heimlich Maneuver: If performed incorrectly, the manoeuvre can cause pneumomediastinum, rupture of the spleen or stomach, and injury to the aorta. Give rescue breaths (Option D): Rescue breaths are part of CPR, which is not the first step in this scenario.



Black blows to relieve foreign body airway obstruction in the infant.

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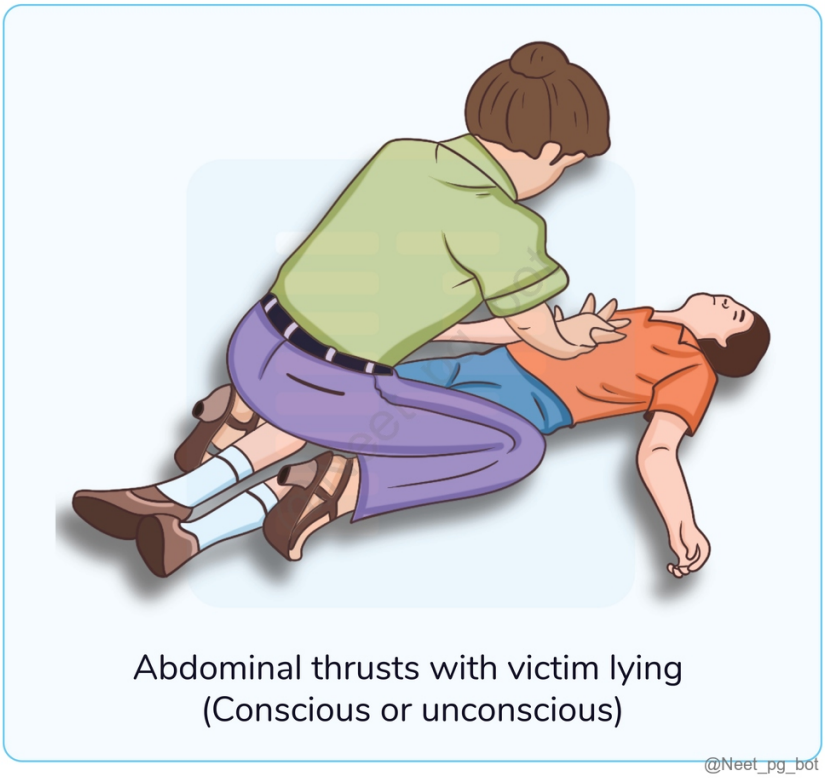
Chest thrusts to relieve foreign body airway obstruction in the infant.

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Abdominal thrusts with the victim standing or sitting (conscious)

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References:

Ghai Essential Pediatrics, 10th Edition, Pages 776,777

↑ *Back to this question in Part A*

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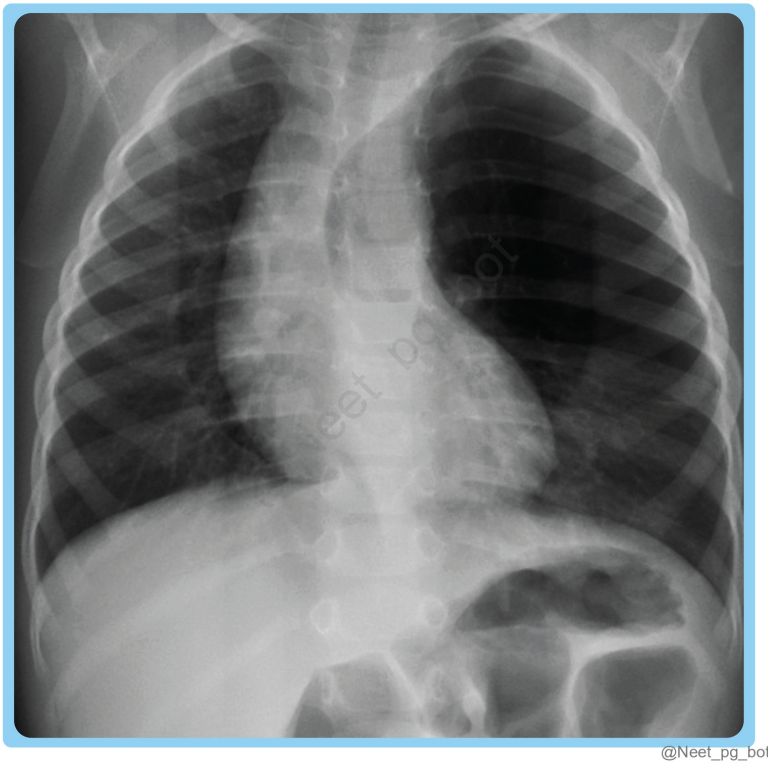
Q26: A newborn baby is brought to the hospital by her parents with complaints of wheezing. On further examination, she has tachypnea. Radiological examination shows a hyperlucent lobe and a mediastinal shift, as in the image. Which is the most common location of this condition? (Q850200)

A. Right upper lobe

B. Left upper lobe

C. Right lower lobe

D. Left lower lobe



Correct Answer: B. Left upper lobe

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Based on the given scenario and the X-ray image, the diagnosis is congenital lobar emphysema. Congenital lobar emphysema (Congenital large hyperlucent lobe/ Congenital lobar hyperinflation) Causes Bronchial Abnormalities Congenital deficiency of bronchial cartilage Bronchial stenosis Redundant bronchial mucosal flaps External compression Aberrant vessels Kinking of the bronchus due to herniation into the mediastinum Common Location Left upper lobe > Right middle lobe > Right lower lobe. Involvement of the lower lobes is rare. Symptoms Mild: Tachypnea (in respiratory distress), Wheezing (due to airway narrowing) Severe: Dyspnea, Cyanosis (Symptoms often appear immediately after birth; they can be delayed in some cases) Diagnosis Prenatal Ultrasonography: Often diagnosed before birth Chest X - Ray : radiolucent (hyperlucent) lobe, mediastinal shift (arrow) CT Scan: detailed anatomy of the affected lobe is known MRI/MR Angiography: identify vascular abnormalities Nuclear Imaging Studies: detect perfusion defects Bronchoscopy: ruling out other causes, identifying endobronchial lesions (if needed) Treatment Conservative Management: Watchful waiting for mild cases Surgical Resection: Removal of affected lobe for severe cases Supportive Care: Supplemental oxygen, mechanical ventilation, selective intubation Differential Diagnoses Pneumonia Pneumothorax Congenital Cystic Adenomatoid Malformation (CCAM) or Congenital Pulmonary Airway Malformation (CPAM) Long-Term Outlook Generally good with early diagnosis and appropriate treatment; Surgical resection often leads to full recovery and normal lung function. Regular follow-up is needed.



References:

Nelson Textbook of Pediatrics, 21st edition, Pages 2223,2224

https://www.ncbi.nlm.nih.gov/books/NBK560602/

↑ *Back to this question in Part A*

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Q27: A 2-week-old infant is brought to a pediatrics OPD due to feeding difficulties. The maternal history is unremarkable. On examination, the baby has a wet inspiratory stridor, that sounds like a low-pitched squeak. The pediatrician suspects laryngomalacia and is concerned about possible dysphagia. Which investigation is most appropriate to confirm the diagnosis? (Q850198)

A. Chest X-ray

B. Airway films

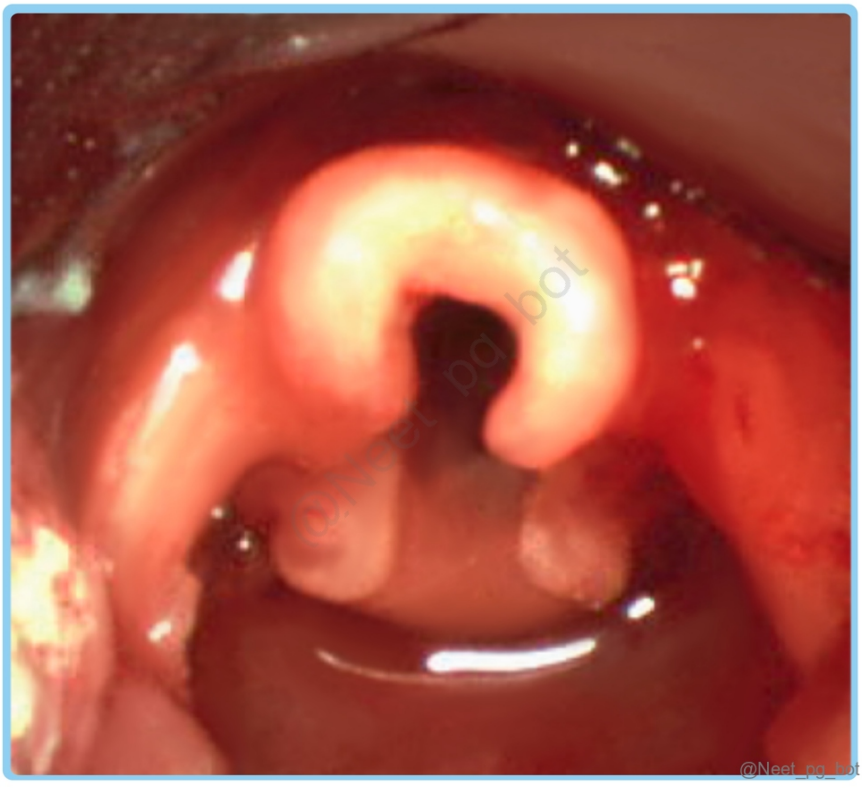
C. Fibre optic endoscopic evaluation

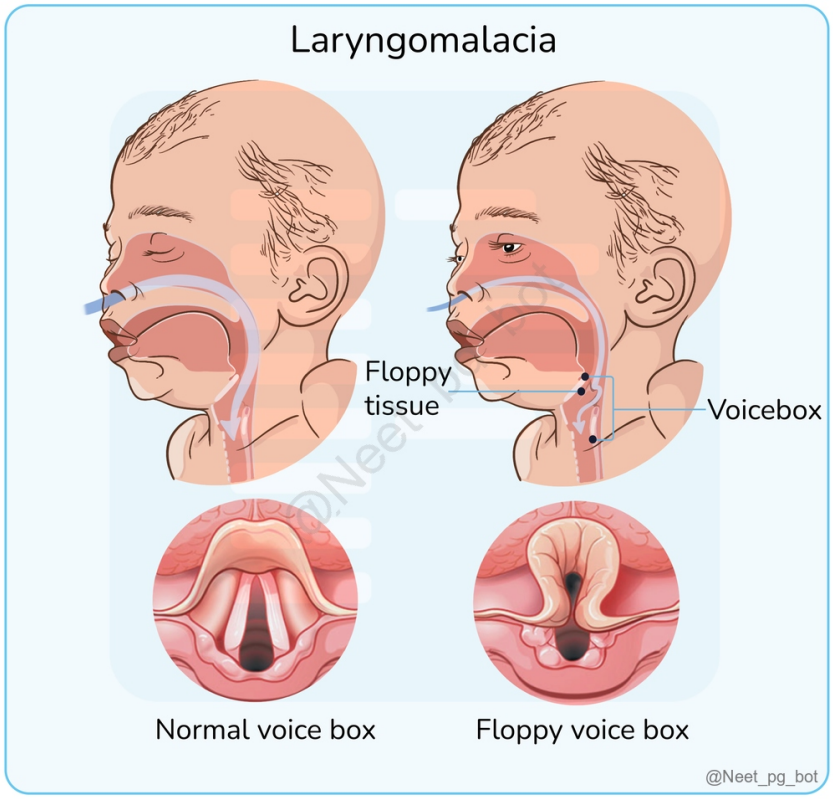
D. Outpatient flexible laryngoscopy

Correct Answer: C. Fibre optic endoscopic evaluation

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Fibre optic endoscopic evaluation or a contrast swallow study is the investigation of choice when dysphagia (indicated by wet stridor) is suspected. Laryngomalacia Definition M/c congenital laryngeal anomaly in children; characterized by floppy tissues above the vocal cords that collapse during inspiration, causing stridor. Onset Appear within the first 2 weeks of life and can worsen for up to six months, with gradual improvement often occurring thereafter. Factors deciding severity and clinical course Gastroesophageal reflux disease Laryngopharyngeal reflux disease Neurological conditions Investigations Diagnosis is made mainly by clinical symptoms Outpatient flexible laryngoscopy is done to confirm the diagnosis (Option D), but it is not suitable for a baby, as well as when dysphagia is suspected. Airway films and chest radiographs are done when the work of breathing is moderate to severe (Options A & B). A contrast swallow study or Flexible endoscopic evaluation of swallowing (FEES) is considered when dysphagia is suspected. (Option C) Complete bronchoscopy is done for those with moderate to severe obstruction. Treatment Expectant observation for most infants as the spontaneous resolution of symptoms as the child grows is seen. Laryngoesophageal reflux and GERD are treated with proton pump inhibitors or histamine receptor antagonists, considering the possible iron deficiency anemia. Supraglottoplasty is done in case of severe disease that causes progressive respiratory distress, cyanosis, failure to thrive, or cor pulmonale. Earlier intervention is needed in children with cardiac disease, neurologic disease, pulmonary disorders, or craniofacial anomalies





References:

Nelson Textbook of Pediatrics, 21st edition, Page 2207.

↑ *Back to this question in Part A*

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• [11_Pediatric Respiratory Disorders] 028 Previous Year Questions

« Back to Folder Directory

[11_Pediatric Respiratory Disorders] 028 Previous Year Questions — Quick Jump

Q1 (p. 1146)	*Q2 (p. 1147)*	*Q3 (p. 1148)*	*Q4 (p. 1149)*	*Q5 (p. 1150)*	*Q6 (p. 1151)*
Q7 (p. 1153)	*Q8 (p. 1154)*	*Q9 (p. 1154)*	*Q10 (p. 1155)*	*Q11 (p. 1158)*	*Q12 (p. 1161)*
Q13 (p. 1161)	*Q14 (p. 1165)*	*Q15 (p. 1166)*	*Q16 (p. 1168)*	*Q17 (p. 1170)*	*Q18 (p. 1171)*
Q19 (p. 1173)	*Q20 (p. 1174)*	*Q21 (p. 1175)*	*Q22 (p. 1176)*	*Q23 (p. 1177)*	*Q24 (p. 1177)*
Q25 (p. 1179)	*Q26 (p. 1180)*	*Q27 (p. 1182)*	*Q28 (p. 1183)*		

Q1: Chloride level in sweat is used in the diagnosis of which disease: (Q855503)

A. Phenylketonuria

B. Cystic fibrosis

C. Gaucher’s disease

D. Osteogenesis imperfecta

Correct Answer: B. Cystic fibrosis

Explanation: Chloride level in sweat is used to diagnose c ystic fibrosis. Cystic fibrosis is an autosomal recessive disorder caused by a mutation in the CFTR gene located on chromosome 7q32. Diagnostic Criteria for Cystic Fibrosis (CF): Presence of one or more phenotypic features (or) A history of Cystic Fibrosis in a sibling (or) A positive neonatal screening test - Dried blood is checked for immunoreactive trypsinogen. Plus Laboratory evidence for CFTR (Cystic Fibrosis transmembrane regulator) dysfunction: Two elevated sweat chloride concentrations (highly specific test) obtained at separate labs > 60 mEq/L (or) Identification of two Cystic Fibrosis mutations by DNA sequencing (or) An abnormal transepithelial nasal potential difference measurement Investigations: Sweat Chloride Test: The gold standard for CF diagnosis , especially in symptomatic patients. Pilocarpine iontophoresis is used to stimulate sweat production, and chloride concentration is measured. A chloride concentration of: ≥60 mmol/L confirms CF in children and adults. 30-59 mmol/L indicates intermediate results, requiring further evaluation. In CF- sweat chloride levels are increased, while chloride levels are decreased in pancreatic secretions. Genetic Testing: Genetic testing, particularly for the common F508del mutation , is conducted if CF is suspected. Expanded genetic panels may include hundreds of mutations but are often limited in efficacy for rare variants. Nasal Potential Difference (NPD): This test measures the bioelectric properties of the respiratory epithelium, reflecting CFTR function. In CF, defective chloride and sodium transport leads to abnormal potential differences. NPD testing is helpful when sweat chloride tests are inconclusive and can provide a more direct assessment of CFTR functionality. Other Tests: Fecal Elastase: Used to evaluate pancreatic exocrine function, which is impaired in CF. Chest Imaging: Although not diagnostic, imaging can assess lung disease

severity, showing bronchiectasis and hyperinflation common in CF patients. Transepithelial Intestinal and Rectal Biopsies: These can be used to directly evaluate CFTR function, though they are generally reserved for research or challenging cases. Serum electrolytes - hyponatremic, hypokalemic, hypochloremic alkalosis are seen in CF (contraction alkalosis) Phenylketonuria (Option A) is caused by a deficiency in phenylalanine hydroxylase , leading to high levels of phenylalanine. It is diagnosed by measuring plasma phenylalanine concentration, not by sweat chloride testing. Gaucher's disease (Option C) results from a deficiency of ß-glucosidase, and diagnosis is made by testing ß-glucosidase activity in fibroblasts or leukocytes, along with genetic testing, not by sweat chloride levels. Osteogenesis imperfecta (Option D) is caused by mutations in type-1 collagen genes, and it is diagnosed through genetic testing or DNA sequencing, not through sweat chloride measurement.

References:

Harrison's Principles of Internal Medicine, 21st Edition, Volume I, Page 2176-2179.

https://www.researchgate.net/publication/5507809_Cystic_fibrosis_in_adults_Diagnostic_and_therapeutic_aspects

https://www.sciencedirect.com/topics/medicine-and-dentistry/cystic-fibrosis

↑ *Back to this question in Part A*

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Q2: A full-term newborn develops tachypnea shortly after birth. The breathing difficulty resolves within 48 hours. Chest x-ray shows prominent vascular markings with fluid in the interlobar fissures. What is the most likely diagnosis (Q879242)

A. Transient tachypnea of the newborn

B. Pneumonia

C. Neonatal respiratory distress syndrome

D. Meconium aspiration syndrome

Correct Answer: A. Transient tachypnea of the newborn

Explanation: The features of early-onset tachypnea in a full-term baby that resolves within 48 hours, with X-ray showing interlobar fissure fluid are classical for Transient Tachypnea of the Newborn (TTN) . It results from delayed resorption of fetal lung fluid, often seen after cesarean delivery or rapid vaginal delivery. Chest X-ray: Prominent vascular markings, interlobar fissure fluid, mild hyperinflation. Course: Self-limited; resolves in 48-72 hours with supportive oxygen therapy only. Incorrect Options: Pneumonia (Option B): Presents with fever, leukocytosis, and patchy or lobar infiltrates - symptoms persist beyond 48 hours. Neonatal respiratory distress syndrome (Option C): Occurs in preterm infants due to surfactant deficiency; chest X-ray shows ground-glass opacity with air bronchograms, not interlobar fissure fluid. Meconium aspiration syndrome (Option D): Seen in post-term infants with meconium-stained amniotic fluid; X-ray shows patchy coarse infiltrates and hyperinflation;

symptoms last longer than 48 hours.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 941.

↑ *Back to this question in Part A*

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Q3: A previously healthy child presented with acute-onset dyspnea. A chest X-ray shows unilateral hyperinflation of the lung. What is true for this patient? (Q856109)

A. Focal area of decreased air entry will be suggestive of foreign body

B. Flexible bronchoscopy used for removal

C. In complete obstruction, ball and valve mechanism causes hyperinflation

D. The child has developed acute laryngotracheobronchitis

Correct Answer: A. Focal area of decreased air entry will be suggestive of foreign body

Explanation: - Focal area of decreased air entry will be suggestive of foreign body: The above scenario of acute-onset dyspnea and X-ray showing hyperinflation of the lung in a previously healthy child is suggestive of foreign body aspiration . In this case, auscultation would reveal a focal area of decreased air entry , which is characteristic of obstruction caused by a foreign body. Lower Airway Foreign Body Aspiration: Prevalence Choking is a leading cause of morbidity and mortality in children, especially those under 4 years old. Most victims are older infants and toddlers. Common Objects Food items: Nuts, seeds, hard candy, gum, bones, raw fruits and vegetables. Inorganic objects: Coins, latex balloons, pins, jewelry, magnets, pen caps and toys. Location Bronchus > Trachea > Larynx Types Partial obstruction: This causes a ball valve effect that leads to localized hyperinflation of the affected lung area (a bronchial foreign body blocks the exit of air from the obstructed lung during expiration). (Option C) Overlying the chest wall shows hyperresonance, diminished vocal resonance and poor air entry. Complete Obstruction: Cause distal atelectasis and suppuration of surrounding parenchyma of lungs result in bronchiectasis. Clinical Manifestation Initial Event: Coughing, choking, gagging, potential airway obstruction. Some children may expel the foreign body during this stage. Asymptomatic Interval: Immediate symptoms subside; foreign body remains lodged. Can be misleading and lead to delayed diagnosis. Complications: Fever, cough, hemoptysis, pneumonia, atelectasis. Diagnosis Positive history is crucial. Plain Films: Recommended first; may miss radiolucent objects (80-96%). Expiratory Films: Reveal secondary findings like air trapping, asymmetric hyperinflation. CT Scan: High sensitivity and specificity but involves radiation. Bronchoscopy: Should be performed if suspicion remains despite negative or inconclusive imaging. Treatment Prompt endoscopic removal with a rigid bronchoscope. (Option B) Appropriate antibiotics are given for secondary infection. The child has developed acute laryngotracheobronchitis (Option D) : Laryngotracheobronchitis, commonly caused by the parainfluenza virus, presents with symptoms such as barking cough, biphasic stridor, and low-grade fever, and is associated with a "steeple sign" on X-ray. However, unilateral hyperinflation of the lung is not characteristic of laryngotracheobronchitis, which typically shows subglottic narrowing, making this diagnosis less likely in this

case.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2211, 2212

OP Ghai Essential Pediatrics, 10th Edition, Page 416

↑ *Back to this question in Part A*

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Q4: During infancy, what is the most prevalent causative agent of acute bronchiolitis? (Q859503)

A. Influenza virus

B. Parainfluenza virus

C. Rhinovirus

D. Respiratory syncytial virus

Correct Answer: D. Respiratory syncytial virus

Explanation: The most common etiological agent responsible for acute bronchiolitis in infants is Respiratory Syncytial Virus (RSV). Bronchiolitis Age Group Infants between 1 and 6 months, but can affect children up to 2 years old. Seasonality Occurs primarily in winter and spring. Causative Agent Respiratory syncytial virus (RSV) (Most common) Others include: Parainfluenza virus (Option B) Adenovirus Influenza virus (Option A) Rhinovirus (Option C) Rarely Mycoplasma pneumoniae. Risk factors M/c in male infants. Infants exposed to tobacco smoke, not breastfed, or living in crowded conditions. Maternal smoking Older family members/siblings (common source of infection) Protection IgG3 antibodies (short half-life, limited placental transfer) Breastfeeding provides IgA antibodies. Pathophysiology Bronchiolar obstruction with edema, mucus and cellular debris. Increased airway resistance during both inspiration and exhalation. Leads to expiratory wheezing, air trapping, lung hyperinflation and possible atelectasis. Hypoxemia due to ventilation-perfusion mismatch. With severe obstructive disease hypercapnia develops. Clinical Manifestations First develop upper respiratory symptoms: Sneezing and clear rhinorrhea. Fever (±) Diminished appetite Persistent Cough Dyspnea Irritability Respiratory distress Cyanosis. Physical Examination Prolonged expiratory time Wheezing Increased work of breathing with nasal flaring and retractions Accessory muscles of respiration are working Auscultation: Fine crepitations and rhonchi Faint or inaudible breath sounds in severe disease

References:

Nelson Textbook of Pediatrics Edition 21st Page 2217,2219

OP Ghai Essential Pediatrics Edition 10th Page 406

↑ *Back to this question in Part A*

Q5: What is the most suitable course of action for managing a one and a half year old child who was brought to the hospital presenting symptoms of breathlessness, fever, cough, and cold, and upon examination has a respiratory rate of 46 breaths per minute, chest retractions, but no danger signs were present? (Q859492)

A. Give IV antibiotics and observe

B. Give IV antibiotics and refer to higher centre

C. Oral antibiotics, warn of danger signs, and send home

D. No need of treatment only home remedies

Correct Answer: C. Oral antibiotics, warn of danger signs, and send home

Explanation: The clinical manifestations indicate pneumonia based on WHO IMCI guidelines . The child presents with fast breathing (>40/min for ages 1-5 years) and chest retractions without any general danger signs . According to standard guidelines, this classification of pneumonia requires oral antibiotic therapy (5-day course of oral amoxicillin) with careful monitoring at home , rather than hospitalization or intravenous antibiotics. Pneumonia Classification: WHO IMNCI Guidelines Signs Classify as Treatment Presence of any general danger sign Severe pneumonia or very severe disease Give 1 dose of inj ampicillin & gentamycin & refer urgently to hospital Presence of either chest indrawing &/or fast breathing but no general danger sign Pneumonia Start oral Amoxicillin x 5 days. The child is sent home and assessed after 48 hours. If the child has improved, continue the same treatment. If the child has worsened, refer to a higher center. No fast breathing, no chest indrawing, no general danger signs No pneumonia: cough or cold only Home-based supportive care Fast Breathing Criteria: < 2 months: > 60/min 2-12 months: > 50/min 1-5 years: > 40/min General Danger signs: Convulsions Lethargy Inability to drink or breastfeed Persistent vomiting Unconsciousness Stridor in a calm child Incorrect Options: Give IV antibiotics and observe (Option A): IV antibiotics are reserved for severe pneumonia or cases with danger signs. This level of intervention is not warranted for a case without danger signs and represents overtreatment. Give IV antibiotics and refer to higher centre (Option B): Referral to a higher center is indicated only for severe cases with danger signs such as lethargy, inability to drink, or persistent vomiting. The child's current presentation does not warrant this level of care. No need of treatment only home remedies (Option D): This approach would be appropriate for cases with no fast breathing and no chest retractions. Given the presence of tachypnea and retractions, antibiotics are necessary, making home remedies alone insufficient.

References:

WHO Integrated Management of Childhood Illness (IMCI) Guidelines, 2019 Edition, Pages 45-47

OP Ghai Essential Pediatrics, 10th Edition, Page 402-405.

↑ *Back to this question in Part A*

Q6: Which of the following should be administered in addition to airway management for a 3-year-old child experiencing symptoms such as rapid breathing, high fever, noisy breathing during inhalation, and difficulty swallowing with excessive saliva production within 4-6 hours of the onset of fever? (Q856432)

A. Nebulisation with racemic adrenaline

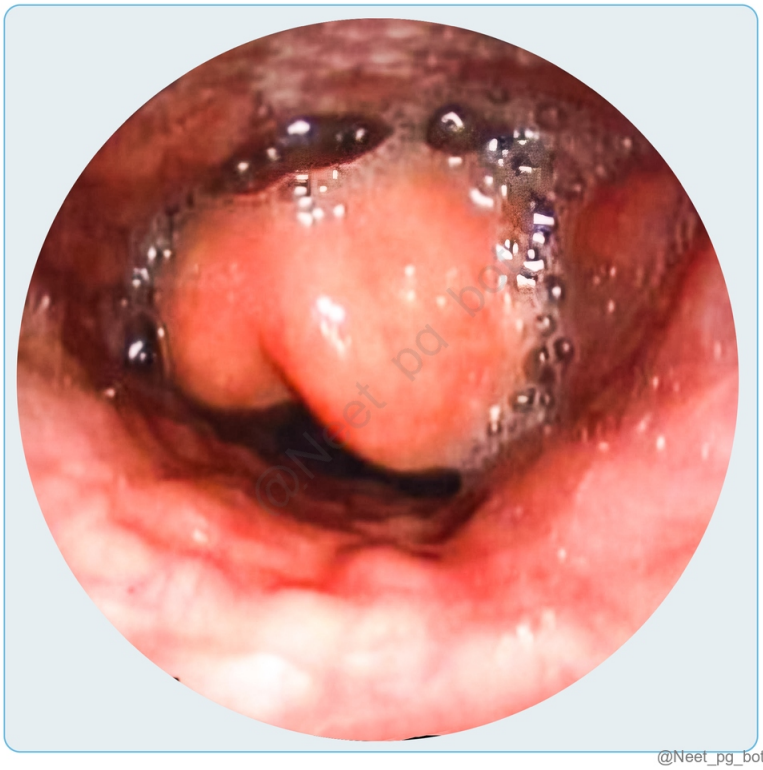
B. IV ceftriaxone

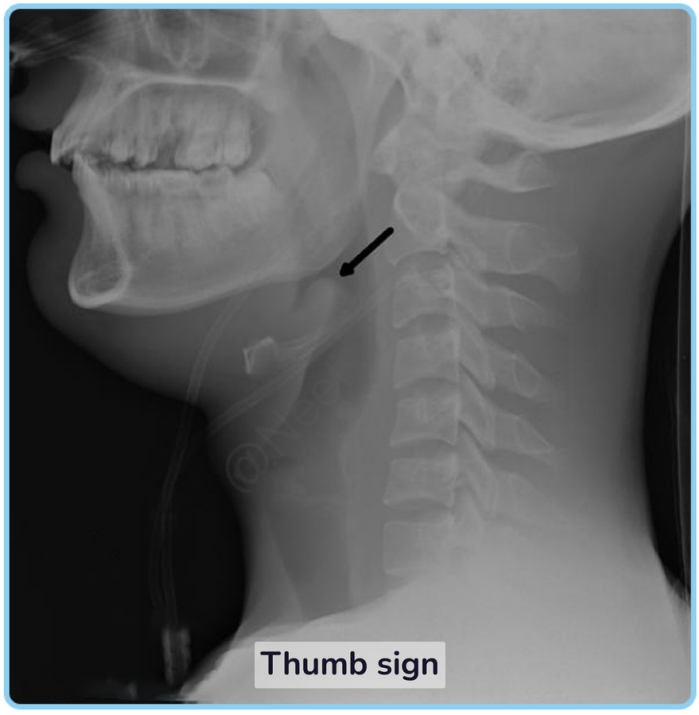
C. Diphtheria antitoxin

D. Start steroids

Correct Answer: B. IV ceftriaxone

Explanation: The given clinical scenario is suggestive of acute epiglottitis. The primary treatment for acute epiglottitis is the prompt administration of intravenous antibiotics, such as ceftriaxone or cefotaxime. Acute Epiglottitis Life-threatening infection that causes profound swelling of the upper airways, which can lead to asphyxia and respiratory arrest. Causative Agent Past Era (Pre-vaccine): Haemophilus influenzae type b (Hib) Post-vaccine Era: Streptococcus pneumoniae (M/c), Streptococcus pyogenes, non-typeable H. influenzae, and Staphylococcus aureus Hib cases have decreased by 99% due to widespread vaccination. Clinical Features Child appears toxic with high fever , rapid breathing. Difficulty swallowing with excessive saliva production (drooling) . Neck hyperextension to maintain airway, Tripod position (sitting upright, leaning forward) Stridor (noisy breathing during inhalation) is a late sign indicating near-complete airway obstruction. Cyanosis, Coma. Diagnosis Laryngoscopy: Large, cherry-red, swollen epiglottis {{caption_text}} Lateral neck X-ray: Thumb sign {{caption_text}} Treatment Immediate Treatment: Secure airway. Intubation decreases mortality from 6% to <1% in epiglottitis cases. Culture Collection: Blood, epiglottic surface and CSF in certain cases after the airway is stabilized. Antibiotics: Ceftriaxone , cefepime or meropenem given parenterally for 10 days. Recovery Symptoms improve with a few days of antibiotics, and the patient may be extubated.





References:

Nelson Textbook of Pediatrics, Edition 21 page no: 2202-2205

OP Ghai Essential Pediatrics Edition 10 page no:391, 392

https://www.ncbi.nlm.nih.gov/books/NBK441873/

https://www.ncbi.nlm.nih.gov/books/NBK431070/

https://www.ncbi.nlm.nih.gov/books/NBK430960/

https://www.sciencedirect.com/science/article/pii/S1930043321002156

↑ *Back to this question in Part A*

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Q7: A baby assessed 5 minutes after birth is found to be pink, with blue extremities and irregular respiration. The heart rate is 80 beats per minute. There is a grimace and some flexion. What is the APGAR score for this baby? (Q856777)

A. 2

B. 3

C. 4

D. 5

Correct Answer: D. 5

Explanation: In the given case: Appearance: Pink body with blue extremities (score = 1) Pulse rate: 80 beats/min (score = 1) Grimace: Shows grimace (score = 1) Activity: Some flexion (score = 1) Respiratory effort: Irregular breathing (score = 1) Therefore, the total score is 5. APGAR score: The APGAR score is an objective method of evaluating the newborn’s condition. It is performed at 1 minute and again at 5 minutes after birth. Resuscitation must be initiated before the 1 minute score is assigned. Therefore, it is not used to guide the resuscitation. 0 1 2 Appearance Completely blue or pale The body is pink, and the extremities are blue Completely pink Pulse rate Absent <100/min >100/min Grimace No response Grimaces only Coughs/sneezes Activity Limp and flaccid Some flexion present Flexed posture and actively moving limbs Respiratory effort None Slow and irregular Normal/strong Interpretation: Normal APGAR score is ≥7 Maximum score = 10; Minimum score = 0 Score for severe birth asphyxia = 0 - 3

References:

Ghai Essential Pediatrics, 9th edition, Page 127

Nelson Textbook of Pediatrics, 21st edition, Page 872

↑ *Back to this question in Part A*

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Q8: Which of the following PFT findings in a child do not suggest asthma? (Q856767)

A. Increase in FEV1 > 12% after salbutamol inhalation

B. FEV1/FVC < 80%

C. Day-night variation of FEV1 > 15%

D. Decrease in FEV1 > 15% after exercise

Correct Answer: C. Day-night variation of FEV1 > 15%

Explanation: In asthma, lung function typically shows significant variability during the day, but the day-night variation of FEV1 is usually <15%. A variation >15% may indicate other conditions such as sleep apnea, or vocal cord dysfunction. Investigations of Asthma: Spirometry: Airflow limitation: Low FEV1 (relative to the percentage of predicted norms) FEV1/FVC ratio <0.80 (Option B) Bronchodilator response (to inhaled ß-agonist) assesses reversibility Reversibility is determined by an increase in either FEV1 >12% or Predicted FEV1 >12% after inhalation of a short-acting ß-agonist (SABA) (Option A) Exercise challenge: Worsening in FEV1 ≥15% (Option D) Daily peak expiratory flow (PEF) or FEV1 monitoring: Day-to-day and/or AM-to-PM variation ≥ 20% Exhaled nitric oxide (FeNO): A value of >20 ppb supports the clinical diagnosis of asthma in children FeNO can be used to predict response to ICS therapy Chest Radiographs: Chest radiographs often appear normal. May show subtle signs such as hyperinflation (flattening of the diaphragms) and peribronchial thickening Allergy Testing: Assesses sensitization to inhalant allergens.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1190,1191,1192

Ghai Essential Pediatrics, 10th edition, Page408

↑ *Back to this question in Part A*

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Q9: A 5-year-old male with a known history of asthma developed sudden onset breathlessness and wheezing. He was rushed to the emergency, where the preliminary assessment was done. The pulse is 140/min, respiratory rate 28/min, and the FEV1 is 40% of the predicted value. Which of the following is the best next step in treatment in this case? (Q857602)

A. A high concentration of oxygen should be given by a face mask + Salbutamol nebulization

B. High doses of SABA to be given by a nebulizer only

C. Sedatives should be added to alleviate anxiety

D. Nebulized anticholinergics to be added immediately as the mainstay of treatment

Correct Answer: A. A high concentration of oxygen should be given by a face mask + Salbutamol nebulization

Explanation: yanosis, silent chest, poor respiratory effort, exhaustion, altered mental state, PEF <30%, oxygen saturation <90%. Immediate Management Oxygen Therapy : Administer for hypoxemia. Systemic Bronchodilators : Terbutaline or adrenaline subcutaneously; inhaled bronchodilators (salbutamol , ipratropium). Systemic Corticosteroids: IV hydrocortisone (5 mg/kg). ICU Transfer: For monitoring and advanced care. ICU Management Continuous Monitoring: Vital signs, oxygen saturation, PEF. If Improvement Noted: Continue inhaled bronchodilators (salbutamol/terbutaline) every 20-30 minutes. Maintain hydrocortisone at 2-3 mg/kg every 6-8 hours until the patient can take oral medication. If No Improvement or Deterioration: Consider slow intravenous infusion of magnesium sulfate (50 mg/kg). Alternatively, administer a loading dose of theophylline. If these measures fail, prepare for mechanical ventilation. Address Underlying Causes: Check for acidosis, pneumothorax, electrolyte imbalance, and infection. Options B, C, and D are insufficient methods for the treatment of severe acute exacerbation of asthma and are hence incorrect.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 1206-1209.

↑ *Back to this question in Part A*

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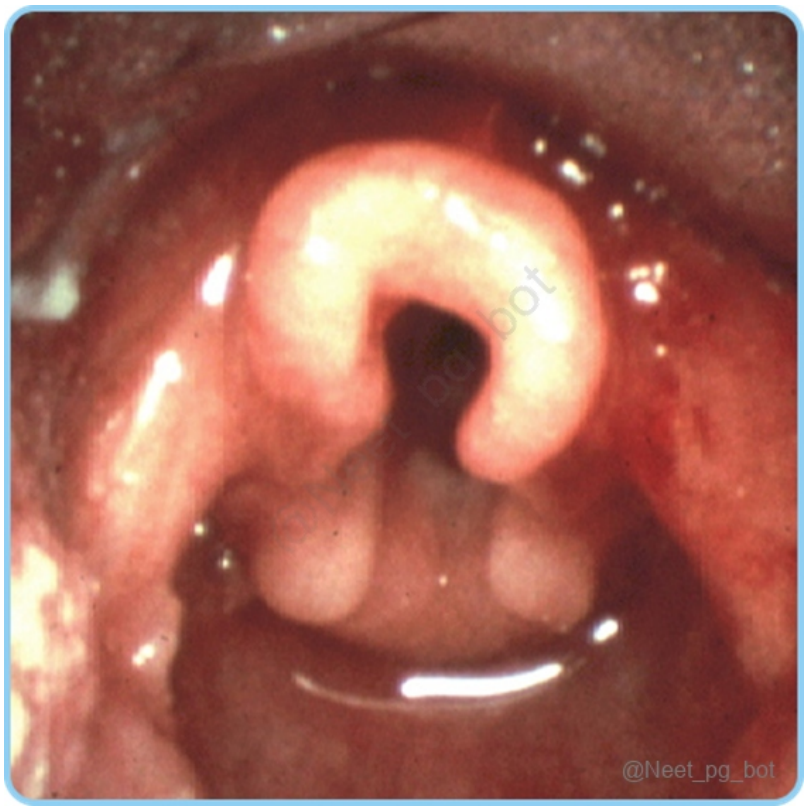
Q10: The following image is of the most common cause of stridor in children. Identify it. (Q857220)

A. Laryngomalacia

B. Laryngeal papilloma

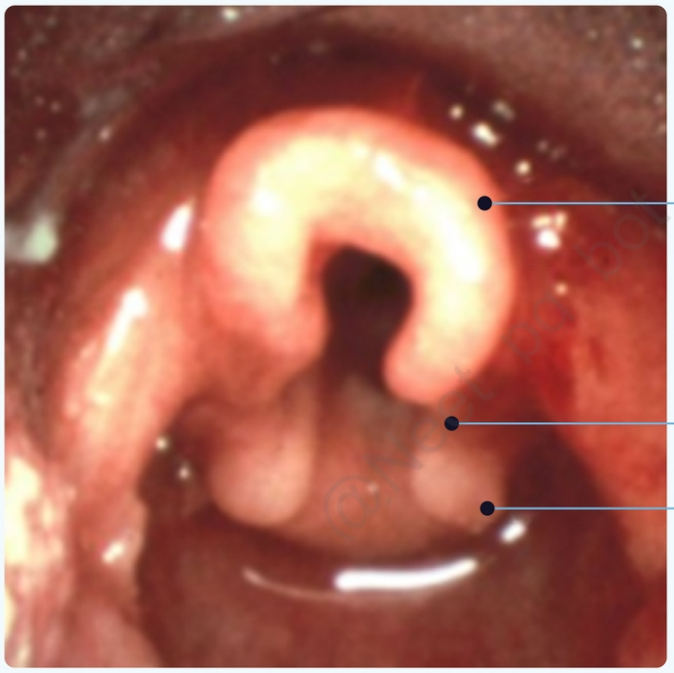
C. Chronic epiglottitis

D. Laryngocele



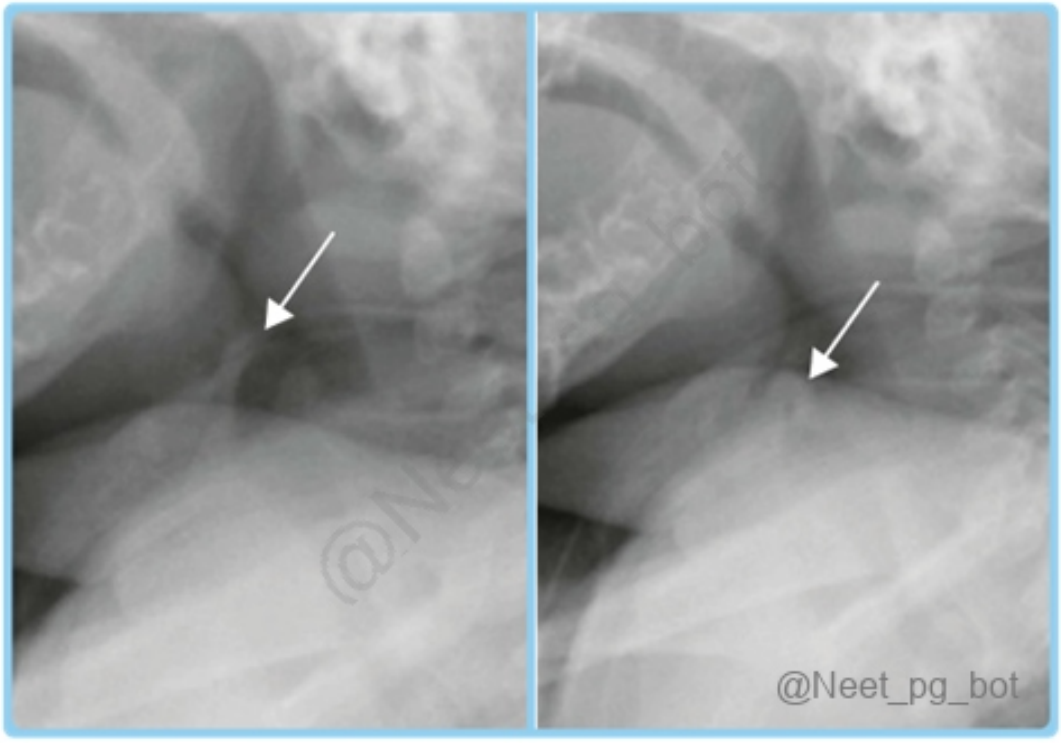
Correct Answer: A. Laryngomalacia

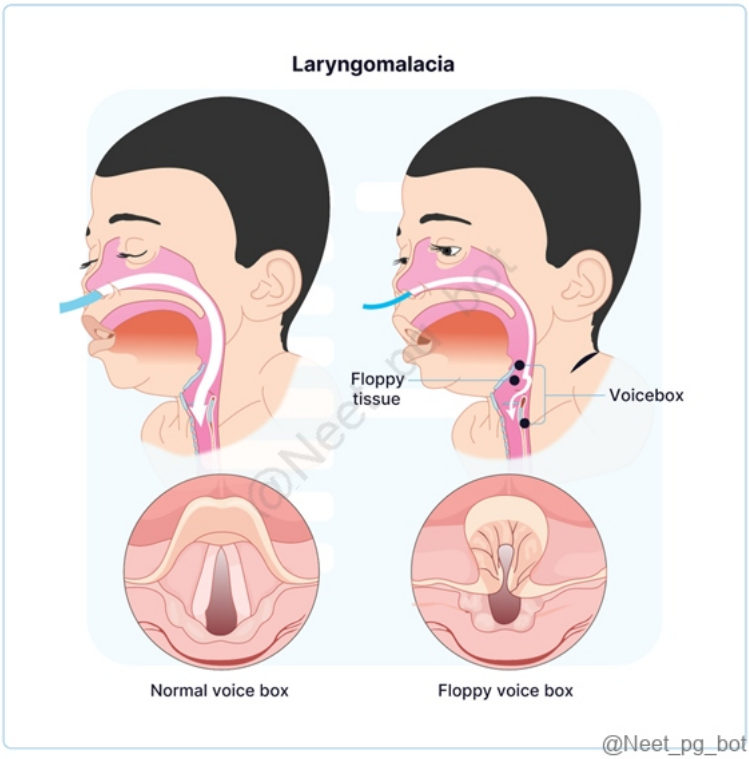
Explanation: iagnosis is made mainly by clinical symptoms. Outpatient flexible laryngoscopy is done to confirm the diagnosis but is not suitable for a baby as well as when dysphagia is suspected. Laryngoscopy sows the omega sign: The inward curling of the epiglottis to become omega-shaped. {{caption_text}} Airway films and chest radiographs are done when the work of breathing is moderate to severe. {{caption_text}} A contrast swallow study or Flexible endoscopic evaluation of swallowing (FEES) is considered when dysphagia is suspected. Complete bronchoscopy is done for those with moderate to severe obstruction. Treatment Expectant observation for most infants as the spontaneous resolution of symptoms as the child grows is seen. Laryngoesophageal reflux and GERD are treated with proton pump inhibitors or histamine receptor antagonists, considering the possible iron deficiency anaemia. Supraglottoplasty is done in case of severe disease that causes progressive respiratory distress, cyanosis, failure to thrive, or cor pulmonale. Earlier intervention is needed in children with cardiac disease, neurologic disease, pulmonary disorders, or craniofacial anomalies. Laryngeal papilloma (Option B) is an overgrowth of the epithelium caused by HPV and not by floppy tissues above the vocal cords as seen in the given image. Chronic epiglottitis (Option C) is diagnosed clinically and laryngoscopy is not usually done. It is an inflammatory condition and may cause stridor but it is not the most common cause and the given image is not of epiglottitis. Laryngocoele (Option D) is an abnormal dilation of the saccule of the larynx and is not the most common cause of stridor in children.



Laryngomalacia

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References:

Nelson Textbook of Pediatrics, 21st edition, Page: 2207.

https://www.ncbi.nlm.nih.gov/books/NBK430960/

https://www.ncbi.nlm.nih.gov/books/NBK562327/

↑ *Back to this question in Part A*

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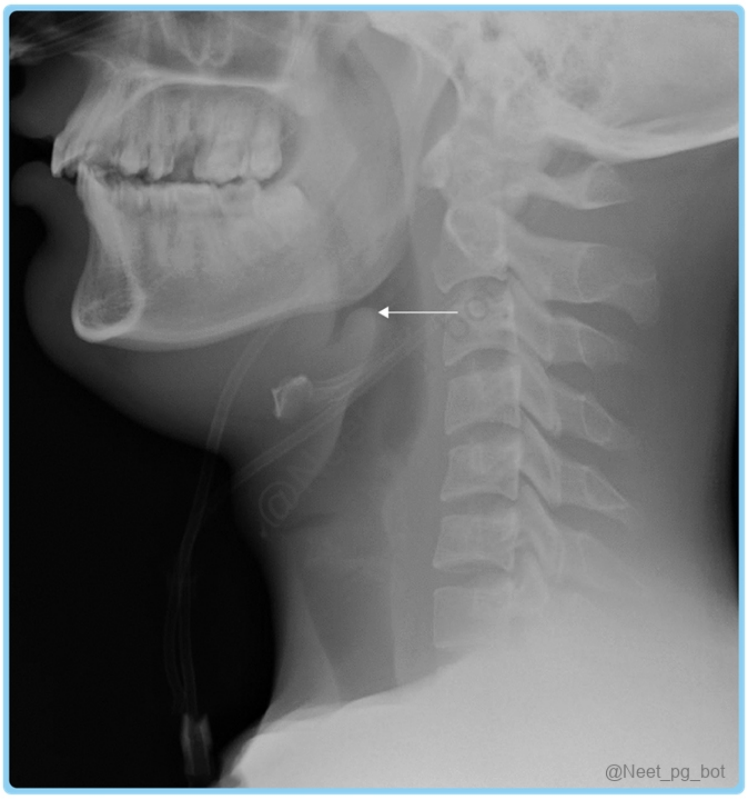
Q11: A child was brought to the emergency room, with a fever for 2 days, dyspnea, drooling and inspiratory stridor. Lateral x-ray neck findings were as seen below. Which is the most common organism (in India) that causes this condition in children? (Q857198)

A. Haemophilus influenza B

B. Influenza virus

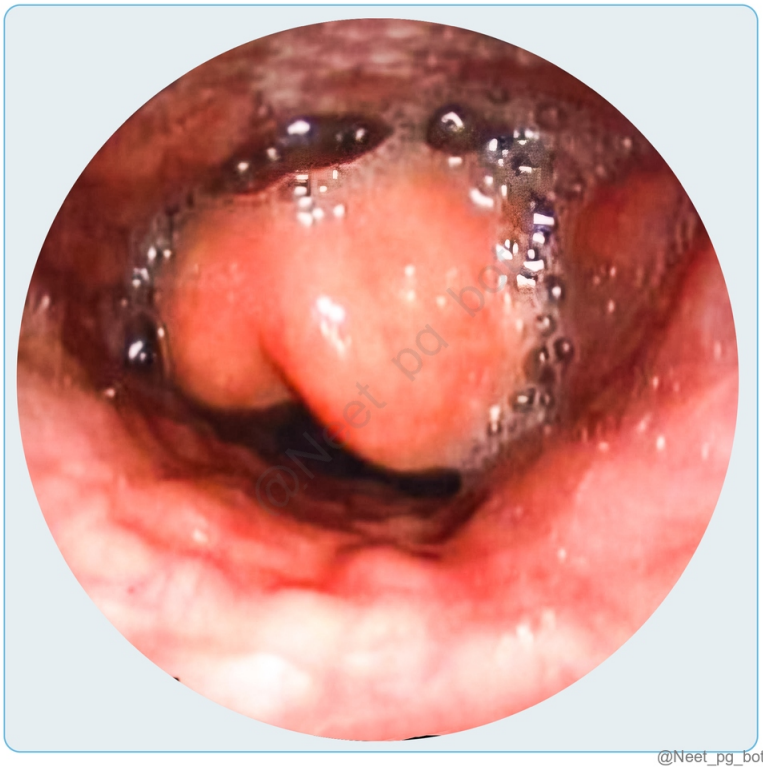
C. Staphylococcus

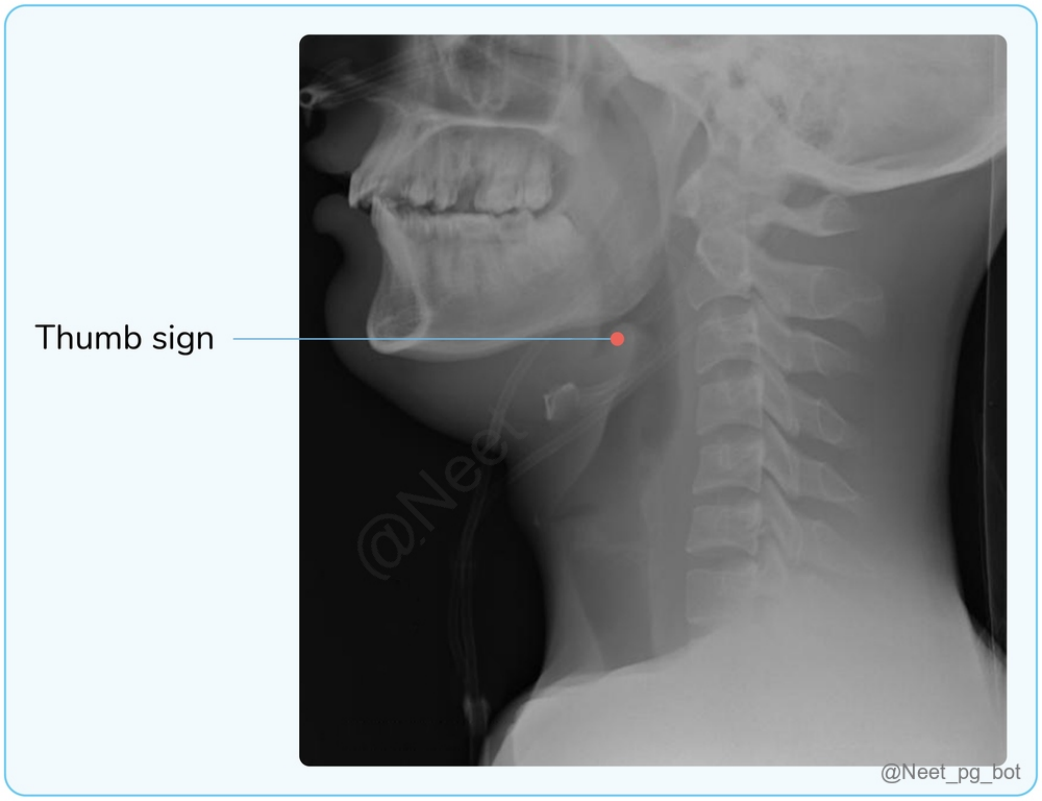
D. RSV



Correct Answer: A. Haemophilus influenza B

Explanation: ra (Pre-vaccine): Haemophilus influenzae type b (Hib) Post-vaccine Era: Streptococcus pneumoniae (M/c), Streptococcus pyogenes, non-typeable H. influenzae (Option B) , and Staphylococcus aureus (Option C) Hib cases have decreased by 99% due to widespread vaccination Clinical Features High fever Sore throat Dyspnea Respiratory obstruction Respiratory distress The child appears toxic Difficulty swallowing Labored breathing Drooling Neck hyperextension to maintain airway Tripod position (sitting upright, leaning forward) Stridor is a late sign indicating near-complete airway obstruction Cyanosis Coma Diagnosis Laryngoscopy: Large, cherry-red, swollen epiglottis {{caption_text}} Lateral neck X-ray: Thumb sign {{caption_text}} Treatment Immediate Treatment: Secure the airway with endotracheal or nasotracheal intubation or, less often, with tracheostomy. Intubation is generally for 2-3 days. Intubation decreases mortality from 6% to <1% in epiglottitis cases. Culture Collection: Blood, epiglottic surface and CSF in certain cases after the airway is stabilized. Antibiotics: Ceftriaxone, cefepime or meropenem given parenterally for 10 days. Recovery Symptoms improve with a few days of antibiotics, and the patient may be extubated. RSV (Resoiratory syncytial virus) (Option D) is incorrect as it is not the most common causative agent of epiglottitis.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 2203, 2204, 2205.

https://www.ncbi.nlm.nih.gov/books/NBK430960/

↑ *Back to this question in Part A*

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Q12: A child presents with acute exacerbation of asthma. Which of the following would you do? Chest X-ray Oxygen administration Salbutamol nebulization three times in 60 minutes Administration of oral corticosteroids (Q855050)

A. 3, 4

B. 1, 4

C. 1, 3, 4

D. 2, 3, 4

Correct Answer: D. 2, 3, 4

Explanation: In acute asthma exacerbation, oxygen administration, salbutamol nebulization, and oral corticosteroids are essential to stabilize the patient, while a chest X-ray is not routinely needed unless alternative diagnoses or complications are suspected. Management of Acute Asthma attacks Immediate Treatment Oxygen Therapy (2): Administer via mask or nasal cannula to maintain SpO2 > 92%. Inhaled SABAs (3): Albuterol: 2.5 mg/3 mL nebulized every 20 mins for 3 doses; Levalbuterol: 1.25 mg/0.5 mL up to 3 doses every 20 mins. Systemic Corticosteroids (4): Prednisone: 1-2 mg/kg/day orally (max 60 mg/day); Methylprednisolone: 1-2 mg/kg IV, then oral dosing. Adjunctive Treatments Inhaled Anticholinergics, Ipratropium Bromide: 0.5 mg nebulized every 6-8 hours as needed. Intravenous Magnesium Sulfate: 25-75 mg/kg IV over 20 minutes (max 2 grams). Escalation of Care Continuous Nebulization: Albuterol: 10-15 mg/hour via nebulizer. Parenteral β-Agonists: Terbutaline: 2-10 µg/kg IV loading dose followed by 0.1-0.4 microgram/kg/min titrate in 0.1-0.2 µg/kg/min increments every 30 min Epinephrine: 0.01 mg/kg SC or IM, repeat every 15-30 min if needed. Monitoring & Management Close Monitoring: Continuous monitoring of vital signs, oxygen saturation, and clinical response. Assess improvement in symptoms, PEF, and lung function. Risk Assessment for Discharge: Criteria: Sustained improvement, PEF > 70% predicted, oxygen saturation > 92% on room air. Ensure home capability for medication administration.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1204-1206

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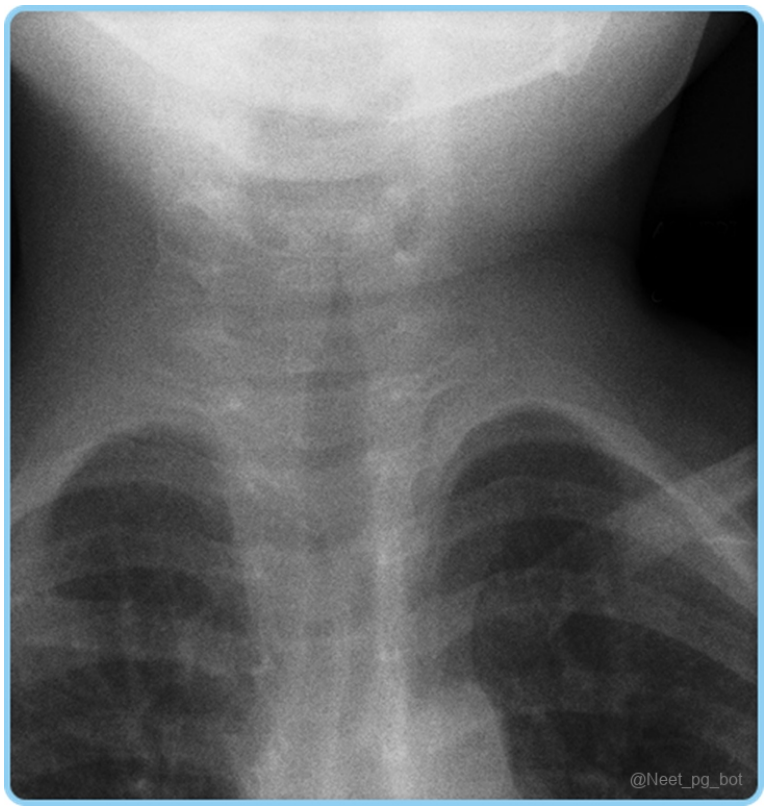
Q13: A child is brought to the hospital with respiratory distress and biphasic stridor. The radiograph is shown below. What is the diagnosis? (Q855508)

A. Acute epiglottitis

B. Acute laryngotracheobronchitis

C. Foreign body aspiration

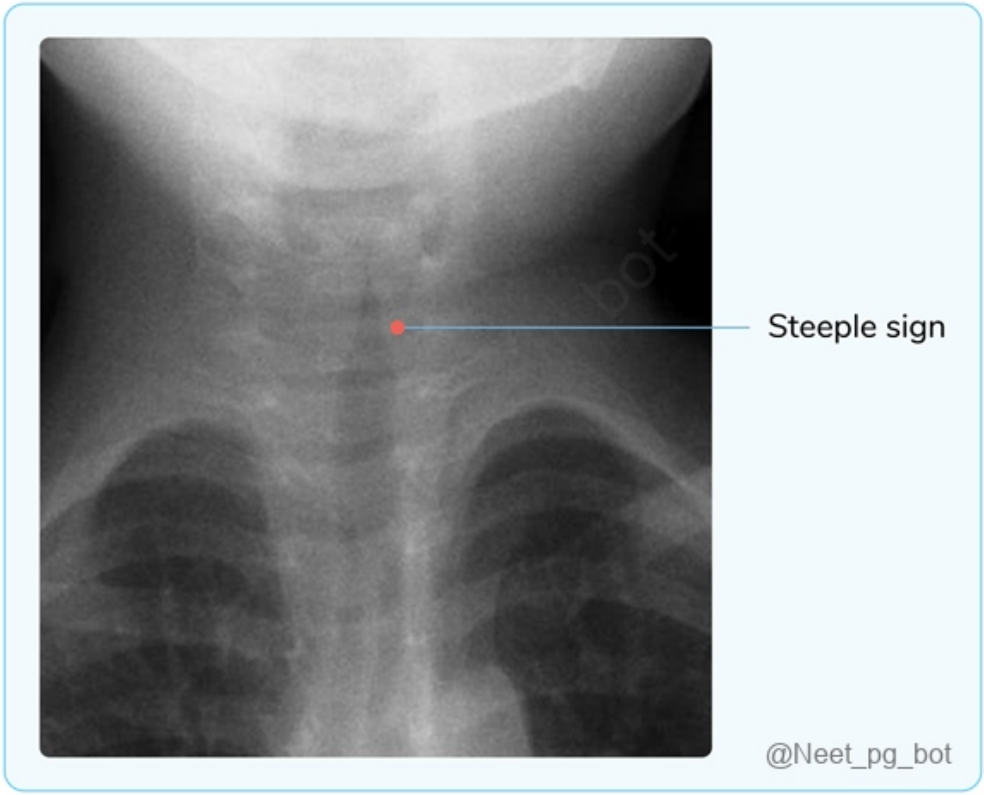
D. Laryngomalacia

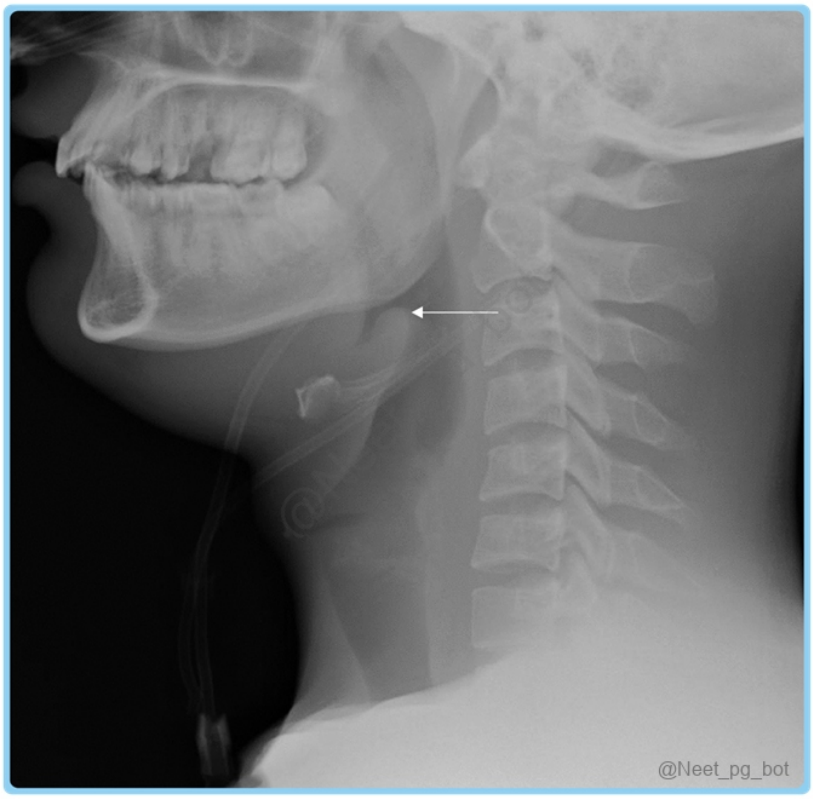


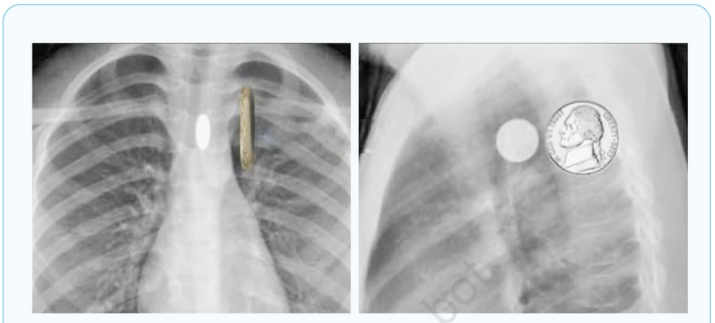
Correct Answer: B. Acute laryngotracheobronchitis

Explanation: A child with biphasic stridor and respiratory distress are hallmark features of acute laryngotracheobronchitis. Laryngotracheobronchitis (Croup): Refers to viral infection of the glottic and subglottic regions. Causative Agent Parainfluenza viruses (types 1,2 and 3) cause about 75% cases. Other Viruses: Influenza A and B Adenovirus Respiratory syncytial virus Measles Age Group Most common in children aged 3 months to 5 years. Peak incidence occurs in the 2nd year of life. Initial Symptoms These symptoms last 1-3 days before development of upper airway obstruction signs and symptoms. Upper Respiratory tract infection Rhinorrhea Pharyngitis Mild cough Low-grade fever Progressive Symptoms Barking cough Hoarseness Inspiratory stridor Fever may reach 39-40°C (102.2-104°F) or be absent. Child prefers to sit up in bed or be held upright. Symptoms worsen at night, recur over days and resolve within a week. Physical Examination Findings Hoarse voice Coryza Normal to moderately inflamed pharynx. Slightly increased respiratory rate. Hypoxia and low oxygen saturation (seen only in complete airway obstruction). Diagnosis Clinical diagnosis X-ray PA view of neck: Steeple sign, which is characteristic of subglottic narrowing {{caption_text}} Treatment Mainstay of Treatment: Focus on

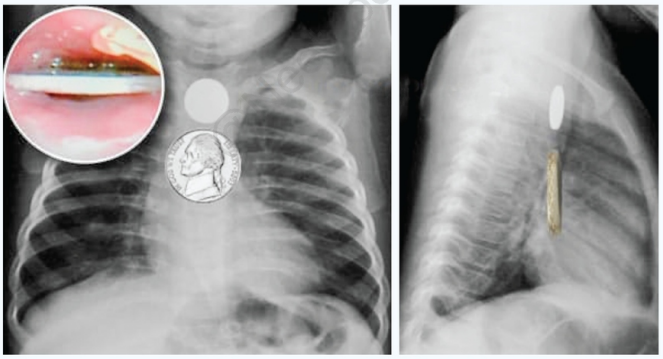
airway management and hypoxia treatment. Mild croup: Single dose dexamethasone. Moderate to severe croup: Nebulized epinephrine in addition to dexamethasone. Nebulized Racemic Epinephrine: Used for moderate to severe stridor at rest, possible need for intubation, respiratory distress and hypoxia. Corticosteroids: Decrease edema in laryngeal mucosa Oral steroids beneficial in mild croup Dexamethasone 0.6 mg/kg single dose; as low as 0.15 mg/kg may be effective. Antibiotics are not indicated. Acute epiglottitis (Option A) typically presents with a rapidly worsening fever, difficulty breathing, drooling, and a child in a hyperextended neck position to ease breathing. Stridor is a late sign, often accompanied by a toxic appearance. Radiographs show the thumb sign (enlarged epiglottis). {{caption_text}} Foreign body aspiration (Option C) often presents with a sudden onset of symptoms, including coughing, choking, and gagging, followed by localized wheezing or differences in breath sounds on auscultation. {{caption_text}} Laryngomalacia (Option D) is a congenital condition characterized by chronic inspiratory stridor in infants, typically low-pitched and worsening with activity or crying. Laryngoscopy reveals an omega-shaped epiglottis, a key diagnostic feature. {{caption_text}}





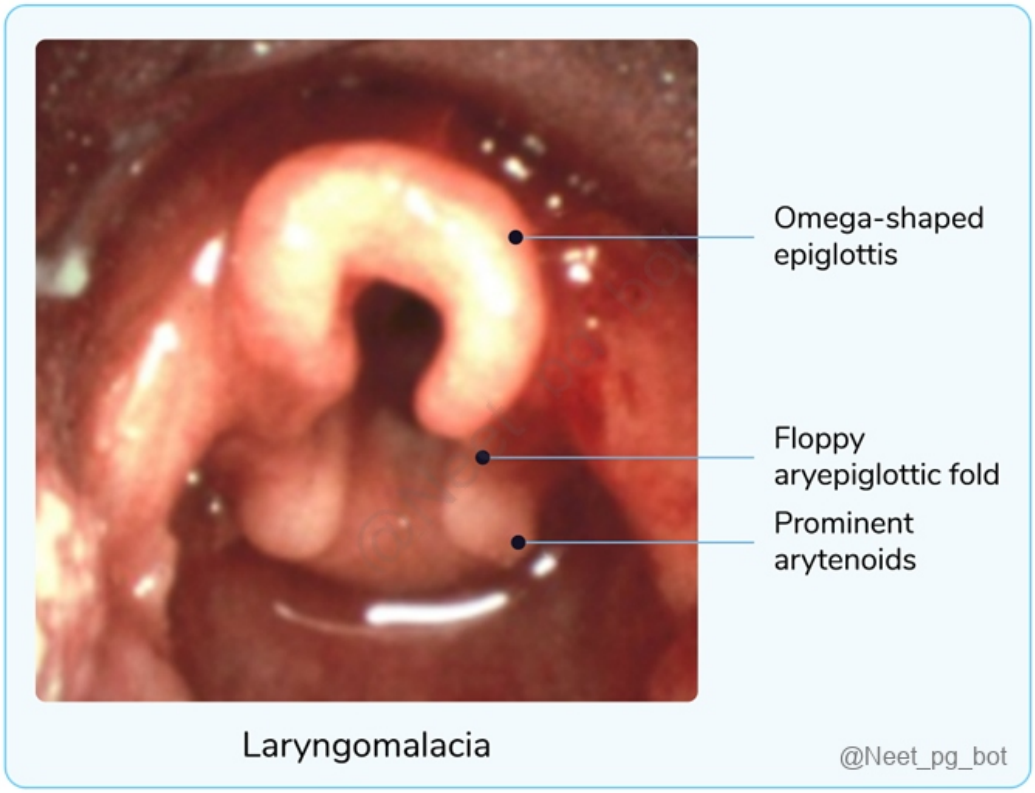


COIN IN TRACHEA



COIN IN ESOPHAGUS

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References:

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https://www.ncbi.nlm.nih.gov/books/NBK431070/

↑ *Back to this question in Part A*

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Q14: A 4-month-old infant is brought to the emergency department with a respiratory rate of 66 breaths per minute, along with chest indrawing and nasal flaring. There are no other significant findings. What is the most likely diagnosis? (Q866762)

A. Pneumonia

B. Severe pneumonia

C. Severe asthma

D. Common cold

Correct Answer: A. Pneumonia

Explanation: In infants aged 2–12 months , WHO IMNCI (Integrated Management of Neonatal and Childhood Illness) classifies: Pneumonia: Presence of either chest indrawing &/or fast breathing (≥50/min) or both, but no general danger sign. Severe pneumonia: Cough or difficulty breathing plus any danger sign (e.g., chest indrawing with general danger signs such as inability to feed, lethargy, convulsions, hypoxia). Classification Signs Treatment Severe Pneumonia or Very Severe Disease Any general danger sign OR Oxygen saturation <90% Stridor in calm child Central cyanosis Convulsions AVPU = V, P, or U Start oxygen therapy if saturation < 90%. Administer Benzyl Penicillin & Gentamicin. Give diazepam if convulsing. Prevent low blood sugar. Treat wheeze if present. Urgent referral or admission. Pneumonia Presence of either chest indrawing &/or fast breathing or both but no general danger sign Administer Amoxicillin Dispersible Tablet. Give Vitamin A. Treat wheeze if present. Follow up in 5 days Advise on immediate return signs. No Pneumonia: Cough or Cold No signs of pneumonia or very severe disease Treat wheeze if present - salbutamol for 5 days Advise on immediate return signs. In this case: Age = 4 months (threshold for tachypnea ≥50/min; child has 66/min). Signs = Chest indrawing and nasal flaring, but no danger signs like inability to feed, cyanosis, altered consciousness. Fits pneumonia classification, not severe pneumonia. Incorrect Options: Severe pneumonia (Option B): Requires danger signs or hypoxia; not present here. Severe asthma (Option C): Rare in infants; asthma usually diagnosed in older children with recurrent wheezing. Common cold (Option D): No tachypnea or significant respiratory distress.

↑ *Back to this question in Part A*

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Q15: A newborn presented with chest retractions, dyspnea, and lethargy. The pediatrician diagnosed the baby with respiratory distress syndrome. This occurs due to a deficiency of: (Q855490)

A. Dipalmitoyl inositol

B. Lecithin

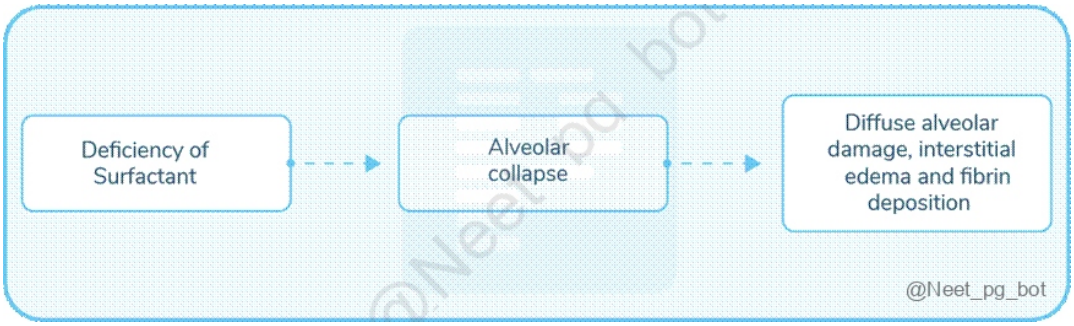
C. Sphingomyelin

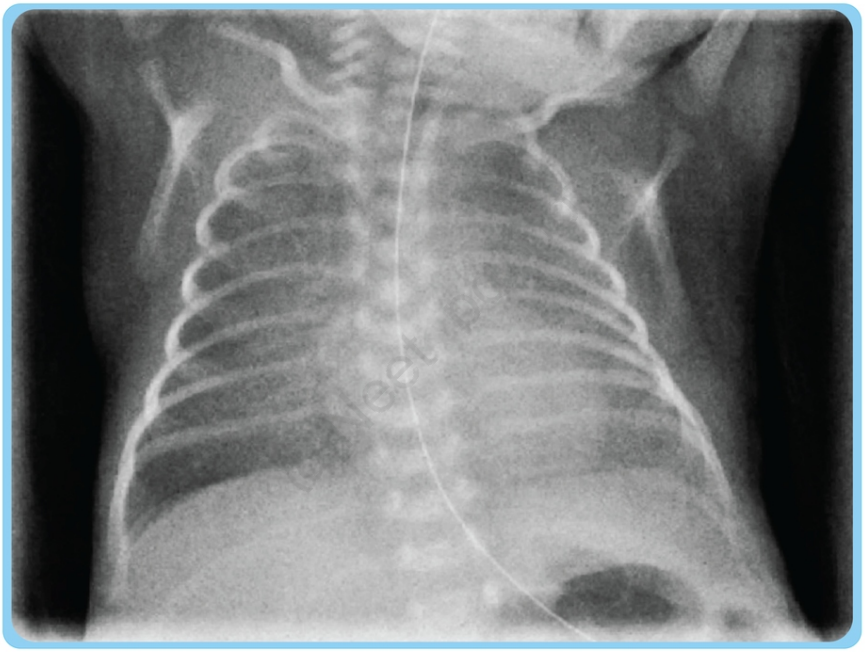
D. Dipalmitoylphosphatidylethanolamine

Correct Answer: B. Lecithin

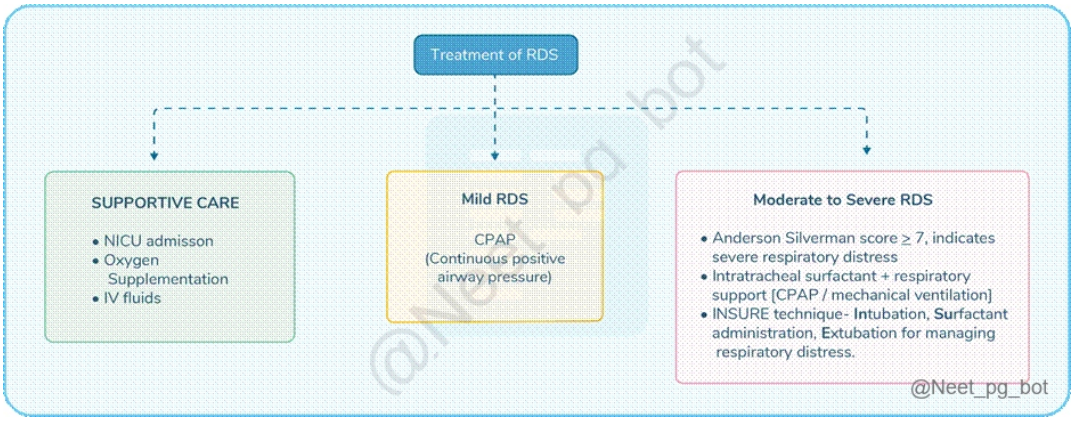
Explanation: Respiratory distress syndrome in a neonate is likely due to a deficiency of Lecithin. Respiratory Distress Syndrome/Hyaline Membrane Disease (HMD): It is a common respiratory condition in preterm infants (<34 weeks of gestation) caused by surfactant deficiency. Pathophysiology: Surfactant is primarily produced by type II alveolar cells and reduces surface tension, preventing alveolar collapse at the end of expiration. Surfactant is composed of phospholipids, proteins, and lipids. Phosphatidylcholine, also known as lecithin , is a significant phospholipid in mature surfactants. Its production begins around 20 weeks of gestation and peaks at 35 weeks, so infants born before 35 weeks are at higher risk for RDS due to insufficient surfactant. Without adequate surfactant,

alveoli collapse during expiration, impairing gas exchange and causing tissue hypoxia. This results in increased pulmonary pressure, ischemic damage, and the formation of a hyaline membrane from protein transudation. {{caption_text}} Clinical Features: Respiratory distress within the first 6 hours of life is characterised by tachypnea, retractions, grunting, cyanosis, and decreased air entry. Typical X-ray findings in RDS include: Ground glass haziness of lungs: Represents diffuse alveolar atelectasis, commonly seen in RDS. Presence of air bronchogram: Air-filled bronchi are visible against the hazy, collapsed alveoli, a classic feature of RDS. Air bronchogram can be seen in parenchymal pathology of the lung, such as consolidation, pulmonary alveolar proteinosis. Reticulogranular pattern: Another term for the ground-glass appearance, indicating the fine, granular pattern throughout the lungs characteristic of RDS. {{caption_text}} Management: Neonates with this condition require admission to the neonatal intensive care unit, IV fluids, and appropriate respiratory support. Further management details are depicted in the table below, {{caption_text}} Dipalmitoyl inositol (Option A) : While it serves as a precursor in secondary messenger systems and plays roles in cell signaling and membrane trafficking, it is not involved in surfactant production or the prevention of respiratory distress syndrome. Sphingomyelin (Option C) is the dominant sphingolipid in the plasma membrane. The lecithin/sphingomyelin (L/S) ratio in amniotic fluid is a marker of fetal lung maturity, but sphingomyelin itself does not directly contribute to alveolar stability. Dipalmitoylphosphatidylethanolamine (Option D) : Found in cell membranes, it lacks the essential surface tension-reducing properties of dipalmitoylphosphatidylcholine (lecithin), which is crucial for preventing alveolar collapse and respiratory distress syndrome.





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References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 157, 158, 159

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Q16: A 6-year-old boy was brought in with a history of chronic cough and foul-smelling stools. His sibling, who had similar complaints, died a few years back. Sweat chloride test and CFTR gene studies were done. CFTR gene codes for proteins

involved in the transport of (Q854730)

A. Na+

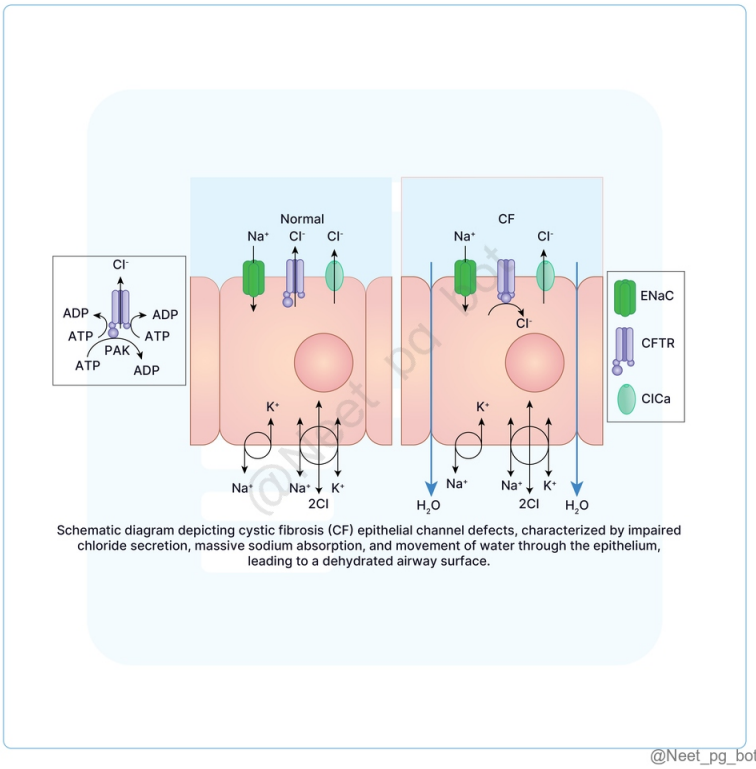
B. HCO3-

C. Cl-

D. K+

Correct Answer: C. Cl-

Explanation: The clinical scenario described is highly suggestive of cystic fibrosis (CF), a genetic disorder caused by mutations in the CFTR (cystic fibrosis transmembrane conductance regulator) gene. This gene encodes a chloride channel that plays a crucial role in the transport of chloride ions (Cl-) across epithelial cell membranes, particularly in the sweat glands, respiratory airways, and pancreatic ducts. Cystic fibrosis Genetic Basis Gene: CFTR (Cystic Fibrosis Transmembrane Conductance Regulator) Location: Chromosome 7q31.2 Common Mutation: ΔF508 Inheritance: Autosomal recessive Pathophysiology CFTR Dysfunction: Defective chloride transport, increased sodium absorption, dehydrated mucus Metabolic: (Hypokalemia) Due to excessive loss of potassium through sweat and impaired renal potassium handling Respiratory: Airway obstruction, bacterial colonization, bronchiectasis, respiratory failure Gastrointestinal: Pancreatic duct obstruction, malabsorption, Distal Intestinal Obstruction Syndrome Sweat Glands: Salty sweat Reproductive: Infertility in males: Congenital absence of the vas deferens in males leading to azoospermia and infertility. Infertility in females: Defective CFTR in the cervix leads to the production of thick, dehydrated cervical mucus that blocks the cervical os, impairing sperm entry and reducing fertility. Clinical Features Respiratory: Chronic productive cough, recurrent infections, bronchiectasis Gastrointestinal: Steatorrhea, malabsorption, meconium ileus, failure to thrive Genitourinary: Infertility (males), delayed puberty Other: Digital clubbing, salt-loss syndromes (Contraction alkalosis) Diagnosis Diagnostic Criteria Requirement 1: Any ONE of the following Clinical Features: Presence of typical features Family History: A sibling with diagnosed cystic fibrosis Newborn Screening: Positive result indicating risk for CF IRT Screening: Elevated Immunoreactive Trypsinogen (IRT) for pancreatic insufficiency Requirement 2: At least ONE of the following Laboratory Evidence: Sweat Chloride Test: Two elevated sweat chloride concentrations on separate days ≥60 mMol/L (Pilocarpine iontophoresis method) CFTR Mutations: Identification of two CFTR mutations Nasal Potential Difference: Abnormal measurement Microbes <18 years: Staphylococcus aureus >18 years: Pseudomonas aeruginosa Burkholderia cepacia: High mortality, low incidence Management Strategies Airway Clearance: Chest physiotherapy, percussion, postural drainage Infection Control: Antibiotics, CFTR modulators Nutritional Support: High-calorie diet, Pancreatic Enzyme Replacement Therapy Vitamin supplementation (A, D, E, K) Other: Insulin for CFRD, bone health management Advanced Therapies CFTR Modulators: Ivacaftor, lumacaftor, Trikafta Trikafta: Elexacaftor-Tezacaftor-Ivacaftor (≥2 years old), improves lung function, reduces sweat chloride



Schematic diagram depicting cystic fibrosis (CF) epithelial channel defects, characterized by impaired chloride secretion, massive sodium absorption, and movement of water through the epithelium, leading to a dehydrated airway surface.

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References:

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Q17: A 9-month-old child is brought to the PHC with a fever and cough. She is feeding well and has normal urine output. On examination, a respiratory rate of 48 breaths/min is found, and no chest indrawing is seen. What is the next step of management? (Q857408)

A. Give symptomatic treatment, explain danger signs and send home

B. No pneumonia—Give amoxyclav + paracetamol and send home

C. Start IV ceftriaxone

D. Refer as the child has severe pneumonia

Correct Answer: A. Give symptomatic treatment, explain danger signs and send home

Explanation: The clinical scenario involves a 9-month-old child with fever and cough but without severe symptoms like chest indrawing, which would indicate severe pneumonia. The child's respiratory rate (RR) is 48 breaths per minute, which is normal for this age (RR >60/min would be abnormal for infants). According to the IMNCI guidelines, pneumonia is suspected if: RR >60 breaths/min for infants <2 months RR >50 breaths/min for infants 2-12 months RR >40 breaths/min for children 12 months to 6 years Lower chest wall indrawing, a sign of moderate pneumonia, is absent here. Severe pneumonia involves danger signs like lethargy, inability to drink, persistent vomiting, and convulsions, which are not present in this case. Based on this assessment, the child does not have severe pneumonia. The next step is: Give symptomatic relief by treating fever and cough, Explain the danger signs to the caregiver and send the child home with appropriate follow-up instructions. No pneumonia—Give amoxyclav + paracetamol and send home (Option B): While this treatment approach could be appropriate for non-severe cases, the child does not meet the criteria for pneumonia based on clinical signs such as the absence of chest indrawing. Instead, explaining the danger signs and monitoring at home is preferred. Start IV ceftriaxone (Option C): IV ceftriaxone is typically used in cases of severe pneumonia or when the child is unable to tolerate oral medication. This child does not have severe symptoms, so oral antibiotics (if pneumonia were diagnosed) would be sufficient. Refer as the child has severe pneumonia (Option D): The child does not have severe pneumonia as defined by the IMNCI criteria, which requires the presence of danger signs such as inability to drink or severe difficulty breathing. There is no indication for referral in this case.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 2268.

IMNCI Guidelines for 2 Months to 5 Years

WHO Guidelines: Integrated Management of Childhood Illness

Park's Textbook of Preventive and Social Medicine, 27th Edition, Page:188.

↑ *Back to this question in Part A*

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Q18: Choose the correct statements for cystic fibrosis: i. Increased Cl- in sweat. ii. Decreased Cl- in sweat. iii. Increased Cl- in pancreatic juice. iv. Decreased Cl- in pancreatic juice. (Q857393)

A. i and iii

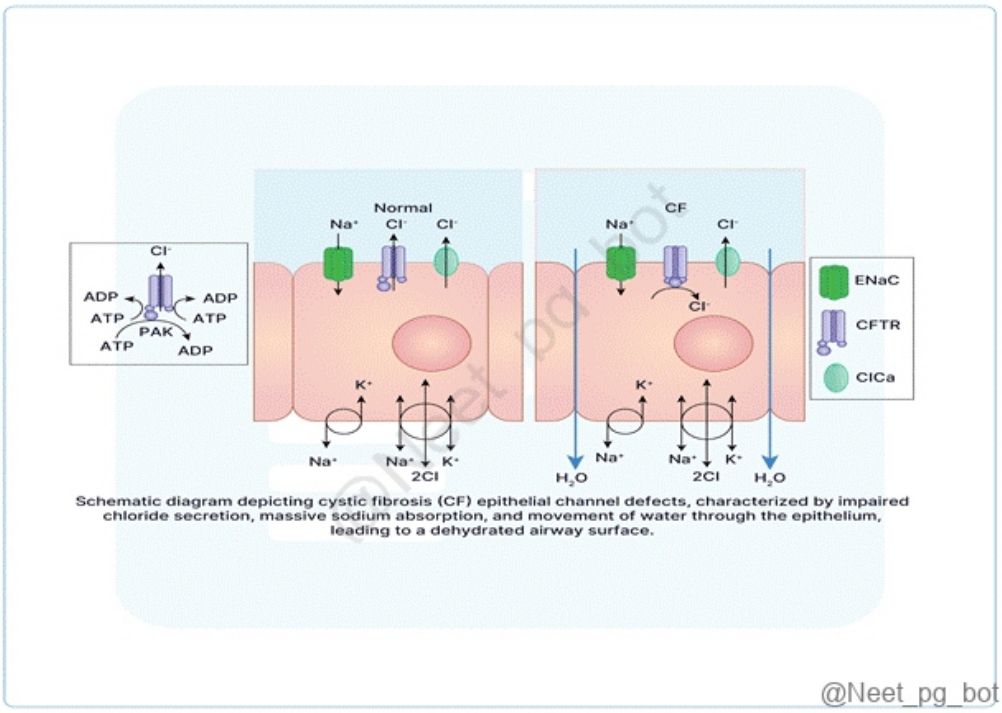
B. i and iv

C. ii and iii

D. ii and iv

Correct Answer: B. i and iv

Explanation: Cystic fibrosis (CF) is an autosomal recessive disorder caused by mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene. The CFTR protein regulates chloride channels in various organs, including the sweat glands and the pancreas, which leads to the clinical features observed in CF. Increased chloride in sweat (i): In CF, the CFTR defect leads to impaired chloride reabsorption in sweat glands. This results in abnormally high chloride levels in sweat, which is used as a diagnostic test for CF (sweat chloride test). A sweat chloride level >80 mmol/L is diagnostic of CF. Decreased chloride in pancreatic juice (iv): In CF, the CFTR defect also impairs chloride secretion in the pancreas. This results in thick and adherent exocrine secretions that obstruct pancreatic ducts, impair enzyme production, and lead to malabsorption and steatorrhea. Cystic fibrosis Genetic Basis Gene: CFTR (Cystic Fibrosis Transmembrane Conductance Regulator) Location: Chromosome 7q31.2 Common Mutation: ΔF508 Inheritance: Autosomal recessive Pathophysiology CFTR Dysfunction: Defective chloride transport, increased sodium absorption, dehydrated mucus Metabolic: (Hypokalemia) Due to excessive loss of potassium through sweat and impaired renal potassium handling Respiratory: Airway obstruction, bacterial colonization, bronchiectasis, respiratory failure Gastrointestinal: Pancreatic duct obstruction, malabsorption, Distal Intestinal Obstruction Syndrome Sweat Glands: Salty sweat Reproductive: Infertility in males: Congenital absence of the vas deferens in males leading to azoospermia and infertility. Infertility in females: Defective CFTR in the cervix leads to the production of thick, dehydrated cervical mucus that blocks the cervical os, impairing sperm entry and reducing fertility. Clinical Features Respiratory: Chronic productive cough, recurrent infections, bronchiectasis Gastrointestinal: Steatorrhea, malabsorption, meconium ileus, failure to thrive Genitourinary: Infertility (males), delayed puberty Other: Digital clubbing, salt-loss syndromes (Contraction alkalosis) Diagnosis Diagnostic Criteria Requirement 1: Any ONE of the following Clinical Features: Presence of typical features Family History: A sibling with diagnosed cystic fibrosis Newborn Screening: Positive result indicating risk for CF IRT Screening: Elevated Immunoreactive Trypsinogen (IRT) for pancreatic insufficiency Requirement 2: At least ONE of the following Laboratory Evidence: Sweat Chloride Test: Two elevated sweat chloride concentrations on separate days ≥60 mMol/L (Pilocarpine iontophoresis method) CFTR Mutations: Identification of two CFTR mutations Nasal Potential Difference: Abnormal measurement Microbes <18 years: Staphylococcus aureus >18 years: Pseudomonas aeruginosa Burkholderia cepacia: High mortality, low incidence Management Strategies Airway Clearance: Chest physiotherapy, percussion, postural drainage Infection Control: Antibiotics, CFTR modulators Nutritional Support: High-calorie diet, PERT, vitamin supplementation (A, D, E, K) Other: Insulin for CFRD, bone health management Advanced Therapies CFTR Modulators: Ivacaftor, lumacaftor, Trikafta Trikafta: Elexacaftor-Tezacaftor-Ivacaftor (≥2 years old), improves lung function, reduces sweat chloride



Schematic diagram depicting cystic fibrosis (CF) epithelial channel defects, characterized by impaired chloride secretion, massive sodium absorption, and movement of water through the epithelium, leading to a dehydrated airway surface.

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↑ *Back to this question in Part A*

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Q19: Which of the following is not a suitable method for free-flow oxygen delivery to a newborn baby? (Q840118)

A. Oxygen tube kept close to the baby's nose and mouth

B. Oxygen mask placed over the baby's mouth and nose

C. Self-inflating bag attached to an oxygen mask placed over baby's mouth and nose

D. A reservoir bag attached to an oxygen mask kept over the baby's nose and mouth

Correct Answer: C. Self-inflating bag attached to an oxygen mask placed over baby's mouth and nose

Explanation: Free-flow oxygen means oxygen delivered without positive pressure; it should flow freely around the newborn’s face. A self-inflating bag is designed to deliver positive pressure ventilation (PPV) and is not intended for free-flow oxygen delivery. It provides a higher flow rate and pressure suitable for resuscitation rather than the gentle, continuous flow needed for free-flow oxygen. Oxygen tube kept close to the baby's nose and mouth (Option A) : This method provides free-flow oxygen by directing the flow from a tube close to the baby's face, ensuring a continuous supply without the need for direct contact with the nose or mouth. Oxygen mask placed over the baby's mouth and nose (Option B) : An oxygen mask can be used to deliver free-flow oxygen efficiently, ensuring that the baby inhales the oxygen without requiring active breathing support from the mask itself. A reservoir bag attached to an oxygen mask kept over the baby's nose and mouth (Option D) : A reservoir bag attached to an oxygen mask can deliver high concentrations of oxygen when placed over the baby’s nose and mouth, suitable for providing free-flow oxygen

References:

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↑ *Back to this question in Part A*

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Q20: INSURE technique is used in which of the following conditions? (Q840115)

A. Respiratory distress syndrome

B. Birth asphyxia

C. Neonatal jaundice

D. Transient tachypnea of the newborn

Correct Answer: A. Respiratory distress syndrome

Explanation: Option A - Respiratory Distress Syndrome: The INSURE technique (IN tubation, SUR factant administration, and E xtubation) is specifically designed to treat respiratory distress syndrome (RDS) in preterm infants. This technique aims to administer surfactant therapy effectively while minimizing the duration of mechanical ventilation and associated complications. Incorrect Options: Options B, C, and D do not require the INSURE technique.

References:

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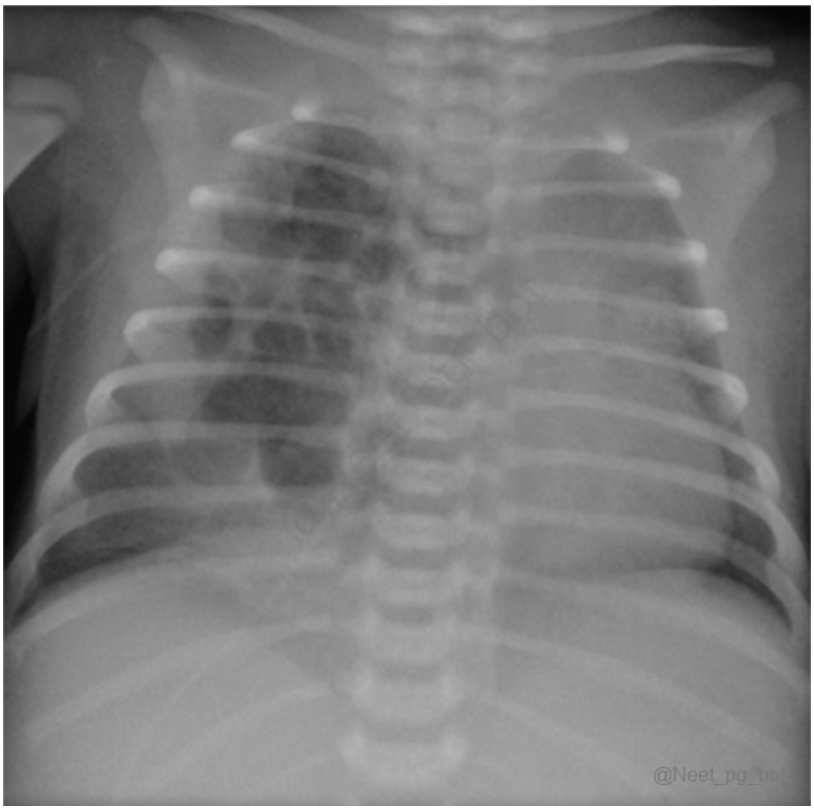
Q21: An infant presents with recurrent chest infections and tachypnea. Identify the likely clinical condition. (Q844252)

A. Congenital Cystic Adenomatoid Malformation (CCAM)

B. Right-sided Congenital Diaphragmatic Hernia (CDH)

C. Congenital Lobar Emphysema

D. Cystic Fibrosis



Correct Answer: A. Congenital Cystic Adenomatoid Malformation (CCAM)

Explanation: Correct Option A - Congenital Cystic Adenomatoid Malformation (CCAM): CCAM is a developmental abnormality of the lung characterized by cystic lesions that can cause lung dysfunction and respiratory issues. It often presents with recurrent respiratory infections and tachypnea due to the compromised lung tissue. The recurrent chest infections and tachypnea are consistent with CCAM, as the cystic lesions in the lung can lead to chronic respiratory problems and increased susceptibility to infections. Incorrect Options: Option

B - Right-sided Congenital Diaphragmatic Hernia (CDH): CDH occurs when there is a defect in the diaphragm that allows abdominal organs to move into the chest cavity, impairing lung development and function. It often presents with respiratory distress shortly after birth. Although CDH can cause tachypnea and respiratory distress, it typically presents more acutely and may be associated with other signs such as mediastinal shift or absence of breath sounds on the affected side. Recurrent chest infections are less characteristic. Option C - Congenital Lobar Emphysema: This condition involves overinflation of a lobe of the lung, which can compress adjacent lung tissue and cause respiratory distress. It usually presents with respiratory symptoms in the newborn period but is less commonly associated with recurrent infections. While congenital lobar emphysema can cause tachypnea and respiratory issues, recurrent chest infections are not a typical feature. The clinical presentation is less consistent with this diagnosis compared to CCAM. Option D - Cystic Fibrosis: Cystic fibrosis is a genetic disorder affecting the respiratory, digestive, and reproductive systems. It leads to thick, sticky mucus production that can cause chronic respiratory infections and other complications. Although cystic fibrosis can cause recurrent respiratory infections and tachypnea, it usually presents with additional symptoms such as failure to thrive, gastrointestinal issues, and a positive sweat test. The acute presentation in a newborn with recurrent infections is less characteristic.

↑ *Back to this question in Part A*

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Q22: A neonate was born to a controlled gestational diabetes mother. At the time of birth, he was fine but 4 days later, he developed dyspnea with Spo2 80% at room air. What is the initial management? (Q852533)

A. Give 21% to 30% O2

B. Give 100% O2

C. Give 50% O2

D. Observation

Correct Answer: B. Give 100% O2

Explanation: In this scenario, the child developed the symptoms after 4 days of birth, and the aetiology can be cardiac (cyanotic heart disease) or pulmonary. Hence, the best method is to give 100% oxygen to the neonate to distinguish the cause. If the saturation improves, the cause is respiratory, and if not, the cause is cardiogenic. This is called the hyperoxia test. Hyperoxia test for distinguishing CCHD from pulmonary disease This is the initial method to differentiate congenital critical heart disease (CCHD) from pulmonary disease. Procedure: Measure arterial blood gases (ABG) first at room air and then again after administering 100% oxygen for 10 minutes. Expected results in CCHD: Neonates with CCHD usually fail to increase PaO2 above 100 mm Hg with 100% oxygen. Expected Results in Pulmonary Disease: In pulmonary disease, PaO2 typically increases to ≥100 mm Hg when given 100% oxygen, as ventilation-perfusion mismatch is corrected. Interpretation: A positive result (failure to increase PaO2) suggests a cardiac origin, warranting further cardiac evaluation to rule out CCHD.

References:

https://www.ncbi.nlm.nih.gov/books/NBK500001/

↑ *Back to this question in Part A*

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Q23: A 3-month-old infant is brought to the clinic with a 2-day history of cough. The mother reports no difficulty in feeding and no history of convulsions. On examination, the child is alert, the respiratory rate is 56 breaths per minute, and oxygen saturation is 96% on room air. There is no chest indrawing, no stridor, and no general danger signs. According to the IMNCI guidelines, how should this child be classified? (Q852521)

A. Pneumonia

B. Cold and cough

C. Severe Pneumonia

D. Allergy

Correct Answer: A. Pneumonia

Explanation: Pneumonia Explantion: For children 2 months to 12 months , IMNCI defines fast breathing as ≥ 50 breaths/min . This infant has RR = 56/min , with no chest indrawing and no danger signs , so the classification is Pneumonia . No pneumonia: Cough or cold (Option B): Ruled out because the child meets the IMNCI threshold for fast breathing , which automatically classifies the illness as pneumonia. Severe pneumonia (Option C): Not applicable. The child has no danger signs (lethargy, inability to feed, convulsions, vomiting everything) and no severe signs like chest indrawing, stridor, cyanosis, or SpO■ < 90%. Wheeze (Option D): There is no wheeze or stridor on examination. Without wheeze, IMNCI does not classify under asthma/wheeze category.

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Nelson Textbook of Pediatrics, 21st Edition, Page 2268

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↑ *Back to this question in Part A*

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Q24: A newborn child is brought to the emergency department with respiratory difficulty. The doctor evaluated, and the child was found to have a posterolateral defect, as shown in the x-ray given. What is the diagnosis? (Q852464)

A. Bochdalek hernia

B. Morgagni hernia

C. Hiatal hernia

D. Traumatic diaphragmatic hernia



Correct Answer: A. Bochdalek hernia

Explanation: The clinical features and X-ray show a congenital diaphragmatic hernia, and the most common type that appears in the posterolateral part on the left side is the Bochdalek hernia . Diaphragmatic Hernia : It is a communication between the abdominal and thoracic cavities, which may or may not involve abdominal contents in the thorax. Aetiology: Rarely traumatic, usually congenital. Symptoms and Prognosis: Dependent on the location of the defect and associated anomalies. Types of diaphragmatic hernia: Hiatal hernia (Option C) : Occurs at the esophageal hiatus. Paraesophageal Hernia: Near the esophageal hiatus. Morgagni Hernia (Option B) : Retro-sternal, occurring in the foramen of Morgagni (2–6% of CDH cases). Bochdalek Hernia : Occurs in the posterolateral portion of the diaphragm; most common , accounting for 90% of congenital diaphragmatic hernias (CDH). It occurs predominantly on the left side (80-90%). Pathology and etiology: CDH involves a diaphragmatic defect and often leads to pulmonary hypoplasia. Pulmonary hypoplasia is due to both compression of the lungs and, in some cases, may precede the diaphragmatic defect. Pathological features include reduced pulmonary mass,

abnormal alveolar septa, thickened alveoli, and biochemical imbalances such as surfactant deficiency. Clinical Features: Symptoms include respiratory distress, tachypnea, cyanosis, and scaphoid abdomen. Infants may show delayed symptoms and present with vomiting or mild respiratory distress. Diagnosis: CDH is often diagnosed prenatally via ultrasound (16-24 weeks) and fetal MRI . Key findings: polyhydramnios, chest mass, mediastinal shift, abdominal organs in the chest, and fetal hydrops. After birth, a chest X-ray confirms the diagnosis. Treatment: Initial Management: Birth in a tertiary care centre with expertise in CDH management is essential. Immediate stabilization includes intubation, gastric decompression, and central venous and arterial access. Goal oxygenation: preductal SpO2 ≥85%. Gentle ventilation and permissive hypercapnia are recommended. Ventilation Strategies: Conventional mechanical ventilation, HFOV, and ECMO are primary methods. Permissive hypercapnia and low-pressure ventilation reduce lung injury. Inhaled nitric oxide (iNO) may be used to manage pulmonary hypertension. Extracorporeal Membrane Oxygenation (ECMO): ECMO is used when conventional ventilation fails. The duration of ECMO may be longer in CDH infants than in other conditions. Surgical Repair: Repair is typically done after stabilization (48 hours post-birth). A subcostal approach is preferred, with a focus on primary repair if possible. If primary repair is not feasible, synthetic patches (e.g., Gore-Tex) may be used. Postoperative monitoring for complications like pulmonary hypertension, bleeding, and bowel obstruction is crucial. Novel Strategies: Fetal lung-to-head ratio (LHR) on ultrasound is a reliable predictor of outcomes. Fetoscopic tracheal occlusion shows promise for severe cases, but more research is needed. Traumatic diaphragmatic hernia (Option D) is not the likely diagnosis in the given scenario since there is no significant history of trauma that may indicate this diagnosis.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 894, 895, 2288

↑ *Back to this question in Part A*

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Q25: Which of the following is not a feature of cystic fibrosis? (Q853385)

A. Nasal polyposis

B. Biliary atresia

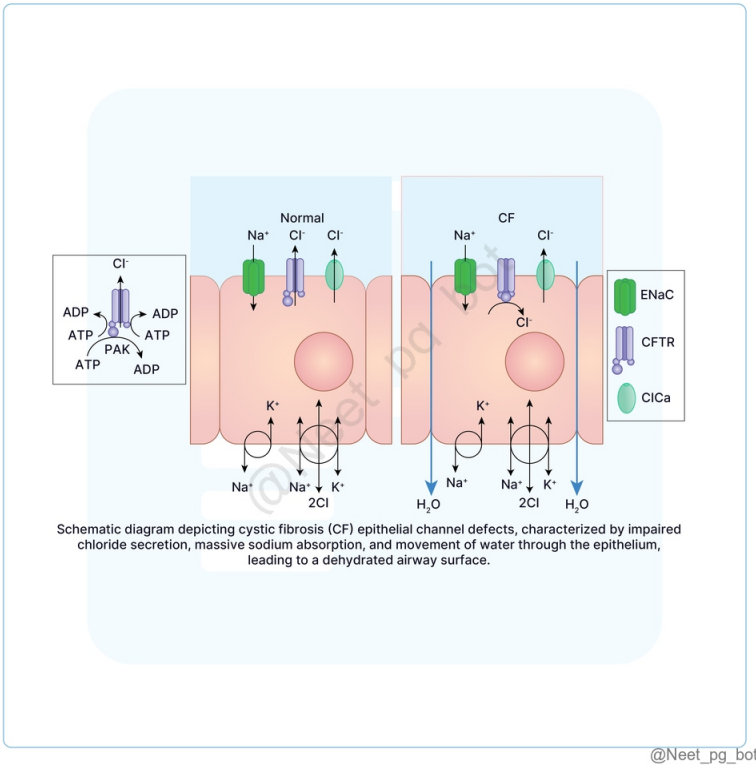
C. Meconium ileus

D. Bleeding diathesis

Correct Answer: B. Biliary atresia

Explanation: Biliary atresia is not a characteristic feature of cystic fibrosis. While cystic fibrosis can cause liver damage and biliary cirrhosis due to obstructed bile ducts, biliary atresia is a separate congenital condition where there is a complete absence or abnormality of the bile ducts, leading to severe liver damage and jaundice. Cystic fibrosis (CF) is an autosomal recessive genetic disorder caused by mutations in the CFTR gene on chromosome 7q31.2 (m/c mutation is ΔF508), leading to a defective CFTR protein. Pathophysiology of Cystic Fibrosis: CFTR Protein Dysfunction Defective chloride transport across epithelial cells Increased sodium absorption Decreased

water movement leading to dehydrated mucous surfaces Respiratory System Thick, viscous mucus leads to airway obstruction and bacterial colonization Chronic infection and inflammation Bronchiectasis, atelectasis, and respiratory failure Gastrointestinal System Thick secretions block pancreatic ducts leading to enzyme insufficiency Malabsorption of fats and proteins Meconium ileus in neonates Distal Intestinal Obstruction Syndrome (DIOS) Hepatobiliary System Bile duct obstruction leading to biliary cirrhosis Sweat Glands Impaired chloride reabsorption leading to salty sweat Reproductive System Congenital absence of the vas deferens in males leading to azoospermia and infertility. Defective CFTR in the cervix leads to the production of thick, dehydrated cervical mucus that blocks the cervical os, impairing sperm entry and reducing fertility. Clinical Features of Cystic Fibrosis System Clinical Features Respiratory Chronic productive cough Recurrent respiratory infections Nasal polyps (Option A ruled out) Bronchiectasis Gastrointestinal Greasy stools (steatorrhea) Failure to thrive Rectal prolapse Malabsorption Meconium ileus in newborns (Option C ruled out) Genitourinary Infertility in males (due to congenital absence of vas deferens), delayed puberty Others Digital clubbing, Bleeding diathesis (Option D ruled out) , salt loss syndromes (hypochloremic metabolic alkalosis)



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References:

Nelson Textbook of Pediatrics Edition 21, Page no: 2284, 2285.
https://www.sciencedirect.com/science/article/pii/S1569199319308811
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5951071/

↑ *Back to this question in Part A*

Q26: A 3-year-old was diagnosed with croup. Which of the following is the most common causative organism? (Q853382)

A. Hemophilus influenza

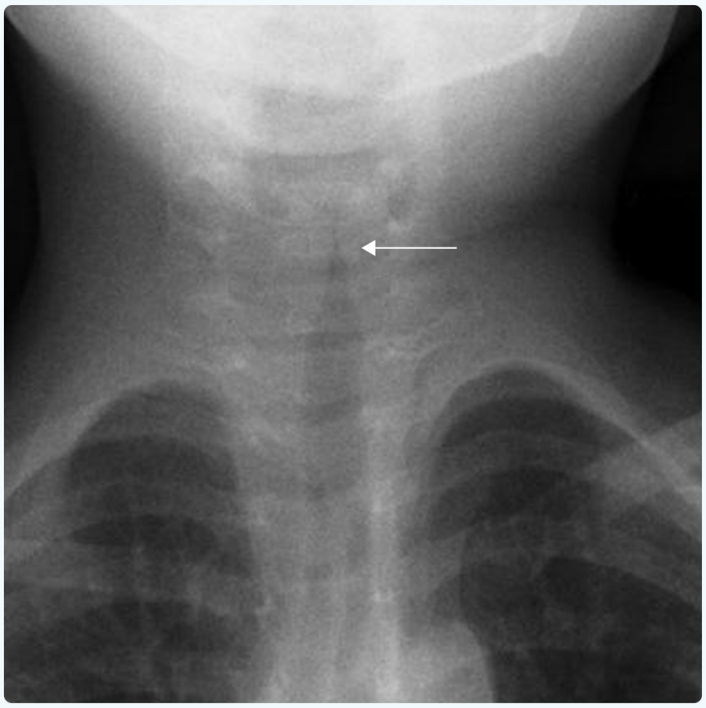
B. Streptococcus pneumonia

C. Influenza virus

D. Diphtheria

Correct Answer: C. Influenza virus

Explanation: Croup, also known as laryngotracheobronchitis , is an upper respiratory tract infection that causes barking cough, stridor, and hoarseness due to inflammation of the larynx and trachea. It is most commonly caused by the parainfluenza virus , followed by the influenza virus . Among the given options, the influenza virus is the most appropriate choice. Laryngotracheobronchitis (Croup): Viral infection of the glottic and subglottic regions Causative Agent Parainfluenza viruses (types 1,2 and 3) cause about 75% cases. Other Viruses: Influenza A and B, Adenovirus, Respiratory syncytial virus, Measles. Age Group Most common in children aged 3 months to 5 years. Peak incidence occurs in the 2nd year of life. Initial Symptoms These symptoms last 1-3 days before development of upper airway obstruction signs and symptoms. Upper respiratory tract infection Rhinorrhea Pharyngitis Mild cough Low-grade fever Progressive Symptoms Barking cough Hoarseness Inspiratory stridor Fever may reach 39-40°C (102.2-104°F) or be absent The child prefers to sit up in bed or be held upright Symptoms worsen at night, recur over days and resolve within a week Physical Examination Findings Hoarse voice Coryza Inflamed pharynx Slightly increased respiratory rate Hypoxia and low oxygen saturation seen only in complete airway obstruction Diagnosis Clinical diagnosis X-ray PA view of neck: Steeple sign, which is characteristic of subglottic narrowing Treatment Mainstay of Treatment: Focus on airway management and hypoxia treatment (O2). Nebulized Racemic Epinephrine Corticosteroids (dexamethasone): Decrease edema in laryngeal mucosa Oral steroids beneficial in mild croup Antibiotics are not indicated. Hemophilus influenza (Option A) is associated with epiglottitis , not croup. Streptococcus pneumonia (Option B) is associated with pneumonia, otitis media, or meningitis, but not croup. Diphtheria (Option D) is associated with diphtheria, which presents with a pseudomembrane in the throat and can lead to airway obstruction, but it is distinct from croup.



References:

Nelson Textbook of Pediatrics, 21st edition, Pages 2202- 2205 Ghai Essential Pediatrics, 10th edition, Page 391, 392 https://www.ncbi.nlm.nih.gov/books/NBK441873/ https://www.ncbi.nlm.nih.gov/books/NBK431070/

↑ *Back to this question in Part A*

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Q27: A child presents with recurrent sinusitis and repeated lung infections. Genetic testing shows a mutation in the CFTR gene. Which test is considered the gold standard to confirm the diagnosis? (Q866765)

A. Sweat chloride test

B. Lung biopsy

C. Chest X-ray

D. Nasal swab culture

Correct Answer: A. Sweat chloride test

Explanation: The child’s recurrent sinusitis, repeated lung infections, and confirmed CFTR gene mutation are suggestive of cystic fibrosis (CF) . The gold standard diagnostic test for CF is the quantitative pilocarpine iontophoresis sweat chloride test . Cystic Fibrosis is an autosomal recessive disease that can be detected via sweat chloride test in newborns. Pancreatic insufficiency is seen in more than 85% of children with CF and leads to malabsorption , resulting in symptoms like failure to thrive, frequent greasy stools, and weight gain difficulties. Clinical Features of Cystic Fibrosis by Age Group Age Group Sinopulmonary Gastrointestinal Renal, Endocrine, Other Infancy Infection Fetal echogenic bowel Meconium ileus Pancreatic insufficiency Rectal prolapse Dehydration Hyponatremic hypochloremic metabolic alkalosis Childhood Infection ABPA Polyposis Sinusitis DIOS (Distal Intestinal Obstruction Syndrome) Intussusception Hepatic steatosis, biliary fibrosis Rectal prolapse Renal calculi Hyponatremic hypochloremic metabolic alkalosis Adolescence/Adulthood Infection ABPA Haemoptysis Pneumothorax Respiratory failure Sinusitis, Polyposis, Anosmia DIOS Intussusception Biliary fibrosis, cirrhosis Digestive tract cancer (adenocarcinoma) Delayed puberty, osteoporosis, CFRD (Cystic Fibrosis-Related Diabetes) Renal calculi, renal failure CBAVD (Congenital Bilateral Absence of the Vas Deferens), HPOA (Hypertrophic Pulmonary Osteoarthropathy) Arthritis, vasculitis Hyponatremic hypochloremic metabolic alkalosis Diagnostic Criteria for Cystic Fibrosis Diagnostic Criteria Requirement Any ONE of the following: Clinical Features Presence of typical features (respiratory, gastrointestinal, or genitourinary) Family History A sibling with diagnosed cystic fibrosis Newborn Screening Test Positive result indicating risk for cystic fibrosis Immunoreactive trypsinogen (IRT) is the first-line screen, which identifies babies with pancreatic insufficiency, one of the hallmarks of CF. PLUS at least ONE: Laboratory Evidence of CFTR Dysfunction Two elevated sweat chloride concentrations on separate days Pilocarpine iontophoresis : Used to diagnose cystic fibrosis in infants by estimating sweat chloride ion levels; elevated chloride levels (≥60 mMol/L) in sweat are indicative of the condition. Identification of two CFTR mutations An abnormal nasal potential difference measurement Incorrect Options: Lung biopsy (Option B): Rarely indicated; not used for diagnosis of CF. Chest X-ray (Option C): May show bronchiectasis or hyperinflation but is nonspecific . Nasal swab culture (Option D): May detect organisms like Pseudomonas aeruginosa , but does not confirm CF.

↑ *Back to this question in Part A*

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Q28: An 18-months-old child is brought to the hospital with a history of breathlessness, fever, cough, and cold. The respiratory rate was 46/min on examination, and there were no danger signs. Which is the most appropriate management? (Q793784)

A. Administer IV antibiotics and observe

B. Administer IV antibiotics and refer to higher centre

C. Administer oral antibiotics, warn of danger signs, and send home

D. Administer only home remedies

Correct Answer: C. Administer oral antibiotics, warn of danger signs, and send home

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: of the correct answer. Incorrect options: Option A: Administer IV antibiotics and observe: Intravenous (IV) antibiotics are usually reserved for severe infections or cases where oral antibiotics cannot be administered. In this case, the child's symptoms are not indicative of severe illness, and IV antibiotics would not be necessary at this stage. Option B: Administer IV antibiotics and refer to a higher center: Referral to a higher center is typically reserved for cases that require specialized care or management beyond the capacity of the current healthcare facility. In this case, the child's symptoms do not suggest the need for immediate referral to a higher center. Option D: Administer only home remedies: Home remedies alone are not sufficient for managing respiratory tract infections, especially if there is a suspicion of a bacterial infection. While supportive care measures like maintaining hydration and providing symptomatic relief can be recommended, appropriate antibiotic therapy is often required to treat bacterial infections.

↑ *Back to this question in Part A*

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• [12_Pediatric Cardiology] 029 Pediatric Cardiology-I

« Back to Folder Directory

[12_Pediatric Cardiology] 029 Pediatric Cardiology-I — Quick Jump

Q1 (p. 1185) *Q2 (p. 1186)* *Q3 (p. 1188)* *Q4 (p. 1189)* *Q5 (p. 1189)* *Q6 (p. 1191)*
Q7 (p. 1192) *Q8 (p. 1193)* *Q9 (p. 1194)* *Q10 (p. 1195)* *Q11 (p. 1196)* *Q12 (p. 1197)*
Q13 (p. 1197) *Q14 (p. 1198)* *Q15 (p. 1199)* *Q16 (p. 1200)*

Q1: Which of the following statements is true regarding the blood carried by the umbilical vein in fetal circulation, and how many umbilical veins are present? (Q849995)

A. The umbilical vein carries deoxygenated blood and there are two umbilical veins.

B. The umbilical vein carries oxygenated blood and there are two umbilical veins.

C. The umbilical vein carries oxygenated blood and there is one umbilical vein.

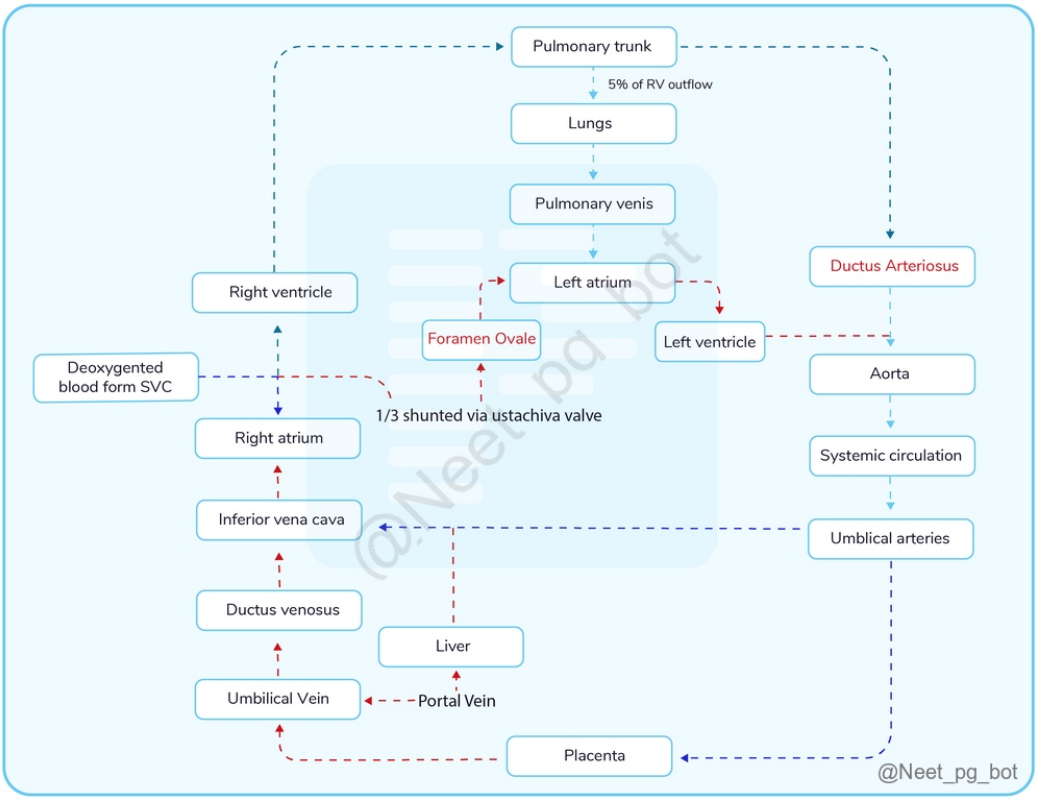
D. The umbilical vein carries deoxygenated blood and there is one umbilical vein.

Correct Answer: C. The umbilical vein carries oxygenated blood and there is one umbilical vein.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In fetal circulation, the single umbilical vein carries oxygenated blood from the placenta to the fetus. Fetal circulation: Structure Number Type of Blood Umbilical Artery 2 Deoxygenated blood Umbilical Vein 1 Oxygenated blood



References:

Nelson Textbook of pediatrics, 21st Edition, Page 2344

↑ *Back to this question in Part A*

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Q2: Which of the following statements regarding fetal circulation is/are true? The left and right heart in fetal circulation function as a parallel circuit as compared to series in adults. The placenta is not an efficient oxygen exchange organ as compared to lungs. Fetal superior vena cava (SVC) blood preferentially flows across the tricuspid valve, rather than the foramen ovale, into the right ventricle. Because the pulmonary arterial circulation is vasoconstricted, only approximately 5% of right ventricular (RV) outflow enters the lungs. (Q849994)

A. I only

B. I and IV only

C. I, II, and IV

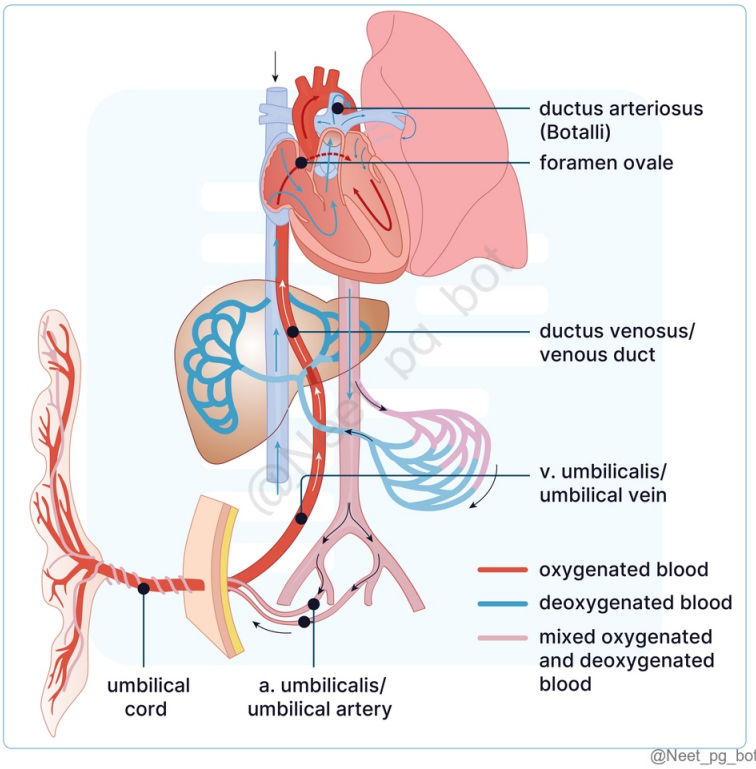
D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: All the above statements regarding fetal circulation are true. Differences in fetal circulation compared to adults: Fetal circulation Adult circulation Circulatory Circuit (Statement I) The right and left ventricles function in a parallel circuit, allowing the mixing of oxygenated and deoxygenated blood. The right and left ventricles function in a series circuit , with oxygenated blood from the lungs flowing sequentially through the heart and body. Gas Exchange Gas exchange occurs via the placenta . The placenta is less efficient than the lungs at oxygen exchange, leading to lower oxygen levels in the blood (umbilical venous PO2 of 30-35 mm Hg). (Statement II) The lungs provide gas exchange, with a much higher oxygen efficiency. Pulmonary Circulation The pulmonary vessels are vasoconstricted , diverting most blood away from the lungs. Only about 5% of right ventricular output reaches the lungs. (Statement IV) The pulmonary vessels are open, allowing full blood flow through the lungs for oxygenation. Unique Cardiovascular Structures Three structures Ductus venosus, Foramen ovale, and Ductus arteriosus allow blood to bypass the liver and lungs, maintaining the parallel circuit. These structures close or become vestigial after birth, redirecting blood flow through the liver and lungs. Oxygen Distribution Blood with higher oxygen content (from the umbilical vein) is preferentially directed to the upper body, including the brain , via the left ventricle. Blood with lower oxygen content (from the superior vena cava) flows through the right ventricle, ductus arteriosus, and aorta supplying the lower body and returning to the placenta. (Statement III) Oxygenated blood from the lungs is evenly distributed to all parts of the body through systemic circulation.



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References:

Nelson Textbook of pediatrics, 21st Edition, Page 2344

↑ *Back to this question in Part A*

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Q3: Which of the following changes does not occur in fetal circulation following birth? (Q849996)

A. Decrease in pulmonary vascular resistance (PVR)

B. Increase in mass and volume of the left ventricle

C. Closure of the ductus venosus

D. Increase in mass and volume of the right ventricle

Correct Answer: D. Increase in mass and volume of the right ventricle

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: After birth, the right ventricle's wall thickness and mass decrease due to the shift to low-resistance pulmonary circulation. Changes in Fetal Circulation Following Birth: Parameter/Structure Change Cause Pulmonary Vascular Resistance (PVR) Decreases (Option A ruled out) Mechanical expansion of the lungs and increased arterial PO2 lead to a rapid decrease in PVR. Systemic Vascular Resistance (SVR) Increases The removal of the low-resistance placental circulation results in an increase in SVR. Ductus Arteriosus Shunt Reverses and eventually closes. As PVR becomes lower than SVR , the shunt through the ductus arteriosus reverses from right-to-left to left-to-right. High arterial PO2 leads to the constriction and eventual closure of the ductus arteriosus, which later becomes the ligamentum arteriosum. Foramen Ovale Closes Increased pulmonary blood flow to the left atrium raises left atrial volume and pressure, leading to the functional closure of the foramen ovale. Ductus Venosus Closes (Option C ruled out) The removal of the placenta from circulation results in the closure of the ductus venosus. Left ventricular Wall Thickness and Mass Increases (Option B ruled out) The left ventricle's wall thickness and mass increase as it adapts to the high-resistance systemic circulation. Right ventricular Wall Thickness and Mass Decreases (Option D) The right ventricle's wall thickness and mass decrease as it adapts to the low-resistance pulmonary circulation. Left Ventricular Output Increases The left ventricle now must deliver the entire systemic cardiac output, which is almost a 200% increase compared to fetal conditions. Right Ventricular Output Increases Opening of pulmonary vasculature results in increased right ventricular output. Time frame of closure of shunts following birth: Shunt Functional Closure Anatomical closure Remnant Ductus Arteriosus 10-15 hrs after birth 2 -3 weeks after birth Ligamentum arteriosum Foramen ovale 3rd month 1 year after birth Fossa ovalis Ductus venosus Immediately after birth 3-7 days after birth Ligamentum venosum.

References:

Nelson Textbook of pediatrics, 21st Edition, Page 2345.

↑ *Back to this question in Part A*

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Q4: A 5-year-old child is brought to the pediatric clinic after a heart murmur was detected during a recent febrile illness. On examination, the child has a soft ejection systolic murmur, best heard at the left lower sternal border. The second heart sound (S2) is normal. The child is asymptomatic, with no history of cyanosis, syncope, or respiratory distress. The fever has resolved, and the child is otherwise well. What is the most appropriate next step in managing this patient? (Q849997)

A. Reassure the parents that the murmur is likely innocent, and no further follow-up is necessary.

B. Immediately order an ECG and echocardiogram to rule out congenital heart disease.

C. Reassure the parents and schedule a follow-up assessment in a few weeks to reassess the murmur.

D. Refer to a pediatric cardiologist for further evaluation without additional tests.

Correct Answer: C. Reassure the parents and schedule a follow-up assessment in a few weeks to reassess the murmur.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In this scenario, the murmur is soft, systolic, and accompanied by a normal second heart sound , which is characteristic of an innocent murmur . Since the murmur was detected during a febrile illness, it is likely to disappear as the illness resolves. The best approach is to reassure the parents and plan a follow-up assessment to ensure the murmur has resolved, rather than immediately pursuing diagnostic tests or specialist referral. Nada’s criteria: (used for clinical diagnosis of congenital heart disease) Major Minor Systolic murmur grade III or more Systolic murmur grade I or II Diastolic murmur Abnormal second heart sound Cyanosis Abnormal ECG Congestive cardiac failure Abnormal X-ray Abnormal Blood pressure Presence of one major or 2 minor criteria is needed to indicate the presence of CHD.

References:

Ghai Essential Pediatrics, 9th Edition, Page 404

↑ *Back to this question in Part A*

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Q5: Which of the following congenital heart defects can exhibit ductus-dependent pulmonary circulation, where the ductus arteriosus is critical for maintaining

pulmonary blood flow? (Q849998)

A. Tetralogy of Fallot

B. Transposition of the Great Arteries

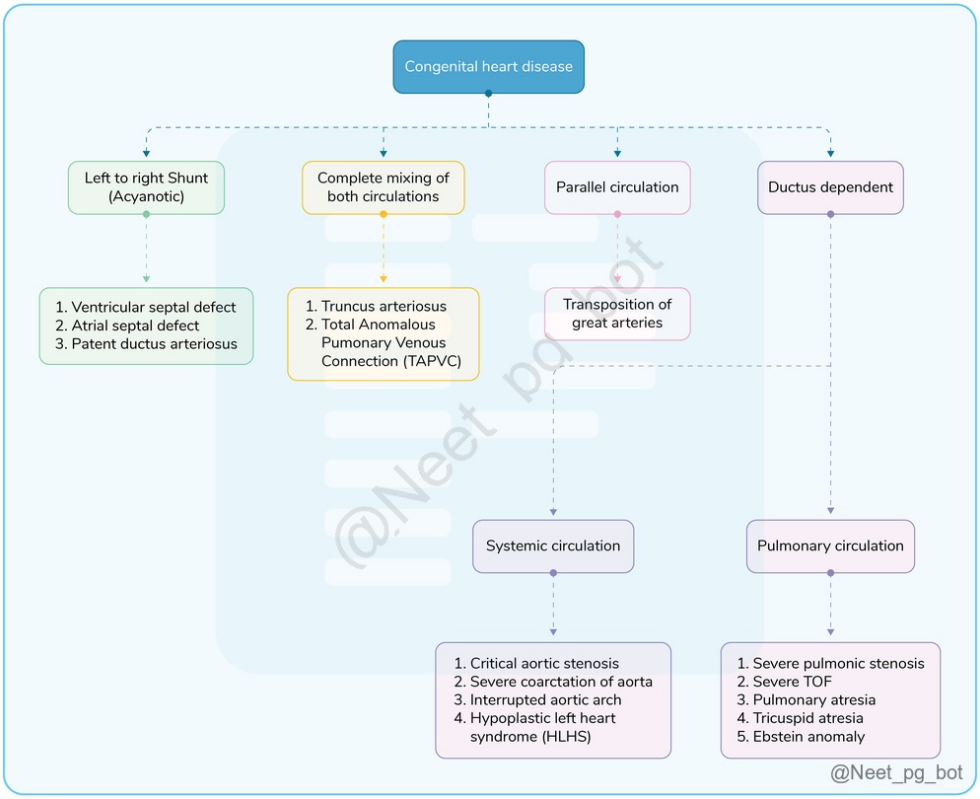
C. Coarctation of the Aorta

D. All the above

Correct Answer: A. Tetralogy of Fallot

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Tetralogy of Fallot (ToF) can be associated with ductus-dependent pulmonary circulation, especially in cases with severe right ventricular outflow tract obstruction. Classification based on the presence of cyanosis: Acyanotic Cyanotic Left to right shunts: Ventricular septal defect (VSD) Atrial septal defect (ASD) Patent ductus arteriosus (PDA) Obstructive lesions: Coarctation of aorta Infundibular stenosis Pulmonary valve stenosis Congenital mitral & tricuspid regurgitation Right to left shunt: Persistent Truncus arteriosus Transposition of great vessels Tricuspid atresia Tetralogy of Fallot Total anomalous pulmonary venous communication Ebstein anomaly Eisenmenger's syndrome VSD with pulmonic stenosis Pulmonary arteriovenous malformation Transposition of the Great Arteries (Option B): Results in a parallel circulation. Coarctation of the Aorta (Option C): Associated with ductus-dependent systemic circulation.



References:

Nelson Textbook of pediatrics, 21st Edition, Pages 453 - 458.

↑ *Back to this question in Part A*

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Q6: In a Ventricular septal defect (VSD), when does reversal of shunt occur? (Q849999)

A. If the Size of VSD decreases

B. When Pulmonary vascular resistance (PVR) becomes more than systemic vascular resistance (SVR)

C. Ratio of left ventricular pressure to right ventricular pressure increases

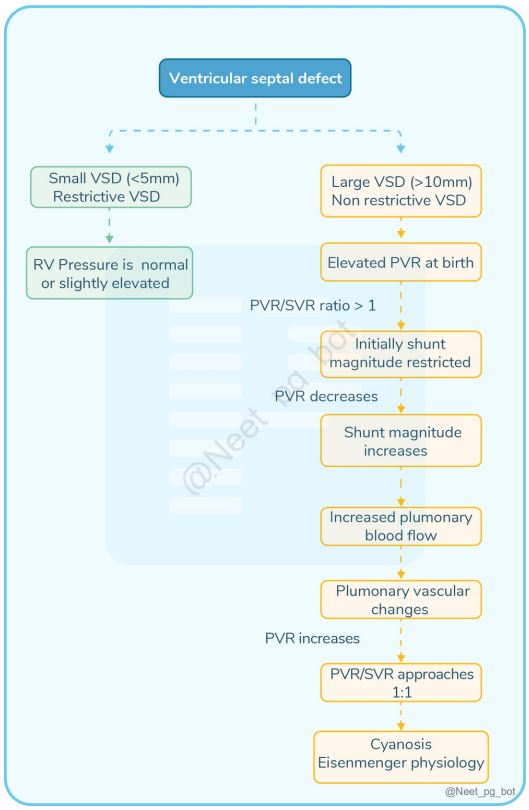
D. When Pulmonary vascular resistance (PVR) becomes less than systemic vascular resistance (SVR)

Correct Answer: B. When Pulmonary vascular resistance (PVR) becomes more than systemic vascular resistance (SVR)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In a typical Ventricular Septal Defect (VSD), the shunt is Left-to-Right because the pressure in the left ventricle (systemic) is much higher than the pressure in the right ventricle (pulmonary). Pathophysiology of Reversal: Over time, the high volume and pressure of blood shunting into the lungs cause permanent damage to the pulmonary arterioles. This leads to Pulmonary Arterial Hypertension (PAH) . The Tipping Point: As the pulmonary vessels thicken and narrow, the Pulmonary Vascular Resistance (PVR) rises. When the PVR eventually exceeds the Systemic Vascular Resistance (SVR) , the pressure in the right heart becomes greater than the left. Shunt Reversal: At this point, the shunt reverses to Right-to-Left , bypassing the lungs and sending deoxygenated blood into the systemic circulation. This clinical transition is known as Eisenmenger Syndrome . Clinical Signs of Shunt Reversal When a patient develops a Right-to-Left shunt (Eisenmenger's), they will exhibit: Cyanosis: Due to deoxygenated blood entering the systemic arteries. Clubbing: Of the fingers and toes. Polycythemia: The body produces more red blood cells to compensate for chronic hypoxia. Disappearance of the Holosystolic Murmur: As pressures equalize, the flow across the VSD slows down, making the classic murmur quieter or absent. Size of VSD decreases (Option A): If a VSD gets smaller (restrictive), the volume of the shunt decreases, but it does not cause the shunt to flip directions. Small VSDs often close spontaneously. Ratio of LV pressure to RV pressure increases (Option C) : If LV pressure increases relative to RV pressure, it would actually increase the velocity of the existing Left-to-Right shunt, making the condition worse, not reversing it. PVR becomes less than SVR (Option D): This is the normal physiological state. As long as PVR is lower than SVR, the shunt will remain Left-to-Right Pathophysiology in VSD:



References:

Nelson Textbook of pediatrics, 21st Edition, Page, 2379

↑ *Back to this question in Part A*

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Q7: A 7-year-old child presents with difficulty in physical activity and a heart murmur. On examination, the child has a widely split and fixed second heart sound (S2), a systolic ejection murmur at the left upper sternal border, and a mid-diastolic murmur at the lower left sternal border. The echocardiogram reveals an atrial septal defect (ASD) located in the fossa ovalis. What is the most likely pathophysiological consequence of this ASD? (Q850000)

A. Decreased right atrial volume due to left-to-right shunting

B. Increased pulmonary vascular resistance leading to cyanosis

C. Left ventricular overload resulting in heart failure

D. Right ventricular volume overload leading to right atrial and ventricular enlargement

Correct Answer: D. Right ventricular volume overload leading to right atrial and ventricular enlargement

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The left-to-right shunt through the ASD causes increased blood flow to the right atrium and right ventricle, leading to their enlargement and right ventricular volume overload. Atrial Septal Defects (ASDs) Features and Pathophysiology Types of ASDs: Type Description Ostium Secundum Defect Most common type, located in the fossa ovalis; AV valves are structurally normal. Ostium Primum Defect Involves deficiency in the AV septum Sinus Venosus Defect Can occur in any part of the atrial septum; may lead to a single functioning atrium. Pathophysiology: Feature Description Left-to-Right Shunting Oxygenated blood flows from left to right atrium; degree of shunting varies with defect size and vascular resistance. Right Heart Volume Overload (Option D) (Option A & C ruled out) Increased blood flow causes enlargement of the right atrium and ventricle, and dilation of the pulmonary artery. Pulmonary Vascular Resistance May increase with time, after remaining low during childhood, and lead to reversal of shunt and cyanosis. (Option B ruled out) Clinical Manifestations: Symptoms Description Asymptomatic Many children are asymptomatic. Failure to Thrive Poor growth and weight gain. Exercise Intolerance Difficulty with physical activity. Physical Examination Findings: Finding Description Widely Split and Fixed S2 The second heart sound is split and fixed due to increased right ventricular diastolic volume. Systolic Ejection Murmur Soft murmur at the left upper sternal border, caused by increased flow across the right ventricular outflow tract. Mid-Diastolic Murmur Rumbling murmur at the lower left sternal border due to increased flow across the tricuspid valve. Indications and timings of surgical intervention: Indications Details Symptomatic ASD Symptoms such as dyspnea, fatigue, or heart failure due to volume overload Large ASD (>10 mm or significant shunt) Qp/Qs ratio ≥ 1.5:1 (significant left-to-right shunt) Right Heart Enlargement Right atrial and/or right ventricular dilatation on imaging Paradoxical Embolism History of stroke or embolic events due to right-to-left shunt Pulmonary Hypertension Elevated pulmonary artery pressure without irreversible pulmonary vascular disease Asymptomatic with Large ASD Evidence of right ventricular overload on imaging Atrial Arrhythmias Closure is recommended in patients with atrial fibrillation to prevent embolism and heart failure Timing Details Infants and Children Elective surgery or device closure before school age (4-5 years). Earlier surgery is symptomatic Adults Surgery is indicated once symptomatic or if right heart enlargement or a significant shunt is present Contraindication Severe pulmonary hypertension with Eisenmenger syndrome may contraindicate surgery

References:

Nelson Textbook of pediatrics, 21st Edition, Pages 2372, 2374, 2375, 2376

↑ *Back to this question in Part A*

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Q8: Determine which syndrome linked to atrial septal defect is accurately paired with its corresponding gene. (Q850001)

A. Cri du chat syndrome- CHD7

B. Noonan Syndrome- MLL2

C. Familial ASD without heart block- NKX2.5

D. Holt-Oram - TBX5

Correct Answer: D. Holt-Oram - TBX5

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Genetic Conditions Associated with ASD: Syndrome Associated Genes Cardiac Defects Holt-Oram (Option D) TBX5 ASD, VSD, TOF, left isomerism Down Syndrome - ASD, AV septal defects Patau Syndrome - ASD, VSD, PDA, valve abnormalities Edwards Syndrome - ASD, VSD, PDA, valve abnormalities CHARGE Association CHD7 ASD, VSD, PDA, TOF Kabuki Syndrome MLL2 ASD, VSD, TOF, aortic coarctation, TGA Ellis–van Creveld syndrome EVC, EVC2 ASD, common atrium Noonan Syndrome (Option B ruled out) PTPN11 Pulmonary stenosis, ASD, cardiomyopathy Cri du chat syndrome (Option A ruled out) CTNND2 ASD, VSD, PDA, TOF Familial ASD NKX2.5 (with heart block), GATA4 (without heart block) (Option C ruled out) ASD

References:

Nelson Textbook of pediatrics, 21st Edition, Pages 2368, 2369, 2375.

↑ *Back to this question in Part A*

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Q9: A 12-year-old child is evaluated for a heart murmur and an ECG is performed. The ECG shows right axis deviation and minor right ventricular conduction delay. Which of the following statements is TRUE regarding these ECG findings in the context of atrial septal defect (ASD)? (Q850002)

A. Evidence of left ventricular hypertrophy associated with pulmonary hypertension

B. Evidence of biventricular hypertrophy

C. Minor RV conduction delay

D. Left axis deviation

Correct Answer: C. Minor RV conduction delay

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Minor right ventricular conduction delay (rSR′ pattern) is a common finding in ASD due to right ventricular volume overload. ECG findings for ASD and VSD: Condition Key ECG Findings Atrial Septal Defect

(ASD) Right axis deviation (Option D ruled out) Minor RV conduction delay (rSR′ pattern) (Option C) Uncommon RV hypertrophy Ventricular Septal Defect (VSD) Left ventricular hypertrophy in small defects-associated with pulmonary hypertension. (Option A ruled out) Biventricular hypertrophy in large defects. (Option B ruled out)

References:

Nelson Textbook of pediatrics, 21st Edition, Pages 2375, 2380

↑ *Back to this question in Part A*

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Q10: During the physical examination of an infant with a large Patent Ductus Arteriosus (PDA), which of the following statements is true regarding the findings? (Q850003)

A. Continuous machinery-like murmur

B. Pan systolic murmur at apex

C. Wide fixed split of S2

D. Ejection systolic murmur of pulmonary area

Correct Answer: A. Continuous machinery-like murmur

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A continuous "machinery-like" murmur is characteristic of a large PDA and is typically heard best at the second left intercostal space. Features and Pathophysiology of Patent Ductus Arteriosus (PDA): Definition: A condition where the ductus arteriosus (a fetal blood vessel) fails to close after birth, allowing blood to flow from the aorta to the pulmonary artery. Small vs Large PDA: Category Small PDA Large PDA Pathophysiology Minimal left-to-right shunting Normal pulmonary artery pressure Heart remains relatively unaffected Significant left-to-right shunting Possible elevation of pulmonary artery pressure to systemic levels Risk of pulmonary vascular disease if untreated Clinical Manifestations Often asymptomatic Discovered via heart murmur during routine checkup Symptoms similar to those with a large VSD Possible growth retardation Bounding peripheral pulses Wide pulse pressure Physical Examination Findings: Feature Small PDA Large PDA Heart Size Normal Moderately to grossly enlarged; prominent apical impulse Thrill Rarely present Prominent in second left intercostal space; may radiate to left clavicle, left sternal border, or apex Murmur Long-ejection or continuous; best at left upper sternal border; radiates to back Continuous "machinery-like"; begins after S1; intensifies towards end of systole; can radiate to second left intercostal space, left sternal border, or left clavicle Diastolic Component Less prominent or absent Less noticeable or absent if PVR increased Additional Murmur None Low-pitched mitral mid-diastolic murmur at apex (for large left-to-right shunt) Other Features: Premature Infants: Higher susceptibility due to less developed smooth muscle in ductus arteriosus Gender: Females are twice as likely to

have PDA compared to males Maternal Rubella Infection: Associated with higher incidence of PDA Pan-systolic murmur at apex (Option B): Seen in mitral regurgitation Wide fixed split S2 (Option C): Seen in ASD Ejection systolic murmur of pulmonary area (Option D): Seen in pulmonary stenosis / increased flow states

References:

Nelson Textbook of pediatrics, 21st Edition, Page 2382

↑ *Back to this question in Part A*

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Q11: A neonate is diagnosed with a ventricular septal defect during routine evaluation. The parents ask about the genetic basis of congenital heart diseases (CHDs). Which of the following is the most common pattern of inheritance seen in congenital heart disease? (Q891662)

A. X-linked recessive inheritance

B. Multifactorial inheritance

C. Autosomal recessive inheritance

D. Autosomal dominant inheritance

Correct Answer: B. Multifactorial inheritance

Explanation: Congenital heart disease (CHD) most commonly follows a multifactorial pattern of inheritance, meaning it results from a combination of genetic susceptibility and environmental influences. Contributing factors: Polygenic genetic predisposition Maternal diabetes Maternal infections (e.g., rubella) Teratogen exposure Nutritional deficiencies While some CHDs are associated with chromosomal abnormalities or single-gene disorders, the majority occur sporadically due to complex gene-environment interactions. X-linked recessive inheritance (Option A) is seen in specific rare syndromes but does not account for most congenital heart diseases. Autosomal recessive inheritance (Option C): Although some metabolic and syndromic conditions with CHD follow autosomal recessive inheritance, it is not the most common overall pattern. Autosomal dominant inheritance (Option D): Certain syndromes (e.g., Marfan syndrome, some familial septal defects) follow autosomal dominant inheritance, but these represent a minority of CHD cases.

References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC2892081/

https://thoracickey.com/principles-of-inheritance-and-genetics-of-congenital-heart-disease/

↑ *Back to this question in Part A*

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Q12: During routine newborn screening at a district hospital, a 1-month-old infant is found to have a pansystolic murmur best heard at the left lower sternal border. Echocardiography confirms a congenital cardiac defect. Which of the following is the most common congenital heart disease encountered in clinical practice? (Q891666)

A. Tetralogy of Fallot

B. Patent ductus arteriosus

C. Ventricular septal defect

D. Atrial septal defect

Correct Answer: C. Ventricular septal defect

Explanation: Ventricular septal defect (VSD) is the most common congenital heart disease worldwide. It accounts for the largest proportion of congenital cardiac anomalies detected in infancy. Pathophysiology: Defect in the interventricular septum Left-to-right shunt Increased pulmonary blood flow Risk of pulmonary hypertension if large and untreated Clinical Features: Pansystolic (holosystolic) murmur at left lower sternal border May be asymptomatic if small Large defects may cause heart failure, poor feeding, and failure to thrive. Tetralogy of Fallot (TOF) (Option A) is the most common cyanotic congenital heart disease but is less common overall compared to VSD. Patent ductus arteriosus (PDA) (Option B) is common, especially in preterm infants, but it occurs less frequently than VSD overall. Atrial septal defect (ASD) (Option D) is a common acyanotic defect but is less prevalent than VSD in the general population.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 439-444.

https://www.ncbi.nlm.nih.gov/books/NBK470330/

↑ *Back to this question in Part A*

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Q13: A 3-day-old neonate is admitted with jaundice, petechial rash, and hepatosplenomegaly. The mother reports a febrile illness with rash during early pregnancy. On examination, the baby has microcephaly and bilateral cataracts. Brainstem evoked response audiometry confirms sensorineural hearing loss. The clinical picture is suggestive of congenital infection. On cardiac evaluation, which of the following defects is least likely to be associated with this condition? (Q891669)

A. Patent ductus arteriosus

B. Pulmonary artery stenosis

C. Ventricular septal defect

D. Atrial septal defect

Correct Answer: D. Atrial septal defect

Explanation: The neonate most likely has Congenital Rubella Syndrome (CRS) caused by maternal infection with the Rubella virus during the first trimester. ASD is not a typical or common cardiac manifestation of congenital rubella syndrome and is therefore least likely. Classic Triad of Congenital Rubella: Sensorineural deafness Eye abnormalities (cataracts) Congenital heart disease Common Cardiac Defects in Congenital Rubella: Patent ductus arteriosus (most common) (Option A ruled out) Peripheral pulmonary artery stenosis (Option B ruled out) Ventricular septal defect. (Option C ruled out)

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1677.

https://pmc.ncbi.nlm.nih.gov/articles/PMC5440835/

https://www.ncbi.nlm.nih.gov/books/NBK507879/

↑ *Back to this question in Part A*

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Q14: A 4-month-old infant is brought in with excessive irritability, poor feeding, and sweating during feeds. On examination, you note tachycardia, hepatomegaly, and a heart murmur. Considering the NADA criteria for evaluating congenital heart disease, which of the following findings are considered a major criterion? Grade 2 mid-diastolic murmur at the mitral area Wide and variable second heart sound (S2) Congestive cardiac failure Grade 3 pansystolic murmur at the lower left sternal border (Q891672)

A. 1 and 4

B. 1, 3, and 4

C. 2 and 3

D. 1, 2, 3, and 4

Correct Answer: B. 1, 3, and 4

Explanation: NADA (National Academy of Developmental Assessment) major criteria are used to identify clinically significant congenital heart disease in infants. They include findings strongly associated with hemodynamically significant lesions. Although suggestive of certain conditions (e.g., pulmonary hypertension), a wide and variable S2 is not included as a major criterion under NADA. Major criteria: Congestive cardiac failure (tachypnea, hepatomegaly, poor feeding) (Option 3) Loud pansystolic or holosystolic murmurs (e.g., VSD) (Option 4) Diastolic murmurs of significant intensity (e.g., mitral stenosis). (Option 1)

References:

https://pmc.ncbi.nlm.nih.gov/articles/PMC11263965/

https://pmc.ncbi.nlm.nih.gov/articles/PMC8448494/

↑ *Back to this question in Part A*

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Q15: A 2-month-old infant is evaluated for a newly detected heart murmur. Echocardiography confirms a ventricular septal defect. Which of the following types of VSD is most commonly encountered in clinical practice? (Q891676)

A. Muscular

B. Supracristal

C. Membranous

D. Both membranous and muscular have equal prevalence

Correct Answer: C. Membranous

Explanation: The membranous type is the most common Ventricular septal defects (VSDs) , accounting for 70-80% of cases, making it the most frequently encountered congenital heart defect. VSD are the most common congenital heart defects. They are classified based on their location within the interventricular septum: Membranous VSD: Most common type (~70-80% of cases) (Option C) Muscular VSD: ~20% of cases (Option A ruled out) Supracristal (outlet) VSD: Rare (Option B ruled out) Inlet VSD: Rare Clinical Features: Small VSDs may be asymptomatic, detected as a pansystolic murmur Large VSDs may cause congestive heart failure, poor growth, and pulmonary hypertension.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 439- 444.

https://www.ncbi.nlm.nih.gov/books/NBK470330/

↑ *Back to this question in Part A*

Q16: A 3-week-old infant born to a mother with poorly controlled gestational diabetes is diagnosed with a ventricular septal defect (VSD). On cardiovascular examination, which of the following findings would not typically be associated with this condition? Ejection systolic murmur at the pulmonary area Mid-diastolic murmur at the mitral area Holosystolic murmur at the left 4th intercostal space Reverse splitting of the second heart sound (S2) (Q891683)

A. 1 and 2

B. 4 only

C. 2, 3, and 4

D. 1, 2, 3, and 4

Correct Answer: B. 4 only

Explanation: Ventricular septal defect (VSD) is a common congenital heart disease, especially in infants of diabetic mothers. The defect leads to a left-to-right shunt, increased pulmonary blood flow, and characteristic auscultatory findings. Examination Findings: Holosystolic murmur at the lower left sternal border (classic VSD murmur) - due to turbulent flow across the septal defect (Option 3 ruled out) Ejection systolic murmur at the pulmonary area - due to increased pulmonary flow (Option 1 ruled out) Mid-diastolic murmur at the mitral area - due to increased flow across mitral valve (Option 2 ruled out) Signs of congestive heart failure in large defects. Reverse splitting of the second heart sound (S2) (Option 4) is not a feature of VSD; reverse splitting is usually associated with conditions causing delayed aortic valve closure, such as left bundle branch block or severe aortic stenosis.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 439-444.

https://www.ncbi.nlm.nih.gov/books/NBK470330/

↑ *Back to this question in Part A*

• [12_Pediatric Cardiology] 030 Pediatric Cardiology-Ii

« Back to Folder Directory

[12_Pediatric Cardiology] 030 Pediatric Cardiology-Ii — Quick Jump

Q1 (p. 1201)	*Q2 (p. 1201)*	*Q3 (p. 1203)*	*Q4 (p. 1204)*	*Q5 (p. 1205)*	*Q6 (p. 1206)*
Q7 (p. 1208)	*Q8 (p. 1209)*	*Q9 (p. 1210)*	*Q10 (p. 1212)*	*Q11 (p. 1213)*	*Q12 (p. 1215)*
Q13 (p. 1216)	*Q14 (p. 1217)*	*Q15 (p. 1218)*	*Q16 (p. 1219)*		

Q1: Which of the following is not a component of Tetralogy of Fallot (ToF)? (Q850005)

A. Pulmonary stenosis

B. Ventricular septal defect (VSD)

C. Left ventricular hypertrophy

D. Overriding aorta

Correct Answer: C. Left ventricular hypertrophy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Left ventricular hypertrophy is not a feature of Tetralogy of Fallot. The condition is associated with right ventricular hypertrophy , and not left. Components of Tetralogy of Fallot: Pulmonary Stenosis : (Option A ruled out) Narrowing of the pathway from the right ventricle to the pulmonary artery, possibly affecting the infundibulum, valve, or main pulmonary artery. Ventricular Septal Defect (VSD) : (Option B ruled out) A large hole between the right and left ventricles, usually misaligned, allowing abnormal blood flow. Overriding Aorta : (Option D ruled out) The aorta is positioned over the septum, receiving blood from both ventricles. Right Ventricular Hypertrophy : (Option C) Thickening of the right ventricle wall due to the extra effort required to pump blood.

References:

Nelson textbook of pediatrics, 21st Edition, Pages 2395. 2397

↑ *Back to this question in Part A*

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Q2: A 2-month-old infant with Tetralogy of Fallot presents with severe cyanosis from birth and a loud systolic ejection murmur at the left sternal border. The cyanosis worsens with closure of the ductus arteriosus. What is the most likely severity of pulmonary stenosis in this infant? (Q850006)

A. Mild

B. Moderate

C. Severe

D. Pulmonary atresia

Correct Answer: C. Severe

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Severe pulmonary stenosis results in severe cyanosis from birth and worsens with the closure of the ductus arteriosus. General Clinical Features of ToF: Cyanosis: Directly linked to the degree of pulmonary stenosis. Ranges from mild to severe based on the extent of RVOT (right ventricular outflow tract) obstruction. Older, untreated children may show dusky skin, gray sclerae, and clubbing. Hypercyanotic Spells (Tet Spells): Sudden increase in cyanosis, often triggered by crying or agitation. Symptoms include irritability, restlessness, rapid breathing, and severe cases like syncope or convulsions. Commonly occurs in the morning or after intense crying. Murmurs: Loud, harsh systolic ejection murmur at the left sternal border, radiating to the lungs. Murmur intensity may vary, louder with moderate stenosis, and diminishes during tet spells. A continuous murmur may indicate collateral vessels. Additional Findings: Palpable systolic thrill along the left sternal border. Single or soft S2 due to a stenotic pulmonary valve. Prominent right ventricular impulse. Bulging of the left anterior chest wall in older children due to RV hypertrophy. Impact of Pulmonary Stenosis Severity on Clinical Presentation: Pulmonary Stenosis Severity Clinical Presentation Mild (Option A ruled out) Initial heart failure symptoms due to left-to-right shunt. Cyanosis may appear later as RV hypertrophy worsens. Increased risk of hypercyanotic spells. Moderate (Option B ruled out) Inferred presentation: increased cyanosis as left-to-right shunt decreases. Systolic murmur becomes louder, longer, and harsher. Softer pulmonic component of the second heart sound (S2). Severe (Option C) Early neonatal cyanosis due to restricted pulmonary blood flow. Right-to-left shunt causing systemic deoxygenation. Potential reliance on ductus arteriosus; closure can lead to severe cyanosis and circulatory collapse. Pulmonary Atresia (Extreme) (Option D ruled out) Complete absence of pulmonary valve; entire RV output directed into the aorta. Pulmonary blood flow depends on collateral vessels (MAPCAs) or a persistent ductus arteriosus. Severity of cyanosis and prognosis depends on the development of pulmonary arteries. Key Points : Clinical presentation varies widely based on the combination and severity of the four defining defects of ToF. Pulmonary stenosis is the primary determinant of the clinical manifestations in ToF.

References:

Nelson textbook of pediatrics, 21st Edition, Page 2397.

↑ *Back to this question in Part A*

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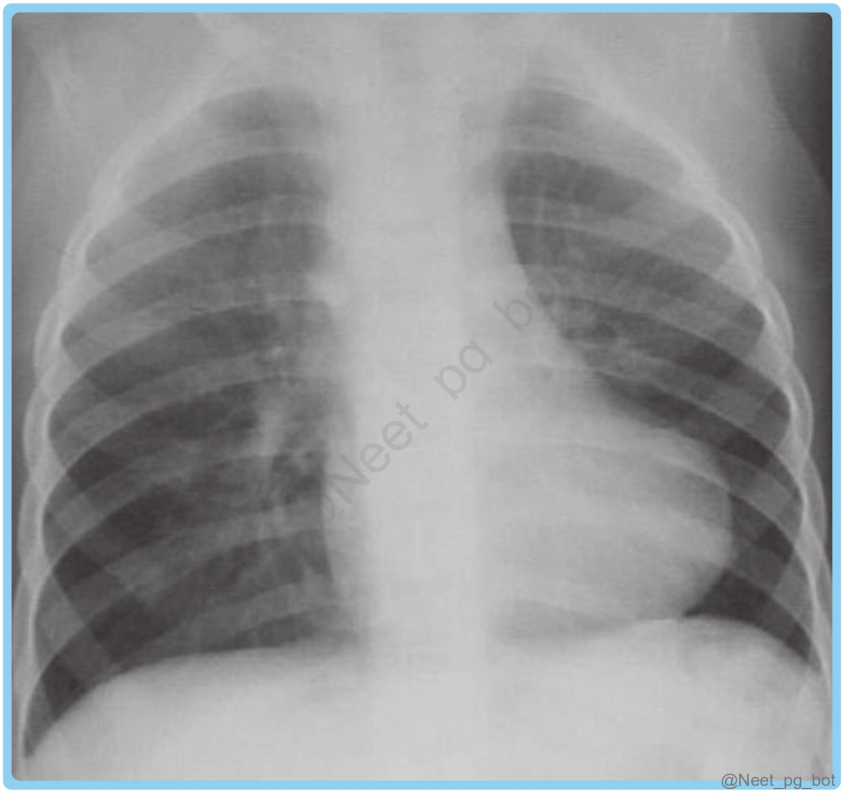
Q3: A 6-month-old infant presents with cyanotic spells and a chest x-ray as shown below. Which of the following investigations is considered the gold standard for diagnosing and characterizing this condition? (Q850007)

A. Electrocardiogram (ECG)

B. Chest X-Ray

C. Cardiac Catheterization

D. Echocardiography



Correct Answer: D. Echocardiography

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Echocardiography is the gold standard for diagnosing and characterizing Tetralogy of Fallot. It provides detailed information about the aortic override, RVOT obstruction, and the sizes of related structures such as the pulmonary valve annulus and the pulmonary arteries. I nvestigation of ToF Physical Examination: Cyanosis, clubbing, heart murmur, intensity/character of murmur, presence of thrill Chest X-ray: (Option B ruled out) Enlarged right ventricle, "boot-shaped" heart , decreased pulmonary vascular markings, right-sided aortic arch

(20% of cases) Electrocardiogram (ECG): (Option A ruled out) Right ventricular hypertrophy (RVH), dominant R wave in V1/V2, RSR' pattern, tall P waves indicating right atrial enlargement Echocardiography: (Gold standard) (Option D) Assessment of: Aortic override RVOT obstruction Size of pulmonary valve annulus, main pulmonary artery, proximal branch pulmonary arteries Presence of patent ductus arteriosus (PDA) Cardiac Catheterization: (Option C ruled out) Indications: Conclusive anatomy information needed Suspicion of coronary artery anomalies ToF with pulmonary atresia Measure pressures and oxygen saturations Perform interventions (e.g., Blalock-Taussig shunt) Treatment of ToF: Management of Tet Spells Immediate interventions: Knee-chest position Oxygen administration Morphine for sedation Intravenous fluids Surgical Repair Complete Repair Procedure: Close VSD, relieve RVOT obstruction Approach: Transatrial-transpulmonary Considerations: Minimizing pulmonary insufficiency with smaller patches Palliative Shunts Blalock-Taussig Shunt : Connects subclavian artery to pulmonary artery Central Shunt : Connects ascending aorta to main pulmonary artery

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2397-2400

↑ *Back to this question in Part A*

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Q4: A 10-year-old patient presents with symptoms suggestive of rheumatic fever. According to the modified Jones criteria, which of the following is considered a major criterion for diagnosing rheumatic fever for a low risk population ? (Q850008)

A. Arthralgia

B. Elevated ESR

C. Fever

D. Carditis

Correct Answer: D. Carditis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Carditis is one of the major criteria in the modified Jones criteria for diagnosing rheumatic fever. It involves inflammation of the heart and is a significant sign of rheumatic fever. Diagnosis of Initial ARF: 2 Major Manifestations, or 1 Major Manifestation plus 2 Minor Manifestations Modified Jones Criteria for Diagnosing Rheumatic Fever Historical Background: Original Jones criteria established in 1944. Significant updates in 1992 and later. Key Components: Criteria Type Components Major Criteria Carditis (Option D) Polyarthritis Chorea Erythema marginatum Subcutaneous nodules Minor Criteria Fever (Option C ruled out) Arthralgia (Option A ruled out) Elevated acute phase reactants (e.g., ESR, CRP) (Option B ruled out) Prolonged PR interval on ECG Major Criteria Low-risk Population Carditis (clinical or subclinical) Arthritis (polyarthritis only) Chorea Erythema marginatum Subcutaneous nodule Moderate- to High-risk Population Carditis (clinical or subclinical) Arthritis

(polyarthritis, polyarthralgia, and/or monoarthritis) Chorea Erythema marginatum Subcutaneous nodule Supporting Evidence: Importance of clinical history, including: Previous episodes of acute rheumatic fever Presence of streptococcal infection Echocardiographic Findings: Recent adaptations include echocardiographic criteria to assess rheumatic heart disease (RHD). Focus on valve abnormalities and functional implications. World Heart Federation (WHF) guidelines provide specific criteria for diagnosing definite and borderline RHD.

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4829161/

↑ *Back to this question in Part A*

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Q5: A 10-year-old boy with an ideal weight for his age presents with a history of acute rheumatic fever (ARF) and is being considered for secondary prophylaxis to prevent recurrence. What is the recommended regimen of benzathine penicillin for this patient, assuming he has no carditis? (Q850009)

A. 600,000 units every 4 weeks

B. 1.2 million units every 3 weeks

C. 1.2 million units every 2 weeks

D. 600,000 units every 2 weeks

Correct Answer: B. 1.2 million units every 3 weeks

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: To determine the recommended regimen of benzathine penicillin for a 10-year-old boy with a history of acute rheumatic fever (ARF) who has no carditis, we need to ist calculate the ideal weight for his age. According to the formula: For an age group of 7-12 years: We calculate weight by (7x–5)/2, where x is the age in years For a 10-year-old boy: Ideal weight=(7×10–5)/2=(70–5)/2=65/2=32.5 kg. The standard regimen for patients over 30 kg with no carditis is 1.2 million units of benzathine penicillin every 3 weeks. Rheumatic Fever Prevention Strategies Primordial Prevention: Address social determinants to reduce Group A Streptococcus (GAS) transmission. Primary Prevention: Diagnosis & Treatment : Use penicillin antibiotics for GAS infections to prevent acute rheumatic fever (ARF). School Programs : Implement early detection and treatment of GAS pharyngitis in schools. Secondary Prevention: Prophylaxis : Administer continuous benzathine penicillin to prevent ARF recurrence. Management : Detect and manage rheumatic heart disease (RHD) early to avoid complications. Role of Benzathine Penicillin: Effectiveness: Prevents recurrence of rheumatic fever by eliminating Group A streptococci, reducing the risk of heart damage. Administration: Dosage: >30 kg: 1.2 million units every 3 weeks. (Option B) <30 kg (high prevalence areas): 6 lakh units every 2 weeks. Duration: Without Carditis: 5 years after the last episode or until 18 years of age, whichever is longer. With Carditis: 10 years after the last

episode or until 25 years of age, whichever is longer. With Established RHD/Valve Surgery: Lifelong or until 40 years of age. Tertiary Prevention: Medical Treatment : Provide heart surgery and chronic treatment for managing chronic RHD. Community-Based Programs: Combine prevention strategies to reduce the RHD burden. More evaluations are needed, especially in low- and middle-income countries, to improve public health strategies and policies.

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10944073/

Ghai Essential of Pediatrics, 10th Edition, Page 461.

https://indianpediatrics.net/oct2006/oct-889-894.htm

↑ *Back to this question in Part A*

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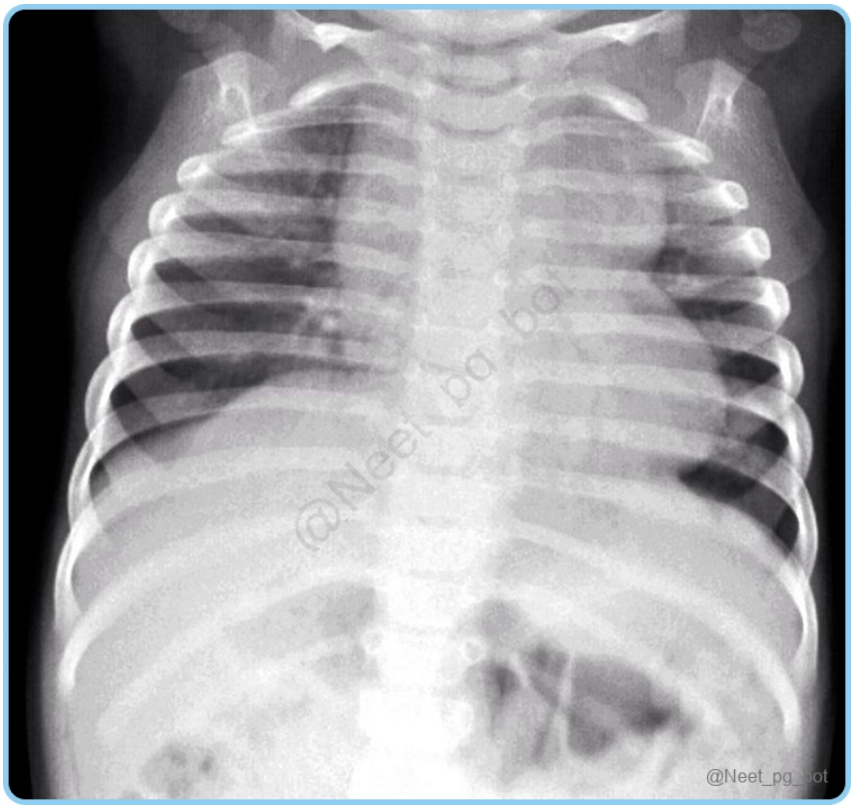
Q6: An 8-day-old neonate has severe cyanosis and is in respiratory distress shortly after birth. Chest X-ray is as shown below. An echocardiogram is performed and shows pulmonary veins draining into the right atrium via an abnormal venous connection. Which of the following is the most likely diagnosis? (Q850010)

A. Total Anomalous Pulmonary Venous Connection

B. Truncus Arteriosus

C. Transposition of the Great Arteries

D. Coarctation of the Aorta



Correct Answer: A. Total Anomalous Pulmonary Venous Connection

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Onset of symptoms within a few weeks of birth and figure of 8 or snowman appearance on the chest X-ray suggest Total Anomalous Pulmonary Venous Connection. Total Anomalous Pulmonary Venous Connection: Pulmonary veins drain into the right atrium directly or indirectly via an abnormal venous connection. Sites of venous connection: Supracardiac- superior vena cava Cardiac-coronary sinus, right atrium Infracardiac Mixed Clinical presentation: Cyanosis and congestive cardiac failure Diagnosis: Chest X-ray: Snowman or figure-8 configuration. Cardiomegaly and increased pulmonary vascularity are evident ECG: Right axis deviation and right ventricular hypertrophy. Others: Echocardiography, CT, MRI. Treatment: Surgery Truncus Arteriosus (Option B): A single arterial trunk (truncus arteriosus) originates from the heart, delivering blood to the systemic, pulmonary, and coronary circulations. Chest X-ray shows cardiomegaly, increased pulmonary vascular markings, and fullness at the truncal root. Transposition of the Great Arteries (Option C): The main pulmonary artery arises from the left ventricle and the aorta from the right ventricle . Chest X-ray shows egg-on-string appearance. Coarctation of the Aorta (Option D): Varying degrees of coarctation occur at any point from the transverse arch to the iliac bifurcation. It is an acyanotic heart disease. Chest x-ray shows rib notching. Other acyanotic congenital heart diseases are atrial septal defect, ventricular septal defect, patent ductus arteriosus, subaortic membrane, valvar aortic stenosis, and supravalvar aortic stenosis.

References:

Nelson textbook of pediatrics, 21st Edition, Pages 2408, 2409, 2424, 2389, 2411-2413

https://www.researchgate.net/figure/Fig-1-Chest-X-ray-showing-features-consistent-with-TAPVC_fig1_269495026

↑ *Back to this question in Part A*

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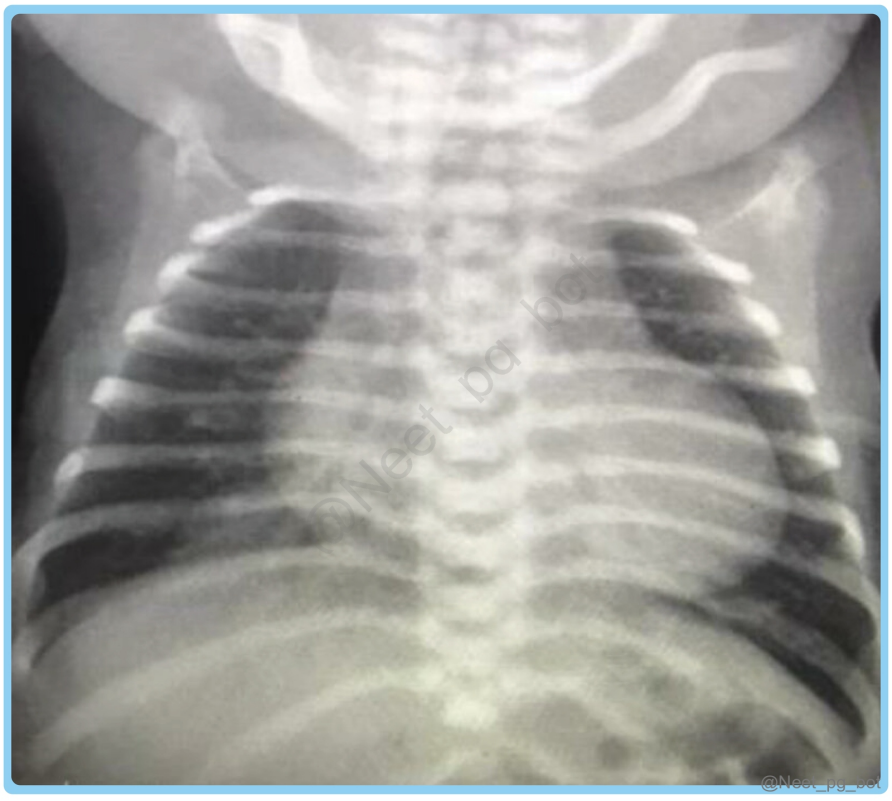
Q7: A neonate has cyanosis and is short of breath shortly after birth. On auscultation grade II ejection systolic murmur is heard. X-ray is taken as shown below. Which of the following congenital heart conditions is most likely associated with this radiographic finding? (Q850011)

A. Hypoplastic Left Heart Syndrome

B. Truncus Arteriosus

C. Transposition of the Great Arteries

D. Ebstein's Anomaly



Correct Answer: C. Transposition of the Great Arteries

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Rapid onset of symptoms immediately after birth and egg-on-string appearance on the chest X-ray suggest transposition of the great arteries. Transposition of the Great Arteries: The main pulmonary artery arises from the left ventricle and the aorta arises from the right ventricle . Pathophysiology: Oxygenated pulmonary venous blood recirculates in the lungs and systemic venous blood recirculates in the systemic circulation. Clinical presentation: Classified as: With intact ventricular septum: Cyanotic at birth Rapid breathing Congestive heart failure secondary to hypoxemia within few days of life Normal S2, single S2. Grade I to II ejection systolic murmur. With VSD: Degree of cyanosis is determined by the severity of VSD. Apical third sound gallop, mid-diastolic rumble. Grade II-IV ejection systolic murmur. Investigation: Chest X-ray: Mild cardiomegaly + narrow mediastinum = egg-shaped heart (Option C) Plethoric lung fields ECG: Intact septum: Right axis deviation and right ventricular hypertrophy. With VSD: Right axis deviation with biventricular, right ventricular or left ventricular hypertrophy. Others: Echocardiography, CT, MRI Treatment: Infusion of prostaglandin E1: Maintain patency of the ductus arteriosus and improve oxygenation. Rashkind balloon atrial septostomy Arterial switch (Jatene) procedure : Surgery of choice in neonates with TGA and an intact ventricular septum. Hypoplastic Left Heart Syndrome (Option A): The left side of the heart has different levels of underdevelopment, including stenosis or atresia of the aortic and mitral valves, along with hypoplasia of the left ventricular cavity and ascending aorta. Chest x-ray shows an enlarged cardiac silhouette and increased pulmonary vascular markings. Truncus Arteriosus (Option B): A single arterial trunk (truncus arteriosus) originates from the heart, delivering blood to the systemic, pulmonary, and coronary circulations. Chest X-ray shows cardiomegaly, increased pulmonary vascular markings, and fullness at the truncal root. Ebstein's Anomaly (Option D): Downward displacement/prolapse of the tricuspid valve and part of the right ventricular volume becomes part of the right atrium (atrialization of the right ventricle). Chest x-ray shows a box-shaped heart due to right atrial enlargement and right atrium forming the right heart border.

References:

Nelson textbook of pediatrics, 21st Edition, Pages 2406, 2408, 2409, 2413, 2424.

Ghai Essential of Pediatrics, 10th Edition, Page 449

↑ *Back to this question in Part A*

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Q8: Which congenital cardiac anomaly is associated with CATCH 22 or chromosome 22q11 deletion? (Q850012)

A. Hypoplastic Left Heart Syndrome

B. Truncus Arteriosus

C. Transposition of the Great Arteries

D. Coarctation of the Aorta

Correct Answer: B. Truncus Arteriosus

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Truncus arteriosus is a conotruncal heart defect that may be associated with DiGeorge syndrome , which is related to a deletion of a significant portion of chromosome 22q11. Truncus Arteriosus: Pathophysiology: A single arterial trunk (truncus arteriosus) originates from the heart and supplies the systemic, pulmonary, and coronary circulations. VSD is always present. Truncus receives blood from both the right and left ventricles Associated with DiGeorge syndrome (deletion of a large region of chromosome 22q11 or CATCH 22). (Option B) CATCH 22: 22 signifying the chromosomal abnormality found on the 22nd chromosome. C ardiac abnormality (Truncus arteriosus) A bnormal facies T hymic aplasia or hypoplasia C left palate H ypocalcemia/hypoparathyroidism Hypoplastic Left Heart Syndrome (Option A): The left side of the heart has different levels of underdevelopment, including stenosis or atresia of the aortic and mitral valves, along with hypoplasia of the left ventricular cavity and ascending aorta. It is associated with Jacobsen syndrome. The gene implicated is JAM3 on the 11th chromosome Transposition of the Great Arteries (Option C): The main pulmonary artery arises from the left ventricle and the aorta from the right ventricle . It is associated with Kabuki syndrome. The gene implicated is MLL2 on the 12th chromosome. Coarctation of the Aorta (Option D): Varying degrees of coarctation occur at any point from the transverse arch to the iliac bifurcation. It is associated with Kabuki syndrome. The gene implicated is MLL2 on the 12th chromosome.

References:

Nelson textbook of pediatrics, 21st Edition, Pages 2408, 2409, 2413, 2424, 2369

Ghai Essential of Pediatrics, 10th Edition, Page 449

https://pubmed.ncbi.nlm.nih.gov/9986884/

↑ *Back to this question in Part A*

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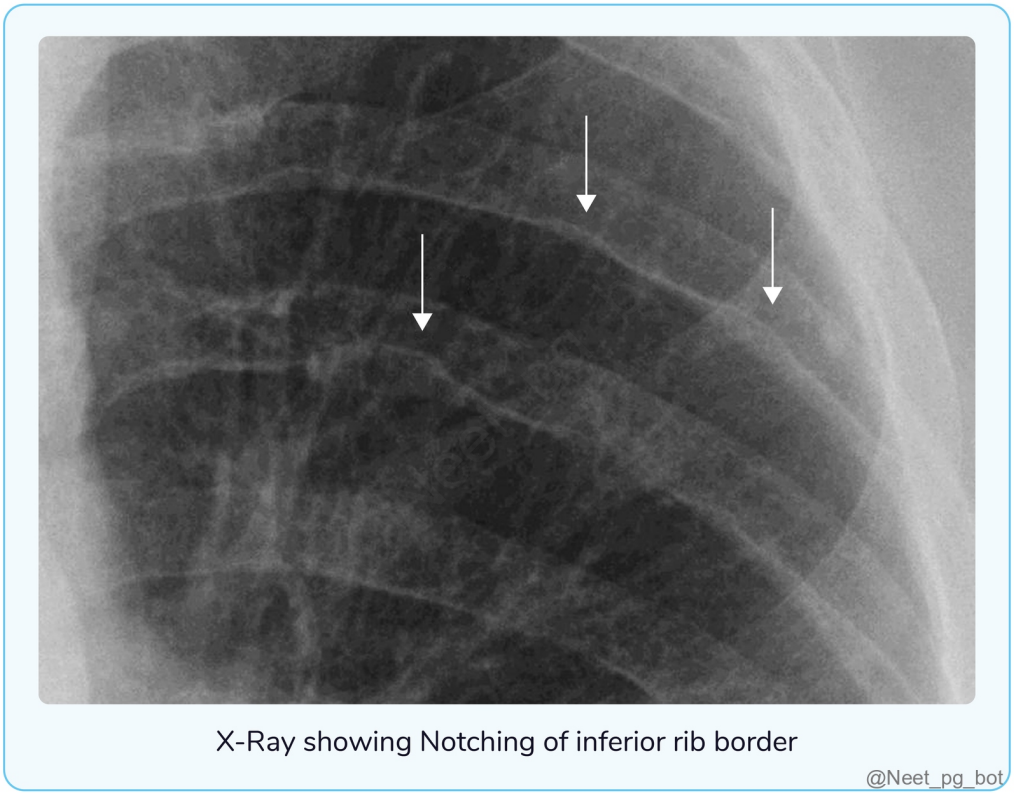
Q9: A 14-year-old boy presents with leg pain during physical activity. He is found to have a radio-femoral delay and murmur is heard on the shoulder region. A part of the chest X-ray is shown below. Which of the following conditions is most likely responsible for these findings? (Q850013)

A. Ventricular Septal Defect

B. Atrial Septal Defect

C. Patent Ductus Arteriosus

D. Coarctation of the Aorta



X-Ray showing Notching of inferior rib border

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Correct Answer: D. Coarctation of the Aorta

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Coarctation of the aorta involves narrowing of the aorta leading to decreased blood flow (leg pain during exertion), radio-femoral delay, and murmur in the shoulder region due to collateral formation. Chest X-ray shows notching of the inferior border of the ribs due to pressure erosion by enlarged collateral vessels. Coarctation of the Aorta: Constrictions of the aorta of varying degrees at any point from the transverse arch to the iliac bifurcation. Juxtaductal coarctation- 98% occurrence Clinical presentation: Differential cyanosis Heart failure in severe cases Weakness or pain/claudication (or both) in the legs after exercise Radio-femoral delay: Disparity in pulsation and BP in the arms and legs Systolic or continuous murmurs are heard over the left and right sides of the chest laterally and posteriorly due to collateral blood flow. Investigation: Chest x-ray: The enlarged left subclavian artery produces a prominent shadow in the left superior mediastinum. Notching of the inferior border of the ribs from pressure erosion by enlarged collateral vessels (Common in late childhood after 1st decade of life) Descending aorta has an area of post-stenotic dilation. ECG, echocardiography, colour Doppler, CT, and MRI. Treatment: Infusion of prostaglandin E1 to reopen the ductus and reestablish adequate lower-extremity blood flow. Surgical repair Acyanotic congenital heart defects Ventricular Septal Defect (Option A) Atrial Septal Defect (Option B) Patent Ductus Arteriosus (Option C) Pathologyphy-siology Abnormal opening/defect in the ventricle septum. Abnormal opening/defect in the atrial septum. Failure of closure of ductus areterious (vessel that connects the pulmonary artery to the aorta in a developing fetus). Chest X-ray Minimal cardiomegaly and a borderline increase in pulmonary vasculature Enlarged right ventricle and atrium, depending on the size of the shunt. Increased pulmonary vascularity. Prominent pulmonary artery with increased pulmonary vascular markings and/or prominent aortic knob.

References:

Nelson textbook of pediatrics, 21st Edition, Pages 2382, 2379, 2380, 2373, 2375, 2389 - 2391

↑ *Back to this question in Part A*

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Q10: A 6-month-old infant presents with cyanosis, difficulty breathing, and prominent 'a' waves in the jugular pulse. The ECG shows left axis deviation and left ventricular hypertrophy. What is the underlying pathophysiology? (Q850014)

A. No RA-RV communication

B. Obstructed pulmonary outflow with intact septum.

C. Ventricular septal defect and pulmonary stenosis.

D. Underdeveloped left heart.

Correct Answer: A. No RA-RV communication

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This describes tricuspid valve atresia. In this condition, the tricuspid valve is absent or malformed, preventing blood flow from the right atrium (RA) to the right ventricle (RV). Blood instead flows through an atrial septal defect (ASD) into the left atrium (LA) and then to the left ventricle (LV). The LV becomes hypertrophied due to handling increased blood volume and pressure Tricuspid Atresia Definition: A congenital condition characterized by the absence of the tricuspid valve, leading to a hypoplastic (underdeveloped) right ventricle. (Option D ruled out). Clinical Presentation: Depends on pulmonary blood flow, which may be diminished or increased. Diminished pulmonary blood flow: Constitutes 90% of cases. Symptoms and physical signs are similar to Tetralogy of Fallot (TOF). Features Suggesting Tricuspid Atresia: Apical Impulse: Left ventricular type of apical impulse. Jugular Venous Pulse: Prominent large 'a' waves. Liver: Enlarged with presystolic pulsations (a waves). Electrocardiogram (ECG): Characterized by left axis deviation. Left ventricular hypertrophy. Mean QRS axis around —45°. Immediate Treatment: PGE (Prostaglandin E1) Infusion: Medication: Alprostadil infusion. Purpose: Keeps the ductus arteriosus patent to allow blood flow from the aorta into the pulmonary artery. Definitive Treatment: Series of Surgical Procedures: Modified Blalock-Taussig Shunt: Purpose: Improve pulmonary blood flow. Glenn Shunt: Procedure: Connects the superior vena cava (SVC) directly to the pulmonary artery. Purpose: Prevents overloading of the left heart chambers and increases pulmonary blood flow. Fontan Shunt: Procedure: Connects the inferior vena cava (IVC) directly to the pulmonary artery. Purpose: Diverts blood flow directly to the pulmonary artery, bypassing the right heart. Obstructed pulmonary outflow with intact septum (Option B): This describes pulmonary atresia with an intact ventricular septum. The left side of the heart does not typically show left ventricular hypertrophy Ventricular septal defect and pulmonary stenosis (Option C): This describes tetralogy of Fallot. The ECG typically shows right axis deviation and right ventricular hypertrophy.

References:

Nelson textbook of pediatrics, 21st Edition, Pages 2402, 2403

Ghai Essential of Pediatrics, 10th Edition, Page 447

↑ *Back to this question in Part A*

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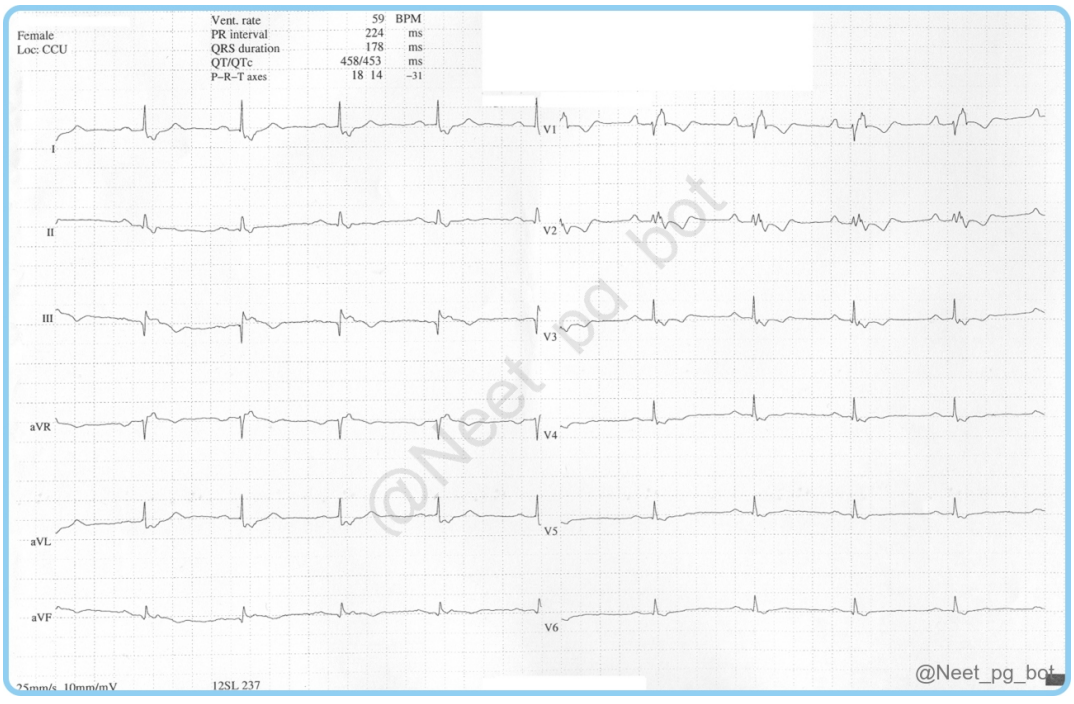
Q11: A 3-day-old infant has cyanosis shortly after birth.The mother has a history of Bipolar disorder. On examination, the infant has a prominent pansystolic murmur best heard along the left lower sternal border. The infant's ECG image is shown below. Which of the following is the most likely diagnosis? (Q850015)

A. Tetralogy of Fallot

B. Atrialization of the Right ventricle

C. Transposition of the Great vessels

D. Ventricular Septal Defect

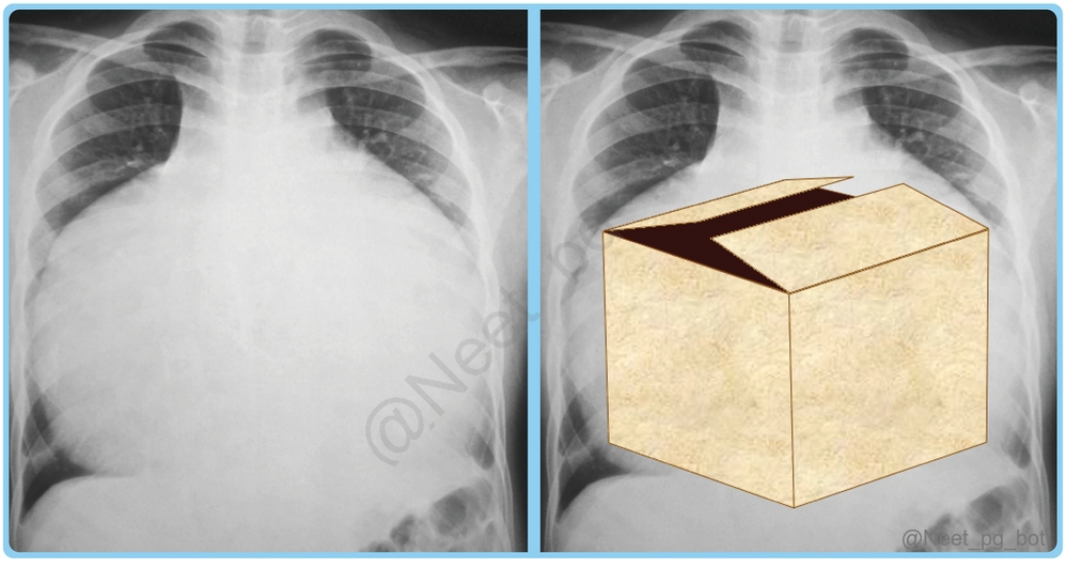


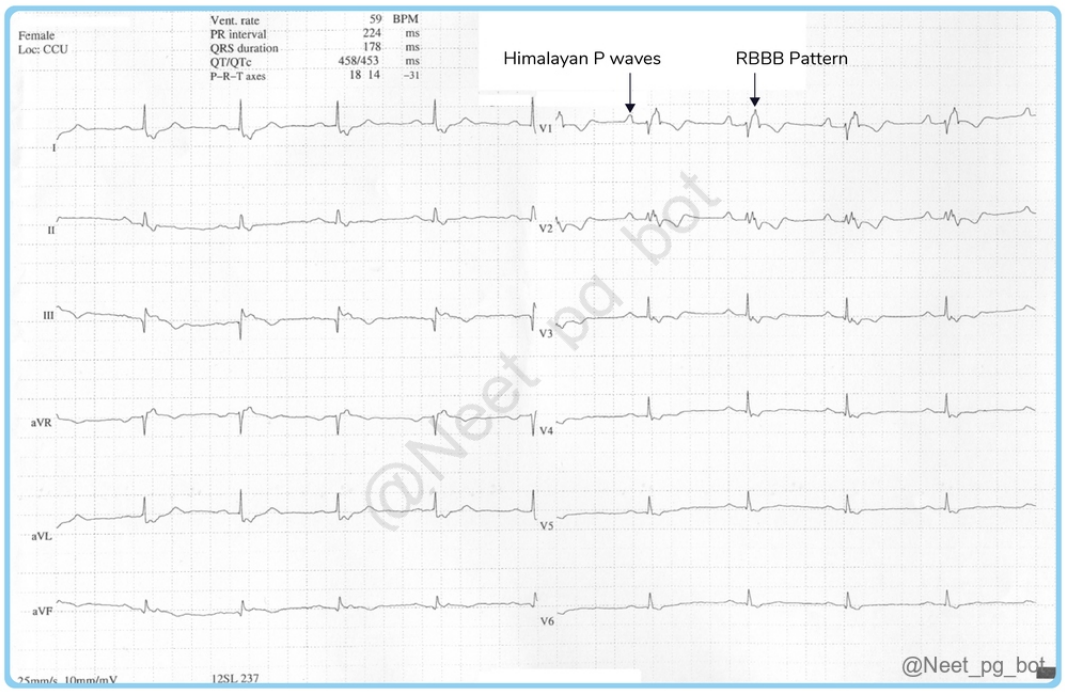
Correct Answer: B. Atrialization of the Right ventricle

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical presentation of cyanosis at birth, pansystolic murmur due to tricuspid regurgitation, mother’s history of Bipolar (Lithium exposed pregnancy), and the characteristic Himalayan P wave on ECG is most consistent with Atrialization of the right ventricle. This condition is also known as Ebstein's Anomaly. Ebstein's Anomaly: Associated with Lithium exposure during pregnancy. Pathophysiology: Downward displacement/prolapse of the tricuspid valve. Part of the right ventricular volume becomes part of the right atrium (atrialization of the right ventricle). Consequences: Tricuspid Regurgitation: Prolapsed valve → Blood from the right ventricle regurgitates into the right atrium. RVOT (Right Ventricular Outflow Tract) Obstruction: Prolapsed valve partly occludes blood flow towards the pulmonary artery → Cyanosis. Features: Cyanosis at birth or during the neonatal period. Pansystolic murmur: Due to tricuspid regurgitation. Quadruple Rhythm: Irregular blood flow in the right heart, RVOT obstruction, and tricuspid regurgitation → Multiple added sounds and ejection clicks. X-Ray Findings: Right atrial enlargement due to regurgitation from the right ventricle and atrialization of the right ventricle. RA forms the right heart border, which displaces laterally and appears on X-ray as a box-shaped heart. ECG: Himalayan P Waves Tetralogy of Fallot (Option A): Characterized by cyanosis, a systolic ejection murmur, and right ventricular outflow tract obstruction. X-ray typically shows a boot-shaped heart. Transposition of the Great Arteries (Option C): Presents with severe cyanosis, often with a systolic murmur if there is associated outflow obstruction. X-ray findings usually show an "egg-on-a-string" appearance. Ventricular Septal Defect (Option D): Presents with a pansystolic murmur and may cause pulmonary overcirculation, but the X-ray findings would generally show an enlarged heart with increased pulmonary markings.





References:

Ghai Essential of Pediatrics, 10th Edition, Pages 447,448

Nelson textbook of pediatrics, 21st Edition, Page 2406

↑ *Back to this question in Part A*

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Q12: A term newborn develops central cyanosis within the first few hours of life. Pulse oximetry shows oxygen saturation of 58% despite administration of 100% oxygen. There is no significant respiratory distress. Which of the following conditions is least likely to cause cyanosis in this neonate? (Q891637)

A. Pulmonary arteriovenous malformation

B. Isolated infundibular stenosis

C. Ebstein anomaly

D. Tetralogy of Fallot

Correct Answer: B. Isolated infundibular stenosis

Explanation: Neonatal cyanosis shortly after birth is most commonly due to right-to-left shunting of deoxygenated blood or severe impairment of pulmonary oxygenation, and isolated infundibular stenosis rarely causes it since intact septa allow normal lung oxygenation. Isolated infundibular (subpulmonic) stenosis Right ventricular outflow tract obstruction without septal defect No right-to-left shunt → blood still passes through lungs for oxygenation Cyanosis is uncommon unless obstruction is extremely severe. Pulmonary arteriovenous malformation (Option A): Direct artery-to-vein connection bypasses alveoli → systemic deoxygenated blood → cyanosis refractory to oxygen. Ebstein anomaly (Option C): Tricuspid valve malformation → right atrial enlargement → right-to-left atrial shunt via patent foramen ovale → early cyanosis. Tetralogy of Fallot (Option D): VSD + RV outflow obstruction → right-to-left shunting → cyanosis present from birth.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 444-447.

https://www.ncbi.nlm.nih.gov/books/NBK560750/

↑ *Back to this question in Part A*

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Q13: A 6-month-old infant presents with progressive cyanosis and squatting episodes during crying. Which of the following represents the most common cyanotic congenital heart disease overall? (Q891642)

A. Transposition of the Great Arteries

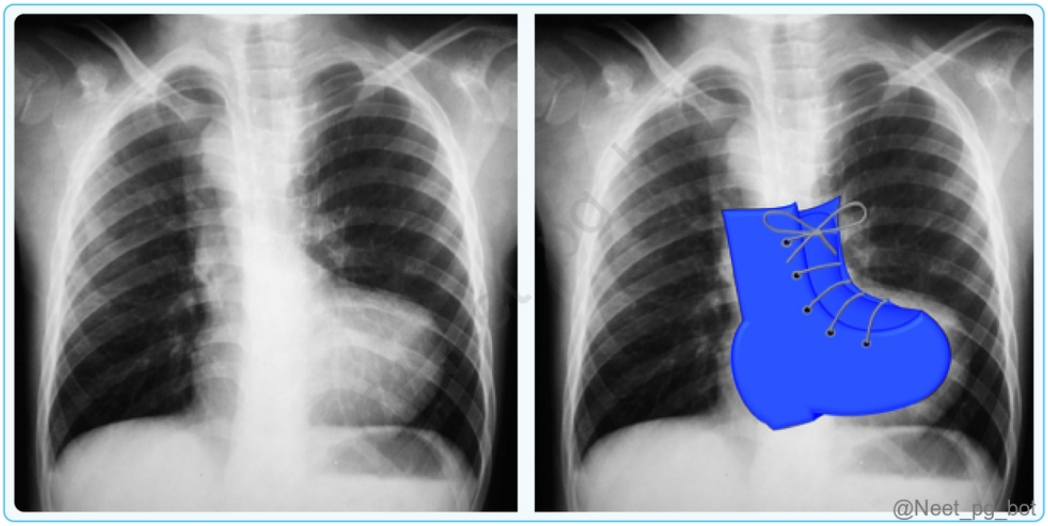
B. Total Anomalous Pulmonary Venous Connection

C. Tetralogy of Fallot

D. Tricuspid atresia

Correct Answer: C. Tetralogy of Fallot

Explanation: Tetralogy of Fallot is the most common cyanotic congenital heart disease overall beyond the neonatal period. Tetralogy of Fallot (TOF) Components Ventricular septal defect (VSD) Right ventricular outflow tract obstruction (pulmonary stenosis) Overriding aorta Right ventricular hypertrophy Pathophysiology Right ventricular outflow obstruction leads to right-to-left shunting across the VSD, allowing deoxygenated blood to enter systemic circulation → cyanosis. Clinical Features Cyanosis developing in infancy “Tet spells” (hypercyanotic episodes) Squatting behavior (increases systemic vascular resistance, reducing right-to-left shunt) Boot-shaped heart on chest X-ray Transposition of the Great Arteries (TGA) (Option A) is the most common cause of severe cyanosis in the immediate neonatal period, but not the most common cyanotic congenital heart disease overall. Total Anomalous Pulmonary Venous Connection (TAPVC) (Option B): Pulmonary veins drain into the right atrium instead of the left atrium. Cyanosis occurs due to mixing, but it is less common than Tetralogy of Fallot. Tricuspid atresia (Option D): Absence of the tricuspid valve causes hypoplastic right ventricle and obligatory right-to-left shunting at the atrial level. It is a cyanotic lesion but less common.



References:

OP Ghai Essential Pediatrics, 10th Edition, Page 444-447

https://www.ncbi.nlm.nih.gov/books/NBK513288/

↑ *Back to this question in Part A*

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Q14: A 3-month-old infant is evaluated for persistent cyanosis. The parents report episodes of deep blue discoloration during crying. A prior chest X-ray was described as showing a “boot-shaped” cardiac silhouette. Which of the following findings would be least expected in this child? (Q891648)

A. Prominent “a” waves in the jugular venous pulse

B. Cardiomegaly on chest X-ray

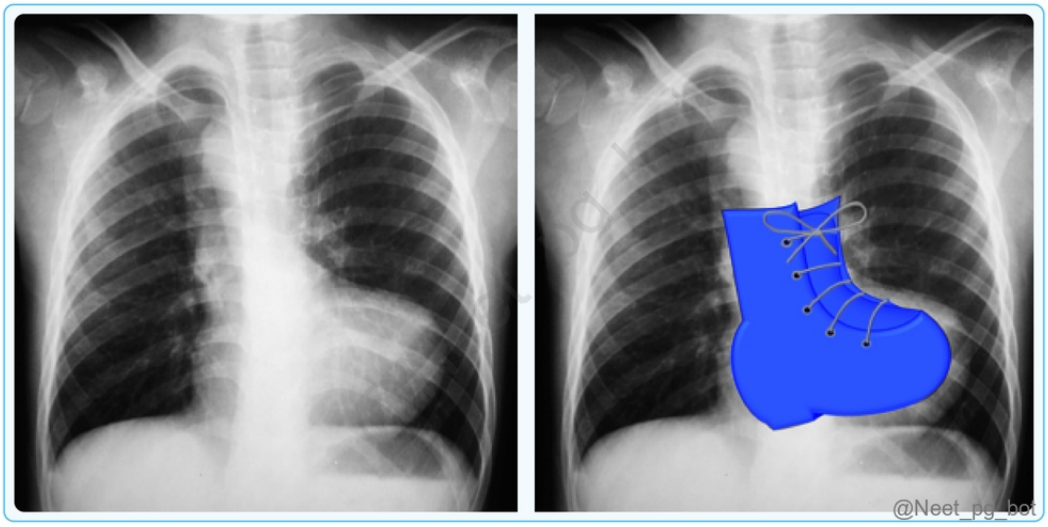
C. Soft or single second heart sound (P2)

D. Dilated ascending aorta

Correct Answer: B. Cardiomegaly on chest X-ray

Explanation: The description of a “boot-shaped” heart on chest X-ray is classic for Tetralogy of Fallot , the most common cyanotic congenital heart disease beyond the neonatal period. Tetralogy of Fallot (TOF) Components Ventricular septal defect (VSD) Right ventricular outflow tract obstruction (pulmonary stenosis) Overriding aorta Right ventricular hypertrophy Pathophysiology Right ventricular outflow obstruction leads to right-to-left shunting across the VSD, allowing deoxygenated blood to enter systemic circulation → cyanosis. Clinical Features Signs

and symptoms: Cyanosis, “Tet spells” worsened by crying, squatting relieves symptoms. Other Findings: Prominent “a” waves in JVP (Option A ruled out) Soft/single P2 (Option C ruled out) Dilated ascending aorta (overriding aorta) (Option D ruled out) Chest X-ray Boot-shaped heart Decreased pulmonary markings Heart size usually normal (Option B) Boot-shaped heart (Coeur en sabot) occurs due to: Right ventricular hypertrophy (causing an upturned apex) Concavity of the pulmonary artery segment Relatively normal heart size



References:

OP Ghai Essential Pediatrics, 10th Edition, Page 444-447.

https://www.ncbi.nlm.nih.gov/books/NBK513288/

↑ *Back to this question in Part A*

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Q15: A 5-year-old boy with known cyanotic congenital heart disease develops bluish discoloration of his lips and fingertips while running. During these episodes, he instinctively squats and reports feeling better within minutes. Which of the following physiological changes does NOT occur during squatting? (Q891650)

A. Reduction in right-to-left shunting across the ventricular septal defect

B. Increased systemic vascular resistance

C. Increased magnitude of right-to-left shunt

D. Pooling of blood in the lower extremities

Correct Answer: C. Increased magnitude of right-to-left shunt

Explanation: This child's symptoms are classic for Hypercyanotic ("Tet") Spells seen in Tetralogy of Fallot. Squatting in Tetralogy of Fallot increases systemic vascular resistance and reduces right-to-left shunting, relieving cyanosis, so it does not increase the magnitude of the shunt. Pathophysiology: Exertion ↓ systemic vascular resistance (SVR) → ↑ right-to-left shunt across VSD → worsened cyanosis. Physiological effects of squatting: ↑ Systemic vascular resistance (SVR): Femoral compression raises left ventricular pressure. (Option B ruled out) ↓ Right-to-left shunt: Increased SVR reduces shunting, improving pulmonary blood flow and oxygenation. (Option A ruled out) Pooling of blood in lower limbs: Venous and arterial compression increases afterload, aiding symptom relief. (Option D ruled out)

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 444-447.

https://www.ncbi.nlm.nih.gov/books/NBK513288/

↑ *Back to this question in Part A*

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Q16: An 8-month-old infant with diagnosed Tetralogy of Fallot develops a sudden episode of deep cyanosis and irritability while crying. Oxygen saturation drops to 65%. You initiate medical management for a hypercyanotic spell. Which of the following medications would aggravate the cyanosis if administered? (Q891651)

A. Phenylephrine

B. Isoproterenol

C. Propranolol

D. Sodium bicarbonate

Correct Answer: B. Isoproterenol

Explanation: Hypercyanotic ("Tet") Spells result from a sudden increase in right-to-left shunting across the VSD, and isoproterenol worsens these spells by causing peripheral vasodilation, which lowers systemic vascular resistance and further increases shunting, aggravating cyanosis. Triggers: ↓ Systemic vascular resistance (SVR) ↑ Right ventricular outflow tract (RVOT) spasm Catecholamine surge (crying, feeding) Treatment Goals: ↑ SVR to reduce right-to-left shunt ↓ RVOT spasm Improve pulmonary blood flow and oxygenation. Phenylephrine (Option A): Alpha-1 agonist → increases SVR → reduces right-to-left shunt → improves oxygenation. Propranolol (Option C): Beta-blocker → reduces infundibular spasm and heart rate → decreases dynamic RVOT obstruction → beneficial in Tet spells. Sodium bicarbonate (Option D) corrects metabolic acidosis, which otherwise worsens pulmonary vasoconstriction and shunting.

References:

OP Ghai Essential Pediatrics, 10th Edition, Page 444-447.

https://www.ncbi.nlm.nih.gov/books/NBK513288/

↑ *Back to this question in Part A*

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• [12_Pediatric Cardiology] 031 Previous Year Questions

« Back to Folder Directory

[12_Pediatric Cardiology] 031 Previous Year Questions — Quick Jump

Q1 (p. 1221)	*Q2 (p. 1222)*	*Q3 (p. 1223)*	*Q4 (p. 1224)*	*Q5 (p. 1225)*	*Q6 (p. 1226)*
Q7 (p. 1231)	*Q8 (p. 1232)*	*Q9 (p. 1233)*	*Q10 (p. 1235)*	*Q11 (p. 1236)*	*Q12 (p. 1236)*
Q13 (p. 1238)	*Q14 (p. 1239)*	*Q15 (p. 1240)*	*Q16 (p. 1241)*	*Q17 (p. 1243)*	*Q18 (p. 1243)*
Q19 (p. 1244)	*Q20 (p. 1245)*	*Q21 (p. 1246)*			

Q1: A 24-year-old woman presents for an antenatal check-up and is currently on lithium for her bipolar disorder. This drug must be stopped, due to the risk of development of which of the following conditions in the fetus? (Q857184)

A. Ebstein anomaly

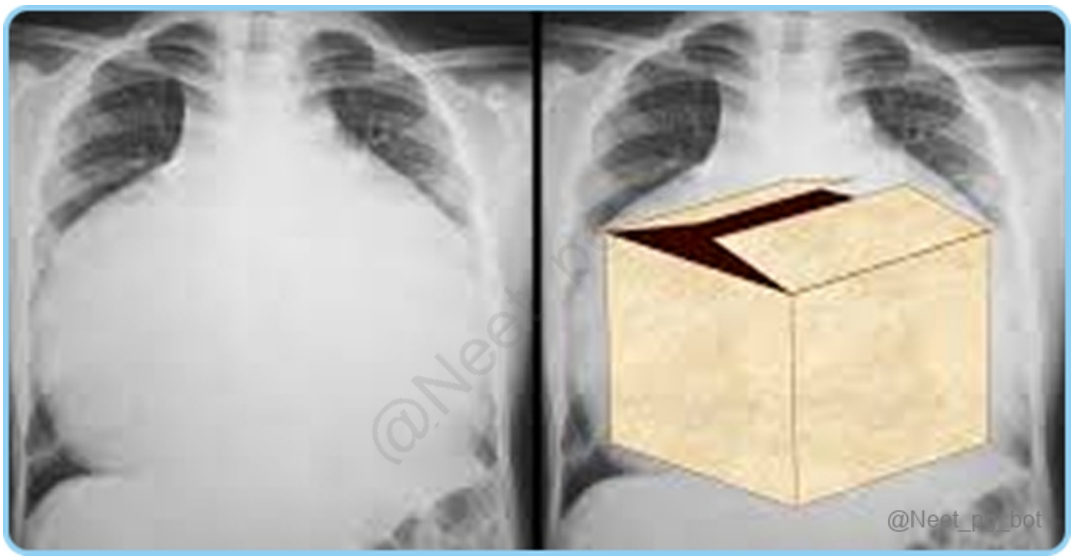
B. VACTERL defects

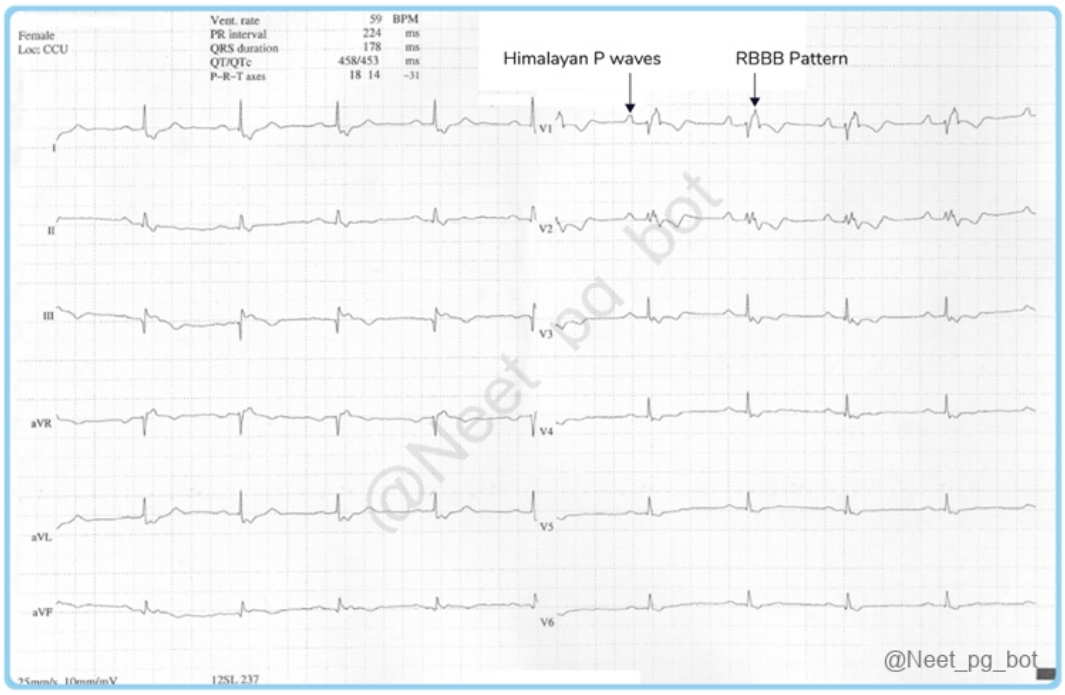
C. Coarctation of aorta

D. Supravalvular aortic stenosis

Correct Answer: A. Ebstein anomaly

Explanation: ssociated with lithium exposure during pregnancy. Pathophysiology: Downward displacement/prolapse of the tricuspid valve. Part of the right ventricular volume becomes part of the right atrium (atrialization of the right ventricle). Consequences: Tricuspid Regurgitation: Prolapsed valve → Blood from the right ventricle regurgitates into the right atrium. RVOT (Right Ventricular Outflow Tract) Obstruction: Prolapsed valve partly occludes blood flow towards the pulmonary artery → Cyanosis. Features: Cyanosis at birth or during the neonatal period. Pansystolic murmur: Due to tricuspid regurgitation. Quadruple Rhythm: Irregular blood flow in the right heart, RVOT obstruction, and tricuspid regurgitation → Multiple added sounds and ejection clicks. X-Ray Findings: Right atrial enlargement due to regurgitation from the right ventricle and atrialization of the right ventricle. RA forms the right heart border, which displaces laterally and appears on X-ray as a box-shaped heart. {{caption_text}} ECG: Himalayan P Waves {{caption_text}} VACTERL (Option B) is a broad spectrum of congenital anomalies including v ertebral anomalies, a norectal anomalies (anal atresia), c ardiac anomalies, t racheo e sophageal fistula or atresia, r enal anomalies, and l imb anomalies. Lithium is not a cause of this condition. Coarctation of the Aorta (Option C): Varying degrees of coarctation occur at any point from the transverse arch to the iliac bifurcation. It is associated with Kabuki syndrome and Turner syndrome. It is not associated with Lithium exposure. Supravalvular aortic stenosis (Option D) is a type of acyanotic congenital heart disease associated with William’s syndrome and is not associated with lithium exposure.





References:

Nelson textbook of Paediatrics, 21st Edition, Page: 2406.

↑ *Back to this question in Part A*

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Q2: Acute rheumatic fever is diagnosed by minor and major components of jones criteria. Which of the following are components in jones minor/ major criteria? Select

all that apply. Carditis Erythema nodosum Polyarthralgia Chorea Prolonged PR interval (Q879275)

A. 1,2,3,4,5

B. 1,2,3

C. 1,3,4,5

D. 1,2,4

Correct Answer: C. 1,3,4,5

Explanation: The Jones criteria are used to diagnose Acute Rheumatic Fever (ARF) and are divided into major and minor components. Modified Jones Criteria Major Criteria Minor Criteria Carditis (Option 1) Polyarthritis Chorea – Neurological manifestation due to autoimmune reaction. (Option 4) Erythema marginatum Subcutaneous nodules Polyarthralgia (Option 3) Fever Prolonged PR interval on ECG (Option 5) Elevated ESR/CRP Diagnosis of ARF: 2 Major Criteria OR 1 Major Criteria + 2 Minor Criteria

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1446.

↑ *Back to this question in Part A*

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Q3: A child has a history of recurrent lung infections and, on examination, has a subclavicular continuous murmur. What is the diagnosis? (Q879224)

A. ASD

B. VSD

C. TGA

D. PDA

Correct Answer: D. PDA

Explanation: PDA (Patent Ductus Arteriosus) causes a continuous “machinery” murmur best heard in the left infraclavicular (subclavicular) area , due to continuous flow from the aorta to the pulmonary artery throughout the cardiac cycle. It often leads to recurrent respiratory infections from pulmonary overcirculation. Incorrect Options: ASD (Atrial Septal Defect (Option A): Produces a fixed split S2 and systolic ejection murmur at the pulmonary area, not continuous. VSD (Ventricular Septal Defect) (Option B) : Causes a pansystolic murmur at the lower left sternal border. TGA (Transposition of the Great Arteries) (Option C) : Presents with cyanosis soon after birth, not

a continuous murmur.

References:

Nelson Textbook of Paediatrics, 21st Edition, Page 2432.

↑ *Back to this question in Part A*

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Q4: Which of the following is not a characteristic of tetralogy of Fallot? (Q859506)

A. Ventricular septal defect

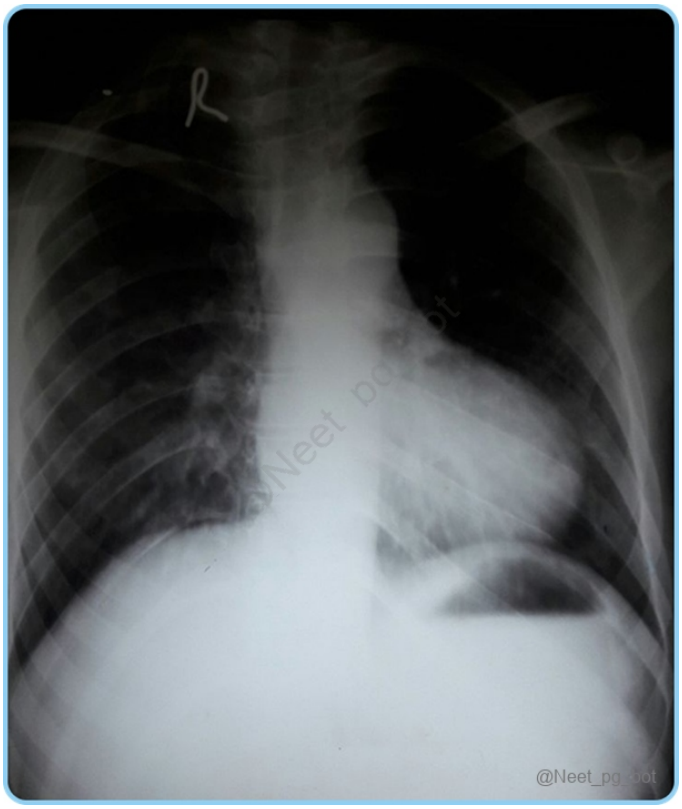
B. Right ventricular hypertrophy

C. Atrial septal defect

D. Pulmonary stenosis

Correct Answer: C. Atrial septal defect

Explanation: Atrial septal defect is not the component of Tetralogy of Fallot (TOF). Tetralogy of Fallot Components of Tetralogy of Fallot: Pulmonary Stenosis : (Option D Ruled Out) Narrowing of the pathway from the right ventricle to the pulmonary artery, possibly affecting the infundibulum, valve, or main pulmonary artery. Ventricular Septal Defect (VSD) : (Option A Ruled Out) A large hole between the right and left ventricles, usually misaligned, allowing abnormal blood flow. Overriding Aorta : The aorta is positioned over the septum, receiving blood from both ventricles. Right Ventricular Hypertrophy : (Option B Ruled Out) Thickening of the right ventricle wall due to the extra effort required to pump blood. Clinical features: Cyanosis (central) due to hypoxia; SpO2 <75-85% Clubbing Polycythemia Cyanotic spells Auscultatory findings: Ejection systolic murmur in the pulmonary area Single S2 (P2 is soft and inaudible) Chest X-ray: Boot-Shaped Heart or 'Cor en Sabot' appearance = Pulmonary oligemia {{caption_text}}



References:

Nelson Textbook of Paediatrics 21st Edition Page 2395-2397

↑ *Back to this question in Part A*

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Q5: Which of the following congenital heart disease presents with split-second heart sounds? Atrial Septal Defect (ASD) Ventricular Septal Defect (VSD) Patent Ductus Arteriosus (PDA) Tetralogy of Fallot (TOF) (Q859485)

A. 1,2,3 are correct

B. 2,3,4 are correct

C. 1,2 are correct

D. All are correct

Correct Answer: A. 1,2,3 are correct

Explanation: Congenital heart diseases that can present with split-second heart sounds include: Atrial Septal Defect (ASD): An ASD is a hole in the wall (septum) that separates the two upper chambers of the heart (atria). It can lead to increased blood flow from the left atrium to the right atrium, resulting in more evident splitting of the second heart sound (S2) during auscultation. Ventricular Septal Defect (VSD): A VSD is a hole in the septum between the two lower chambers of the heart (ventricles). Like ASD, it can cause increased blood flow from the left ventricle to the right ventricle, leading to accentuated splitting of S2. Patent Ductus Arteriosus (PDA): PDA is a condition where a blood vessel called the ductus arteriosus, which connects the pulmonary artery to the aorta during fetal development, remains open after birth. This can result in abnormal blood flow and increased flow across the pulmonary valve, leading to a more pronounced splitting of S2. The congenital heart disease that does not typically present with split-second heart sounds is: Tetralogy of Fallot (TOF) Components of Tetralogy of Fallot: Pulmonary Stenosis : Narrowing of the pathway from the right ventricle to the pulmonary artery, possibly affecting the infundibulum, valve, or main pulmonary artery. Ventricular Septal Defect (VSD) : A large hole between the right and left ventricles, usually misaligned, allowing abnormal blood flow. Overriding Aorta : The aorta is positioned over the septum, receiving blood from both ventricles. Right Ventricular Hypertrophy : Thickening of the right ventricle wall due to the extra effort required to pump blood. Examination findings in TOF Cardiac Auscultation Heart Sounds : Typically normal first heart sound with a single second heart sound (pulmonic component usually inaudible) Murmur : Harsh systolic ejection murmur, crescendo-decrescendo in quality Best heard at the left mid to upper sternal border Radiates posteriorly The severity of the murmur correlates with the degree of right ventricular outflow tract obstruction May occasionally have a regurgitant quality Early systolic click : Sometimes heard along the left sternal border (attributed to flow through a dilated ascending aorta) Continuous murmur : Present over the back and axillary regions in patients with pulmonary atresia and aortopulmonary collaterals Palpation Prominent ventricular impulse Systolic thrill may be palpable along the left sternal border

References:

Nelson textbook of pediatrics 21st Edition Page 2395-2397

↑ *Back to this question in Part A*

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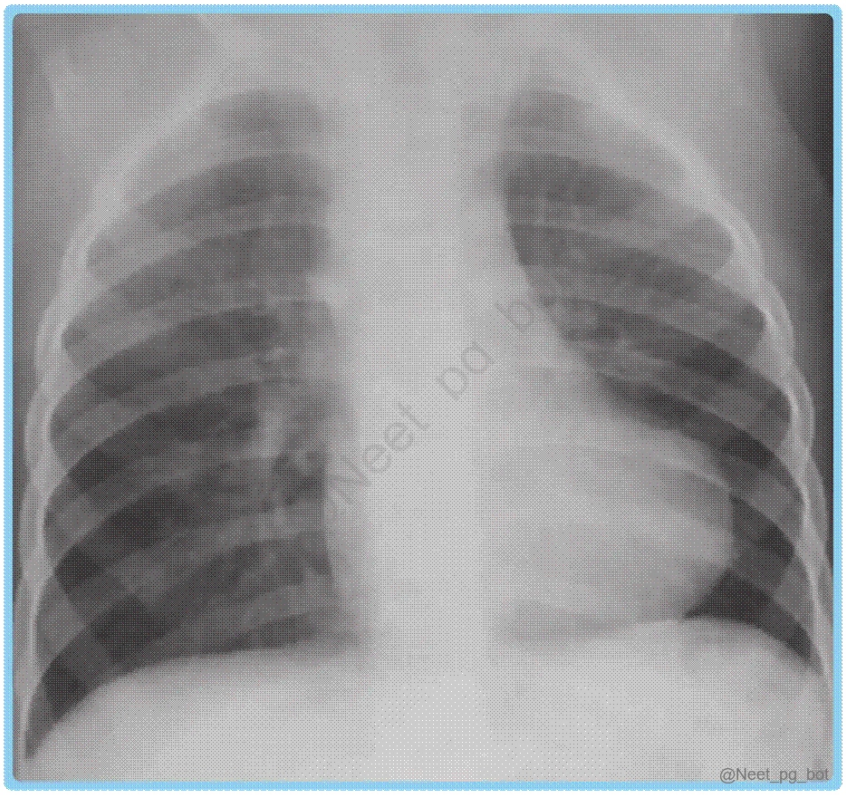
Q6: The given chest x-ray is suggestive of : (Q854979)

A. Tetralogy of fallot

B. Atrial septal defect

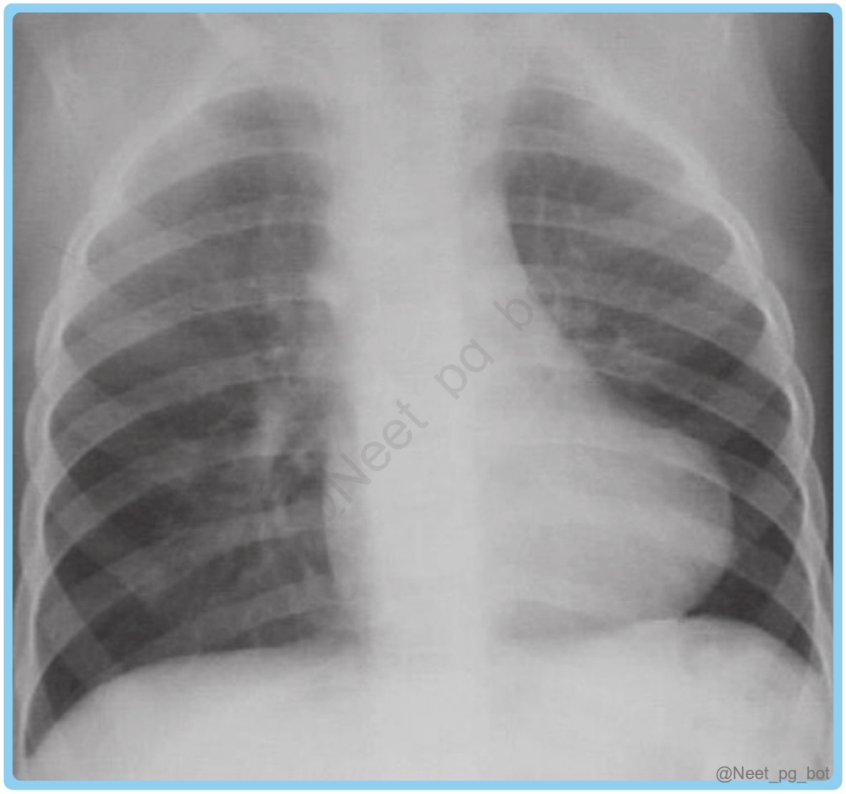
C. Ventricular septal defect

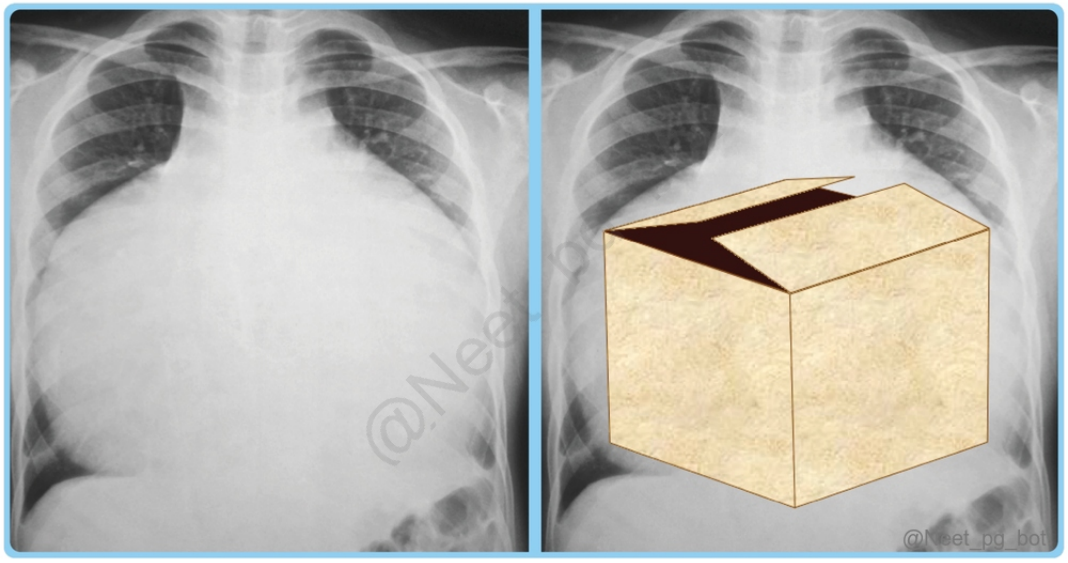
D. Ebstein’s anomaly

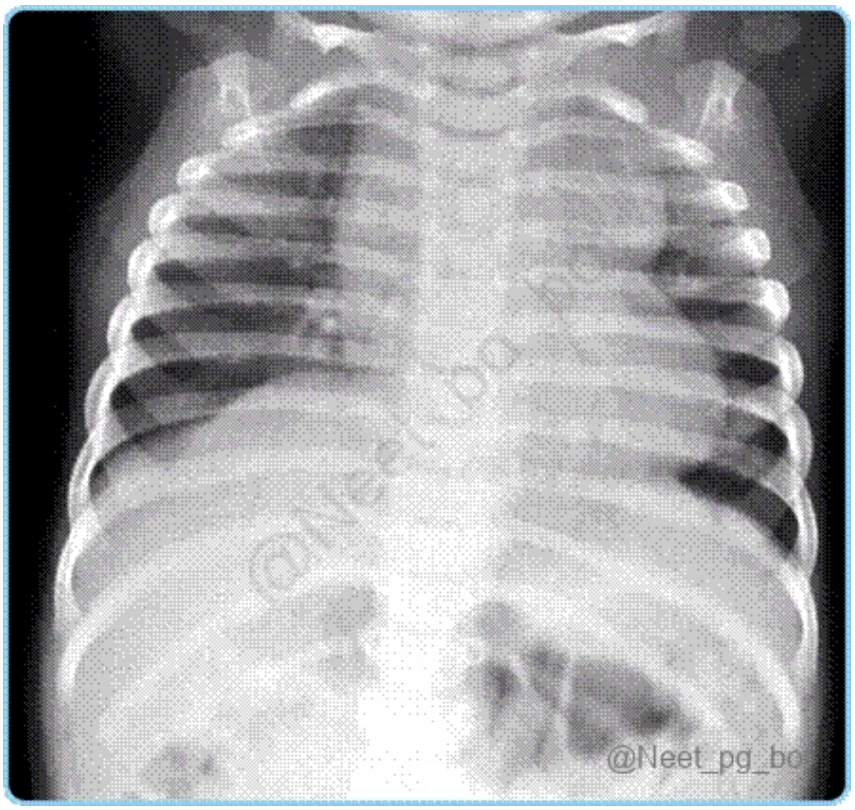


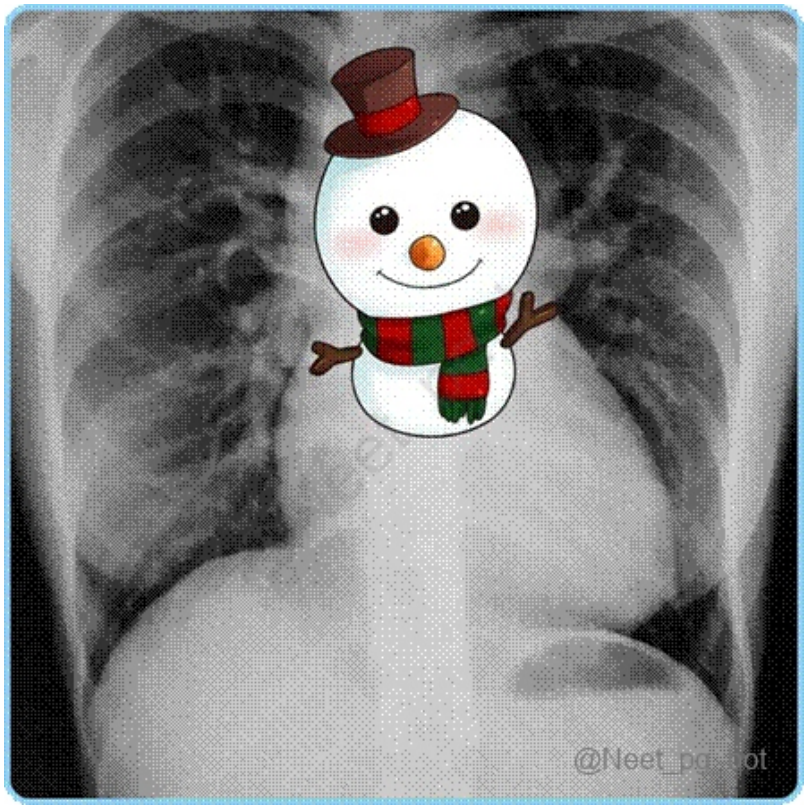
Correct Answer: A. Tetralogy of fallot

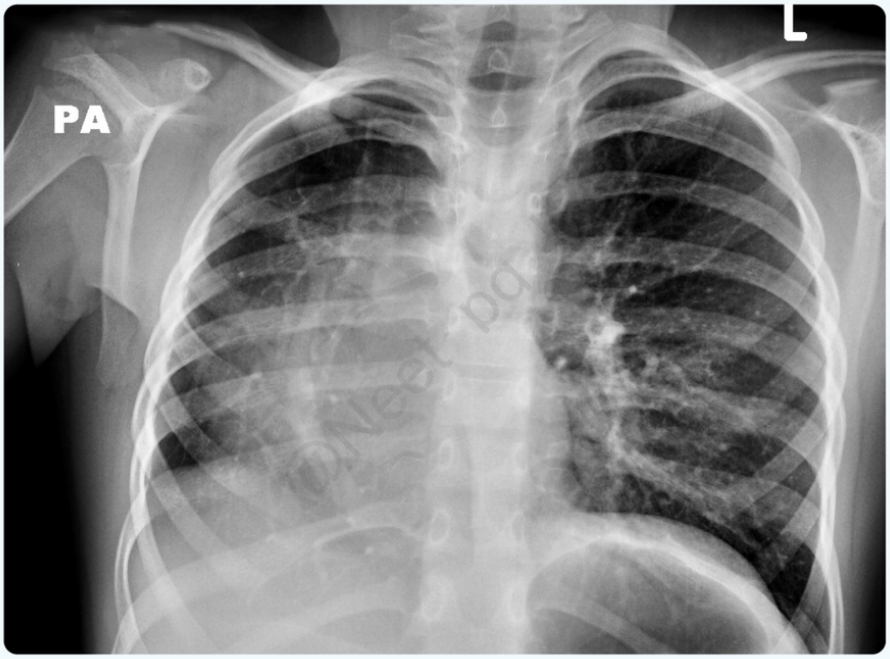
Explanation: The given chest X-ray shows boot shaped cardiac silhouette, which is suggestive of cardiac anomaly Tetralogy of Fallot. It is due to the right ventricular hypertrophy and upward shift of the cardiac apex. {{caption_text}} Components of Tetralogy of Fallot Pulmonary Stenosis Ventricular Septal Defect (VSD) Overriding Aorta Right Ventricular Hypertrophy General Clinical Features of TOF Cyanosis Hypercyanotic Spells (Tet Spells) Murmurs. Treatment of ToF: Management of Tet Spells Immediate interventions: Knee-chest position Oxygen administration Morphine for sedation Intravenous fluids Surgical Repair Complete Repair Procedure: Close VSD, relieve RVOT obstruction Approach: Transatrial-transpulmonary Considerations: Minimizing pulmonary insufficiency with smaller patches Palliative Shunts Blalock-Taussig Shunt : Connects subclavian artery to pulmonary artery Central Shunt : Connects ascending aorta to main pulmonary artery In Atrial septal defect and Ventricular septal defect (Option B and C) typical boot-shaped heart is not seen. Box-shaped heart seen in Ebstein's anomaly (Option D) {{caption_text}} Named malformation of CVS in chest X ray Snowman or "figure-of-eight" appearance: seen in Total anomalous pulmonary venous connection (TAPVC)" {{caption_text}} {{caption_text}} Scimitar sign: seen in Partial Anomalous Pulmonary Venous Connection (PAPVC) {{caption_text}} {{caption_text}} Box-shaped heart: seen in Ebstein's anomaly {{caption_text}} Gooseneck deformity: seen in endocardial cushion defects {{caption_text}}


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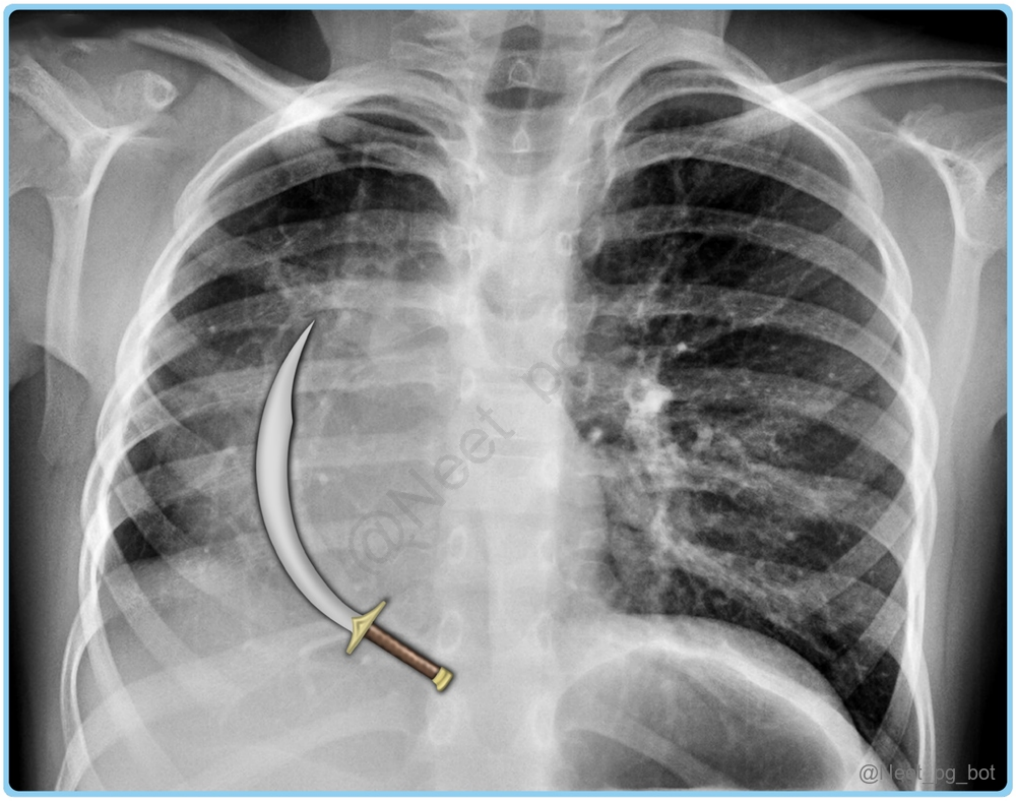

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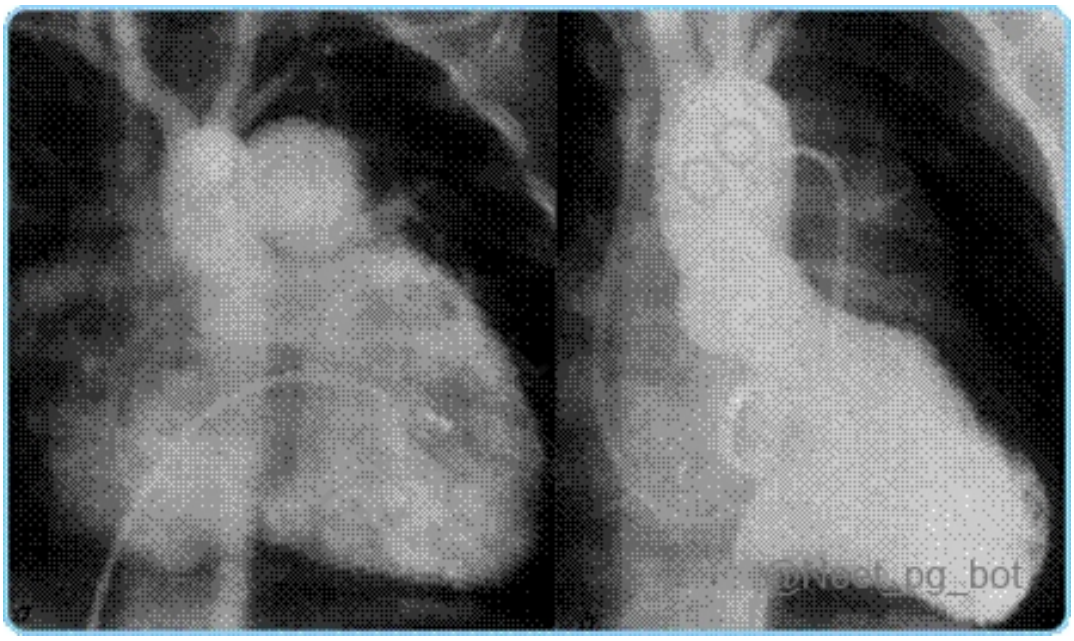

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References:

Grainger & Allison's Diagnostic Radiology, A Textbook of Medical Imaging, 7th Edition, Page. 310, 311, 305, 307, 308

Nelson Textbook of Pediatrics, 21 edition, Page 2397, 2398

Goose Neck Deformity- American College of Chest physicians

Partial and Total Anomalous Pulmonary Venous Connection - StatPearls - NCBI Bookshelf

Radiopedia

↑ *Back to this question in Part A*

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Q7: Which of the following features can be alleviated by performing surgical correction of VSD in an infant? (Q856437)

A. Respiratory alkalosis

B. Failure to thrive

C. Arrhythmia

D. Heart block

Correct Answer: B. Failure to thrive

Explanation: Infants with a large VSD can develop heart failure that leads to poor weight gain and inadequate growth, called failure to thrive . Surgical correction of VSD aims to repair the structural defect, which reduces strain, improves cardiac function, and prevents pulmonary vascular disease. It can enhance the infant's ability to feed, leading to proper weight gain and relieving the feature of failure to thrive . Indications of surgery in VSD: Large defects in patients of any age who have persistent symptoms or fail to thrive. Moderate to large defects in infants aged 6 to 12 months with pulmonary hypertension, even if symptoms are managed with medication. Children older than 24 months with a Qp:Qs ratio of >2:1. Supracristal VSDs of any size due to an elevated risk of aortic valve regurgitation. Contraindications for VSD closure: Severe pulmonary vascular disease that does not respond to pulmonary vasodilator therapy. Respiratory alkalosis (Option A) is not the main acid-base disturbance in VSD. Large VSDs primarily cause metabolic acidosis (due to CHF), not persistent respiratory alkalosis. If respiratory alkalosis occurs, it is secondary to mild tachypnea and not the primary issue requiring surgical correction. Surgery does not reliably prevent or treat arrhythmia (Option C) and may sometimes increase the risk of it. Surgical repair does not alleviate heart block (Option D); rather, it is a potential complication of VSD closure and may occur perioperatively.

References:

Nelson Textbook of pediatrics, 21st edition, Page 2379, 2380, 2381

↑ *Back to this question in Part A*

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Q8: Which of the following vessels is responsible for returning deoxygenated blood back to the placenta in fetal circulation? (Q856174)

A. Umbilical Vein

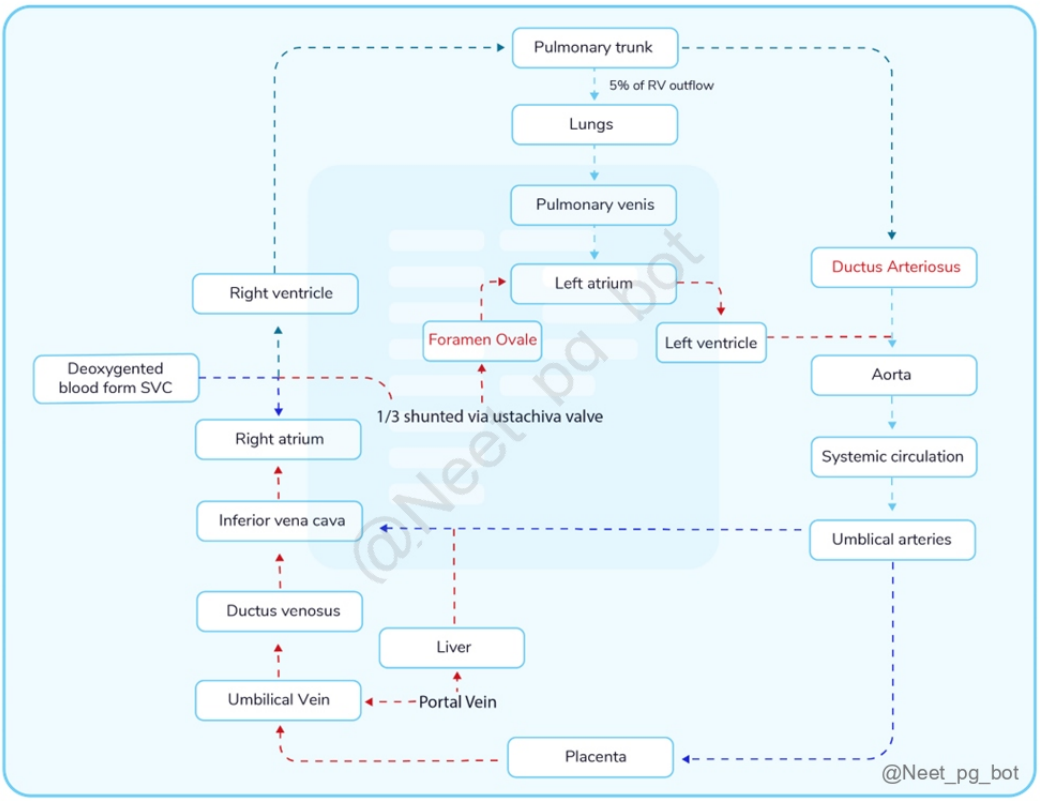
B. Umbilical artery

C. Descending aorta

D. Pulmonary Artery

Correct Answer: B. Umbilical artery

Explanation: - Umbilical artery In fetal circulation, deoxygenated blood is carried back to the placenta through the umbilical artery. Fetal circulation: Structure Number Type of Blood Flow of blood Umbilical Artery 2 Deoxygenated blood Fetus to the placenta Umbilical Vein 1 Oxygenated blood Placenta to the fetus



References:

Nelson Textbook of pediatrics, 21st edition, Page 2344

↑ *Back to this question in Part A*

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Q9: Which congenital heart disease exhibits equivalent saturation levels across all heart chambers? (Q856712)

A. Tetralogy of Fallot

B. Total anomalous pulmonary venous circulation

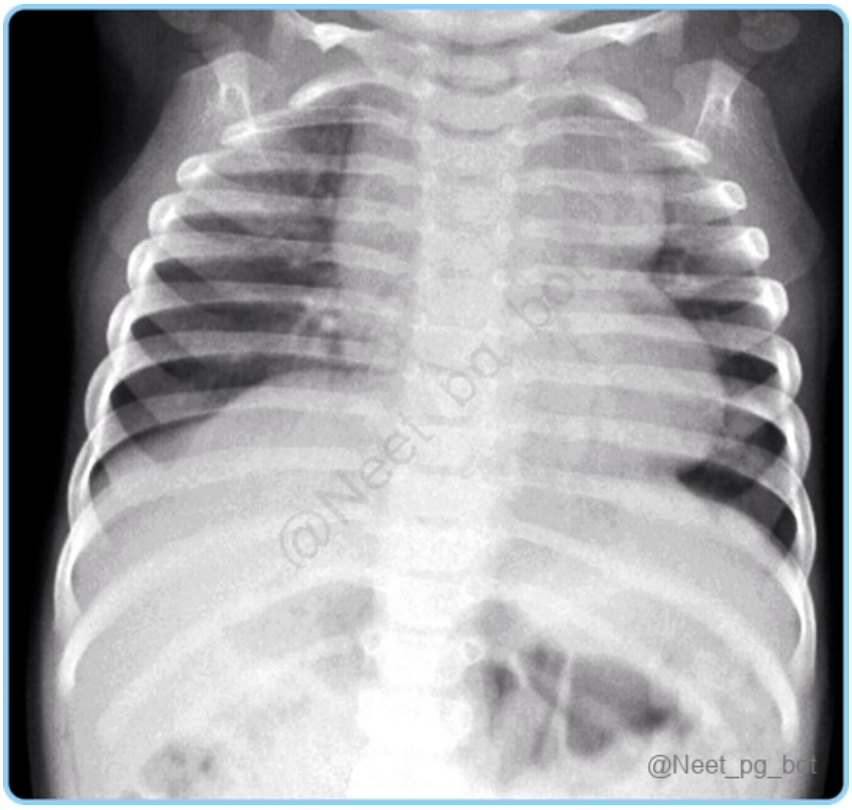
C. Tricuspid atresia

D. Transposition of great arteries

Correct Answer: B. Total anomalous pulmonary venous circulation

Explanation: onnection: Pulmonary veins drain into the right atrium directly or indirectly via an abnormal venous connection. Sites of venous connection: Supracardiac- superior vena cava Cardiac-coronary sinus, right atrium

Infracardiac Mixed Clinical presentation: Cyanosis and congestive cardiac failure Diagnosis: Chest X-ray: Snowman or figure-8 configuration. Cardiomegaly and increased pulmonary vascularity are evident ECG: Right axis deviation and right ventricular hypertrophy. Others: Echocardiography, CT, MRI. {{caption_text}} Treatment: Supplemental oxygen Ionotropic support Mechanical ventilation if necessary Balloon Atrial Septostomy: This may be required in rare cases with a restricted patent foramen ovale . Cardiac catheterization : Stents may be placed to stabilize the neonate in cases of obstructive TAPVC . In Tetralogy of Fallot (Option A) , there is a ventricular septal defect, overriding aorta, pulmonary stenosis and right ventricular hypertrophy. Thus, the failure in the closure of the foramen ovale, right to left results in mixed blood in the left heart and unoxygenated blood in the right heart. Hence all four chambers don't have the same oxygen concentration. Tricuspid atresia (Option C) is a congenital condition characterised by the absence of the tricuspid valve, leading to a hypoplastic (underdeveloped) right ventricle. Here, blood flows through an atrial septal defect (ASD) into the left atrium (LA) and then to the left ventricle (LV). The saturation cannot be equal across all chambers since the left ventricle is hypoplastic. In transposition of great arteries (Option D) , the right ventricle ends at the right aorta, which carries deoxygenated blood from the right ventricle to the tissue while the left ventricle drains into the pulmonary artery. Hence two separate systems are created. Deoxygenated blood is circulated in systemic circulation and oxygenated in the pulmonary circulation.



References:

Nelson Textbook of Paediatrics, 21st Edition, Page: 2408, 2409, 2424, 2389, 2411-2413.

https://www.researchgate.net/figure/Fig-1-Chest-X-ray-showing-features-consistent-with-TAPVC_fig1_269495026

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A 6-year-old child was brought to her paediatrician for routine well-child care. Her physical examination is normal except for a systolic murmur and a widely split-second heart sound that does not vary with respiration. She has no family history of heart disease. Which among the following is the most likely diagnosis? (Q857594)

A. Total anomalous pulmonary venous connection

B. Ventricular septal defect

C. Atrial septal defect

D. Pulmonic stenosis

Correct Answer: C. Atrial septal defect

Explanation: trial septal defect Pathophysiology: Feature Description Left-to-Right Shunting Oxygenated blood flows from the left to right atrium; the degree of shunting varies with defect size and vascular resistance. Right Heart Volume Overload Increased blood flow causes enlargement of the right atrium and ventricle, and dilation of the pulmonary artery. Pulmonary Vascular Resistance May increase with time, after remaining low during childhood, and lead to reversal of shunt and cyanosis. Clinical Manifestations: Symptoms Description Asymptomatic Many children are asymptomatic. Failure to Thrive Poor growth and weight gain. Exercise Intolerance Difficulty with physical activity. Physical Examination Findings: Finding Description Widely Split and Fixed S2 The second heart sound is split and fixed due to increased right ventricular diastolic volume. Systolic Ejection Murmur Soft murmur at the left upper sternal border, caused by increased flow across the right ventricular outflow tract. Mid-Diastolic Murmur Rumbling murmur at the lower left sternal border due to increased flow across the tricuspid valve. Children with total anomalous pulmonary venous connection (Option A) are not asymptomatic and often present with cyanosis and congestive cardiac failure with equal saturation levels across all four heart chambers. Examination findings of fixed split S2, systolic ejection murmur, and cyanosis are seen. Hence, it is not the given scenario. In ventricular septal defects (Option B), there are left-to-right shunts that are symptomatic depending on the size of the defect and may vary from asymptomatic with normal pulmonary artery pressure and a loud, harsh or blowing holosystolic murmur to pulmonary hypertension and symptoms of congestive cardiac failure. Pulmonary stenosis (Option D) is the narrowing of the pathway from the right ventricle to the pulmonary artery, possibly affecting the infundibulum, valve, or main pulmonary artery. It is a component of the Tetralogy of Fallot and often presents with severe cyanosis from birth. The clinical findings include an ejection click heard after S1 (closer to S1 as the severity increases) and a split S2 in moderate to severe cses.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 2372, 2374, 2375, 2376.

↑ *Back to this question in Part A*

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Q11: Which of the following is the most common association with Tetralogy of Fallot? (Q857187)

A. Klinefelters syndrome

B. Edwards syndrome

C. Down’s syndrome

D. Turner’s syndrome

Correct Answer: C. Down’s syndrome

Explanation: own's syndrome , caused by trisomy 21, is associated with multiple systemic manifestations due to the presence of an extra copy of chromosome 21. This is due to meiotic nondisjunction in either maternal or paternal gamete. Occurs at a frequency of 1:800 to 1:1000 newborns. The overexpression of genes located on chromosome 21 contributes to the clinical features. Comorbidities associated with Down syndrome: Congenital Heart Disease : 40% of children have congenital heart defects, primarily endocardial cushion defects (40-60% of cases) They are: AVSD, Ventricular Septal Defect, Atrial Septal Defect, Patent Ductus Arteriosus, and Tetralogy Of Fallot . Early cardiac evaluation is crucial. Gastrointestinal Malformations : 12% have atresias, especially duodenal atresia. There is an increased risk of annular pancreas and Hirschsprung disease. Ophthalmic Problems : Increased risk of cataracts, nystagmus, strabismus, and visual acuity issues. Regular eye evaluations are advised from infancy onward. Hearing Defects : 40-60% experience conductive hearing loss, often due to serous otitis media in the first year. Routine hearing assessments are recommended before 6 months of age and annually. Thyroid Dysfunction : Hypothyroidism occurs in 13-54% of patients. Atlanto-occipital Subluxation : Incidence ranges from 10-30%. A lateral neck radiograph is recommended. Physical Growth : Linear growth is typically slower, and children may become obese with age. Muscle tone often improves, but regular monitoring of height and weight is necessary. Malignancies : Increased risk of lymphoproliferative disorders, such as acute lymphoblastic leukaemia , acute myeloid leukaemia, myelodysplasia, and transient lymphoproliferative syndrome. Early-Onset Alzheimer's Disease: The APP gene, located on chromosome 21, plays a significant role in amyloid plaque formation, a hallmark of Alzheimer's disease. Klinefelter syndrome (Option A) involves mitral valve prolapse, ASD, partial atrioventricular canal defect, and patent ductus arteriosus. Edwards syndrome (Option B) (trisomy 18) involves ventricular septal defect (VSD), patent ductus arteriosus (PDA), and polyvalvular dysplasia. In Turner’s syndrome (Option D), the cardiac abnormalities seen are coarctation of the Aorta and bicuspid aortic valve. TOF is not a part of this condition.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 659.

↑ *Back to this question in Part A*

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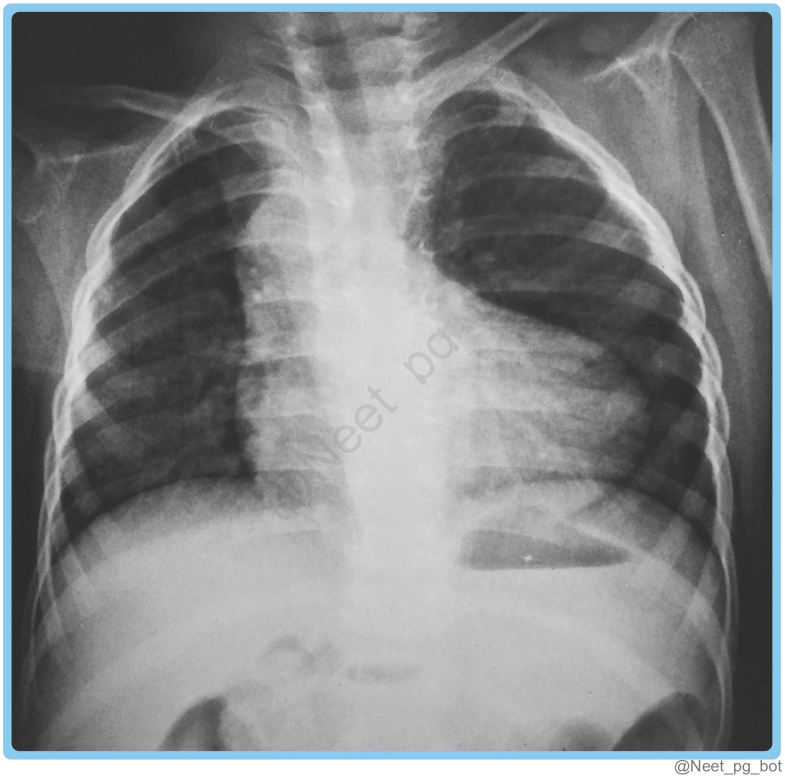
Q12: A 5-year-old child presents with exertional dyspnea and a history of cyanotic spells. On examination, there is clubbing and a harsh systolic murmur heard at the left upper sternal border. Chest X-ray is shown below. What is the most likely diagnosis? (Q866758)

A. Tetralogy of Fallot

B. Total Anomalous Pulmonary Venous Connection

C. Transposition of the Great Arteries

D. Atrial Septal Defect



Correct Answer: A. Tetralogy of Fallot

Explanation: The child presents with cyanotic spells , exertional dyspnea , and clubbing , all classic signs of a cyanotic congenital heart disease . A harsh systolic murmur at the left upper sternal border is most consistent with right ventricular outflow tract obstruction (pulmonary stenosis) in Tetralogy of Fallot. Components of Tetralogy of Fallot: Pulmonary Stenosis : Narrowing of the pathway from the right ventricle to the pulmonary artery, possibly affecting the infundibulum, valve, or main pulmonary artery. Ventricular Septal Defect (VSD) : A large hole between the right and left ventricles, usually misaligned, allowing abnormal blood flow. Overriding Aorta : The aorta is positioned over the septum, receiving blood from both ventricles. Right Ventricular Hypertrophy : Thickening of the right ventricle wall due to the extra effort required to pump blood. Incorrect Options: Total Anomalous Pulmonary Venous Connection (Option B): Classically shows a “snowman” or “figure-of-eight”

appearance on X-ray, not boot-shaped heart. Transposition of the Great Arteries (Option C): Chest X-ray may show an “egg-on-a-string” appearance; cyanosis appears in the first days of life, not typically at age 5. Atrial Septal Defect (Option D): Usually acyanotic; X-ray shows cardiomegaly with increased pulmonary vascular markings, not boot-shaped heart.

References:

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↑ *Back to this question in Part A*

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Q13: An unconscious child is brought to the casualty. What is the correct sequence of the management? Assess breathing Assess pulse Assess response Start compressions Bag and mask ventilation (Q855728)

A. 3-1-2-5-4

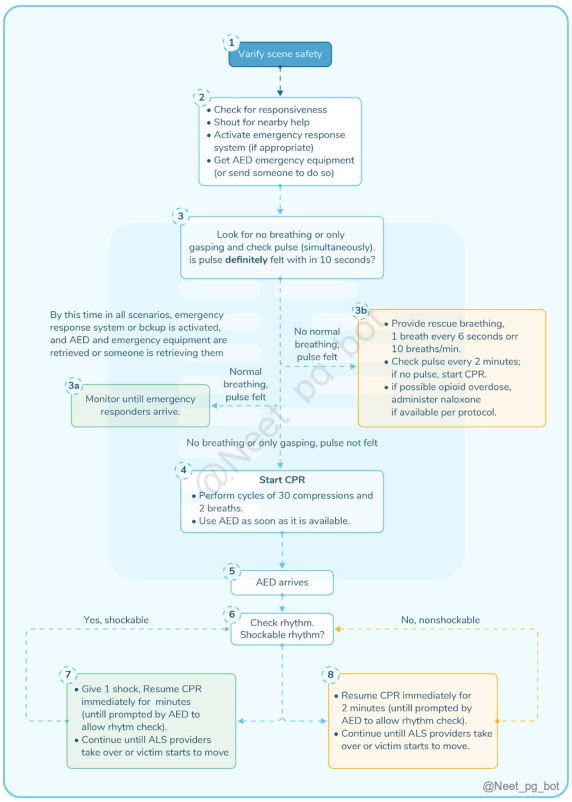
B. 1-2-3-4-5

C. 3-1-2-4-5

D. 1-2-4-3-5

Correct Answer: A. 3-1-2-5-4

Explanation: This question follows the Paediatric Basic Life Support (BLS) algorithm. The correct sequence is as follows: Assess response (Option 3): First, check if the child is responsive by tapping and shouting. If unresponsive, shout for help and proceed to airway and breathing assessment. Assess breathing (Option 1): Open the airway using head-tilt chin-lift or jaw thrust and check for normal breathing for no more than 10 seconds. Assess pulse (Option 2): Check the central pulse (carotid or femoral). If no pulse or pulse <60 bpm with signs of poor perfusion, start chest compressions. Bag and mask ventilation (Option 5): Provide ventilations using a bag-valve-mask (if trained and equipment is available) or continue with rescue breaths if no equipment. Start compressions (Option 4): Begin high-quality CPR with a compression rate of 100–120/min and depth of 1/3rd chest diameter. Steps in Basic Life Support Skills:



References:

American Heart Association, Basic Life Support Provider Manual- 2020, Part 4, Page 15

↑ *Back to this question in Part A*

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Q14: Which of the following cyanotic heart diseases causes increased pulmonary blood flow? Ebstein anomaly Tetralogy of Fallot Transposition of the great arteries (TGA) Total anomalous pulmonary venous communication (TAPVC) (Q855723)

A. 1, 4

B. 1, 2

C. 3, 4

D. 2, 4

Correct Answer: C. 3, 4

Explanation: Cyanotic heart diseases with increased pulmonary blood flow are seen in transposition of the great arteries (TGA) and total anomalous pulmonary venous communication (TAPVC). Pulmonary Blood Flow in Congenital Heart Diseases (CHD): Decreased Pulmonary Blood Flow (Normal Pulmonary Artery Pressure) Increased Pulmonary Blood Flow (with Pulmonary Artery Hypertension) Tetralogy of Fallot (TOF) (2) Persistent Truncus Arteriosus Double Outlet Right Ventricle (DORV) with VSD and Pulmonary Stenosis (PS) Double Outlet Right Ventricle (DORV) with VSD Tricuspid Atresia with VSD and PS Tricuspid Atresia with Large VSD Atrioventricular Septal Defect (AVSD) with PS Non-Obstructive Total Anomalous Pulmonary Venous Connection (TAPVC) (4) Transposition of the Great Arteries (TGA) with Congenitally Corrected Transposition (CCT) and PS Transposition of the Great Arteries (TGA) (3) : Simple or with Large VSD/PDA Single Ventricle with PS Single Ventricle Other Univentricular Hearts with PS Other Univentricular Hearts with PAH Ebstein's Anomaly (1)

References:

https://link.springer.com/article/10.1007/s12098-019-03133-w

↑ *Back to this question in Part A*

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Q15: Nada's Minor Criteria include Systolic murmur Grade 3 Diastolic murmur Abnormal second heart sound Abnormal BP (Q854741)

A. 3 and 4

B. 1, 2 and 3

C. 1, 2, 3 and 4

D. 2, 3 and 4

Correct Answer: A. 3 and 4

Explanation: Nada's criteria is a diagnostic tool used to identify congenital heart disease (CHD) in children. Nada's Criteria for Congenital Heart Disease Presence of one major criterion or two minor criteria suggests the likelihood of CHD. Major Criteria Minor Criteria Systolic murmur of Grade 3 or more Systolic murmur less than Grade 3 Any diastolic murmur Abnormal second heart sound (S2) Cyanosis Abnormal ECG Congestive cardiac failure Abnormal chest X-ray findings Abnormal blood pressure (BP)

References:

Ghai Essential Pediatrics, 10th Edition, Page: 403,404.

↑ *Back to this question in Part A*

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Q16: What could be the possible diagnosis for a newborn exhibiting weak lower limb pulses and strong upper limb pulses? (Q860239)

A. TGA

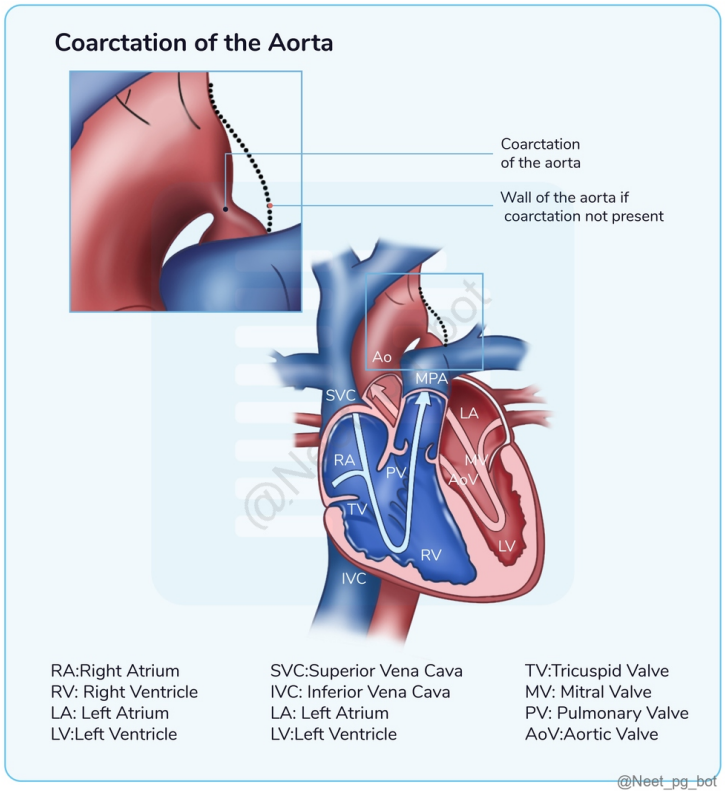
B. COA

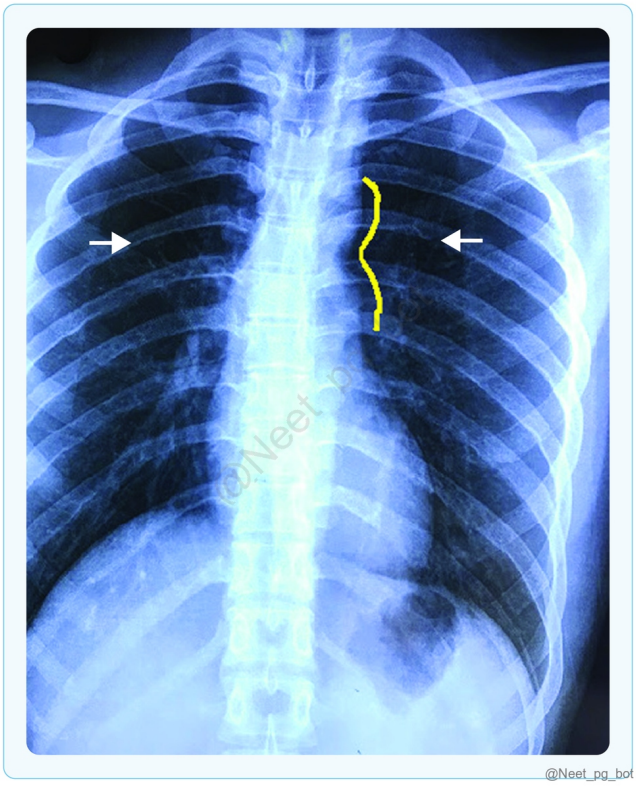
C. TOF

D. Ebstein anomaly

Correct Answer: B. COA

Explanation: The clinical manifestations indicate Coarctation of Aorta (COA) , a congenital narrowing of the aorta typically occurring just distal to the left subclavian artery at the insertion of the ductus arteriosus. Coarctation of the Aorta is characterized by weak femoral pulses (lower limb pulses) and strong upper limb pulses. There is a disparity in pulsation and BP in the arms and legs. This is referred to as Radio-femoral delay. {{caption_text}} Coarctation of the Aorta Definition Constrictions of the aorta of varying degrees at any point from the transverse arch to the iliac bifurcation. Clinical presentation: Differential cyanosis Heart failure in severe cases Weakness or pain/claudication (or both) in the legs after exercise Radio-femoral delay: Disparity in pulsation and BP in the arms and legs Systolic or continuous murmurs are heard over the left and right sides of the chest laterally and posteriorly due to collateral blood flow. Investigation: Chest x-ray: {{caption_text}} The arrows indicate rib notching and the yellow line shows the site of coarctation Enlarged left subclavian artery produces a prominent shadow in the left superior mediastinum. Notching of the inferior border of the ribs from pressure erosion by enlarged collateral vessels (Common in late childhood after 1st decade of life) Descending aorta has an area of post-stenotic dilation. ECG, echocardiography, colour Doppler, CT, and MRI. Treatment: Infusion of prostaglandin E1 to reopen the ductus and reestablish adequate lower-extremity blood flow. Surgical repair Incorrect Options: Transposition of Great Arteries (TGA) (Option A) is a congenital heart defect where the aorta arises from the right ventricle, and the pulmonary artery arises from the left ventricle. It presents with early cyanosis and circulatory compromise but does not typically cause differential pulses between the upper and lower extremities. Tetralogy of Fallot (TOF) (Option C): While TOF causes cyanosis and may have associated heart failure, it does not cause differential pulses between the upper and lower extremities. TOF is characterized by ventricular septal defect, overriding aorta, pulmonary stenosis and right ventricular hypertrophy. Ebstein anomaly (Option D): This condition involves abnormal positioning of the tricuspid valve and right heart dysfunction but does not cause differential pulses.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2382, 2379, 2380, 2373, 2375, 2389-2391

↑ *Back to this question in Part A*

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Q17: A 2-year-old child presents with stable vitals and an ECG showing paroxysmal supraventricular tachycardia (PSVT). Which of the following is the appropriate treatment? (Q844221)

A. Cardioversion

B. Adenosine 0.2 mg/kg

C. Adenosine 0.1 mg/kg

D. IV Adrenaline

Correct Answer: C. Adenosine 0.1 mg/kg

Explanation: Correct Option C - Adenosine 0.1 mg/kg: This is the correct initial treatment for PSVT in a child with stable vitals. Adenosine is a first-line medication for terminating PSVT by temporarily blocking the AV node, often restoring normal sinus rhythm. Incorrect Options: Option A - Cardioversion: This is typically reserved for patients with PSVT who are hemodynamically unstable or in cases where pharmacologic treatment is ineffective. Given that the child has stable vitals, cardioversion is not the first-line treatment. Option B - Adenosine 0.2 mg/kg: This is the dose used if the initial dose of adenosine (0.1 mg/kg) fails to convert the PSVT. It is not the starting dose, so it is not the appropriate initial treatment. Option D - IV Adrenaline: Adrenaline is not indicated for treating PSVT. It is used in resuscitation protocols, particularly in cases of cardiac arrest or anaphylaxis, not for stable PSVT.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: What is the most common defect in a ventricular septal defect? (Q852460)

A. Muscular defect

B. Membranous defect

C. Non-development of the perimembranous part of the septum

D. Incomplete fusion of the septum

Correct Answer: B. Membranous defect

Explanation: The most common defect in ventricular septal defect (VSD) is membranous defect. Pathophysiology of VSD: The interventricular septum has two parts: membranous and muscular . VSD occurs due to incomplete development or fusion of septal components during embryonic cardiac formation. A unified classification system is used to describe VSDs. Types of VSD: Infundibular (Outlet) VSD : Location: Below semilunar valves (aortic and pulmonary), within the outlet septum of the right ventricle. Perimembranous VSD: Location: Membranous septum, below crista supraventricularis. Characteristics: Most common (80% of cases), may involve muscular septum, potential for spontaneous closure. Inlet (Atrioventricular Canal) VSD: Location: Below the inlet valves (tricuspid and mitral), in the inlet portion of the right ventricle septum. Characteristics: Represents 8% of all VSDs, more common in patients with Trisomy 21. Muscular (Trabecular) VSD: Location: Muscular septum (apical, central, outlet regions). Characteristics: Can present as multiple defects ("Swiss cheese"), more common in infants, the tendency to close spontaneously with age. Gerbode Defects: A distinct defect with a direct connection between the left ventricle and right atrium. Type 1: True Gerbode, congenital deficiency in the membranous septum. Type 2: Subvalvular type, ventriculo-atrial shunting due to central VSD and tricuspid valve defect. Type 3: Combination of Type 1 and Type 2 characteristics.

References:

https://www.ncbi.nlm.nih.gov/books/NBK470330/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: Which of the following is the cause of the closure of ductus arteriosus? (Q853381)

A. Increase in Oxygen

B. Decrease in CO2

C. Increase in pulmonary vascular resistance

D. Fall in concentration of catecholamines

Correct Answer: A. Increase in Oxygen

Explanation: An increase in oxygen concentration increases the constriction of the smooth muscles of ductus arteriosus, leading to the closure of it. Ductus arteriosus is a structure connecting the aorta and pulmonary artery in fetal circulation ,which closes after delivery of the fetus. Changes in Fetal Circulation Following Birth: Parameter/Structure Change Cause Pulmonary Vascular Resistance (PVR) Decreases (Option C) Mechanical expansion of the lungs and increased arterial PO2 lead to a rapid decrease in PVR. Systemic Vascular Resistance (SVR) Increases The removal of the low-resistance placental circulation results in an increase in SVR. Ductus Arteriosus Shunt Reverses and eventually closes. As PVR becomes lower than SVR , the shunt through the ductus arteriosus reverses from right-to-left to left-to-right. High arterial PO2 leads to the constriction and eventual closure of the ductus arteriosus, which later becomes the ligamentum arteriosum. Foramen Ovale Closes Increased pulmonary blood flow to the left atrium raises left atrial volume and pressure, leading to the functional closure of

the foramen ovale. Ductus Venosus Closes The removal of the placenta from circulation results in the closure of the ductus venosus. Left ventricular Wall Thickness and Mass Increases The left ventricle's wall thickness and mass increase as it adapts to the high-resistance systemic circulation. Right ventricular Wall Thickness and Mass Decreases The right ventricle's wall thickness and mass decrease as it adapts to the low-resistance pulmonary circulation. Left Ventricular Output Increases The left ventricle now must deliver the entire systemic cardiac output, which is almost a 200% increase compared to fetal conditions. Right Ventricular Output Increases Opening of pulmonary vasculature results in increased right ventricular output. Time frame of closure of shunts following birth: Shunt Functional Closure Anatomical closure Remnant Ductus Arteriosus 10-15 hrs after birth 2 -3 weeks after birth Ligamentum arteriosum Foramen ovale 3rd month 1 year after birth Fossa ovalis Ductus venosus Immediately after birth 3-7 days after birth Ligamentum venosum. CO_2 and catecholamines have no role in ductal closure (Option B, D) .

References:

Nelson Textbook of pediatrics, 21st edition, page 2345

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: In children diagnosed with congenital heart disease, NADA's criteria include all of the following except? (Q853379)

A. Diastolic murmur- any grade

B. Increased Troponin T

C. Abnormal X-ray

D. Congestive heart failure

Correct Answer: B. Increased Troponin T

Explanation: Increased Troponin T (Option B) is not included under NADA's criteria Nada's criteria: (used for clinical diagnosis of congenital heart disease) Major Minor Systolic murmur grade III or more Systolic murmur grade I or II Diastolic murmur (Option A ruled out) Abnormal second heart sound Cyanosis Abnormal ECG Congestive cardiac failure (Option D ruled out) Abnormal X-ray (Option C ruled out) Abnormal Blood pressure Presence of one major or 2 minor criteria is needed to indicate the presence of CHD.

References:

OP Ghai Essential Pediatrics, 9th edition, Page 404

↑ *Back to this question in Part A*

@Neet_pg_bot

Q21: A 3-year-old child is brought to the clinic with a history of cyanosis since infancy. Which of the following is a component of Tetralogy of Fallot (TOF)? (Q865427)

A. Inter atrial septal defect

B. Infundibular pulmonary stenosis

C. Left ventricular hypertrophy (LVH)

D. Transposition of the great arteries (TGA)

Correct Answer: B. Infundibular pulmonary stenosis

Explanation: Tetralogy of Fallot is a congenital heart defect characterized by four distinct anomalies: Ventricular Septal Defect (VSD): A hole between the right and left ventricles. Pulmonary Stenosis: Narrowing of the pulmonary outflow tract. This can be subvalvular (infundibular, below the valve), valvular (at the valve), or supravalvular (above the valve). Infundibular pulmonary stenosis is a common and characteristic component. Overriding Aorta: The aorta (the main artery carrying oxygenated blood to the body) is positioned directly over the VSD, receiving blood from both ventricles. Right Ventricular Hypertrophy (RVH): The right ventricle thickens due to the increased workload of pumping blood against the narrowed pulmonary artery and into the aorta. The options provided Inter atrial septal defect (ASD) (Option A ruled out) : While an ASD can coexist with TOF (forming Pentalogy of Fallot), it is not a primary component of the classic Tetralogy of Fallot. Infundibular pulmonary stenosis (Option B) : This is a core component of Tetralogy of Fallot. The narrowing in the outflow tract of the right ventricle is often in the infundibular region. Left ventricular hypertrophy (LVH) (Option C ruled out) : In TOF, it's the right ventricle that undergoes hypertrophy due to the increased pressure load. Left ventricular hypertrophy is not a typical feature. Transposition of the great arteries (TGA) (Option D ruled out) : TGA is a completely separate and distinct complex congenital heart defect where the aorta arises from the right ventricle and the pulmonary artery from the left ventricle. It is not a component of TOF.

References:

Nelson Textbook of pediatrics, 21st Edition, Pages 453 - 458

↑ *Back to this question in Part A*

@Neet_pg_bot

• [13_Pediatric Gastroenterology] 032 Git Disorders In Children

« Back to Folder Directory

[13_Pediatric Gastroenterology] 032 Git Disorders In Children — Quick Jump

Q1 (p. 1247) *Q2 (p. 1248)* *Q3 (p. 1249)* *Q4 (p. 1250)* *Q5 (p. 1251)* *Q6 (p. 1252)*
Q7 (p. 1253) *Q8 (p. 1254)* *Q9 (p. 1255)* *Q10 (p. 1257)* *Q11 (p. 1258)* *Q12 (p. 1259)*
Q13 (p. 1260) *Q14 (p. 1260)* *Q15 (p. 1261)* *Q16 (p. 1262)* *Q17 (p. 1263)* *Q18 (p. 1264)*
Q19 (p. 1268) *Q20 (p. 1268)*

Q1: An eight-month-old child was brought to paediatrics OPD by his parents, complaining of loose, watery stools along with fever for the last 15 days. On examination, the child is active but malnourished. What is the appropriate management for this condition? (Q850279)

A. Nutritional rehabilitation

B. Elimination diet

C. Empirical antibiotic therapy

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario involves persistent diarrhoea (lasting for >2 weeks), which is managed by dietary modifications, correction of dehydration, and treatment of the cause. Management of Persistent Diarrhoea: Correction of dehydration, electrolytes, and hypoglycemia. Empirical antibiotic therapy (Option C) and antiparasitic agents as per the cause. Nutritional rehabilitation (Option A) Elimination diet as (Option B) Diet A (Reduced lactose diet) Diet B (Lactose-free diet with reduced starch) Diet C (Monosaccharide-based diet) Some other supplements, like Zinc and Vitamin A can also be given

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2038, 2039, 2040

O.P. Ghai Essentials of Pediatrics, 10th Edition, Pages 315, 316

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 4-year-old boy is brought to the emergency department by his parents. They report that he swallowed a small object while playing 2 hours ago. A chest X-ray shows a round object in the mid-oesophagus. Which of the following is not an indication of immediate endoscopic removal of the foreign body? (Q850288)

A. Airway compromise

B. Sharp object in the oesophagus

C. Button battery in the oesophagus

D. Retained coin without symptoms



Correct Answer: D. Retained coin without symptoms

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A retained coin without symptoms does not usually require immediate endoscopic removal, as asymptomatic coins may pass spontaneously through the gastrointestinal tract. Indications for Immediate Endoscopic Removal of Foreign Bodies in the Esophagus: Airway Compromise : Airway obstruction could lead to respiratory distress or failure. Sharp Objects: To prevent injury or perforation of the oesophageal wall. Button

Batteries: To prevent chemical burns, tissue necrosis, or other severe complications. Magnets: Multiple magnets can cause severe complications like perforation, bowel obstruction, pressure necrosis, and fistula formation Long-Stay Objects: Objects that have been in the oesophagus for an extended period, especially if symptomatic or at risk for causing complications.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1967, 1968

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 3-year-old boy presents with intermittent, painless rectal bleeding described as "brick-colored." He has no abdominal pain but appears pale. The pediatrician suspects Meckel's diverticulum. Which of the following is NOT true regarding this condition? (Q850287)

A. Presents with painless rectal bleeding in young children

B. Located about 2 feet proximal to the ileocecal valve

C. Technetium-99m pertechnetate scan has low sensitivity for diagnosis

D. Contains ectopic gastric or pancreatic tissue

Correct Answer: C. Technetium-99m pertechnetate scan has low sensitivity for diagnosis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Meckel Diverticulum: Most common congenital GI anomaly (2-3% of infants) with incomplete obliteration of omphalomesenteric duct. Characteristics ("Rule of 2s") 2% of population 2 feet from the ileocecal valve (Option B) 2 inches long 2 types of ectopic tissue (gastric or pancreatic) (Option D) Often presents before age 2 2 times more common in males Clinical Manifestations Painless rectal bleeding (most common) (Option A) Bowel obstruction Diverticulitis Diagnosis Meckel scan (technetium-99m pertechnetate) (Option C) Sensitivity: 85% Specificity: 95% Used to diagnose ectopic gastric mucosa Plain radiographs and barium studies are less useful Complications Intussusception, Volvulus and Perforation.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1954, 1955

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 2-day-old newborn presents with bilious vomiting. The pregnancy history reveals polyhydramnios. An abdominal X-ray image has been given. What's the likely diagnosis? (Q850286)

A. Jejunal atresia

B. Duodenal atresia

C. Pyloric stenosis

D. Malrotation with midgut volvulus



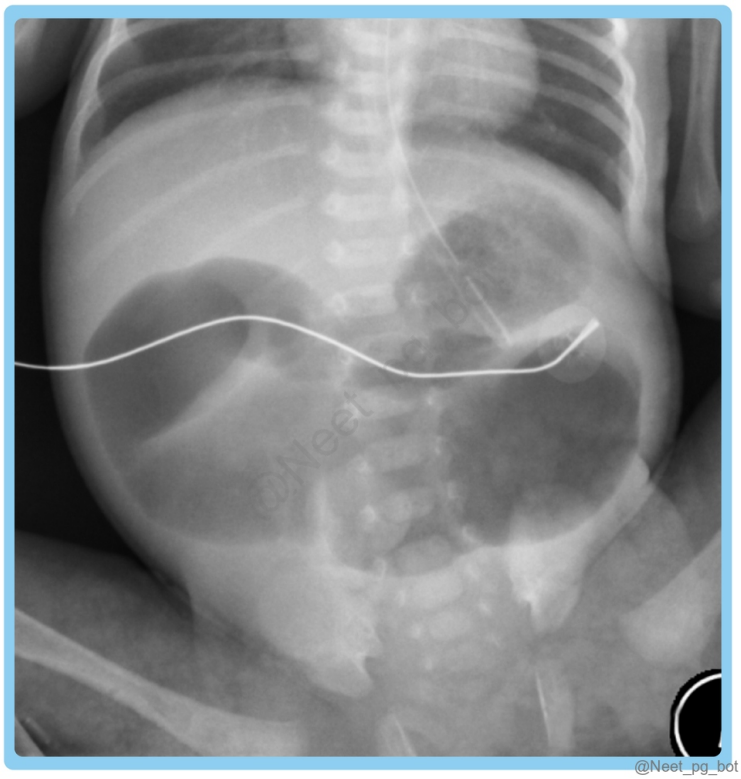
Correct Answer: B. Duodenal atresia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The ‘double bubble sign’ on the abdominal X-ray is characteristic of duodenal atresia. Duodenal Atresia: Pathophysiology Failed recanalisation of the intestinal lumen during gestation Associated Conditions Prematurity (50%) Congenital anomalies (heart disease, malrotation, annular pancreas, etc.) Chromosomal abnormalities (e.g., trisomy 21) Clinical Presentation Bilious vomiting without abdominal distention. Symptoms typically present within the first few days of life. Diagnosis Confirmed by the double bubble sign on the abdominal X-ray and prenatal ultrasonography. Treatment Initial: Nasogastric decompression and IV fluids Definitive: Surgical repair (Duodenoduodenostomy) Postoperative care: Gastrostomy tube, nutritional support

Jejunal atresia (Option A) is characterised by multiple dilated loops of the small bowel and a "triple bubble sign" on X-ray Pyloric Stenosis (Option C) X-ray shows a distended stomach with minimal gas in the small intestine. Malrotation with midgut volvulus (Option D) shows a "bird's beak" appearance or paucity of gas in the abdomen on X-ray.



References:

Nelson Textbook of Pediatrics, 21st edition, Page 1950-1953

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 2-week-old infant presents with persistent constipation since birth, abdominal distension, and failure to thrive. Initial X-rays reveal dilated bowel loops. Hirschsprung disease is suspected. What is the definitive test to confirm the diagnosis in this infant? (Q850285)

A. Contrast enema

B. Anorectal manometry

C. Rectal suction biopsy

D. Colonoscopy

Correct Answer: C. Rectal suction biopsy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Rectal suction biopsy is the Gold Standard Test for confirming Hirschsprung disease. Procedure: A biopsy must be taken 2 cm above the dentate line and must include adequate submucosa. Staining: Acetylcholinesterase: Identifies hypertrophied nerve bundles and the absence of ganglion cells. Calretinin: Used as an alternative when acetylcholinesterase staining is inadequate. Contrast enema (Option A): Useful for showing transition zones between dilated and narrow segments but not as reliable as rectal biopsy. Sensitivity ~70%, specificity 50-80%. Anorectal manometry (Option B): Evaluates rectoanal inhibitory reflex (RAIR) with high sensitivity and specificity (>90%), but not considered the definitive test for young infants. Colonoscopy (Option D) can visualise the bowel but does not provide the definitive histological information needed to confirm Hirschsprung disease.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1961-1965

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 2-day-old full-term newborn presents with abdominal distension, failure to pass meconium, and bilious vomiting. Physical examination reveals an empty rectum. A barium enema shows a narrow distal segment with proximal dilation. Which of the following best describes the underlying pathogenesis of this condition? (Q850284)

A. Absence of smooth muscle in the bowel wall

B. Lack of ganglionic cells in the submucosal and myenteric plexuses

C. Hypertrophy of the circular muscle layer in the entire colon

D. Excessive production of acetylcholine in the enteric nervous system

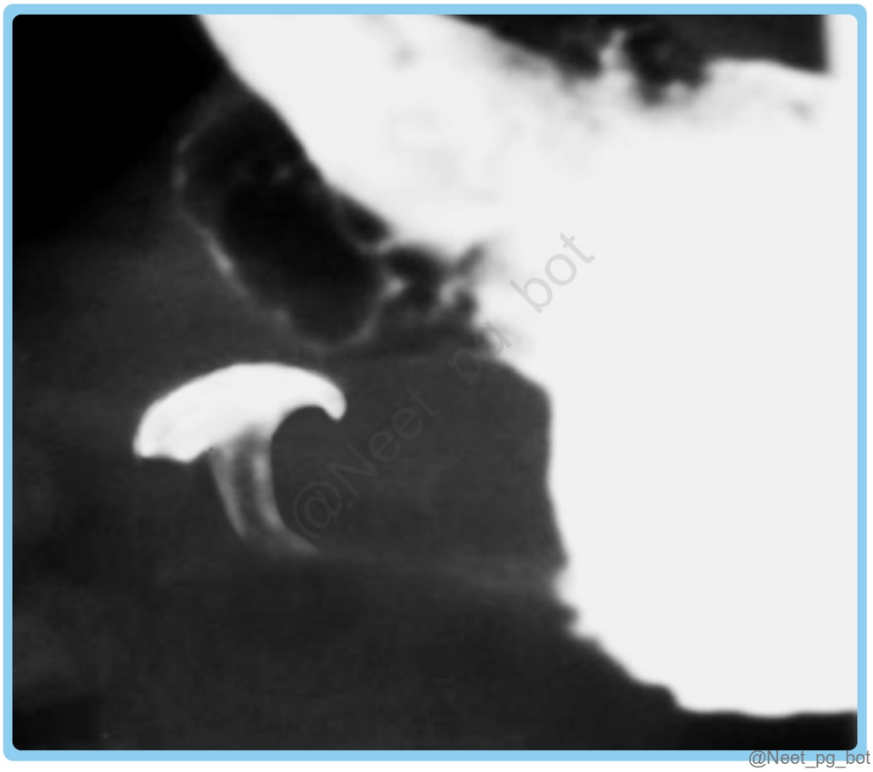
Correct Answer: B. Lack of ganglionic cells in the submucosal and myenteric plexuses

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario suggests Hirschsprung disease , characterised by the lack of ganglionic cells in the submucosal (Meissner's) and myenteric (Auerbach's) , leading to absent peristalsis and functional obstruction in the affected bowel segment. Hirschsprung Disease is the most common congenital motility disorder

and is characterized by the absence of ganglionic cells in the distal intestine. Absence of smooth muscle in the bowel wall (Option A): Hirschsprung disease does not involve a lack of smooth muscle; rather, it affects the neural elements within the bowel wall. Hypertrophy of the circular muscle layer in the entire colon (Option C): While hypertrophy may occur in the affected segment, the primary pathology is the absence of ganglionic cells, not generalised hypertrophy of muscle layers. Excessive production of acetylcholine in the enteric nervous system (Option D): The disorder is not due to excessive acetylcholine but to the absence of ganglionic cells, which impairs normal neurotransmission and bowel motility.



References:

O.P. Ghai Essential Pediatrics, 9th edition, Page 280, 281 Nelson Textbook of Pediatrics, 21st edition, Page 1961-1964

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 9-month-old child was brought to the emergency department as she has been unusually irritable and has had abdominal pain and vomiting over the past 24 hours. On examination, the sausage-shaped mass was palpable over the abdomen. The barium enema radiograph revealed a coiled spring appearance. What is the most likely diagnosis? (Q850283)

A. Hirschsprung disease

B. Duodenal atresia

C. Congenital Hypertrophic Pyloric Stenosis

D. Intussusception

Correct Answer: D. Intussusception

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical features of a sausage-shaped abdominal mass, red currant jelly stools, abdominal pain, and the ‘coiled spring sign’ on barium enema studies suggest intussusception. Intussusception Definition: Telescoping of a segment of intestine (usually ileum into colon) into an adjacent distal segment → leads to intestinal obstruction and ischemia . Epidemiology Most common in 6-18 months Most common cause of intestinal obstruction in infants Etiology Usually idiopathic May have lead point : Meckel’s diverticulum Polyps, lymphoma (older children) Clinical Features Intermittent colicky abdominal pain (child draws legs up) Vomiting (may become bilious) Red currant jelly stools (late) Sausage-shaped abdominal mass Irritability alternating with lethargy Investigations Ultrasound → Target sign (most common) Barium/air enema → Coiled spring sign Management First-line: Air or contrast enema (diagnostic + therapeutic) Surgery if: Perforation Peritonitis Failed enema reduction Complications Bowel ischemia Perforation Peritonitis Hirschsprung disease (Option A): Barium enema shows the dilated proximal segment and the transition zone. Duodenal atresia (Option B): Shows the double bubble sign on the x-ray. Congenital Hypertrophic Pyloric Stenosis (Option C): Projectile non-bilious vomiting , olive-shaped mass

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 1965, 1966

O.P. Ghai Essentials of Pediatrics, 10th Edition, Pages 304, 305

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 2-year-old was taken to the paediatrician with symptoms of abdominal cramps, loose stools, and weight loss over the past few weeks. Her parents observed that the symptoms occurred after she ate bread or pasta. Tests showed elevated anti-tTG IgA levels, though they were less than 10 times the upper limit of normal. What is the next step of diagnosis? (Q850282)

A. Measure total serum IgG levels

B. HLA-DQ2 and HLA-DQ8 genotyping

C. Small intestinal biopsy

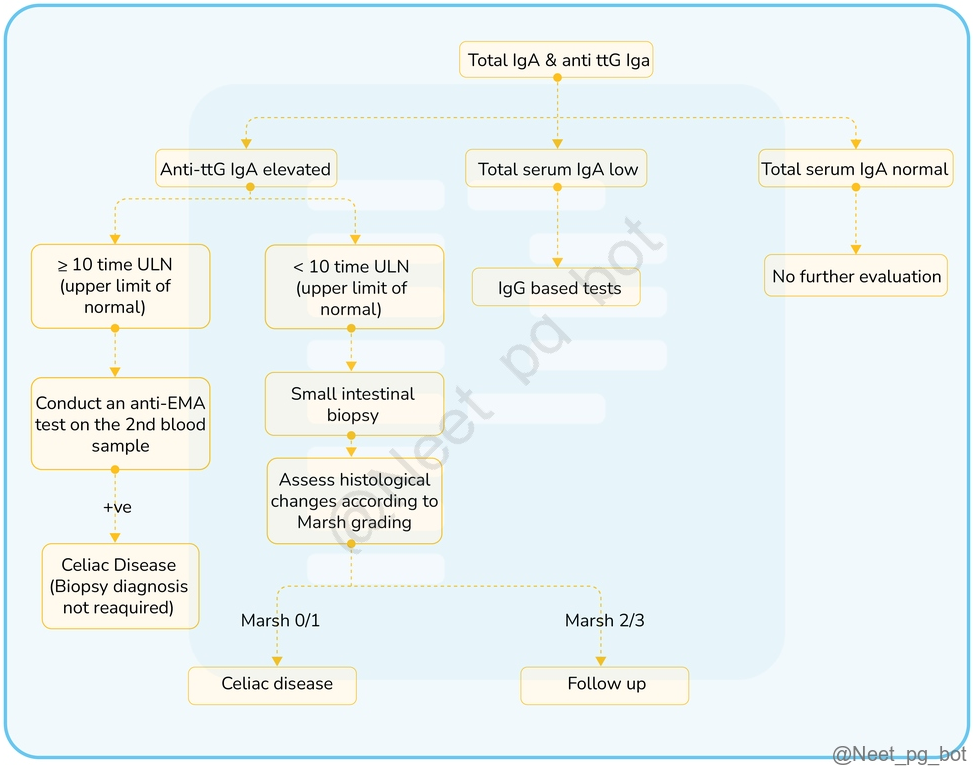
D. Test for anti-endomysial antibodies (EMA)

Correct Answer: C. Small intestinal biopsy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The symptoms and elevated anti-tTG IgA suggest Celiac disease . According to the 2020 ESPGHAN guidelines, after confirming elevated anti-tTG IgA, a small intestinal biopsy is the next step for a definitive diagnosis. If a person is asymptomatic or at risk of developing celiac disease, then HLA-DQ2 and HLA-DQ8 genotyping is done.



References:

Nelson Textbook of Pediatrics, 21st edition, Page 1993-1996. O.P. Ghai Essential Pediatrics, 10th edition, Page 319, 320.

↑ *Back to this question in Part A*

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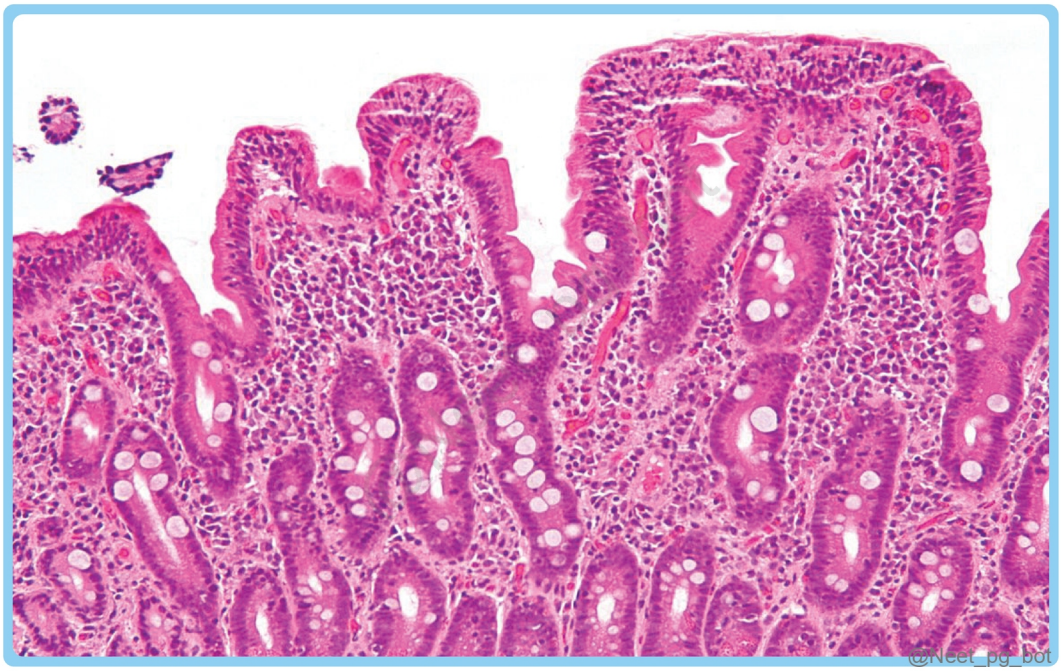
Q9: A 4-year-old child presents with abdominal pain, diarrhea, weight loss, irritability, and occasional vomiting. The duodenal biopsy is illustrated in the image below. Which of the following does not accurately describe this condition? (Q850281)

A. Associated with HLADQ2 & HLADQ8

B. T-cell-mediated autoimmune disorder

C. Associated with Down's syndrome

D. Treatment includes a high-fiber wheat diet.

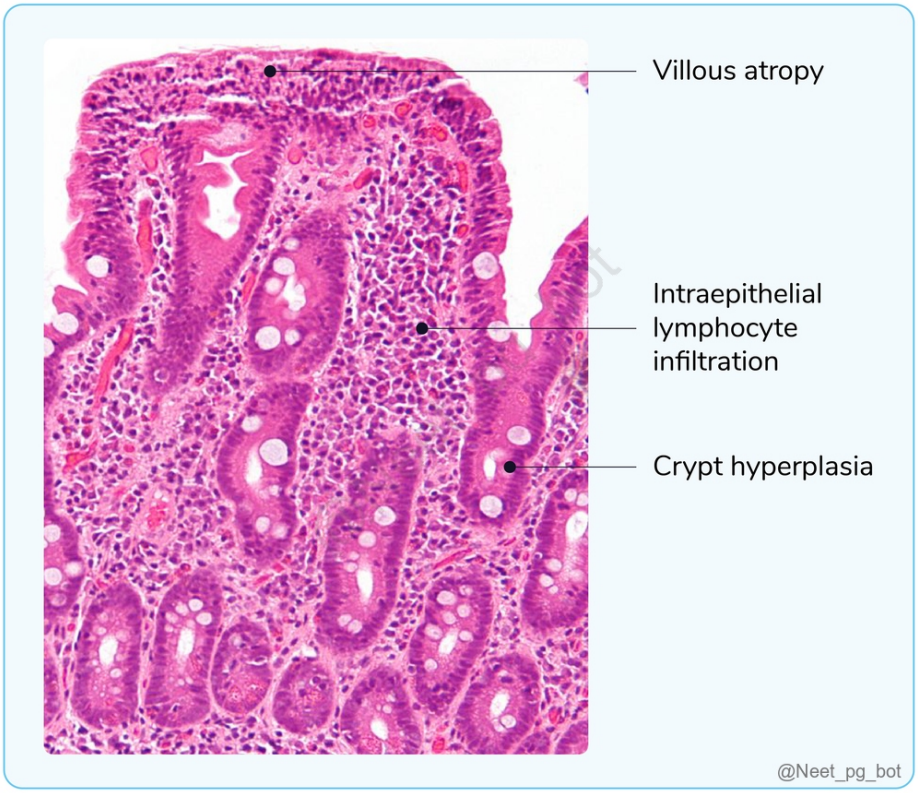


Correct Answer: D. Treatment includes a high-fiber wheat diet.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario and biopsy findings are consistent with Celiac disease or Gluten-sensitive enteropathy, a T-cell mediated autoimmune disorder associated with HLADQ2 & HLADQ8 and Down's syndrome. Treatment involves a gluten-free diet (avoid wheat , rye, barley, and oats). High-risk groups include type 1 diabetes mellitus, Down syndrome (Option C) , selective IgA deficiency, autoimmune thyroid disease, Turner syndrome, Williams syndrome, Addison's disease, autoimmune liver disease, and first-degree relatives of patients with celiac disease. Diagnosis: ESPGHAN (European Society for Pediatric Gastroenterology, Hepatology & Nutrition) guidelines 2020 suggest that in all suspected cases (symptomatic, asymptomatic, and at-risk group), the first test should be total serum IgA and IgAtTG. Serology Anti-TTG (Tissue Transglutaminase) Anti EMA (Endomysial antibody) Anti-DGP (Deamidated gliadin peptide) Upper GI endoscopy The endoscopy may be normal or show the absence of folds or scalloped duodenal folds. Histopathology Villous atrophy/Flat villi Crypt hyperplasia Intraepithelial lymphocyte infiltration.



References:

Nelson Textbook of Pediatrics, 21st edition, Page 1991, 1992, 1993. O.P. Ghai Essential Pediatrics, 10th edition, Page 318, 319, 320.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: An infant with a 2-week history of loose stools now exhibits noisy loose stools, abdominal bloating, and crying, especially after feeding milk. The stool pH is approximately 6. What is the most probable diagnosis? (Q850280)

A. Irritable bowel syndrome

B. Small intestinal bacterial overgrowth

C. Lactose intolerance

D. Diverticulosis

Correct Answer: C. Lactose intolerance

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario of explosive stools (mixed with gas and passed with noise) after consuming milk suggests Lactose Intolerance, a condition in which the baby cannot digest milk and its products. Pathogenesis Impaired digestion of lactose due to insufficient lactase enzyme leads to gut intolerance. Types Congenital or Primary: It is due to a mutation of the lactose gene. Acquired or Secondary (most common): Secondary to some infection , persistent diarrhoea, drugs, radiation, etc. Clinical features Diarrhea, abdominal pain and vomiting The characteristic feature is the passing of explosive stools (i.e., stools mixed with gas and passed with noise), especially after consuming milk or its products. Perianal excoriation because of acidic stools. Diagnosis Resolution of symptoms by avoiding milk products. Stool pH <6.5 Management Avoid milk and its products (lactose-free diet) Vitamin A and zinc supplements. Irritable bowel syndrome (Option A) is characterised by abdominal pain occurring at least 4 days per month for 2 months, with pain related to defecation, and accompanied by changes in stool frequency and consistency. Small intestinal bacterial overgrowth (Option B) is a condition in which large intestinal bacteria overgrow in the small intestine, causing symptoms like bloating, abdominal pain, and diarrhoea, independent of milk consumption. Diverticulosis (Option D) is the outpouching of the walls of the intestine (colon or small intestine), which can cause bloating, diarrhoea, abdominal pain, or constipation and is unrelated to milk consumption.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 2035. O.P. Ghai Essential Pediatrics, 10th edition, Page 315, 316.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 4-month-old infant is brought to the pediatrician due to frequent postprandial regurgitation. The parents report that the infant appears irritable during and after feeding, frequently arches her back, and has episodes of choking and gagging. On examination, the infant is mildly irritable with no signs of respiratory distress. What is the next best step in management? (Q850269)

A. Start proton pump inhibitors immediately.

B. Positioning therapy and thickened feedings.

C. Schedule an urgent Esophagogastroduodenoscopy

D. Antireflux surgery (fundoplication).

Correct Answer: B. Positioning therapy and thickened feedings.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant’s symptoms suggest gastroesophageal reflux disease GERD, commonly seen in infants due to the immaturity of the lower esophageal sphincter . Management of GERD Conservative Therapy Pharmacotherapy Surgery Positioning Therapy Keep the infant upright during and after feedings. Avoid supine and side sleeping positions. Thickened Feedings Add rice cereal or a thickening agent to formula or breast milk. Small and frequent meals Dietary Modifications Evaluate maternal diet in breastfeeding infants for allergens. Monitoring and Reassessment Regularly monitor growth and development. Proton Pump Inhibitors (PPIs) Used for severe symptoms or when esophagitis is suspected. Examples : Omeprazole, Lansoprazole. H2-Receptor Antagonists Alternative to PPIs if initial management is insufficient. Surgical Intervention Reserved for severe cases not responsive to other treatments. Nissen fundoplication is the most common procedure.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1937

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 6-year-old boy weighing 20 kg is admitted to the pediatric ward with pneumonia. He is hemodynamically stable but requires IV fluids for maintenance hydration. What is the appropriate daily maintenance fluid volume for this patient? (Q850278)

A. 1100 mL/day

B. 1300 mL/day

C. 1500 mL/day

D. 1700 mL/day

Correct Answer: C. 1500 mL/day

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: To calculate the daily maintenance fluid requirement for pediatric patients, we use the following Hollidag Segar formula based on weight: For the first 10 kg: 100 mL/kg/day For the next 10 kg: 50 mL/kg/day For each kg above 20 kg: 20 mL/kg/day For a 6-year-old boy weighing 20 kg admitted with pneumonia and requiring IV fluids for maintenance hydration: For the first 10 kg: 10 kg × 100 mL/kg = 1000 mL For the next 10 kg: 10 kg × 50 mL/kg = 500 mL Total Daily Maintenance: 1000 mL + 500 mL = 1500 mL/day 1500 mL/day (Option C) is the most appropriate answer. Total fluid requirement = Deficit + Maintenance + Ongoing losses

References:

O.P. Ghai Essentials of Pediatrics, 10th Edition, Page 290

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 3-year-old girl presents with severe diarrhoea, sunken eyes, and lethargy. She's unable to drink and has cool, mottled extremities. You decide to start IV fluids immediately. Which of the following is the most appropriate initial IV fluid choice? (Q850277)

A. 5% Dextrose

B. Normal Saline

C. Ringer's Lactate with 5% Dextrose

D. Half-Normal Saline

Correct Answer: C. Ringer's Lactate with 5% Dextrose

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Ringer's Lactate with 5% Dextrose is commonly used for treating severe dehydration in children. It offers a balanced electrolyte composition similar to plasma, helps correct acidosis, and includes glucose to prevent hypoglycemia. Rapid intravenous rehydration is crucial. The total fluid volume is typically 100 mL/kg. For children >12 months: Administer over 3-4 hours. For infants <12 months: Administer over 6-8 hours. 5% Dextrose solution (Option A) provides glucose but lacks adequate electrolytes and does not effectively correct acidosis or replace lost fluids in cases of severe dehydration. Normal Saline (Option B) is useful for initial fluid resuscitation but does not correct acidosis and is less balanced in electrolytes than Ringer's Lactate. Half-normal saline (Option C) contains lower sodium and chloride concentrations and does not correct acidosis, making it unsuitable for severe dehydration.

References:

O.P. Ghai Essential Pediatrics, 10th edition, Page 290, 291

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A 2-year-old boy presents with a 1-day history of watery diarrhoea and 4 episodes of loose stools in the last 24 hours, but no vomiting. He is alert, drinking normally, and shows no signs of dehydration. What is the most appropriate initial

management? (Q850276)

A. Start ORS and withhold solid foods for 24 hours

B. Prescribe an antibiotic and advise clear fluids only

C. Continue normal diet with adequate fluid intake and ORS

D. Administer ondansetron and start a probiotic supplement

Correct Answer: C. Continue normal diet with adequate fluid intake and ORS

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In cases of acute diarrhoea in young children without signs of dehydration, continue the normal diet and use ORS (Oral Rehydration Solution) to support recovery, prevent nutritional deficiencies, and maintain hydration. Acute diarrhoea is defined as the passage of three or more loose or liquid stools per day, lasting < 14 days . Viral Bacterial Parasitic Rotavirus (the most common cause in children) Norovirus (the most common cause in adults) Adenovirus Escherichia coli (the most common bacterial cause) Salmonella Shigella Campylobacter Giardia lamblia (the most common parasitic cause) Cryptosporidium Entamoeba histolytica Management Aspects Recommendations Rehydration Use Oral Rehydration Solution (ORS) for most cases Start with small volumes if vomiting is present Consider IV for severe cases Nutrition Continue breastfeeding Reintroduce an age-appropriate diet early Avoid fatty foods and simple sugars Zinc Supplementation <6 months: 10 mg/day >6 months: 20 mg/day Medications Antibiotics: Use judiciously, mainly for severe bacterial cases Ondansetron (for vomiting) Avoid antimotility agents Probiotics It may be beneficial, especially for rotavirus ORS Composition (WHO standard) Constituent mmol/L Sodium 75 Glucose 75 Potassium 20 Chloride 65 Citrate 10 Total osmolarity 245 Start ORS and withhold solid foods for 24 hours (Option A): While ORS is crucial, withholding food is outdated advice. Early refeeding with an age-appropriate diet is recommended to prevent nutritional deficits and doesn't delay recovery. Prescribe an antibiotic and advise clear fluids only (Option B) : Antibiotics aren't routinely recommended for acute diarrhoea, particularly in viral cases, and clear fluids alone do not meet nutritional needs. Administer ondansetron and start a probiotic supplement (Option D): Ondansetron is not needed since there is no vomiting, and probiotics are supplementary rather than primary treatment for diarrhoea.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2028-2030

↑ *Back to this question in Part A*

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Q15: A 4-week-old male infant presents with projectile vomiting for the past week. The parents report reduced wet diapers, thirst, and irritability. Examination reveals a slightly sunken fontanelle, dry mucous membranes, normal heart rate, prolonged capillary refill of 3 seconds, and slow skin recoil but of <2 seconds. What is the most

likely assessment of this infant's hydration status? (Q850275)

A. No dehydration

B. Mild dehydration

C. Some dehydration

D. Severe dehydration

Correct Answer: C. Some dehydration

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Classification of Dehydration in Children: Sign/Symptom Mild/No Dehydration Some Dehydration Severe Dehydration Mental status Alert Irritable/restless Lethargic/unconscious Thirst Normal Increased Unable to drink Eyes Normal Slightly sunken Very sunken Tears Present Decreased Absent Mouth Moist Dry Parched Skin turgor Normal (Immediate skin recoil) Slow recoil (2-3sec) Very slow recoil (>3sec) Capillary refill Normal (<2sec) Prolonged (2-3sec) Prolonged (>3sec) Urine output Normal Decreased Minimal

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2027

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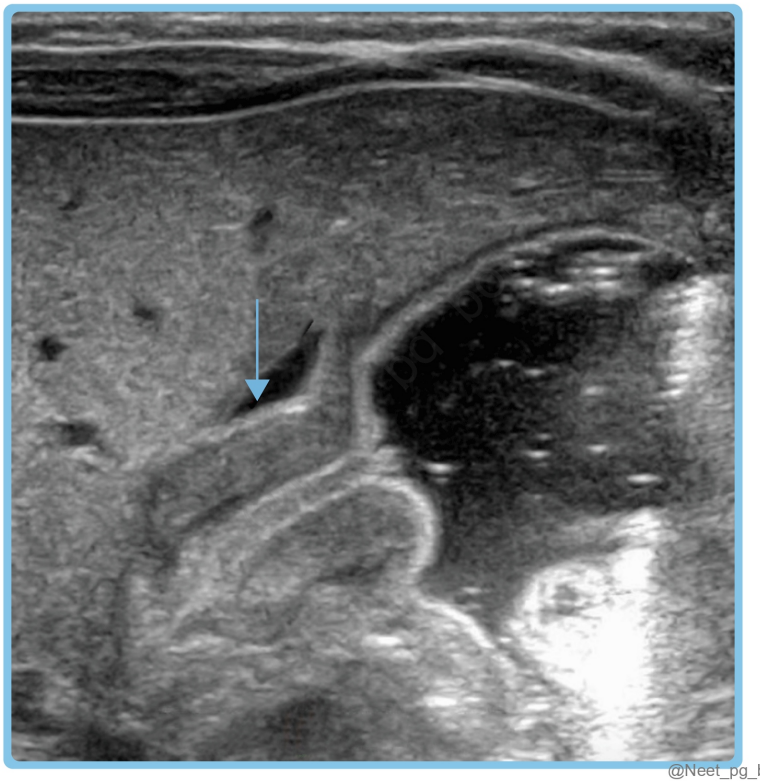
Q16: A 4-week-old male infant presents with projectile vomiting after feeds for two weeks. On examination, a palpable "olive-like" mass is noted in the epigastric region. Ultrasound shows a pyloric muscle thickness of 4 mm and a pyloric channel length of 18 mm. The infant is dehydrated but stable. What is the most appropriate next step in management? (Q850274)

A. Proceed immediately with pyloromyotomy

B. Start nasoduodenal feeding

C. Begin IV atropine administration

D. Correct fluid and electrolyte imbalances



Correct Answer: D. Correct fluid and electrolyte imbalances

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most appropriate next step in treating a CHPS patient is to correct fluid and electrolyte imbalances using intravenous normal saline with added potassium to correct dehydration and hypochloremic metabolic alkalosis. Management of Congenital Hypertrophic Pyloric Stenosis (CHPS): Pyloromyotomy: Open (Ramstedt pyloromyotomy) or laparoscopic approach is the definitive surgical treatment indicated for infants with CHPS after stabilisation of fluid and electrolyte imbalances. (Option A ruled out) Postoperative Care : Initiate feeding 12–24 hours after surgery and progress to full feeds within 36–48 hours. Conservative Management: Used for patients at high surgical risk or when surgical expertise is unavailable. They include: Nasoduodenal Feeding (Option B ruled out) Atropine Sulfate Administration (Option C ruled out)

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1948

↑ *Back to this question in Part A*

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Q17: A 2-week-old infant is admitted with projectile, non-bilious vomiting, visible gastric peristaltic waves, and a palpable olive-shaped mass. An ultrasound confirms

congenital hypertrophic pyloric stenosis (CHPS). Which of the following is not a known risk factor for CHPS? (Q850273)

A. Familial history of CHPS

B. Male sex

C. Maternal use of macrolide antibiotics

D. Advanced maternal age

Correct Answer: D. Advanced maternal age

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Risk Factors of Congenital Hypertrophic Pyloric Stenosis Genetic Factors White race of northern European descent Male sex (Option B ruled out) Familial History : Higher risk in offspring of mothers with CHPS (20% for sons, 10% for daughters) (Option A ruled out) Twin Studies : Higher concordance in monozygotic twins suggests a genetic component Blood Groups : Infants with B and O blood groups. Environmental Factors Erythromycin Use : Especially if administered within the first two weeks of life Higher incidence in infants whose mothers used macrolides during pregnancy or breastfeeding, particularly in females. (Option C ruled out) Other Associated Factors Other Congenital Defects Syndromes : Occasionally associated with tracheoesophageal fistula and hypoplasia or agenesis of the inferior labial frenulum. Associated with eosinophilic gastroenteritis, Apert syndrome, Zellweger syndrome, trisomy 18, Smith-Lemli-Opitz syndrome, and Cornelia de Lange syndrome.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1946

↑ *Back to this question in Part A*

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Q18: A 3-week-old male infant presents with projectile, non-bilious vomiting after feeds and visible peristalsis in the upper abdomen. On examination, a palpable mass is noted in the epigastric region. An abdominal ultrasound is performed. Which of the following radiologic findings would most likely be seen in this condition? (Q850272)

A. Elongated pyloric channel on contrast studies

B. Pyloric muscle thickness is normal on USG

C. Pyloric length of 8 mm on USG

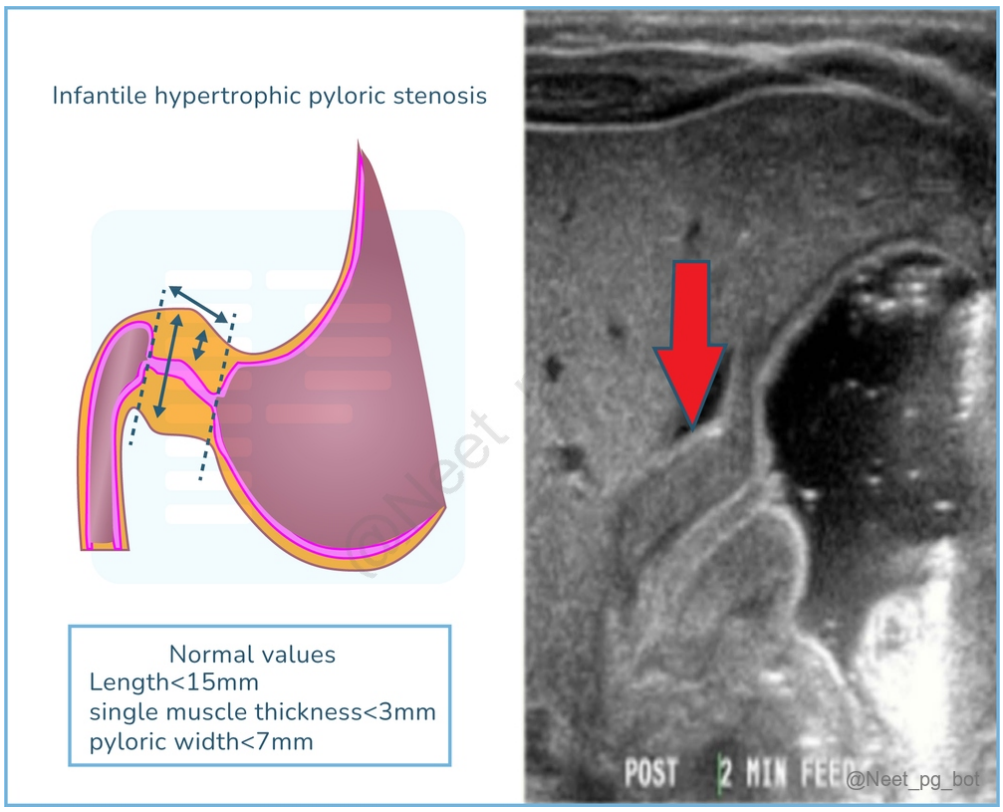
D. Dilated duodenum on contrast studies

Correct Answer: A. Elongated pyloric channel on contrast studies

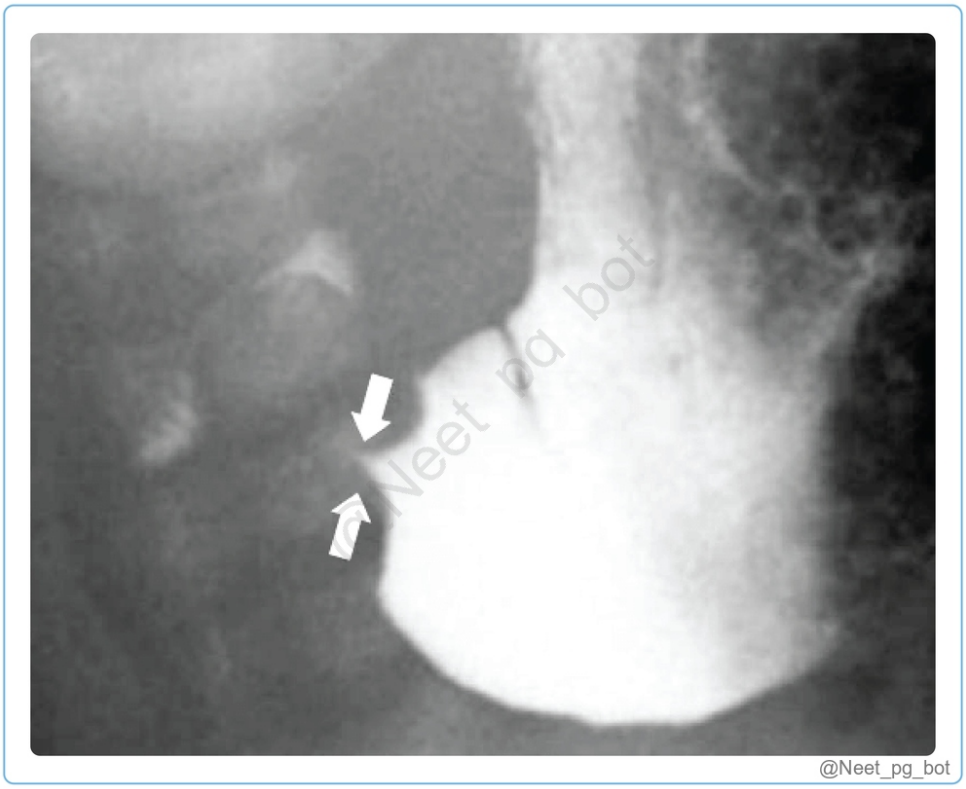
■ *Listen (English)*

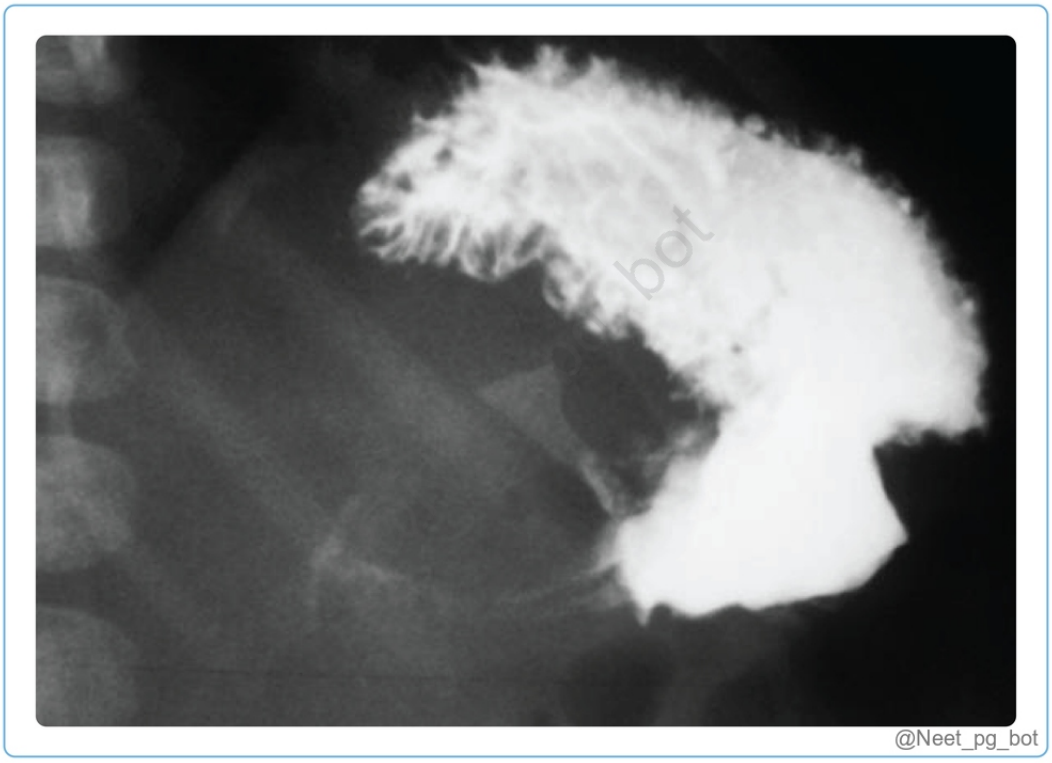
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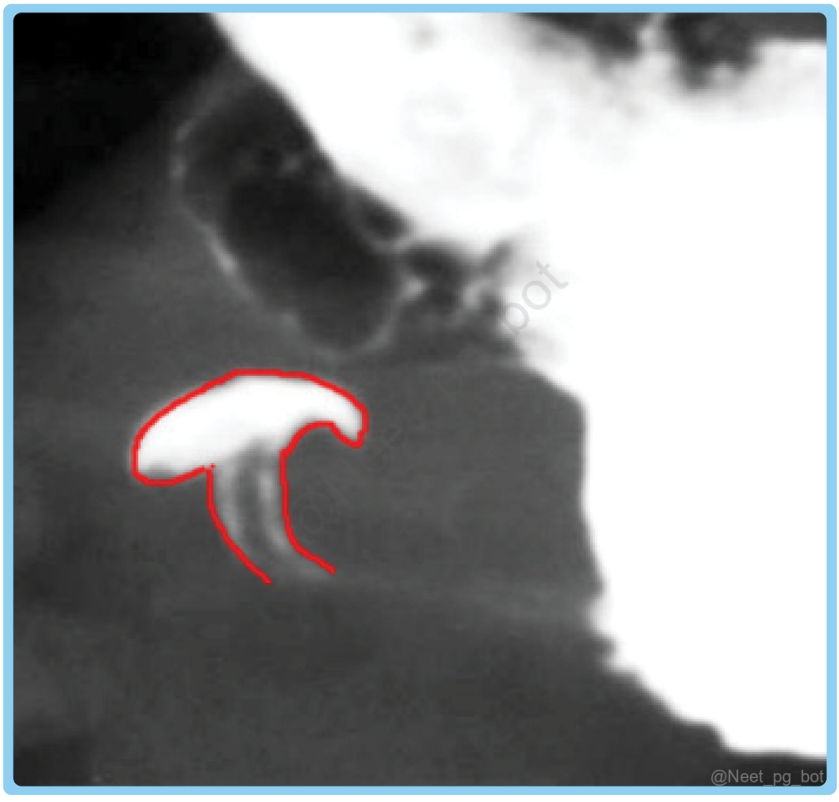
Explanation: The clinical scenario is most likely Congenital hypertrophic pyloric stenosis (CHPS) Diagnosis: Ultrasound (USG) is the Investigation of choice for CHPS, characterised by Pyloric muscle thickness of > 3 mm (Option B ruled out) Pyloric length > 14 mm (Option C ruled out) The pyloric channel appears elongated and thickened (10-14 mm) Contrast Studies (Upper GI Series): Less frequently used, demonstrating the classic "string sign" with a thin line of contrast through the elongated and narrowed pyloric channel and delayed gastric emptying without duodenal dilation. (Option D ruled out) Characteristic findings of Contrast studies in CHPS Findings Description String Sign A thin line of contrast material passes through the narrowed pyloric channel, indicating severe narrowing due to hypertrophied muscle. Shoulder Sign A bulge of the hypertrophied pyloric muscle into the gastric antrum gives the appearance of a “shoulder.” Double Tract Sign Parallel streaks of contrast material within the narrowed pyloric channel suggest the presence of a narrow passage for contrast flow. Mushroom sign Bulging of the hypertrophic muscle into the 1st part of the duodenum




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References:

Nelson Textbook of Pediatrics, 21st edition, Page 1947

↑ *Back to this question in Part A*

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Q19: A 2-week-old infant presents with multiple congenital anomalies, including congenital heart defect (ventricular septal defect), lumbar vertebral defect, and anal atresia. Renal imaging reveals a horseshoe kidney. Which of the following is NOT associated with this condition? (Q850271)

A. Tracheoesophageal fistula

B. Radial limb defects

C. Esophageal atresia

D. Cleft palate

Correct Answer: D. Cleft palate

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Tracheoesophageal fistula, Radial limb defects, Esophageal atresia, vertebral defect and anal atresia are typical findings seen in VACTERL association, whereas cleft palate is not associated with this condition. VACTERL Anomalies: V ertebral anomalies A norectal malformations C ardiac defects T racheoesophageal fistula (TEF) E sophageal atresia R enal anomalies L imb defects (Involve Radial limb defects such as the absence or underdevelopment of the radius bone, thumb anomalies, and shortening of the forearm) Proceed immediately with pyloromyotomy (Option A): Ramstedt pyloromyotomy is the definitive treatment , but NOT immediately . Operating before correcting dehydration and metabolic alkalosis increases risk of: Anesthesia complications Postoperative apnea Cardiac arrhythmias Start nasoduodenal feeding (Option B): It is considered conservative management , reserved for: High surgical risk patients When surgical facilities are unavailable It is not standard management in a stable infant with confirmed hypertrophic pyloric stenosis. Begin IV atropine administration (Opton D): Atropine reduces pyloric spasm and has been used in rare non-surgical settings. However: It is not first-line therapy Surgery after correction is the gold standard Atropine is only considered if surgery is contraindicated

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1929

↑ *Back to this question in Part A*

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Q20: A 4-day-old infant is admitted with severe respiratory distress, frothy secretions from the mouth, and worsening cyanosis with feeding. A chest X-ray reveals a gas-filled abdomens, stomach, upper oesophagal pouch, and air in the trachea, but no visible air in the lower oesophagus. What type of tracheoesophageal fistula (TEF) is most likely indicated by this presentation? (Q850270)

A. Type A

B. Type B

C. Type C

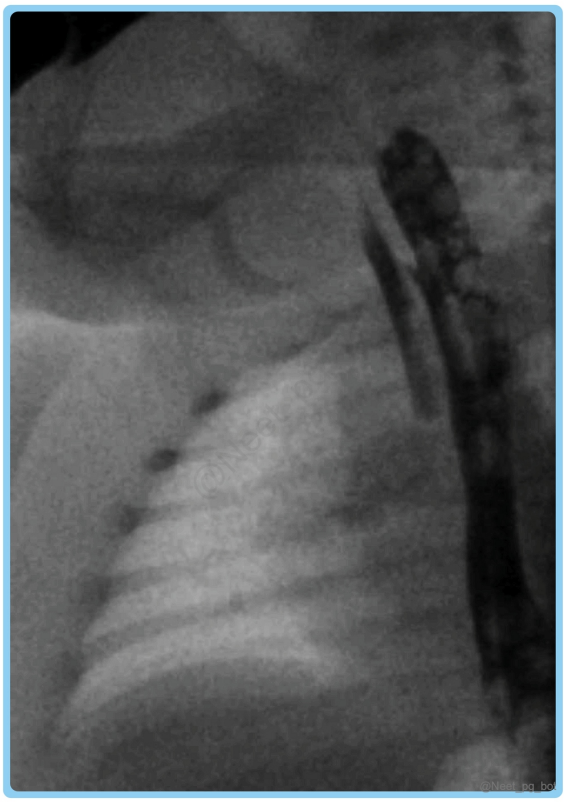
D. Type D

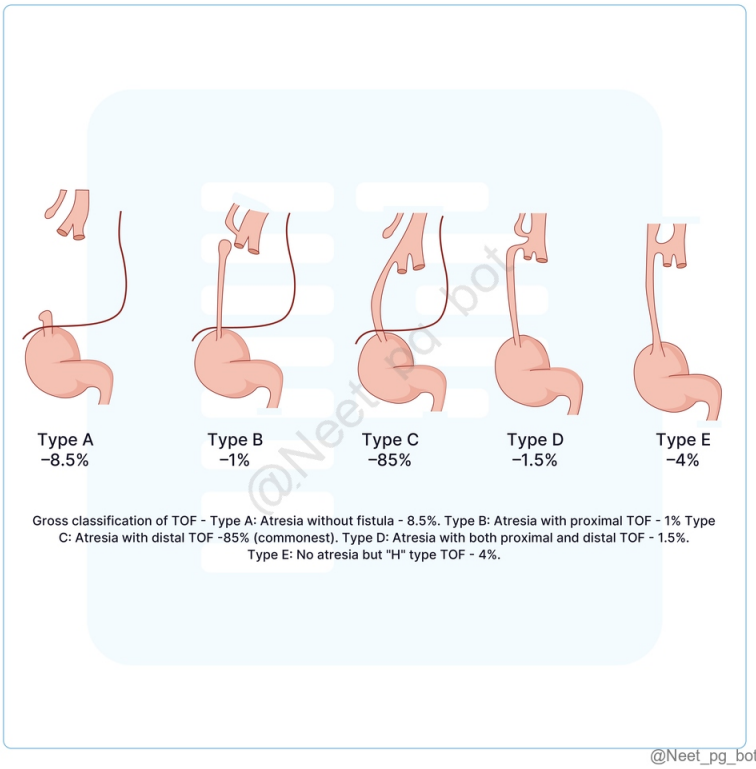
Correct Answer: C. Type C

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presentation indicates Type C TEF – Esophageal atresia with distal tracheoesophageal fistula. Tracheoesophageal fistula Causes Embryology: Disruption during embryonic development of the trachea and oesophagus. Genetic Factors: Associated with syndromes like Feingold syndrome, CHARGE syndrome, and anophthalmia-esophageal-genital syndrome. Unknown Etiology: Factors such as advanced maternal age, ethnicity, obesity, low socioeconomic status, and smoking may be involved. Types of TEF Type A: Isolated oesophageal atresia without tracheoesophageal fistula Type B: Esophageal atresia with proximal tracheoesophageal fistula Type C: Proximal oesophageal atresia with distal tracheoesophageal fistula Type D: Esophageal atresia with both proximal and distal tracheoesophageal fistulas Type E: Isolated tracheoesophageal fistula without associated oesophageal atresia Presentation Classic Symptoms: Frothing and bubbling at the mouth and nose, coughing, cyanosis, respiratory distress exacerbated by feeding. Aspiration Pneumonia: More severe with distal fistula. H-Type Fistula: Chronic respiratory issues, bronchospasm, recurrent pneumonia in isolated cases. Diagnosis Esophagogram Chest X-ray shows a gas-filled or gasless abdomen and a coiled tube in the upper oesophagus. Management Immediate Care: Maintain airway patency, prevent aspiration, and use antibiotics. Surgical Repair: Standard involves ligation of TEF and primary end-to-end anastomosis. Alternative Approaches: Delayed primary closure, fistula ligation, gastrostomy tube placement, or using gastric, jejunal, or colonic segments if the gap >3-4 cm. Complications Respiratory Complications: Risk of aspiration pneumonia. Esophageal Complications: Feeding difficulties, failure to thrive. Associated Anomalies: Often part of VACTERL association (vertebral, anal, cardiac, tracheal, esophageal, renal, limb). Prognosis Improved Outcomes: Better survival rates due to advancements in care. Long-Term Complications: Potential issues include feeding difficulties, esophageal strictures, and respiratory problems. Type A (Option A): X-ray shows a gas-filled upper oesophageal pouch but no gas in the stomach or lower esophagus. Type B (Option B): X-ray shows a gas-filled upper and lower esophageal pouch and trachea, but no gas in the stomach. Type D (Option D): X-ray shows air in both upper and lower esophageal pouches and gas in the stomach due to the dual connections.





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References:

Nelson Textbook of Paediatrics, 21st Edition, Pages 1929,1930

https://www.ncbi.nlm.nih.gov/books/NBK560848/

↑ *Back to this question in Part A*

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• [13_Pediatric Gastroenterology] 033 Liver Disorders In Children

« Back to Folder Directory

[13_Pediatric Gastroenterology] 033 Liver Disorders In Children — Quick Jump

Q1 (p. 1272)	*Q2 (p. 1273)*	*Q3 (p. 1273)*	*Q4 (p. 1274)*	*Q5 (p. 1275)*	*Q6 (p. 1276)*
Q7 (p. 1277)	*Q8 (p. 1278)*	*Q9 (p. 1279)*	*Q10 (p. 1280)*	*Q11 (p. 1281)*	*Q12 (p. 1282)*
Q13 (p. 1283)	*Q14 (p. 1284)*	*Q15 (p. 1285)*	*Q16 (p. 1287)*	*Q17 (p. 1288)*	*Q18 (p. 1290)*
Q19 (p. 1291)	*Q20 (p. 1293)*	*Q21 (p. 1294)*			

Q1: A 3-year-old child's mother is concerned about hepatitis C transmission to her kid as her uncle was recently diagnosed with hepatitis C. The Child does not have any symptoms and examination findings are appropriate for her age. Which of the following is the most common transmission mode of infection in children? (Q850336)

A. Perinatal

B. Blood transfusion

C. Illegal drug use with exposure to blood

D. Breastfeeding

Correct Answer: A. Perinatal

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In children, perinatal transmission is the most common mode of transmission of the Hepatitis C virus. Hepatitis C: Etiology: HCV is a single-stranded RNA virus Risk factors: Blood transfusion : Before 1992 it was the most common route of infection (Option B ruled out) Illegal drug use with exposure to blood or blood products: More than half of adult cases (Option C ruled out) Sexual transmission : Second most common cause of infection (Option D ruled out) Perinatal transmission: Most common mode of transmission in children (5% of infants born to positive mothers) (Option A) Clinical Manifestations: Acute infection: Mild and Acute liver failure is very rare Chronic infection: Liver fibrosis Can progress to cirrhosis, liver failure, and, occasionally, primary HCC. Diagnosis: Detection of anti-HCV antigens or viral RNA Treatment: Chronic hepatitis C: Peginterferon, IFN-α2b, and ribavirin. No vaccination: The immune system's selective pressure on HCV quasispecies can lead to the emergence of escape mutants that are resistant to T- and B-cell immune targeting. Thus making it difficult to develop vaccines for the Hepatitis C virus. Breastfeeding (Option D): There is no evidence of mother-to-infant transmission of the Hepatitis C virus from breastfeeding.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2115, 2116

https://pubmed.ncbi.nlm.nih.gov/15384578/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7431814/#

↑ *Back to this question in Part A*

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Q2: A 3-month-old infant born to an HBsAg-positive mother is being evaluated for possible perinatal hepatitis B infection. Laboratory tests are ordered to determine whether active viral replication is occurring. Which of the following serologic markers indicates ongoing viral replication? (Q891762)

A. HBsAg

B. Anti-HBe

C. HBeAg

D. Anti-HBs

Correct Answer: C. HBeAg

Explanation: HBeAg indicates active hepatitis B viral replication and high infectivity in patients with hepatitis B infection. Marker Significance HBsAg Current infection (acute or chronic); not a marker of replication level (Option A ruled out) HBeAg Active viral replication; high infectivity → high viral load and increased risk of transmission (Option C) Anti-HBe Reduced replication; lower infectivity (Option B ruled out) Anti-HBs Immunity (recovery or vaccination) (Option D ruled out) Anti-HBc IgM Acute/recent infection; present in window period Anti-HBc IgG Past exposure; persists for life (absent after vaccination) HBcAg Core antigen in hepatocytes; not detected in serum HBV DNA Direct marker of viral replication; reflects viral load

References:

https://www.ncbi.nlm.nih.gov/books/NBK442290/table/ch4.t2/

https://www.cdc.gov/hepatitis-b/hcp/diagnosis-testing/index.html

↑ *Back to this question in Part A*

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Q3: A 13-year-old boy with tremors, behavioral changes, and mild jaundice is suspected to have Wilson's disease. A liver biopsy is performed to measure hepatic copper concentration. Which of the following hepatic copper levels (in µg/g dry weight) is considered diagnostic of Wilson's disease? (Q891761)

A. > 100

B. > 250

C. > 400

D. > 50

Correct Answer: B. > 250

Explanation: Wilson's disease , caused by defective biliary copper excretion due to ATP7B mutation, is diagnosed when hepatic copper concentration exceeds 250 µg/g dry weight on liver biopsy. Diagnostic criteria: Low serum ceruloplasmin Increased 24-hour urinary copper excretion Kayser-Fleischer rings Elevated hepatic copper concentration (>250 µg/g dry weight) (Option B) Normal hepatic copper: < 50 µg/g dry weight (Option D ruled out)

References:

https://www.ncbi.nlm.nih.gov/books/NBK441990/

https://emedicine.medscape.com/article/183456-overview

↑ *Back to this question in Part A*

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Q4: A 10-year-old girl presents with declining school performance, loss of interest in hobbies, and progressive muscle weakness. On examination, she has mild hepatomegaly, and laboratory tests reveal low serum ceruloplasmin. Which of the following features are associated with this condition? Dystonia Renal Fanconi syndrome Sparse depigmented hair Ascites and portal hypertension (Q891760)

A. 1, 2, and 3

B. 1, 2, and 4

C. 1, 3, and 4

D. 2, 3, and 4

Correct Answer: B. 1, 2, and 4

Explanation: Wilson’s disease , an autosomal recessive disorder caused by ATP7B mutations , leads to copper accumulation in the liver, brain, and kidneys, causing dystonia, renal Fanconi syndrome, and ascites/portal hypertension , while sparse depigmented hair is not a feature. Manifestations of Wilson’s Disease Hepatic Hepatomegaly, chronic hepatitis, cirrhosis, liver shrinkage Ascites and portal hypertension (Option 4) Renal Renal tubular dysfunction (Fanconi syndrome) may occur due to copper deposition, causing aminoaciduria, phosphaturia, and glycosuria (Option 2) Neurologic and psychiatric Tremors, dystonia, behavioral changes, cognitive decline (Option 1) Sparse depigmented hair (Option 3): Wilson disease does not affect hair pigmentation, whereas such changes are seen in Menkes disease due to copper deficiency.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2103-2104.

https://www.ncbi.nlm.nih.gov/books/NBK441990/

https://emedicine.medscape.com/article/183456-overview

↑ *Back to this question in Part A*

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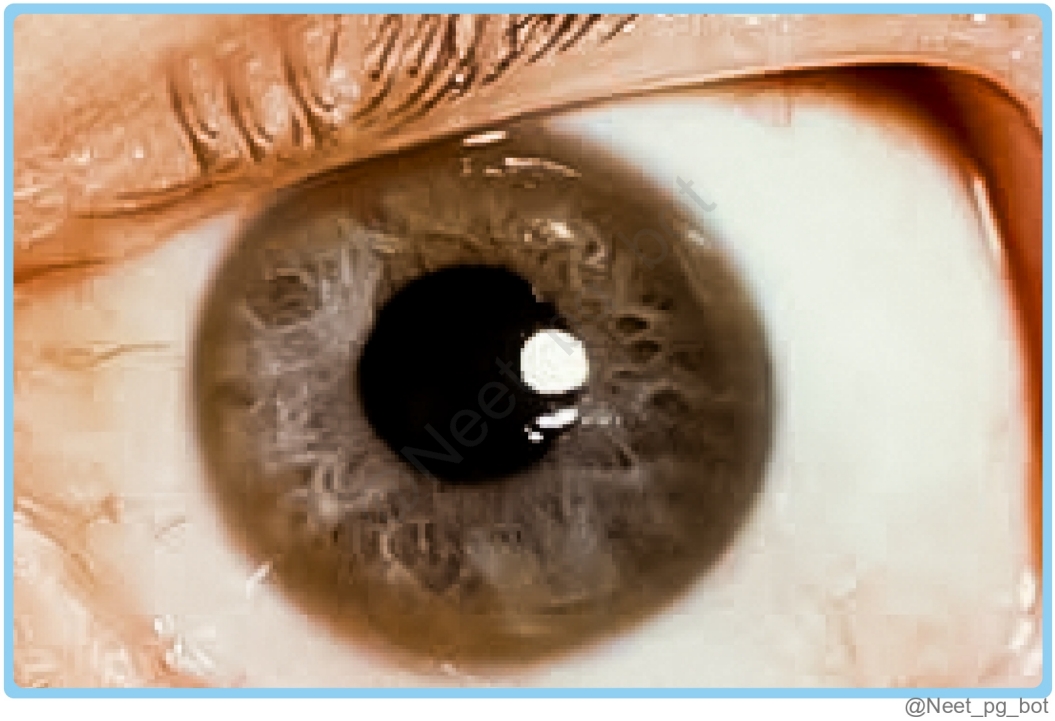
Q5: A 12-year-old boy is brought to your clinic with recent difficulty writing, tremors, and excessive drooling of saliva. On examination, mild hepatomegaly is noted. Ophthalmic findings are shown in the image below. Which of the following statements about this condition is correct? It is an autosomal dominant disorder Serum ceruloplasmin levels are low Coombs-positive hemolytic anemia may be present The patient can be treated with triethylenetetramine (Q891759)

A. 1 and 3

B. 2 and 4

C. 1, 2, and 3

D. 2, 3, and 4



Correct Answer: B. 2 and 4

Explanation: The child's difficulty in writing, tremors, excessive drooling, mild hepatomegaly, and ophthalmic findings showing Kayser-Fleischer rings indicate Wilson disease , an autosomal recessive disorder of copper metabolism characterized by low serum ceruloplasmin, which can be treated with chelating agents such as triethylenetetramine. Wilson's Disease Genetics Autosomal recessive copper metabolism defect (ATP7B mutation) (Option 1 ruled out) Features Neurological (tremors, dysarthria, dystonia) Hepatic (hepatomegaly, elevated liver enzymes) Psychiatric changes Kayser-Fleischer rings on slit-lamp exam. Lab findings Ceruloplasmin: Low serum levels (Option 2) Hemolytic anemia: If present → Coombs-negative from copper-induced RBC damage (Option 3 ruled out) Treatment Chelating agents like D-penicillamine or triethylenetetramine (Trientine) promote copper excretion (Option 4) Zinc therapy reduces copper absorption.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2103-2104.

https://www.ncbi.nlm.nih.gov/books/NBK441990/

https://emedicine.medscape.com/article/183456-overview

↑ *Back to this question in Part A*

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Q6: Regarding Lucey-Driscoll syndrome, which of the following statements is not correct? (Q891758)

A. It presents with severe unconjugated hyperbilirubinemia in the neonatal period

B. It is caused by a circulating inhibitor of bilirubin conjugation

C. It may require temporary phototherapy or exchange transfusion

D. Permanent discontinuation of breastfeeding is the treatment of choice

Correct Answer: D. Permanent discontinuation of breastfeeding is the treatment of choice

Explanation: Lucey-Driscoll syndrome is a rare cause of severe neonatal unconjugated hyperbilirubinemia due to a transient maternal inhibitor of bilirubin conjugation, and while it may require phototherapy or exchange transfusion, permanent discontinuation of breastfeeding is not necessary. Lucey-Driscoll Syndrome Cause Transient inhibition of UDP-glucuronyl transferase (UGT1A1) Due to a maternal circulating inhibitor that impairs bilirubin conjugation in the newborn (Option B ruled out) Features Markedly elevated unconjugated bilirubin Appears in the first few days of life (Option A ruled out) Risk of kernicterus if untreated Liver function tests otherwise normal Management Phototherapy (Option C ruled out) Exchange transfusion in severe cases (Option C ruled out) Condition is transient and resolves spontaneously

References:

http://www.ncbi.nlm.nih.gov/medgen/75718

https://accessanesthesiology.mhmedical.com/content.aspx?bookid=852&sectionid=49517873

https://rarediseases.info.nih.gov/diseases/2791/lucey-driscoll-syndrome

↑ *Back to this question in Part A*

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Q7: A 16-year-old girl is evaluated for persistent mild jaundice noticed over the past year. She denies abdominal pain or pruritus. Laboratory tests show isolated elevation of conjugated (direct) bilirubin, while liver enzymes and hemolysis profile are normal. A liver biopsy reveals coarse dark brown pigment within hepatocytes. What is the most likely diagnosis? (Q891757)

A. Rotor syndrome

B. Crigler-Najjar syndrome

C. Dubin-Johnson syndrome

D. Gilbert syndrome

Correct Answer: C. Dubin-Johnson syndrome

Explanation: Isolated conjugated hyperbilirubinemia, normal liver enzymes, and a liver biopsy showing coarse dark brown hepatocyte pigment most likely indicate Dubin-Johnson syndrome , an autosomal recessive disorder causing benign conjugated hyperbilirubinemia. Dubin-Johnson syndrome Cause Defect in the canalicular transporter (MRP2) responsible for excretion of conjugated bilirubin into bile. Pathophysiology Conjugated bilirubin cannot be efficiently secreted into bile Reflux of conjugated bilirubin into blood Accumulation of a melanin-like pigment in hepatocytes → "black liver" on biopsy Features Mild, chronic conjugated hyperbilirubinemia Normal liver enzymes Usually asymptomatic or mild fatigue Characteristic black liver on histology Rotor syndrome (Option A) also causes conjugated hyperbilirubinemia but no liver pigmentation. Crigler-Najjar syndrome (Option B) causes severe unconjugated hyperbilirubinemia due to UDP-glucuronyl transferase deficiency. Gilbert syndrome (Option D): Mild unconjugated hyperbilirubinemia due to reduced glucuronyl transferase activity.

References:

OP Ghai Testbook of Pediatrics, 10th Edition, Page 331-332.

https://www.ncbi.nlm.nih.gov/books/NBK536994/

https://emedicine.medscape.com/article/173517-overview

https://rarediseases.org/rare-diseases/dubin-johnson-syndrome/

↑ *Back to this question in Part A*

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Q8: An 11-year-old child presents to the emergency department with massive hematemesis. On examination, he has pallor, splenomegaly, and dilated veins radiating from the umbilicus. Portal hypertension is suspected. Which of the following is the most appropriate initial investigation to identify the source of bleeding? (Q891756)

A. Contrast-enhanced CT abdomen

B. Upper gastrointestinal endoscopy

C. Capsule endoscopy

D. Abdominal ultrasonography with Doppler

Correct Answer: B. Upper gastrointestinal endoscopy

Explanation: The child shows signs of portal hypertension : Splenomegaly Dilated abdominal wall veins (caput medusae) Acute hematemesis In suspected variceal bleeding, upper GI endoscopy is both diagnostic and therapeutic and is the investigation of choice. Most likely cause of bleeding → Ruptured esophageal varices Investigation of choice: Upper GI endoscopy (Option B) Directly visualizes esophageal and gastric varices

Confirms the source of bleeding Allows therapeutic intervention (band ligation or sclerotherapy). Contrast-enhanced CT (Option A) helps evaluate liver architecture and portal system, but is not first-line in acute bleeding. Capsule endoscopy (Option C) is used for obscure GI bleeding, mainly from the small intestine; not appropriate for acute variceal bleeding. Abdominal ultrasonography with Doppler (Option D) is useful to assess portal vein patency and portal hypertension, but cannot directly identify or treat varices.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2142.

https://pmc.ncbi.nlm.nih.gov/articles/PMC5139880/

https://www.uclahealth.org/medical-services/radiology/interventional-radiology/conditions-treated/variceal-bleeding

↑ *Back to this question in Part A*

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Q9: A 6-year-old boy is brought to the clinic for progressive abdominal swelling and easy fatigability. His parents report episodes of nosebleeds and note prominent veins over his abdomen. On examination, he has splenomegaly, ascites, and palmar erythema. He is admitted for evaluation. During hospitalization, he suddenly develops massive hematemesis. What is the most likely cause of this acute event? (Q891755)

A. Acute myeloid leukemia

B. Mallory-Weiss tear

C. Esophageal varices

D. Visceral leishmaniasis

Correct Answer: C. Esophageal varices

Explanation: In a child with signs of chronic liver disease and portal hypertension, massive hematemesis is most commonly caused by rupture of esophageal varices. Chronic liver disease with portal hypertension features (children): Palmar erythema Ascites Splenomegaly Dilated abdominal veins Pedal edema Upper GI bleeding in portal hypertension : Increased pressure in the portal venous system Formation of portosystemic collaterals Dilated submucosal veins in the lower esophagus → esophageal varices Fragile varices prone to rupture → sudden, massive hematemesis. In children with chronic liver disease, sudden upper GI bleeding is most commonly due to ruptured esophageal varices. Acute myeloid leukemia (Option A) can cause anemia and bleeding due to thrombocytopenia but does not cause portal hypertension or variceal bleeding. Mallory-Weiss tear (Option B) caused by forceful retching leading to mucosal laceration; usually follows repeated vomiting and does not explain portal hypertension signs. Visceral leishmaniasis (Option D) causes splenomegaly and anemia, but hematemesis from varices is not typical unless advanced liver disease develops.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1941.

https://www.ncbi.nlm.nih.gov/books/NBK448078/

https://www.worldgastroenterology.org/guidelines/esophageal-varices/esophageal-varices-english

↑ *Back to this question in Part A*

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Q10: A 7-year-old child is brought to the emergency department with a recent history of influenza-like illness which was followed by sudden onset of vomiting, lethargy, and altered mental status. Parents report that the child was treated with aspirin for fever during the influenza episode. On examination, there are no signs of increased intracranial pressure and no focal neurological deficit. Given the diagnosis of Reye syndrome, what is the most appropriate management among the following options? (Q850338)

A. Supportive treatment

B. Mannitol or hypertonic saline

C. Continue aspirin use for fever

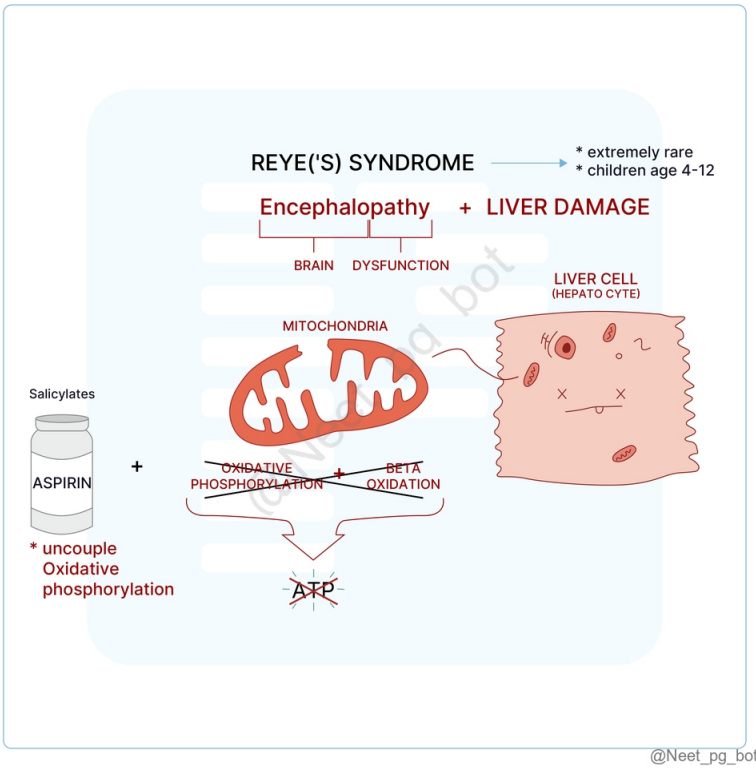
D. D-penicillamine administration

Correct Answer: A. Supportive treatment

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Management of Reye syndrome is mainly supportive and needs close monitoring. Reye syndrome: Acute metabolic disorder with generalized mitochondrial dysfunction due to inhibiton of fatty acids oxidation. Acute noninflammatory encephalopathy with fatty liver failure Precipitating factors: Preceding viral illness- i nfluenza A and B, varicella, coxsackie, parainfluenza, Epstein-Barr (EBV), cytomegalovirus (CMV), adenovirus. Drugs and toxins: Aspirin , valproic acid. Clinical features: Hepatic dysfunction Neurological: Altered sensorium, seizures, delirium, comatose, final stage- flaccid paralysis and respiratory arrest Increased ICP (intra-cranial pressure) Investigation: Elevated liver function tests (ALT, AST, bilirubin), hyperammonemia, abnormal coagulation studies Normal levels of serum bilirubin CSF analysis Treatment: Mainstay: Supportive (Option A) Stop the precipitating factors if possible (Option C ruled out) Treat increased ICP if present Mannitol or hypertonic saline (Option B): Treatment of increased ICP if present. In this case, raised intracranial pressure is not present. D-penicillamine administration (Option D): It is a copper chelating agent, used in treatment of Wilson disease. Hence not used in treatment for Reye syndrome.



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References:

https://www.ncbi.nlm.nih.gov/books/NBK526101/

https://onlinelibrary.wiley.com/doi/full/10.1111/dmcn.12717

Op ghai 10e pg no 588, 589

Nelson textbook of pediatrics, ed.21, page no 2104

↑ *Back to this question in Part A*

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Q11: A 15-year-old patient has a history of progressive dystonia, tremors, and behavioral changes. On physical examination, a Kayser-Fleischer ring is observed in the corneal margin. Laboratory tests reveal elevated liver enzymes. A 24-hour urinary copper excretion test shows markedly increased copper levels. Which of the following statements is NOT true regarding the disorder in this patient? (Q850337)

A. It is an autosomal recessive mode of inheritance

B. Decreased biliary copper excretion leading to copper accumulation in organs

C. Increased serum ceruloplasmin levels

D. D-penicillamine is used for treatment

Correct Answer: C. Increased serum ceruloplasmin levels

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most likely diagnosis in this scenario is Wilson's disease. There is decreased serum ceruloplasmin levels (<20 mg/dL) in this disorder. Wilson disease: Hepatolenticular degeneration Pathophysiology: Autosomal recessive (positive family history) (Option A ruled out) Mutation in ATP7B gene (copper transporting P-type adenosine triphosphatase (ATPase), present in chromosome 13 (13q14) . Decreased biliary copper excretion and diffuse accumulation of copper in the cytosol of hepatocytes. (Option B ruled out) Later, copper is redistributed to other tissues once the liver is saturated with copper. Clinical features: Liver: Asymptomatic hepatomegaly (with or without splenomegaly), subacute or chronic hepatitis, acute hepatic failure, and portal hypertension Neurology: Intention tremor, dysarthria, rigid dystonia, Parkinsonism, choreiform movements, lack of motor coordination, deterioration in school performance, psychosis, or behavioral changes Psychiatric manifestations: Depression, personality changes, anxiety, obsessive-compulsive behavior, or psychosis Eye: KF (Kayser Fleischer) ring in Descement membrane layer of cornea Renal: Fanconi syndrome and renal failure Diagnosis: Decreased serum ceruloplasmin levels (<20 mg/dL) (Option C) Serum-free copper level >1.6 µmol/L Urinary copper excretion (normally <40 µg/day) is increased to >100 µg/day Liver biopsy (Gold standard): Hepatic copper content >250 µg/g dry weight of liver Treatment: Dietary intake of copper (Avoid liver, shellfish, nuts, and chocolate) should be restricted to <1 mg/day Symptomatic patients: Copper-chelating agents D-penicillamine (Option D ruled out) Triethylenetetramine dihydrochloride Zinc impairs the gastrointestinal absorption of copper

References:

Nelson textbook of pediatrics, ed.21, page no 2103-04

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: Which statement about unconjugated hyperbilirubinemia is incorrect ? (Q850311)

A. Chronic hemolytic anemias increase unconjugated bilirubin.

B. Crigler-Najjar Type I has a partial UDPGT deficiency.

C. Gilbert Syndrome involves a mild UDPGT deficiency.

D. Phenobarbitone treats Crigler-Najjar Type II.

Correct Answer: B. Crigler-Najjar Type I has a partial UDPGT deficiency.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Crigler-Najjar Type I i nvolves a complete deficiency of UDP-glucuronyltransferase, while Type II involves a partial deficiency. Unconjugated Hyperbilirubinemia Increase in indirect fraction of bilirubin Increased Production Chronic hemolytic anemias (e.g., Thalassemia, Sickle Cell Disease) (Option A ruled out) Hereditary spherocytosis Autoimmune hemolytic anemia Decreased Conjugation Crigler-Najjar Syndrome Gilbert Syndrome Unconjugated Hyperbilirubinemia Condition Inheritance Gene Involved Deficiency Features Management Gilbert Syndrome Autosomal recessive & dominant UGT1A1 Mild deficiency of UDP-GT (Option C ruled out) Recurrent jaundice during stress, fasting& fatigue No specific treatment Crigler-Najjar Syndrome Autosomal recessive UGT1A1 Type1: Complete deficiency of UDP-GT Severe Jaundice Phenobarbitone is useful in Type2 (Option D ruled out) Type2: Partial deficiency of UDP-GT Less Severe Jaundice

References:

Ghai essential pediatrics 10 edition, page 331

↑ *Back to this question in Part A*

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Q13: An 8-hour-old infant was born to a mother who is known to be positive for hepatitis B virus (HBV). The mother's HBV serology shows high levels of hepatitis B surface antigen (HBsAg) and hepatitis B e antigen (HBeAg). What is the most appropriate initial management for this newborn to prevent HBV infection? (Q850330)

A. Administer hepatitis B vaccine only

B. Administer hepatitis B immune globulin (HBIG) only

C. Administer hepatitis B vaccine and hepatitis B immune globulin (HBIG) within 12 hours of birth

D. To complete 2 doses of hepatitis B vaccine universal vaccination series

Correct Answer: C. Administer hepatitis B vaccine and hepatitis B immune globulin (HBIG) within 12 hours of birth

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Babies born to HBV-positive mothers need to be immunized with hepatitis B immunoglobulin (HBIG) and the HBV immunization, given within 12 hr of delivery (protects >95% of neonates). Management of babies born to HBV-positive mothers: Immunoprophylaxis with hepatitis B immunoglobulin (HBIG) and the HBV

immunization , given within 12 hr of delivery (protects >95% of neonates) Hepatitis universal vaccination series to be completed (3 or 4 doses depending on the weight birth weight of the baby) Birth weight ≥2,000 g = 3 doses Birth weight <2,000 g = 4 doses All infants born to HBsAg-positive mothers should have follow-up HBsAg and anti-HBs tested to determine appropriate follow-up

References:

Nelson textbook of pediatrics, ed.21, page no 2110, 2114

↑ *Back to this question in Part A*

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Q14: A 6-year-old child is brought to the hospital with a 2-week history of fever, joint pain and fatigue. On examination, jaundice with mild hepatic tenderness is noted. The child's mother reports that the child had a blood transfusion a few months back due to massive blood loss in a car accident. Serological testing reveals: Hepatitis B surface antigen (HBsAg): Positive Hepatitis B surface antibody (anti-HBs): Negative Hepatitis B core antibody (anti-HBc): Positive (IgM) Hepatitis B e antigen (HBeAg): Positive Which among the following options best describes the stage of hepatitis B infection? (Q850329)

A. Acute infection

B. Chronic infection

C. Acute resolving infection

D. Early acute infection

Correct Answer: A. Acute infection

■ *Listen (English)*

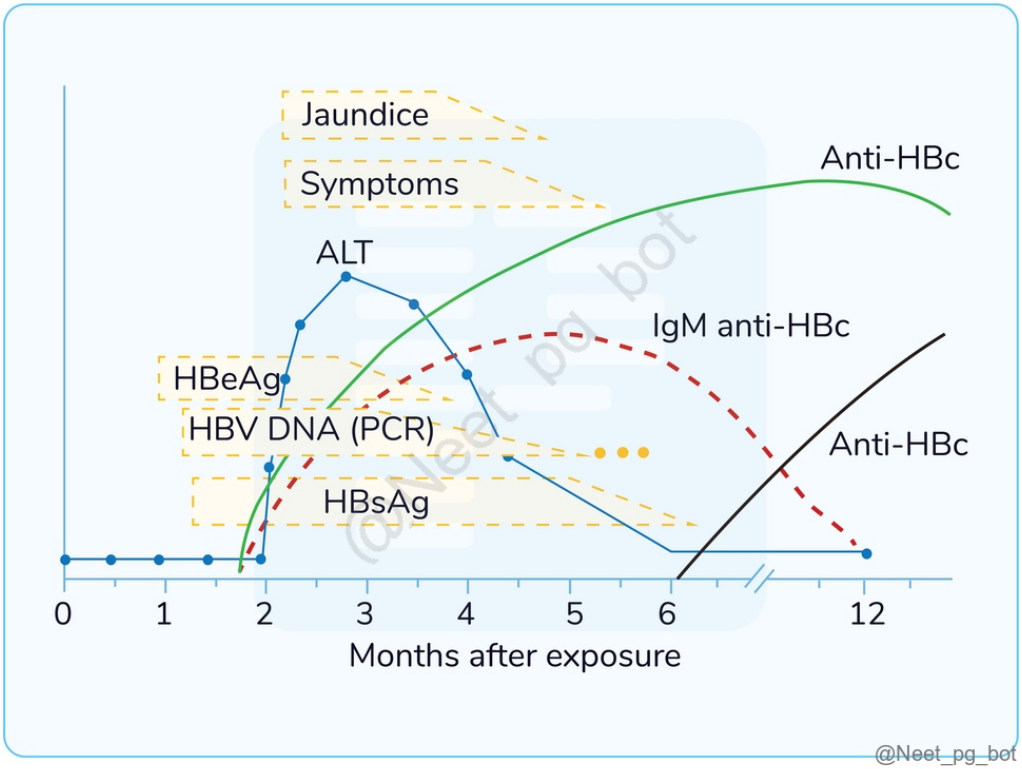
■ *Listen (Hindi)*

Explanation: Acute infection with hepatitis B virus is the most likely diagnosis considering the history of recent blood transfusion, short duration of symptoms, and serology suggesting an active infection. Hepatitis B: Etiology: Partially double-stranded DNA genome Hepatitis B surface antigen (HBsAg): Particles present on the surface of the virus. Inner portion contains: Hepatitis B core antigen (HBcAg) Viral DNA Nonstructural antigen - hepatitis B e antigen (HBeAg) Diagnosis: From the table, Chronic infection (Option B) Acute resolving infection (Option C), and Early acute infection (Option D) are ruled out. Treatment: Acute viral hepatitis: Supportive Chronic hepatitis B: Interferon-α2b (IFN-α2b), lamivudine, adefovir, entecavir, tenofovir and peginterferon-α2

Typical Interpretation of Test Results for Hepatitis B Virus Infection

HBsAg	Total ANTI-HBc	IgM ANTI-HBc	ANTI-HBs	HBV DNA	INTERPRETATION
−	−	−	−	−	Never infected
+	−	−	−	+ or −	Early acute infection; transient (up to 18 days) after vaccination
+	+	+	−	+	Acute infection
−	+	+	+ or −	+ or −	Acute resolving infection
−	+	−	+	−	Recovered from past infection and immune
+	+	−	−	+	Chronic infection
−	+	−	−	+ or −	False-positive (i.e., susceptible); past infection; "low-level" chronic infection; or passive transfer of anti-HBc to infant born to HBsAg-positive mother
−	−	−	+	−	Immune if anti-HBs concentration is ≥10 mIU/mL after vaccine series completion; passive transfer after hepatitis B immune globulin administration

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References:

Nelson textbook of pediatrics, ed.21, page no 2109-2113 Image 1: Nelson textbook of pediatrics, ed.21, page no 2111 Fig. 385.2

↑ *Back to this question in Part A*

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Q15: A 7-year-old boy is brought to the pediatric clinic with complaints of jaundice, fatigue, and abdominal pain for the past 5 days. The child has a history of poor

appetite and dark urine. On examination, he is mildly icteric, with tender hepatomegaly but no splenomegaly. His liver function tests reveal elevated ALT and AST levels, with a significant rise in total and direct bilirubin. Anti-HAV IgM is positive. Which of the following is the most appropriate next step in management? (Q850327)

A. Start antiviral therapy

B. Administer Hepatitis A vaccine

C. Supportive care with hydration and monitoring

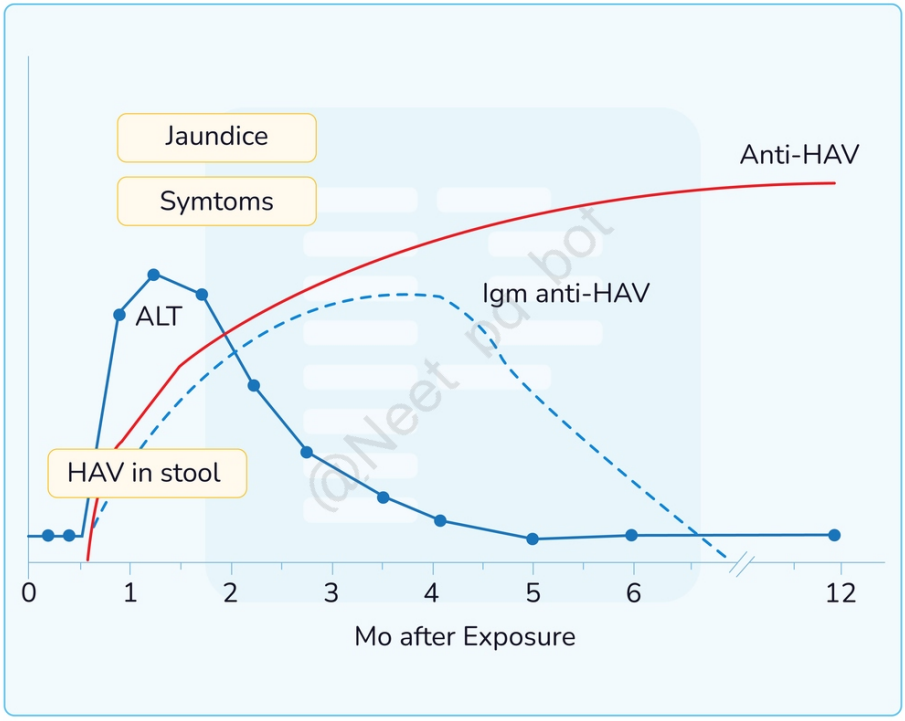
D. Admit for immediate liver biopsy

Correct Answer: C. Supportive care with hydration and monitoring

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Hepatitis A is a self-limiting viral infection, especially in children. Management typically involves supportive care, including maintaining hydration and monitoring liver function. Hepatitis A: Etiology: Hepatitis A Virus (HAV) is an RNA virus from the Picornavirus family. Epidemiology: HAV is highly contagious, transmitted primarily through the fecal-oral route. Incubation period: ~3 weeks. Contagious (viral shedding) from late in the incubation period until about 2 weeks after the onset of jaundice. Clinical Manifestations: HAV causes acute hepatitis only. Often anicteric in young children, but symptomatic in older adolescents, adults, and immunocompromised patients. Symptoms : Acute febrile illness with abrupt onset of anorexia, nausea, malaise, vomiting, and jaundice. Duration of illness: 7-14 days. Category Details Diagnosis Anti-HAV IgM antibodies: Detectable during symptoms and remains positive for 4-6 months. Anti-HAV IgG antibodies: Provides long-term immunity and appears within 8 weeks of symptom onset. Elevated levels: ALT, AST, bilirubin, alkaline phosphatase, 5′-nucleotidase, γ-glutamyl transpeptidase. Complications Full recovery is typical. Acute liver failure (ALF): Rare, particularly in older adolescents, adults, and immunocompromised patients. Prolonged cholestatic syndrome: Leads to pruritus and fat malabsorption, resolves without long-term effects. Acute Relapsing Hepatitis Fulminant hepatitis (Acute Hepatitis E > A) Treatment Supportive care: Intravenous hydration, antipruritic agents, and fat-soluble vitamin supplementation for cholestatic disease. Monitor for signs of ALF. Prevention Vaccine: Two inactivated vaccines, administered intramuscularly in a 2-dose schedule (second dose 6-12 months after the first). Recommended for children >12 months. Isolation: Infected individuals should be isolated for 2 weeks before and 1 week after jaundice onset. Hand hygiene. Immunoglobulin (Ig) Prophylaxis: For preexposure and postexposure prophylaxis, especially in children <12 months, immunocompromised individuals, those with chronic liver disease, and those allergic to the vaccine. Prognosis Excellent prognosis with no long-term sequelae. Start antiviral therapy (Option A): Hepatitis A virus (HAV) infection typically does not require antiviral therapy. The treatment is generally supportive as the infection is usually self-limiting. Administer Hepatitis A vaccine (Option B): The vaccine is used for prevention, not for treatment of an acute infection. Since the patient already has a positive Anti-HAV IgM, indicating an acute infection, the vaccine is not appropriate in this context. Admit for immediate liver biopsy (Option D): A liver biopsy is not indicated in the acute phase of Hepatitis A. The diagnosis is based on clinical presentation and serology, and a biopsy is not necessary for routine management of this infection.



References:

Nelson textbook of pediatrics, ed.21, page 2108. OP Ghai Essential Pediatrics, ed.9, page 310.

↑ *Back to this question in Part A*

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Q16: A 9-year-old girl presents with a 2-week history of abdominal pain, progressive abdominal distension, and leg swelling. On examination, she has hepatomegaly, ascites, and mild jaundice. Doppler ultrasound reveals absent hepatic vein flow with collateral vessels. Which of the following is the most likely diagnosis? (Q850325)

A. Wilson disease

B. Hepatopulmonary syndrome

C. Budd-Chiari syndrome

D. Extrahepatic portal vein obstruction

Correct Answer: C. Budd-Chiari syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In this scenario, the child presents with symptoms and signs consistent with hepatic vein obstruction, including hepatomegaly, ascites, and abdominal pain. Doppler ultrasound findings of absent hepatic vein flow with collateral vessel formation further suggest Budd-Chiari syndrome (BCS). Budd-Chiari syndrome (BCS): Post-sinusoidal cause of portal hypertension. Etiology and Pathogenesis: Budd-Chiari syndrome occurs with obstruction to hepatic veins anywhere between the efferent hepatic veins and the entry of the inferior vena cava into the right atrium. In most cases, no specific cause can be found , but thrombosis can occur from Inherited and acquired hypercoagulable states Hepatic or metastatic neoplasms Collagen vascular disease Infection & trauma Behçet syndrome & Inflammatory bowel disease Aspergillosis Dacarbazine therapy Inferior vena cava webs Presentation: Chronic course(common presentation): Hepatomegaly, abdominal distension and portal hypertension Acute or fulminant forms(rare): Abdominal pain, ascites, hepatomegaly and rapidly progressive hepatic failure. Treatment: Directed towards restoring the patency of hepatic vein/ inferior vena cava by Radiological means (angioplasty, stenting or transjugular intrahepatic portosystemic shunt) or Surgery (mesoatrial shunt, mesocaval shunt). Orthotopic liver transplant is reserved for patients with end-stage liver disease or fulminant failure. Wilson's disease (Option A) presents with liver dysfunction, neuropsychiatric symptoms, and Kayser-Fleischer rings in the eyes. However, it does not typically cause acute hepatic vein obstruction, ascites, or the specific Doppler findings mentioned in this case. Hepatopulmonary syndrome (Option B) occurs in chronic liver disease, characterized by liver dysfunction, hypoxemia, and dilated blood vessels in the lungs. It presents primarily with respiratory symptoms like shortness of breath and doesn't typically involve hepatomegaly, ascites, or absent hepatic vein flow. Extrahepatic portal vein obstruction (Option D) involves obstruction of the portal vein, leading to portal hypertension, splenomegaly, and possibly ascites. The main issue lies in the portal vein, not the hepatic veins.

References:

Nelson textbook of pediatrics, ed.21, page 2141. OP Ghai Essential Pediatrics, ed.9, page 318 and 319.

↑ *Back to this question in Part A*

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Q17: A 12-year-old boy with a history of chronic liver disease presents with increasing shortness of breath that worsens when he stands up and improves when lying down. His parents also report that he has been more fatigued lately. On physical examination, he has digital clubbing and cyanosis. Contrast echocardiography reveals intrapulmonary vascular dilatations. What is the most likely diagnosis? (Q850323)

A. Congestive cardiac failure

B. Hepatopulmonary syndrome

C. Porto-Pulmonary hypertension

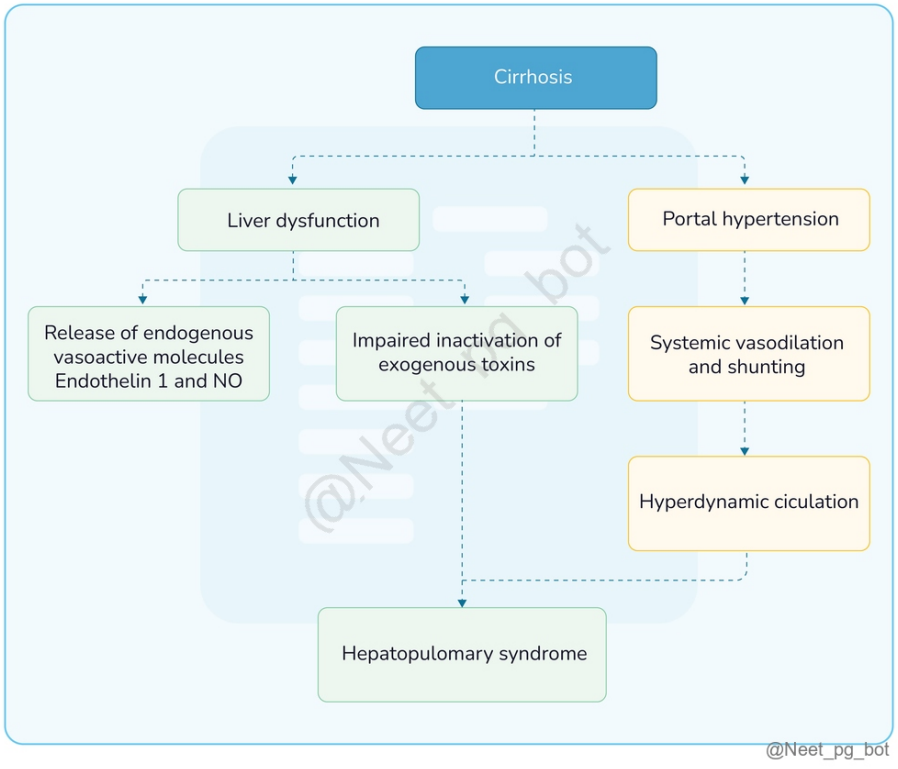
D. Primary ciliary dyskinesia

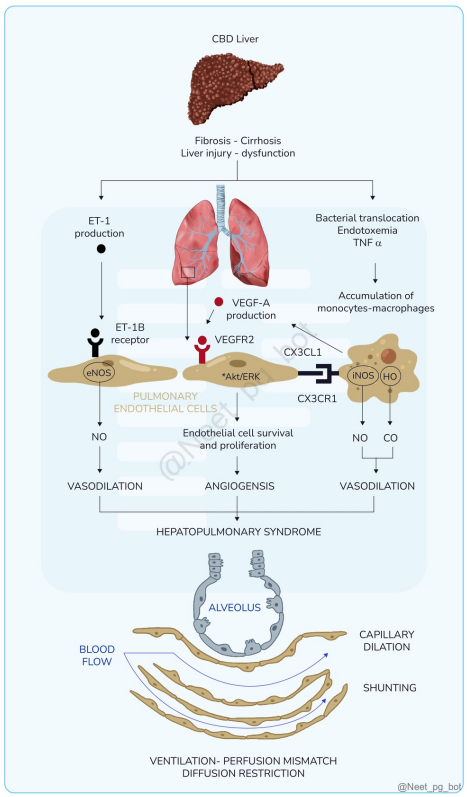
Correct Answer: B. Hepatopulmonary syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above scenario describes a pediatric patient with chronic liver disease presenting with platypnea, orthodeoxia, clubbing and cyanosis which are classic features of hepatopulmonary syndrome (HPS) Hepato-pulmonary syndrome: Triad: Chronic liver disease Alteration of arterial oxygenation Intrapulmonary vascular dilatations Pathogenesis: Clinical features: Platypnea - dyspnea induced in upright position and relieved by recumbency. Orthodeoxia - arterial deoxygenation accentuated in upright position and relieved by recumbency. Cyanosis Clubbing Investigations: Contrast echocardiography is the most sensitive test to demonstrate intrapulmonary shunting. Treatment: The only established effective therapy is liver transplantation. Clinical manifestations of portal hypertension: Bleeding (most common) Splenomegaly (second most common) Ascites Growth failure Portal hypertensive biliopathy Hepatopulmonary syndrome Portopulmonary Hypertension Defined by a pulmonary arterial pressure greater than 25 mm Hg at rest or a left-ventricular end-diastolic pressure of less than 15 mm Hg. Patients with PP-HTN most commonly present with exertional dyspnea. (Option C ruled out) Histologically, these patients have pulmonary arteriopathy with laminar intimal fibrosis. Congestive cardiac failure (Option A) causes exertional dyspnea and orthopnea. Primary ciliary dyskinesia (Option D) is associated with other manifestations like dextrocardia, infertility.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2142

Ghai Essential of Paediatrics, 10th Edition, Pages 317, 318

Image source:
onlinelibrary.wiley.com/cms/attachment/2361d795-c79c-498a-8696-764e9d39a319/liv12791-fig-0002-m.jpg

↑ *Back to this question in Part A*

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Q18: A 7-year-old child, post bone marrow transplantation for leukemia, presents with progressive jaundice, hepatomegaly, and increasing weight due to ascites and fluid retention. The child had undergone total body irradiation prior to the transplant. Which of the following diagnoses should be most strongly considered? (Q850321)

A. Acute hepatic failure

B. Budd-Chiari syndrome

C. Sinusoidal obstruction syndrome

D. Autoimmune hepatitis

Correct Answer: C. Sinusoidal obstruction syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Sinusoidal obstruction syndrome or veno-occlusive disease is the most frequent cause of portal hypertension in children following bone marrow transplantation after total body irradiation. Sinusoidal obstruction syndrome (venous occlusive disease): It is the most common cause of hepatic vein obstruction in children. Occlusion of the centrilobular venules or sublobular hepatic veins occurs. Most frequently occurs in bone marrow transplant recipients after total body irradiation with or without cytotoxic drug therapy, but can also be seen in patients on azathioprine, mercaptopurine, thioguanine, and those taking herbal remedies that contain pyrrolizidine alkaloids. Causes of portal hypertension in children: Prehepatic Portal venous thrombosis Extrahepatic portal venous obstruction (cavernous transformation of portal vein) (most common cause) Isolated splenic vein thrombosis Intrahepatic Liver cirrhosis (most common intra hepatic cause) Congenital hepatic fibrosis Veno-occlusive disease (Sinusoidal obstruction syndrome) Noncirrhotic portal fibrosis Schistosomiasis Nodular regenerative hyperplasia Posthepatic Budd-Chiari syndrome (hepatic vein or inferior vena cava obstruction) Constrictive pericarditis Acute hepatic failure (Option A) , Budd-Chiari syndrome (Option B) , Autoimmune hepatitis (Option D) are not associated with portal hypertension following bone marrow transplantations.

References:

Nelson textbook of pediatrics, ed.21, page 2141 OP ghai essential pediatrics,ed.9,page 317

↑ *Back to this question in Part A*

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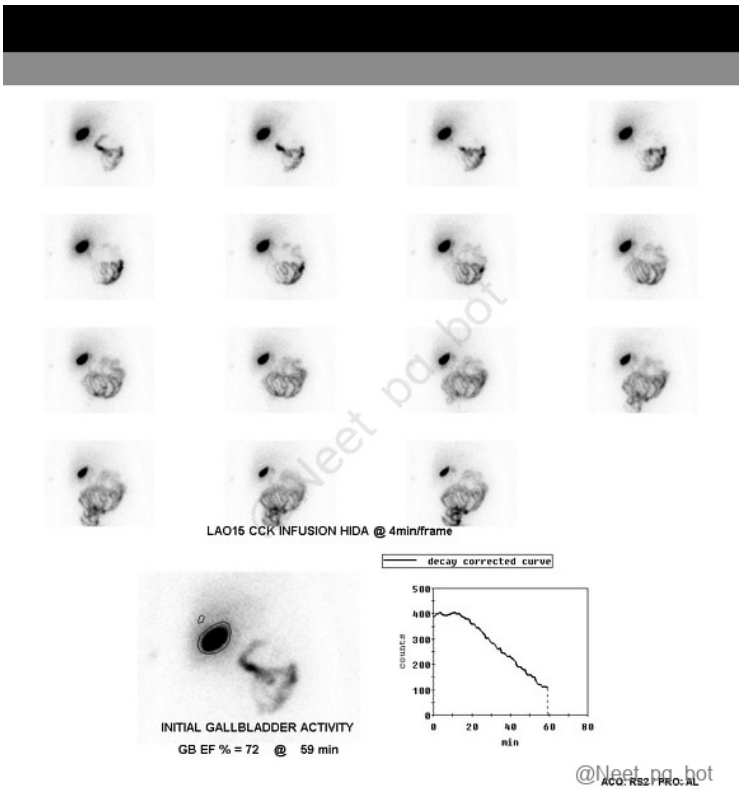
Q19: A neonate presents with conjugated hyperbilirubinemia. A HIDA scan is performed and results are shown below. What is the most probable diagnosis? (Q850319)

A. Extrahepatic biliary atresia (EHBA)

B. Neonatal hepatitis

C. Acute Cholecystitis

D. Bile duct stricture



Correct Answer: B. Neonatal hepatitis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given image shows normal filling of gallbladder and excretion of radioisotope into the intestine, suggesting neonatal hepatitis. Neonatal Hepatitis: It refers to inflammation of the liver in newborns, typically presenting within the first few weeks of life. Etiology: Causes include viral infections (e.g., cytomegalovirus, rubella, hepatitis B), metabolic disorders, genetic conditions, and idiopathic origins. Clinical Presentation: Jaundice, hepatomegaly, dark urine, and poor weight gain.The disease can present as either mild or severe, with the potential for liver failure in severe cases. Diagnosis: Diagnosed through a combination of clinical evaluation, liver function tests (elevated ALT, AST), and specific serologic and metabolic tests. HIDA: Shows normal excretion of radioisotope into the intestine. Liver biopsy may show giant cell transformation, indicative of neonatal hepatitis. Differential Diagnosis: Biliary atresia or genetic/metabolic liver diseases. Treatment: Mainly supportive, including nutritional support and fat-soluble vitamin supplementation. In acute cholecystitis (Option C): Filling of gallbladder is absent due to obstruction of cystic duct. In Extrahepatic biliary atresia (EHBA) (Option A) and Bile duct stricture (Option D) there is absence of excretion of radioisotope into the intestines.

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4100675/

↑ *Back to this question in Part A*

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Q20: A 7-week-old infant presents with jaundice, pale stools, and dark urine. Liver function tests reveal elevated conjugated bilirubin and alkaline phosphatase. An abdominal ultrasound shows a triangular cord sign. Which of the following is considered the best for confirming the diagnosis? (Q850315)

A. Ultrasound of the abdomen

B. HIDA scan

C. Liver biopsy

D. MRCP

Correct Answer: C. Liver biopsy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presentation is consistent with extra-hepatic biliary atresia (EHBA).Liver biopsy provides definitive histological evidence of extra-hepatic biliary atresia by directly examining liver tissue for bile duct obstruction and damage. Extra-Hepatic Biliary Atresia (EHBA) Definition: Biliary atresia not associated with cyst formation. Also known as Non-Cystic Obliterative Cholangiopathy. Characterized by complete obliteration of extrahepatic bile ducts and intrahepatic ducts at the hilum. Symptoms: Typically appear by 2 to 6 weeks of age Jaundice (yellowish coloration of skin and sclera) Abnormally pale stools Dark urine Association with other Anomalies: The most common is polysplenia or asplenia Other associated malformations include absent inferior vena cava, cardiac anomalies, situs inversus, intestinal malrotation, duodenal atresia, anomaly of the portal vein, renal anomalies, and choledochal cyst. Investigations: Liver Function Tests: Increased conjugated bilirubin. Markers of cholestasis: 5' nucleotidase Alkaline phosphatase (ALP) GGT (Gamma-glutamyl transferase): Normal: Up to 40 U/L 4x elevation: Intrahepatic causes 10x elevation: Extrahepatic causes Exception: Low in PFIC type I and II Ultrasound: High-frequency USG (HUS) for neonatal cholestasis. Used as initial investigation (Option A ruled out) Fasting USG is the gold standard when biliary atresia is suspected. Characteristic findings: Triangular cord sign (hyperechoic areas indicating fibrous/atretic bile duct) Non-visualized gallbladder/microgallbladder/gallbladder ghost Radionucleotide Study: HIDA Scan (Hepatobiliary scan with Tc labelled imino-di-acetic acid): Used as a screening test. (Option B ruled out) Decreased tracer excretion due to obstruction Phenobarbitone loading/priming (5 days) to improve tracer uptake Used as a screening test, not specific Best Investigation: Liver biopsy:IOC for confirming diagnosis. MRCP(Option D): It is less definitive than liver biopsy for confirming the diagnosis.

References:

Ghai essential pediatrics 10 edition page, 347 Nelson 21e pg, 2097, 2098 Bailey 28 e pg, 1241
https://www.pathologyoutlines.com/topic/liverextrahepaticbiliaryatresia.html

↑ *Back to this question in Part A*

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Q21: Which statement about conjugated hyperbilirubinemia is incorrect? (Q850313)

A. Conjugated bilirubin is >2 mg/dL or >20% of total bilirubin.

B. Dubin-Johnson Syndrome involves a defect in hepatic uptake.

C. Rotor Syndrome affects hepatic uptake, storage, and excretion of bilirubin.

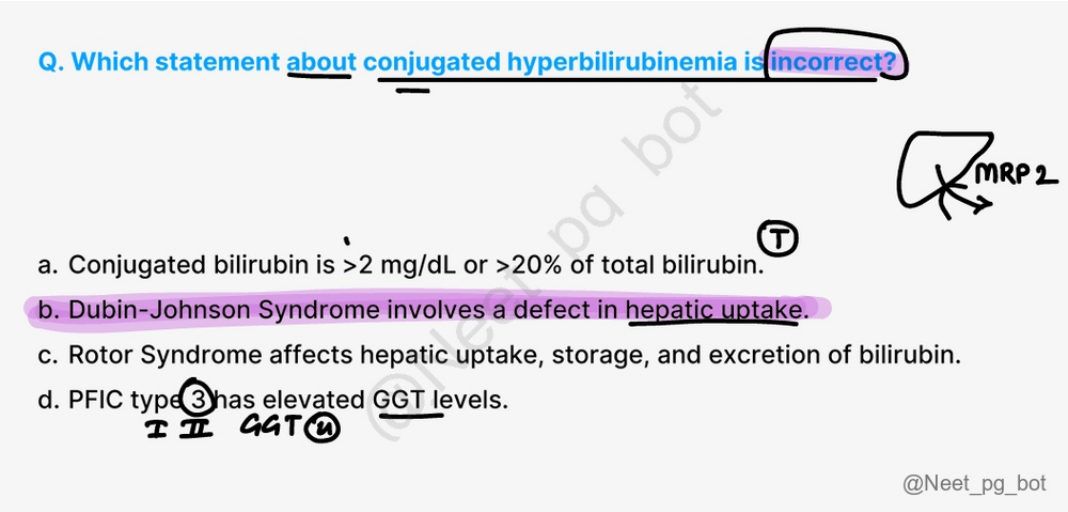
D. PFIC type 3 has elevated GGT levels.

Correct Answer: B. Dubin-Johnson Syndrome involves a defect in hepatic uptake.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation:



References:

Ghai essential pediatrics 10 edition ,page, 331 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2647530/ https://www.ncbi.nlm.nih.gov/books/NBK562172/

↑ *Back to this question in Part A*

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• [13_Pediatric Gastroenterology] 034 Previous Year Questions

« Back to Folder Directory

[13_Pediatric Gastroenterology] 034 Previous Year Questions — Quick Jump

Q1 (p. 1295)	*Q2 (p. 1295)*	*Q3 (p. 1296)*	*Q4 (p. 1298)*	*Q5 (p. 1298)*	*Q6 (p. 1299)*
Q7 (p. 1301)	*Q8 (p. 1301)*	*Q9 (p. 1302)*	*Q10 (p. 1303)*	*Q11 (p. 1304)*	*Q12 (p. 1304)*
Q13 (p. 1305)	*Q14 (p. 1306)*	*Q15 (p. 1306)*	*Q16 (p. 1307)*	*Q17 (p. 1308)*	*Q18 (p. 1310)*
Q19 (p. 1310)	*Q20 (p. 1311)*	*Q21 (p. 1312)*	*Q22 (p. 1313)*	*Q23 (p. 1313)*	*Q24 (p. 1314)*
Q25 (p. 1316)	*Q26 (p. 1316)*	*Q27 (p. 1317)*	*Q28 (p. 1318)*	*Q29 (p. 1322)*	*Q30 (p. 1322)*
Q31 (p. 1324)	*Q32 (p. 1327)*	*Q33 (p. 1329)*	*Q34 (p. 1329)*	*Q35 (p. 1331)*	*Q36 (p. 1333)*
Q37 (p. 1333)	*Q38 (p. 1336)*	*Q39 (p. 1338)*	*Q40 (p. 1342)*	*Q41 (p. 1344)*	*Q42 (p. 1345)*
Q43 (p. 1346)	*Q44 (p. 1347)*	*Q45 (p. 1348)*	*Q46 (p. 1349)*	*Q47 (p. 1349)*	*Q48 (p. 1351)*

Q1: What is the rate of increase in head circumference in infants less than 3 months of age? (Q840067)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

Correct Answer: C. 2cm/month

Explanation: Correct Option C - 2cm/month: At birth, head circumference is around 33 – 35 cm. It increases by approximately 2 cm per month for the first 3 months, 1 cm per month between 3 and 6 months, and 0.5 cm per month for the rest of the first year. Incorrect options: Options A, B, and D are incorrect, as explained above.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: Gonadal growth corresponds with _____. (Q858072)

A. Brain

B. Skeletal system

C. Lymphoid growth

D. Dental growth

Correct Answer: B. Skeletal system

Explanation: follows its own distinct timeline with two separate periods of development - primary and permanent dentition. This pattern does not correspond with gonadal development patterns.

References:

Ghai Essential Pediatrics 10th Edition, Page 6-7

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: Which alternative method can be used for the procedure shown in the image below? (Q855726)

A. Head circumference

B. Arm span

C. Crown-rump length

D. Knee height



Correct Answer: B. Arm span

Explanation: Arm span The procedure shown in the image is height measurement in a child with a stadiometer . The alternative method for the procedure shown is arm span . Ideally, height is measured using an infantometer in children <2 years of age, and a stadiometer is used in children >2 years of age. In conditions such as scoliosis where a stadiometer cannot be used, alternatives such as arm span and upper segment to lower segment (US:LS) ratio are some of the reliable alternatives. Arm span: Measured on arms outstretched at 90 degrees to the body from the tip of the middle finger of one hand to the tip of the middle finger of the other hand. Arm span is shorter than the length by 2.5 cm at birth, equals height at 11 years, and after that is slightly (usually, <1 cm) greater than height. Head circumference (Option A) used to monitor the growth of the brain and skull in children up to 2 years of age. It is measured along the supraorbital ridge in the front and the occipital prominence at the back using a flexible tape. While it reflects brain growth, it does not provide an accurate estimation of height, making it unsuitable for this purpose. Crown-rump length (Option C) is a prenatal measurement used during early pregnancy to assess fetal growth and estimate gestational age, typically from 6-8 weeks of gestation . This measurement is specific to fetuses and cannot be applied to children for height estimation. Knee height (Option D) is used to estimate height in individuals who cannot stand, such as bedridden or wheelchair-bound adults. It involves measuring the distance from the sole of the foot to the femoral condyle.

References:

Reference: O.P. Ghai Essential Pediatrics, 10th Edition, Page 10,11.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: Which is the first primary tooth to erupt? (Q857574)

A. Upper central incisor

B. Lower central incisor

C. Upper canine

D. Lower canine

Correct Answer: B. Lower central incisor

Explanation: Lower central incisor The first primary tooth to erupt is the lower central incisor . Primary Dentition Time of eruption Lower central incisor 6 months Upper central incisor (Option A) 7 months Upper lateral incisor 8 months Lower lateral incisor 9 months 1st Molar 1 year Canine (Option C & D) 1.5 years 2nd Molar 2 years

References:

Ghai Essential Paediatrics, 9th Edition, Page: 11.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A child is brought to the paediatrician with short stature. On evaluation, growth hormone levels are found to be high and insulin-like growth factor (IGF-1) levels are low. Which among the following could be the abnormality here? (Q857601)

A. GH deficiency

B. GHRH deficiency

C. GH receptor anomaly

D. IGF-1 deficiency

Correct Answer: C. GH receptor anomaly

Explanation: - GH receptor anomaly The raised levels of growth hormone and low levels of IGF-1 suggest growth hormone insensitivity which is due to GH receptor anomaly. GH stimulates the liver to produce insulin-like growth factor 1 (IGF-1), which in turn promotes the growth of bones and tissues. If there is a GH-receptor anomaly in the liver, leads to GH insensitivity. Hene, IGF-1 is not sufficiently produced lowering its concentration in the body. Growth Hormone Receptor anomalies: Laron syndrome: Mutation of the GH receptor leading to growth hormone insensitivity. The GH receptor has an extracellular, transmembrane, and intracellular domain.

Mutation of the extracellular domain Affects the binding of the hormone GH-binding protein activity is low Mutation of the transmembrane domain: Affects the anchoring of the receptor to the plasma membrane Normal or high GH-binding protein Mutation of the intracellular domain: Interferes with JAK/STAT signalling GH deficiency (Option A) : If the child had GH deficiency, both GH and IGF-1 levels would typically be low. GHRH deficiency (Option B) : Growth hormone-releasing hormone (GHRH) deficiency would typically lead to low GH secretion because GHRH stimulates the release of GH. IGF-1 deficiency (Option D) : Low IGF-1 levels can cause short stature, but the presence of high GH levels suggests that the issue lies not in the production of IGF-1 but in the action of GH itself.

References:

Nelson Textbook of Pediatrics, 21st edition, Page: 2883, 2884.

↑ *Back to this question in Part A*

@Neet_pg_bot

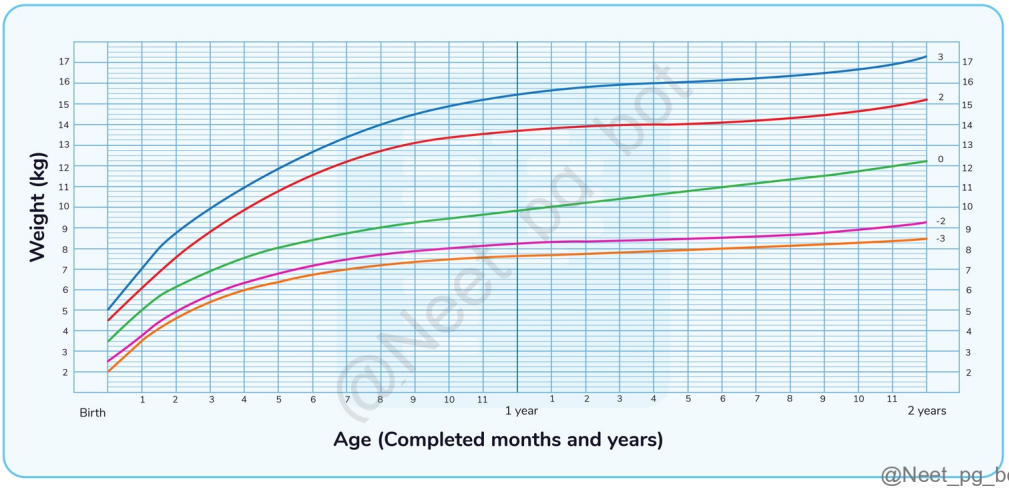
Q6: A 16-month-old boy weighs 8 kg. A WHO growth chart (weight-for-age) is provided below. What is the most appropriate advice for this child? (Q856176)

A. No malnutrition - assure the mother

B. Mild malnutrition - home treatment

C. Severe malnutrition - refer to nutrition rehabilitation centre

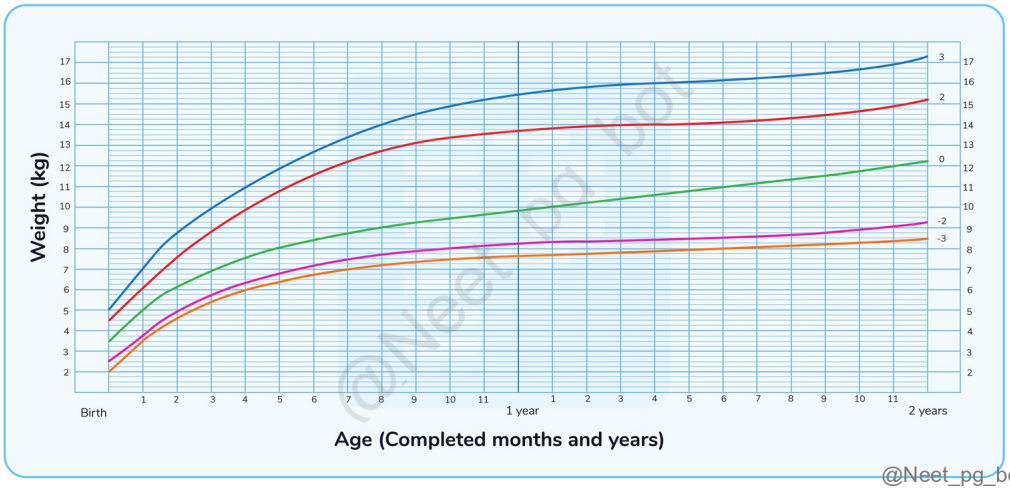
D. Moderate malnutrition - teach the mother how to feed

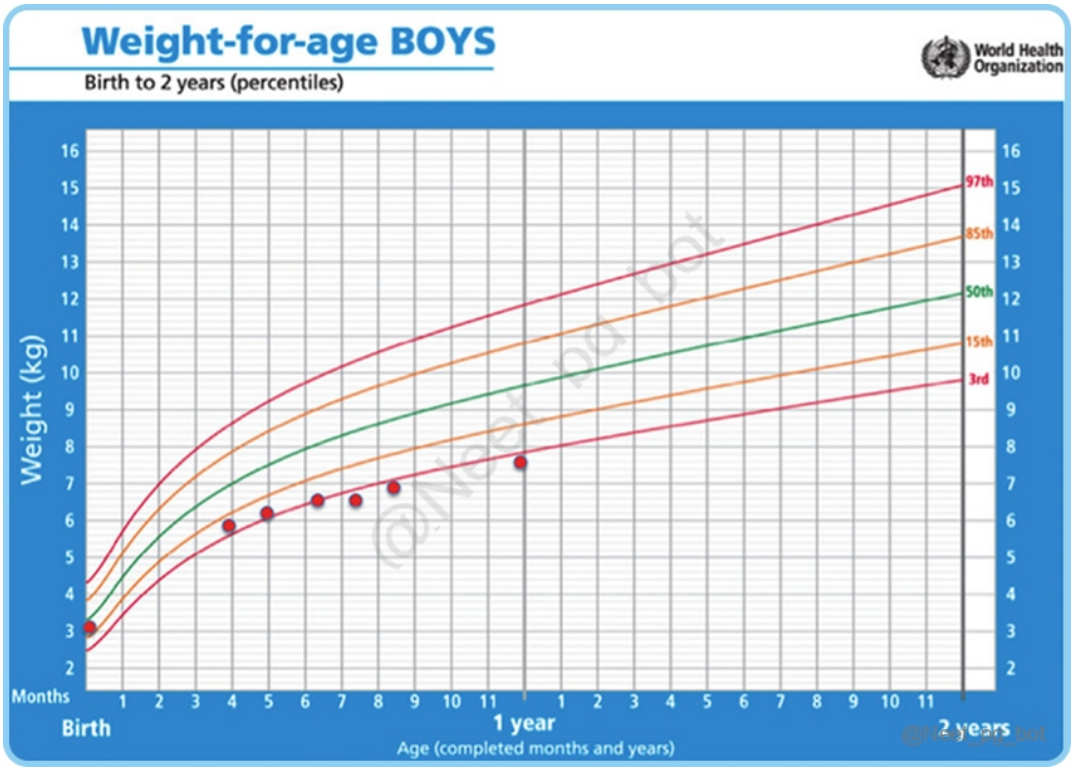


Correct Answer: D. Moderate malnutrition - teach the mother how to feed

Explanation: Moderate malnutrition - teach the mother how to feed The child's weight for age falls between -2 SD and -3 SD on the growth chart (Moderately underweight). This child's weight is below the average range for his

age, indicating some degree of malnutrition. However, it is not severe enough to warrant immediate referral to a nutrition rehabilitation center. Instead, the focus should be on educating the mother or caregiver on proper feeding practices and providing guidance on improving the child's nutritional intake. This may involve promoting a balanced diet, ensuring adequate calorie and nutrient intake, and addressing any feeding difficulties or challenges. WHO Growth Charts Designed specifically to track the growth and development of children under 5 years of age globally. Growth charts are derived from the Multicentre Growth Reference Study (MGRS) carried out by the WHO. This study was a community-based, multi-country initiative that took place in Brazil, Ghana, India, Norway, Oman, and the United States. Features: Provide accurate references for weight, length, and head circumference, reflecting normal growth patterns in children. Percentile Curves : The growth chart displays curves representing percentiles (3rd, 15th, 50th, 85th, and 97th). 3rd Percentile: Lower end of normal growth. 50th Percentile: Median or average growth. 97th Percentile: Higher end of normal growth. {{caption_text}}





References:

Nelson's textbook of pediatrics, 21st edition, Pages 138, 333, 334, 336

Ghai Essential paediatrics 10th edition, Page 12-16

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 9-month-old infant is brought for a routine check-up. Which of the following developmental milestones is most likely to be present at this age? (Q866939)

A. Mature grasp

B. Creeps well on hands and knees

C. Can hop on one foot

D. Runs steadily

Correct Answer: B. Creeps well on hands and knees

Explanation: By 9 months , most infants develop good gross motor skills such as creeping (moving on hands and knees) and pulling to stand. They also typically have a crude pincer grasp, respond to their name, and show stranger anxiety. A mature grasp (refined pincer grasp involving thumb and finger opposition) usually starts to develop closer to 10-12 months . (Option A ruled out) Hoping at one foot is achieved by 4 years . (Option C ruled out) Running becomes steady around 2 years. (Option D ruled out) Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed Cooing 4 months Laugh Aloud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach stranger anxiety(7 months) Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, copies straight line Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 9-month-old infant is brought to the pediatrician due to concerns that the child cannot sit without support. The child is otherwise able to roll over, says "mama" and

"dada", and demonstrates stranger anxiety. Which of the following is the most appropriate next step in management? (Q865432)

A. Refer for developmental assessment

B. Order an immediate MRI

C. Reassure the parents, as this is normal for the age

D. No further action needed at this time

Correct Answer: C. Reassure the parents, as this is normal for the age

Explanation: Sitting without support typically appears by 8–9 months , and a few weeks of variation is normal. Since the child has normal language and social milestones , reassurance and follow-up are appropriate. Incorrect options: Refer for developmental assessment (Option A): This is needed only if multiple milestones are delayed (e.g., motor and language or social). In this case, only one gross motor skill (sitting unsupported) is slightly delayed, while all other milestones are appropriate, so no referral is needed . Order an immediate MRI (Option B): Imaging is only done if neurological abnormalities are found on assessment. No further action needed at this time (Option D): While the concern is minor, the pediatrician should always take some action, which is providing reassurance and anticipatory guidance (e.g., advising parents to encourage tummy time and practice sitting) and setting a date for a follow-up check to ensure the milestone is achieved soon.

References:

O.P Ghai Essentials of Pediatrics, 10th Edition, Pages 36

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: What is the rate of increase in head circumference in infants at the first 3 months of age? (Q853239)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

Correct Answer: C. 2cm/month

Explanation: At birth, head circumference is around 33-35 cm. It increases approximately by 2 cm per month for the first 3 months, by 1 cm per month between 3 and 6 months, and by 0.5 cm per month for next 6 months.

Maximum head circumference is measured from occipital protuberance posteriorly to the supra orbital ridge anteriorly using cross tape method. At birth , head circumference is more than chest circumference by 2.5 cm At age of 1 year head circumference is equal to chest circumference After 1 year head circumference is lesser than chest circumference

References:

Ghai Essential Pediatrics, 9th edition, Pages 12, 13, 14

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: Copies cross, tells stories, and goes to the toilet alone. What is the age of the child? (Q853383)

A. 3 years

B. 4 years

C. 5 years

D. 2 years

Correct Answer: B. 4 years

Explanation: Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed Cooing 4 months Laugh Loud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach Recognize strangers, stranger anxiety Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years (Option D ruled out) Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, vertical and circular stroke Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences 3 years (Option A ruled out) Rides tricycle, alternate feet going upstairs Tower of 9 blocks, copies circle Shares toys, knows full name and gender Asks questions, tells name and gender 4 years (Option B) Hops on one foot, alternate feet going downstairs Copies cross, bridge with blocks Plays cooperatively in a group, goes to toilet alone Says song or poem, tells stories 5 years (Option C ruled out) Copies triangle, gate with blocks Helps in household tasks, dresses and undresses Asks meaning of words

References:

OP Ghai 10th edition, Pg: 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: During a routine pediatric check-up, a mother brings her 5 month old baby to the clinic. The pediatrician observes that the baby actively looks at his mother's face and seems to respond with interest as she talks to him, showing recognition and engagement. When is this milestone normally achieved? (Q852742)

A. 2 months

B. 3 months

C. 6 months

D. 9 months

Correct Answer: B. 3 months

Explanation: Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed (Option B) Cooing 4 months Laugh Loud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach Recognize strangers, stranger anxiety Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, vertical and circular stroke Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences 3 years Rides tricycle, alternate feet going upstairs Tower of 9 blocks, copies circle Shares toys, knows full name and gender Asks questions, tells name and gender 4 years Hops on one foot, alternate feet going downstairs Copies cross, bridge with blocks Plays cooperatively in a group, goes to toilet alone Says song or poem, tells stories 5 years Copies triangle, gate with blocks Helps in household tasks, dresses and undresses Asks meaning of words

References:

Ghai Essential Paediatrics, 10th edition, Pages 29, 32, 35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: At what age does stranger anxiety appear? (Q860614)

A. 7 months

B. 9 months

C. 12 months

D. 15 months

Correct Answer: A. 7 months

Explanation: Stranger anxiety is an important social milestone in infant development which appears around 6-7 months of age

References:

Ghai Essential Paediatrics, 10th edition, Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A newborn presents with persistent jaundice, conjugated hyperbilirubinemia, intrahepatic cholestasis, and elevated alkaline phosphatase levels. Liver biopsy reveals eosinophilic PAS-positive, diastase-resistant cytoplasmic granules in hepatocytes. Which of the following is the most likely cause of jaundice in this newborn? (Q866764)

A. Hypoplasia of the biliary tract

B. Neonatal hepatitis

C. Choledochal cyst

D. Alpha-1 antitrypsin deficiency

Correct Answer: D. Alpha-1 antitrypsin deficiency

Explanation: The biopsy finding of eosinophilic PAS-positive, diastase-resistant cytoplasmic granules in hepatocytes is characteristic of Alpha■1 Antitrypsin Deficiency. Alpha-1 antitrypsin deficiency is a genetic disorder caused by mutation of the SERPINA1 gene, resulting in abnormal accumulation of misfolded alpha-1 antitrypsin protein in hepatocytes. This leads to intrahepatic cholestasis and conjugated hyperbilirubinemia in neonates. Key Pathological Feature: PAS-positive, diastase-resistant hepatocyte inclusions Clinical Features in Neonates Persistent conjugated jaundice Hepatomegaly Cholestasis Elevated liver enzymes and alkaline phosphatase Hypoplasia of the biliary tract (Option A) refers to underdevelopment or obstruction of the bile ducts . Typical features include: Conjugated jaundice Pale stools Bile duct proliferation and portal fibrosis on biopsy However, it does not produce PAS-positive hepatocyte inclusions , making it inconsistent with the biopsy findings. Neonatal hepatitis (Option B) is one of the common causes of neonatal cholestasis. Typical biopsy findings: Giant cell transformation of hepatocytes Lobular disorganization Inflammatory infiltrates PAS-positive cytoplasmic inclusions are not seen , so this option does not match the histopathology given in the question. Choledochal cyst

(Option C) is a congenital dilatation of the bile ducts causing extrahepatic obstruction . Clinical features may include: Jaundice Abdominal mass Dilated bile ducts on imaging However, liver biopsy does not show PAS-positive hepatocyte inclusions , making this option incorrect.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: At what age does the transfer of one object to another hand happen? (Q860231)

A. 4 months

B. 9 months

C. 7 months

D. 12 months

Correct Answer: C. 7 months

Explanation: Transfer of objects between hands is an important fine motor milestone in infant development. Transfer of objects from one hand to another is a fine motor skill It appears at 7 months of age Represents development of hand coordination Part of neurological development

References:

Ghai Essential Paediatrics, 10th edition, Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: What is the likely age of a child who can ride a tricycle, walk up stairs with alternate steps, but cannot hop? (Q860253)

A. 2.5 years

B. 3.5 years

C. 4.5 years

D. 5.5 years

Correct Answer: B. 3.5 years

Explanation: The clinical scenario indicates a child at 3.5 years of age based on the developmental milestones described. At this age, children typically achieve the ability to ride a tricycle and climb stairs with alternating feet, while hopping skills are still developing . At 3 years, a child goes upstairs with alternating feet & downstairs with 2 per step and rides a tricycle. A child hops at 4 years and goes downstairs with alternating feet. Since the child described cannot hop, they are likely younger than 4 years old. So, the developmental age of the child is more than 3 years and less than 4 years . Incorrect Options: 2.5 years (Option A) : At 2.5 years, children usually go upstairs and downstairs with two feet per step but can not ride a tricycle. 4.5 years (Option C) : By 4.5 years, children should be able to hop and go up and down stairs with alternating feet. 5.5 years (Option D) : At 5.5 years, children should be able to skip and stand on one leg for more than 10 seconds. Also, hopping skills are well developed.

References:

Ghai Essential Paediatrics 10th Edition Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: How do you calculate the mid-parental height for a male child with a father who is 183 cm tall and a mother who is 175 cm tall? (Q860257)

A. 185.5

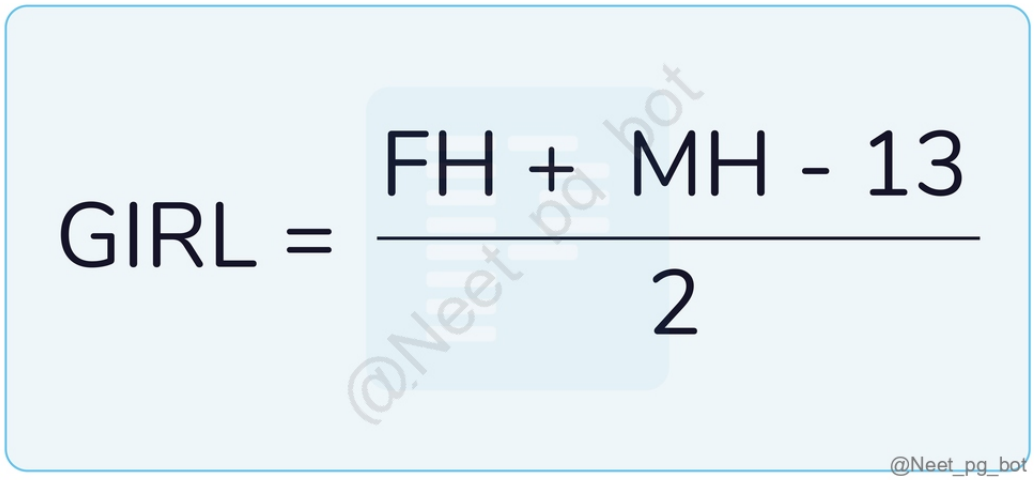
B. 169.5

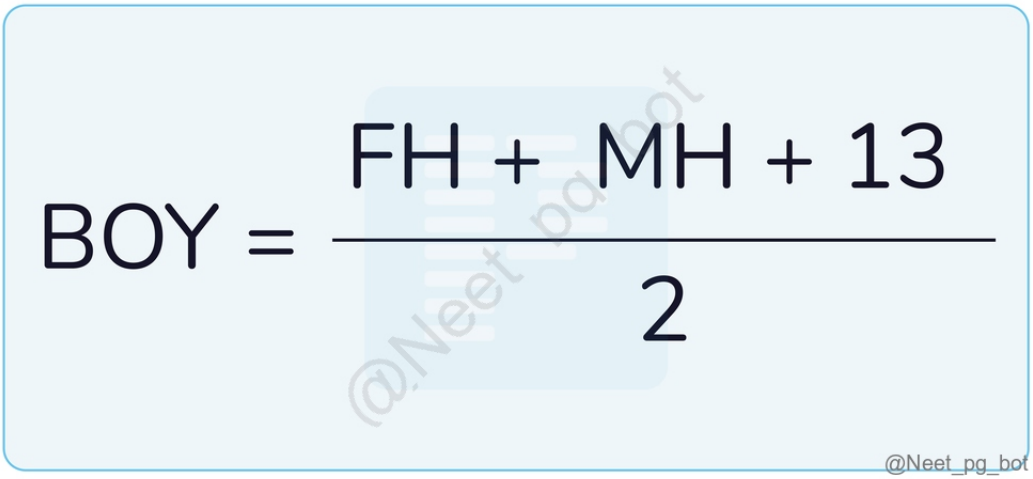
C. 192.5

D. 195.5

Correct Answer: A. 185.5

Explanation: Mid-parental height for a male or female child is calculated using a specific formula: ■■■ Where: FH = Father's height MH = Mother's height 13 = Correction factor for male children Calculation for above clinical scenario: Father's height = 183 cm Mother's height = 175 cm Using the formula: (183 + 175 + 13) ÷ 2 = 185.5 cm





References:

Ghai Essential Paediatrics, 10th edition, Page 32.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: What is the underlying defect in the congenital malformation shown below? (Q820467)

A. Morulation

B. Neurulation

C. Lateral folding

D. Gastrulation



Correct Answer: D. Gastrulation

Explanation: Correct Option D - Gastrulation: Gastrulation is a crucial phase during early embryonic development when the blastula (hollow ball of cells) transforms into a trilaminar structure with three germ layers. These germ layers eventually give rise to various organs and tissues. If there is a defect in gastrulation, it can lead to severe congenital malformations due to incorrect formation of these germ layers and their subsequent development. Thus, the correct answer is option D, Gastrulation, as it is the process most directly related to the underlying defect in the congenital malformation mentioned. Incorrect Options: Option A - Morulation: Morulation is the process of early embryonic development that involves the division of the zygote into multiple smaller cells called blastomeres. This process occurs during the first few days after fertilization and leads to the formation of the morula, a solid ball of cells. However, morulation is not associated with the development of specific structures like the nervous system, so it is not the underlying defect for the congenital malformation in question. Option B - Neurulation: Neurulation is the process by which the neural tube is formed, which gives rise to the central nervous system (brain and spinal cord). This process occurs during the third week of embryonic development and involves the folding and fusion of the neural plate to create the neural tube. Neurulation defects can lead to neural tube defects such as spina bifida and anencephaly, but this process is not directly related to the congenital malformation mentioned. Option C - Lateral Folding: Lateral folding is a process that occurs during gastrulation, which is the early embryonic stage when the three germ layers (ectoderm, mesoderm, and endoderm) form. Lateral folding involves the folding of the embryo's sides towards the midline, allowing the germ layers to develop properly. Defects in lateral folding can lead to malformations, but again, this process is not specifically associated with the malformation mentioned

References:

Nelson Textbook of Pediatrics 21st International edition

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: Handedness is seen at the age of _____ (Q855733)

A. 1 year

B. 2 years

C. 3 years

D. 4 years

Correct Answer: C. 3 years

Explanation: 3 years Handedness is seen at the age of 3 years. Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed Cooing 4 months Laugh Loud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach Recognize strangers, stranger anxiety Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, vertical and circular stroke Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences 3 years Rides tricycle, alternate feet going upstairs Tower of 9 blocks, copies circle, handedness Shares toys, knows full name and gender Asks questions, tells name and gender 4 years Hops on one foot, alternate feet going downstairs Copies cross, bridge with blocks Plays cooperatively in a group, goes to toilet alone Says song or poem, tells stories 5 years Copies triangle, gate with blocks Helps in household tasks, dresses and undresses Asks meaning of words

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 143

O.P. Ghai Essential Pediatrics, 10th Edition, Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: In an infant, which of the following milestones is achieved the earliest? (Q857221)

A. Immature pincer grasp

B. Mature pincer grasp

C. Radial palmar grasp

D. Ulnar palmar grasp

Correct Answer: D. Ulnar palmar grasp

Explanation: (8 to 10 months) is a radial digital grasp typically developed in which an object is held between the fingers and opposed thumb. The fingers are now strong and coordinated enough to hold an object without exterior stabilization from the palm

References:

Ghai Essential Paediatrics, 10th edition, Page: 29, 32, 35.

https://www.lancaster.ac.uk/fas/psych/glossary/palmar_grasp/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: Match the following developmental milestones. 1 Transfers objects a 1-2 months 2 Social smile b 6-7 months 3 Pincer grasp c 12-15 months 4 Walks 1-2 steps d 9-12 months (Q856724)

A. 1-a, 2-b, 3-c, 4-d

B. 1-b, 2-a, 3-d, 4-c

C. 1-c, 2-b, 3-a, 4-d

D. 1-d, 2-c, 3-b, 4-a

Correct Answer: B. 1-b, 2-a, 3-d, 4-c

Explanation: - 1-b, 2-a, 3-d, 4-c The correct match is: Transfers objects 6-7 months Social smile 1-2 months Pincer grasp 9-12 months Walks 1-2 steps 12-15 months Age Gross Motor Domain Milestones Fine Motor Domain Milestones Language Domain Milestones Social Domain Milestones 1 month - - Alerts to sound - 2 months - - - Social smile 3 months Neck holding - Coos (musical vowel sounds) Recognizes mother; anticipates feeds 4 months - Bidextrous reach Laughs loud - 5 months Rolls over - - - 6 months Sits in tripod fashion (sitting with own support) Unidextrous reach; transfers objects Monosyllables (ba, da, pa), ah-goo sounds Recognizes strangers, stranger anxiety 8 months Sitting without support - - - 9 months Stands holding on (with support) Immature pincer grasp ; probes with forefinger Bisyllables (mama, baba, dada) Waves “bye-bye” 12 months Creeps well; walks but

falls ; stands without support Pincer grasp mature 1-2 words with meaning Comes when called; plays simple ball game 15 months Walks alone; creeps upstairs Imitates scribbling; tower of 2 blocks Jargon - 18 months Runs; explores drawers Scribbles; tower of 3 blocks 8-10 word vocabulary Copies parents in task (e.g., sweeping) 2 years Walks up and downstairs (2 feet/step); jumps Tower of 6 blocks; vertical and circular stroke 2-3 word sentences, use pronouns “I”, “me”, “you” Asks for food, drink, toilet; pulls people to show toys 3 years Rides tricycle; alternate feet going upstairs Tower of 9 blocks; copies circle Asks questions; knows full name and gender Shares toys; knows full name and gender 4 years Hops on one foot; alternate feet going downstairs Copies cross; bridge with blocks Says song or poem; tells stories Plays cooperatively in a group; goes to the toilet alone 5 years Skips Copies triangle; gate with blocks Asks the meaning of words Helps in household tasks, dresses, and undresses

References:

OP Ghai Essential Pediatrics, 10th Edition, Page: 29, 32, 35.

↑ *Back to this question in Part A*

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Q21: The earliest indication of sexual maturation in females: (Q859488)

A. Maturation

B. Thelarche

C. Pubarche

D. Menarche

Correct Answer: B. Thelarche

Explanation: Thelarche, the development of breast buds, occurs as a result of hypothalamic-pituitary-gonadal axis activation , leading to estrogen release and subsequent breast tissue growth. This process typically begins between ages 8 and 13, marking the earliest visible sign of puberty in girls. Pubertal Changes Girls Boys Onset of Puberty Age: Around 10 years (range 8-12 years) Duration: 3-5 years Onset of Puberty Age: Around 11.5 years (range 9-14 years) Sequence of Pubertal Changes Sequence of Pubertal Changes Breast Development (Thelarche) ↓ Pubic Hair Growth (Pubarche) ↓ Growth Spurt ↓ Onset of Menstrual Cycles (Menarche) 2 years after Thelarche ↓ Final Breast Development (Adult Breast Maturation) Testicular Enlargement ↓ Penile Enlargement ↓ Pubic Hair Growth (Pubarche) ↓ Growth Spurt ↓ Spermarche Incorrect Options: Maturation (Option A): This term is quite broad and does not specifically refer to any particular aspect of sexual maturation. It does not provide a clear indication of the onset of sexual development in females. Pubarche (Option C): Pubarche refers to the development of pubic hair, specifically in the pubic region. It is another sign of sexual maturation in females and typically occurs after thelarche. Pubarche is influenced by androgen hormones, such as adrenal androgens. The onset of pubarche varies, but it often occurs around the same time as thelarche or shortly after. Menarche (Option D): Menarche refers to the onset of the first menstrual period in females. It is a significant milestone in sexual maturation and signifies the ability to conceive. Menarche usually occurs after the development of breast buds

(thelarche) and the growth of pubic hair (pubarche). The average age of menarche is around 12 to 14 years, but it can vary widely.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2899

↑ *Back to this question in Part A*

@Neet_pg_bot

Q22: Which of the following is /are seen in Hirschsprung disease? Failure of migration of ganglion cells Causes intestinal obstruction postnatally Distal segment dilated Proximal segment constructed Non – co operative peristalsis (Q879273)

A. 1, 2, 3

B. 1, 2, 4

C. 1, 2, 5

D. 3, 4

Correct Answer: C. 1, 2, 5

Explanation: Hirschsprung disease (congenital aganglionic megacolon) results from failure of migration of neural crest cells, leading to absence of ganglion cells in the distal bowel. This causes tonic contraction of the aganglionic segment, loss of coordinated peristalsis, and functional intestinal obstruction. Distal aganglionic segment : Narrow and contracted. (Option 3 ruled out) Proximal segment : Dilated and hypertrophied due to fecal stasis. (Option 4 ruled out) Peristalsis: Absent or uncoordinated in the affected segment. Clinical features : Delayed meconium passage, abdominal distension, bilious vomiting, and chronic constipation.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1962.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q23: Infant with 3 months progressive jaundice pale stools, high colored urine. Child was healthy, gaining weight and feeding well. HIDA scan showed no excretion. What is the next step? (Q879276)

A. Breast milk jaundice, stop for 2 weeks and give formula feed

B. Galactosemia, do tests to confirm

C. Metabolic condition requiring further testing

D. Liver biopsy

Correct Answer: D. Liver biopsy

Explanation: The infant presents with progressive jaundice, pale (acholic) stools, and dark urine with no excretion on HIDA scan, which is characteristic of biliary atresia - an obstructive cholestasis. Liver biopsy → Confirms the diagnosis, showing bile duct proliferation, bile plugs, and portal fibrosis. Early diagnosis is crucial, as Kasai portoenterostomy done before 8 weeks improves long-term outcomes. Incorrect Options: Breast milk jaundice (Option A): Typically causes mild unconjugated hyperbilirubinemia , not persistent cholestatic jaundice with pale stools and absent HIDA excretion. Galactosemia (Option B): Usually presents in the first few weeks of life with feeding intolerance, vomiting, and poor weight gain, which is not seen here. Metabolic disorders (Option C): While possible, the clinical picture (progressive cholestasis, pale stools, absent HIDA excretion) is more suggestive of biliary obstruction rather than a primary metabolic defect.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2091.

↑ *Back to this question in Part A*

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Q24: During the surgery for acute appendicitis in a 2-year-old child, the surgeon discovered a structure measuring 2 inches in length located 2 feet closer to the ileocecal junction. What is the most probable diagnosis in this case? (Q859938)

A. Sarcoma

B. Appendicitis

C. Meckel's diverticulum

D. Zenker's diverticulum



Correct Answer: C. Meckel's diverticulum

Explanation: The characteristic location of 2 feet proximal to the ileocecal junction and length of 2 inches indicate Meckel's diverticulum , a congenital abnormality caused by incomplete closure of the vitelline duct during the 7th to 8th week of gestation. It can lead to complications like gastrointestinal bleeding, intestinal obstruction, and inflammation. Meckel Diverticulum: Most common congenital GI anomaly (2-3% of infants) with incomplete obliteration of omphalomesenteric duct. Characteristics ("Rule of 2s") 2% of population 2 feet from the ileocecal valve 2 inches long 2 types of ectopic tissue (gastric or pancreatic) Often presents before age 2 2 times more common in males Clinical Manifestations Painless rectal bleeding (most common) Bowel obstruction Diverticulitis Diagnosis Meckel scan (technetium-99m pertechnetate) Sensitivity: 85% Specificity: 95% Used to diagnose ectopic gastric mucosa Plain radiographs and barium studies are less useful Complications Intussusception, Volvulus and Perforation. Sarcoma (Option A) presents as a solid malignant mass arising from mesenchymal tissue, not as a diverticular structure 2 feet from the ileocecal junction. Sarcomas typically appear as firm, irregular masses with evidence of local tissue invasion and potential metastasis. Appendicitis (Option B) involves inflammation of the appendix, which is consistently located at the cecum, not 2 feet proximal to the ileocecal junction. The appendix is typically 5-10 cm in length and arises from the cecum at the confluence of the teniae coli. Zenker's diverticulum (Option D) occurs in the cervical esophagus, specifically between the inferior pharyngeal constrictor and cricopharyngeus muscles. This condition typically presents in elderly patients with symptoms of dysphagia and regurgitation of undigested food.

References:

https://www.ncbi.nlm.nih.gov/books/NBK499960/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q25: A 2-week-old infant presents with high conjugated (direct) bilirubin, dark-colored urine, and clay-colored stools. On examination, the infant appears jaundiced, but is feeding normally. What is the most likely diagnosis? (Q866763)

A. Biliary atresia

B. Gilbert’s syndrome

C. Crigler-Najjar syndrome

D. Physiological jaundice

Correct Answer: A. Biliary atresia

Explanation: Biliary atresia typically presents in the first 2–6 weeks of life with: Conjugated (direct) hyperbilirubinemia Clay-colored stools (due to lack of bile pigments in intestine) Dark urine (due to excretion of conjugated bilirubin in urine) Baby usually feeds well initially and appears otherwise healthy, but progressive jaundice is noted. Incorrect Options: Gilbert’s syndrome (Option B): Causes unconjugated hyperbilirubinemia, usually mild, and presents later in childhood or adolescence. Crigler–Najjar syndrome (Option C): Severe unconjugated hyperbilirubinemia due to absent (Type I) or deficient (Type II) UDP-glucuronosyltransferase activity; presents in the first days of life with kernicterus risk, not with pale stools. Physiological jaundice (Option D): Common in newborns, peaks at day 3–5, and is unconjugated; stools and urine remain normal in color.

↑ *Back to this question in Part A*

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Q26: A 6-week-old infant presents with a history of non-bilious, non-projectile vomiting starting at 3 weeks of age. The infant's abdominal examination is normal. Which of the following is the most likely diagnosis? (Q865424)

A. Pyloric stenosis

B. Gastroesophageal reflux disease (GERD)

C. Cow Milk Protein Allergy

D. Intestinal obstruction

Correct Answer: B. Gastroesophageal reflux disease (GERD)

Explanation: A 6-week-old infant with non-bilious, non-projectile vomiting starting at 3 weeks and a normal abdominal exam most likely has Gastroesophageal reflux disease (GERD). (Option B) Pyloric stenosis would typically feature projectile vomiting and potentially a palpable mass. (Option A ruled out) Cow Milk Protein Allergy often presents with other symptoms like stool changes or rash. (Option C ruled out) Intestinal obstruction would likely cause abdominal distension or bilious vomiting. (Option D ruled out)

References:

Ghai Essential Pediatrics, 10th Edition, Page 296

↑ *Back to this question in Part A*

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Q27: Which of the following is false regarding neonatal cholestasis? (Q853380)

A. Kasai procedure should be done within 90 days

B. HIDA scan is an investigation of choice

C. Biliary atresia is the most common cause

D. Liver biopsy rules out other causes

Correct Answer: A. Kasai procedure should be done within 90 days

Explanation: Kasai procedure should ideally be performed within the first 60 days of life, not 90 days . Delaying it beyond 60 days significantly decreases its success rate and heightens the likelihood of needing a liver transplant. Neonatal cholestasis Neonatal cholestasis is an abnormal accumulation of conjugated bilirubin (CB) due to impaired formation or flow of bile. Conjugated bilirubin exceeding 1 mg/dL is strongly suggestive of it. Causes of neonatal cholestasis: Category Condition Surgical (Extrahepatic) Biliary atresia (EHBA) (Most common) (Option C) Choledochal cyst Cholelithiasis Inspissated bile secretion Spontaneous perforation of the bile duct Nonsyndromic paucity of bile ducts Congenital hepatic fibrosis/Caroli disease Neonatal sclerosing cholangitis Medical (Hepatocellular) Idiopathic neonatal hepatitis Prematurity Viral infections (CMV, TORCH, HIV, etc.) Bacterial infections (sepsis, UTI, syphilis, tuberculosis) Hypothyroidism/ Hyperthyroidism/ Hypopituitarism Galactosemia Alagille syndrome Cystic fibrosis α1-antitrypsin deficiency Indian childhood cirrhosis Tyrosinemia Fructosemia Neonatal hemochromatosis Gaucher disease Wolman disease Extra-Hepatic Biliary Atresia (EHBA) Definition: Biliary atresia not associated with cyst formation. Also known as Non-Cystic Obliterative Cholangiopathy. Characterized by complete obliteration of extrahepatic bile ducts and intrahepatic ducts at the hilum. Symptoms: Typically appear by 2 to 6 weeks of age Jaundice (yellowish coloration of skin and sclera) Abnormally pale stools Dark urine Association with other Anomalies: The most common is polysplenia or asplenia Other associated malformations include absent inferior vena cava, cardiac anomalies, situs inversus, intestinal malrotation, duodenal atresia, anomaly of the portal vein, renal anomalies, and choledochal cyst. Investigations: Liver Function Tests: Increased conjugated bilirubin. Markers of cholestasis: 5' nucleotidase Alkaline phosphatase (ALP) GGT (Gamma-glutamyl transferase): Normal: Up to 40 U/L 4x elevation: Intrahepatic causes 10x elevation: Extrahepatic causes Exception: Low in PFIC type I and II Ultrasound:

High-frequency USG (HUS) for neonatal cholestasis. Used as initial investigation Fasting USG is the gold standard when biliary atresia is suspected. Characteristic findings: Triangular cord sign (hyperechoic areas indicating fibrous/atretic bile duct) Non-visualized gallbladder/microgallbladder/gallbladder ghost Radionucleotide Study: HIDA Scan (Option B) is investigation of choice (Hepatobiliary scan with Tc labelled imino-di-acetic acid): Used as a screening test. Decreased tracer excretion due to obstruction Phenobarbitone loading/priming (5 days) to improve tracer uptake Used as a screening test, not specific Best Investigation: Liver biopsy (Option D) : Confirms diagnosis. Surgical Management: Algorithm: Exploratory laparotomy Per Operative cholangiogram Temporary procedure: Kasai procedure/hepaticojejunostomy Definitive management: Liver transplantation Kasai Procedure: Temporary procedure Creates communication between liver and jejunum for bile drainage Also known as hepaticojejunostomy Should be performed within 8 weeks after birth

References:

Nelson Textbook of pediatrics, 22nd edition, Page 2445, 2446, 2447 Bailey and Love's Short Practice of Surgery, 28th edition, Page 268, 1241 https://www.researchgate.net/figure/Causes-of-neonatal-cholestasis_tbl1_328125414 https://www.pathologyoutlines.com/topic/liverextrahepaticbiliaryatresia.html

↑ *Back to this question in Part A*

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Q28: A 2-week-old neonate was brought to the hospital with a complaint of non-bilious vomiting. While examining the baby, the physician noted a lump in the left epigastric region, which showed movement while feeding. What is the likely diagnosis of this child? (Q852698)

A. Esophageal atresia

B. Duodenal atresia

C. IHPS

D. Intususception

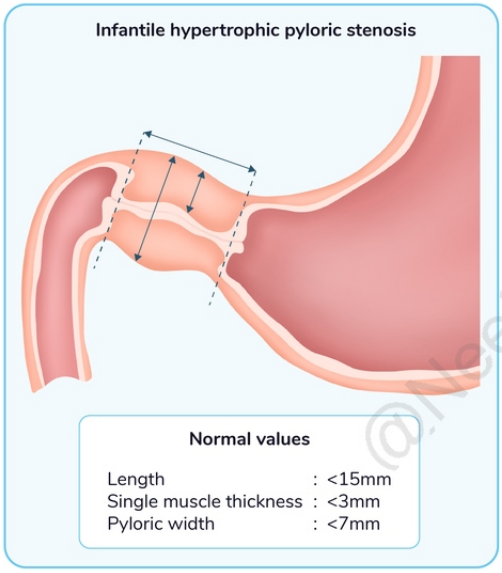
Correct Answer: C. IHPS

■ *Listen (English)*

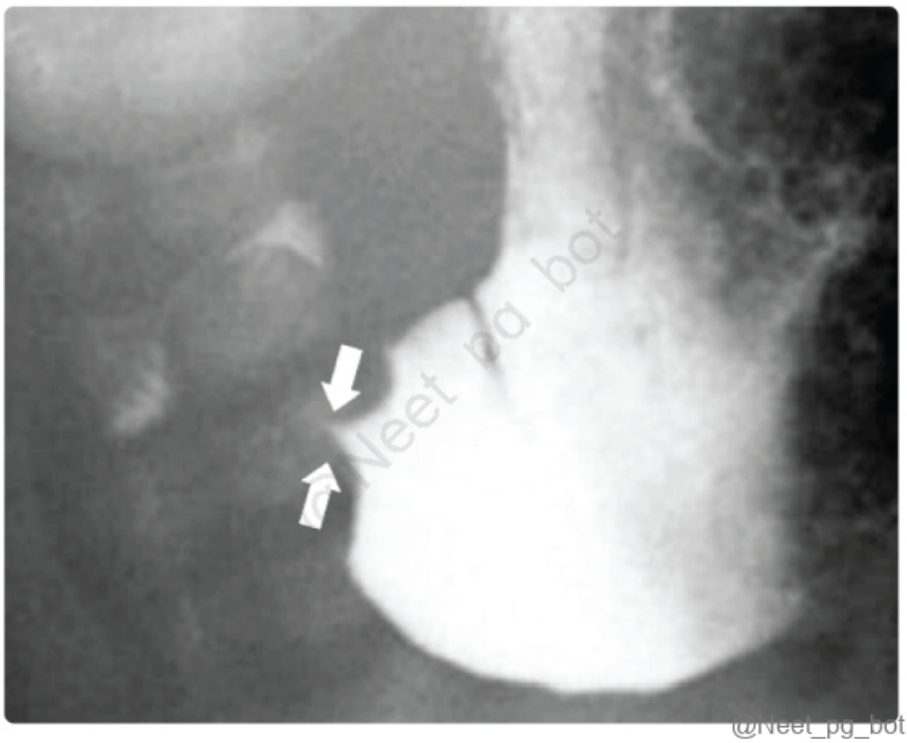
■ *Listen (Hindi)*

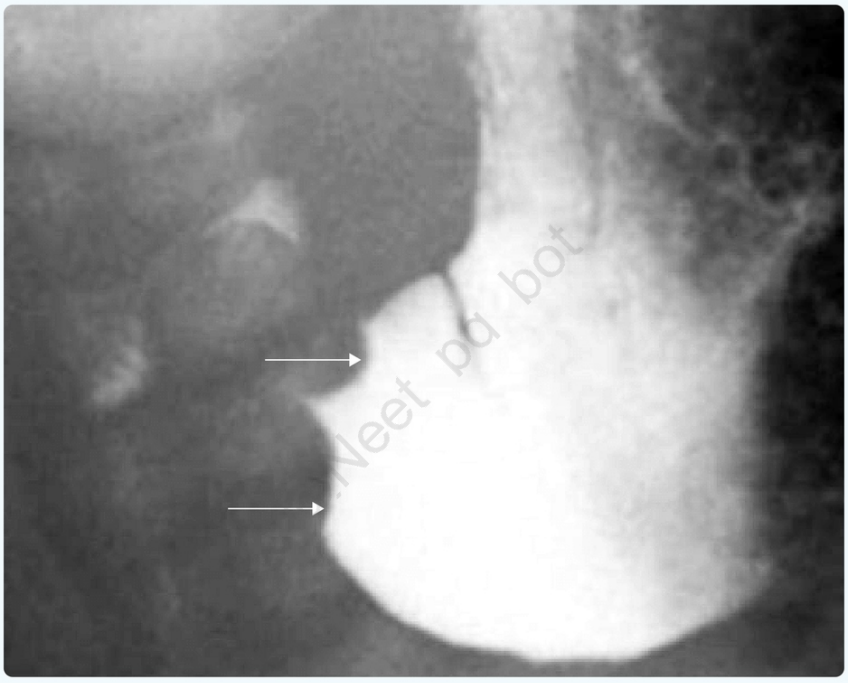
Explanation: The clinical scenario is most likely congenital/ idiopathic hypertrophic pyloric stenosis (CHPS), a condition involving hypertrophy of the pyloric muscle, leading to gastric outlet obstruction in male infants, typically between 2 to 6 weeks of age. Risk Factors of Congenital Hypertrophic Pyloric Stenosis Genetic Factors White race of northern European descent Male sex Familial History: Higher risk in offspring of mothers with CHPS (20% for sons, 10% for daughters) Twin Studies: Higher concordance in monozygotic twins suggests a genetic component Blood Groups: Infants with B and O blood groups. Environmental Factors Erythromycin Use: Especially if administered within the first two weeks of life Higher incidence in infants whose mothers used

macrolides during pregnancy or breastfeeding, particularly in females. Other Associated Factors Other Congenital Defects Syndromes: Occasionally associated with tracheoesophageal fistula and hypoplasia or agenesis of the inferior labial frenulum. Associated with eosinophilic gastroenteritis, Apert syndrome, Zellweger syndrome, trisomy 18, Smith-Lemli-Opitz syndrome, and Cornelia de Lange syndrome. Clinical Presentation: Symptoms: Projectile, non-bilious vomiting after feeds, starting around 2 to 6 weeks of age. Physical Examination: Visible gastric peristalsis and a palpable “olive-shaped ” mass in the epigastric region. Diagnosis: Ultrasound (USG) is the Investigation of choice for CHPS, characterised by Pyloric muscle thickness of > 3 mm Pyloric length > 14 mm The pyloric channel appears elongated and thickened (10-14 mm) Contrast Studies (Upper GI Series): Less frequently used, demonstrating the classic "string sign" with a thin line of contrast through the elongated and narrowed pyloric channel and delayed gastric emptying without duodenal dilation. Characteristic findings of Contrast studies in CHPS Findings Description String Sign A thin line of contrast material passes through the narrowed pyloric channel, indicating severe narrowing due to hypertrophied muscle. Shoulder Sign A bulge of the hypertrophied pyloric muscle into the gastric antrum gives the appearance of a “shoulder.” Double Tract Sign Parallel streaks of contrast material within the narrowed pyloric channel suggest the presence of a narrow passage for contrast flow. Mushroom sign Bulging of the hypertrophic muscle into the 1st part of the duodenum. Esophageal atresia (Option A) will have bilious vomiting and does not present with any mass in the epigastrium. Duodenal atresia (Option B) presents with bilious vomiting immediately after birth. This is not the given scenario. Intussusception (Option D) presents with a sausage-shaped abdominal mass but is not associated with vomiting. It is more characteristically associated with red currant jelly stools.



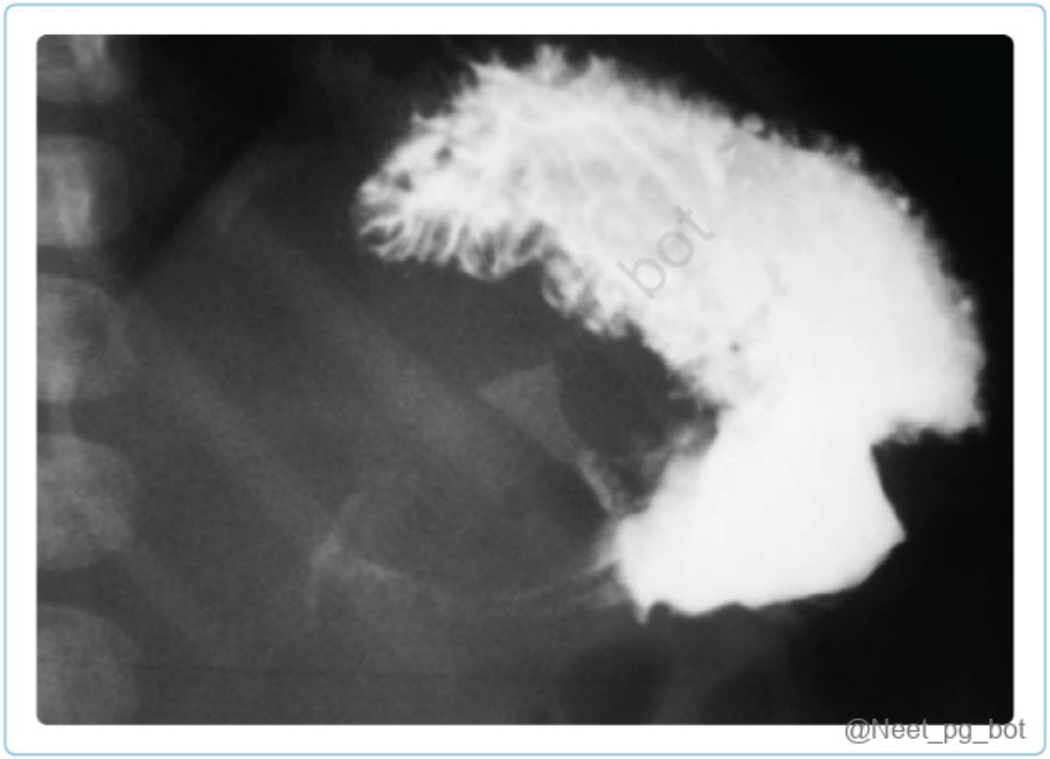






Shoulder sign

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References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1946

↑ *Back to this question in Part A*

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Q29: What is Celiac Sprue in a child? (Q844216)

A. Anti-tissue transglutaminase (tTG) antibodies are positive and used as a screening test

B. A type of food allergy causing skin rashes

C. A genetic disorder leading to lactose intolerance

D. An infection in the gastrointestinal tract caused by bacteria

Correct Answer: A. Anti-tissue transglutaminase (tTG) antibodies are positive and used as a screening test

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Correct Option A - Anti-tissue transglutaminase (tTG) antibodies are positive and used as a screening test: Celiac sprue, also known as celiac disease, is an autoimmune disorder where the ingestion of gluten (a protein found in wheat, barley, and rye) leads to damage in the small intestine. The presence of anti-tissue transglutaminase (tTG) antibodies in the blood is used as a screening test for celiac disease. This is the correct answer. Incorrect Options: Option B - A type of food allergy causing skin rashes: Celiac disease is not a food allergy but an autoimmune disorder. While it may cause skin rashes, such as dermatitis herpetiformis, it primarily affects the small intestine and is not classified as a food allergy. Option C - A genetic disorder leading to lactose intolerance: Celiac disease is a genetic disorder but does not cause lactose intolerance directly. It is characterized by an immune reaction to gluten. However, some individuals with celiac disease may experience lactose intolerance due to damage to the intestinal lining affecting lactase production. Option D - An infection in the gastrointestinal tract caused by bacteria: Celiac disease is not an infection but an autoimmune condition. It is caused by an immune response to gluten, not by bacterial infection.

↑ *Back to this question in Part A*

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Q30: A 3-month-old baby presents with jaundice and clay-colored stools. Lab investigation reveals that the baby has conjugated hyperbilirubinemia. The liver biopsy shows periductal proliferation. What is the most likely diagnosis? (Q855510)

A. Crigler-Najjar syndrome

B. Rotor syndrome

C. Dubin-Johnson syndrome

D. Biliary atresia

Correct Answer: D. Biliary atresia

Explanation: The clinical scenario of jaundice, clay-colored stools, and conjugated hyperbilirubinemia in an infant, along with liver biopsy findings of periductal proliferation, most likely indicates biliary atresia. Extra-Hepatic Biliary Atresia (EHBA) Biliary atresia, not associated with cyst formation. Also known as Non-Cystic Obliterative Cholangiopathy. Characterized by complete obliteration of extrahepatic bile ducts and intrahepatic ducts at the hilum. Symptoms: Typically appear by 2 to 6 weeks of age Jaundice (yellowish coloration of skin and sclera) Abnormally pale stools Dark urine Classification: Perinatal Type (70% cases): No associated anomalies. BASM Syndrome (15% cases): Biliary Atresia Splenic malformations (Polysplenia) Situs inversus Cardiac defects Malrotation of the GIT Other 15% cases: Associated with renal anomalies Associated with choledochal cyst Association with other Anomalies: The most common is polysplenia or asplenia Other associated malformations include absent inferior vena cava, cardiac anomalies, situs inversus, intestinal malrotation, duodenal atresia, anomaly of the portal vein, renal anomalies, and choledochal cyst. Investigations: Liver Function Tests: Increased conjugated bilirubin. Markers of cholestasis: 5' nucleotidase Alkaline phosphatase (ALP) GGT (Gamma-glutamyl transferase): Normal: Up to 40 U/L 4x elevation: Intrahepatic causes 10x elevation: Extrahepatic causes Exception: Low in PFIC type I and II Ultrasound: High-frequency USG (HUS) for neonatal cholestasis. Used as initial investigation Fasting USG is the gold standard when biliary atresia is suspected. Characteristic findings: Triangular cord sign (hyperechoic areas indicating fibrous/atretic bile duct) Non-visualized gallbladder/microgallbladder/gallbladder ghost Radionucleotide Study: HIDA Scan (Hepatobiliary scan with Tc labelled imino-di-acetic acid): Used as a screening test. Decreased tracer excretion due to obstruction Phenobarbitone loading/priming (5 days) to improve tracer uptake Used as a screening test, not specific Best Investigation: Liver biopsy:IOC for confirming diagnosis, shows periductal proliferation. Surgical Management: Algorithm: Exploratory laparotomy Per Operative cholangiogram Temporary procedure: Kasai procedure/hepaticojejunostomy Definitive management: Liver transplantation Kasai Procedure: Temporary procedure Creates communication between liver and jejunum for bile drainage Also known as hepaticojejunostomy Should be performed within 8 weeks after birth Crigler-Najjar syndrome (Option A) is caused by a deficiency in glucuronyl transferase, leading to unconjugated hyperbilirubinemia. It does not show periductal proliferation on liver biopsy. The conjugated hyperbilirubinemia and periductal proliferation seen in this case make Crigler-Najjar syndrome unlikely. Rotor syndrome (Option B) is caused by mutations in the SLCO1B1 and SLCO1B3 genes, which affect the hepatic uptake and biliary excretion of bilirubin, resulting in mild conjugated hyperbilirubinemia. Liver biopsy shows normal histology, not periductal proliferation. The severe cholestasis with clay-colored stools and periductal proliferation, in this case, makes Rotor syndrome unlikely. Dubin-Johnson syndrome (Option C) is caused by a mutation in MRP-2, impairing the excretion of conjugated bilirubin. Liver biopsy shows dark pigmentation due to epinephrine metabolite accumulation, not periductal proliferation. The dark liver and benign presentation make Dubin-Johnson syndrome inconsistent with the findings here.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2097,2098

O.P. Ghai Essential Pediatrics, 10th Edition,Page 347

Bailey & Love’s Short Practice of Surgery, 28th Edition, Page 1241

https://www.pathologyoutlines.com/topic/liverextrahepaticbiliaryatresia.html

↑ *Back to this question in Part A*

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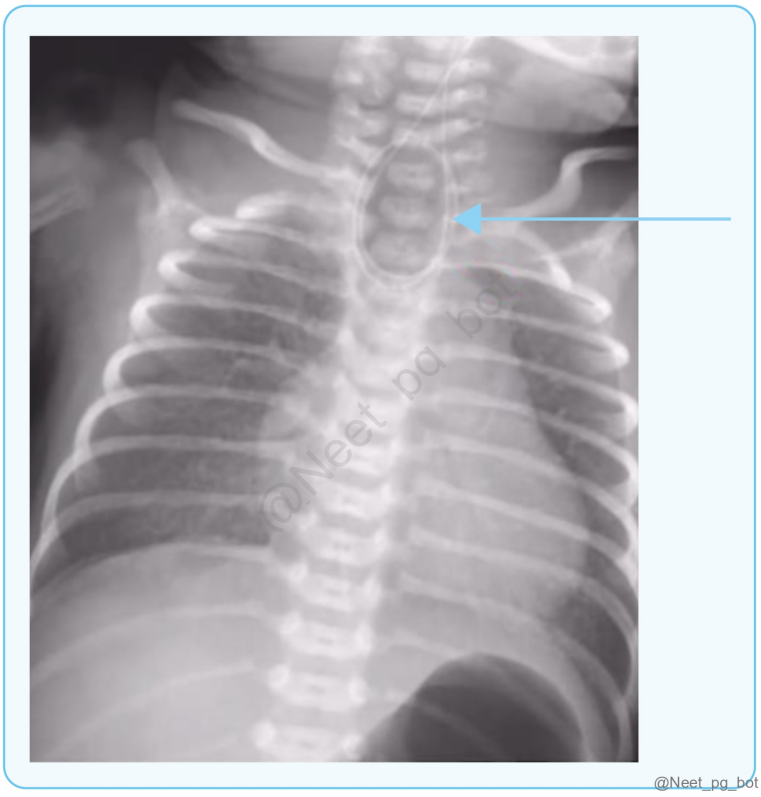
Q31: What is the most likely diagnosis for a neonate presenting with frothing from the mouth and respiratory distress, with the X-ray provided below? (Q858051)

A. Transient tachypnea of newborn

B. Congenital diaphragmatic hernia

C. Esophageal atresia with tracheo-esophageal fistula

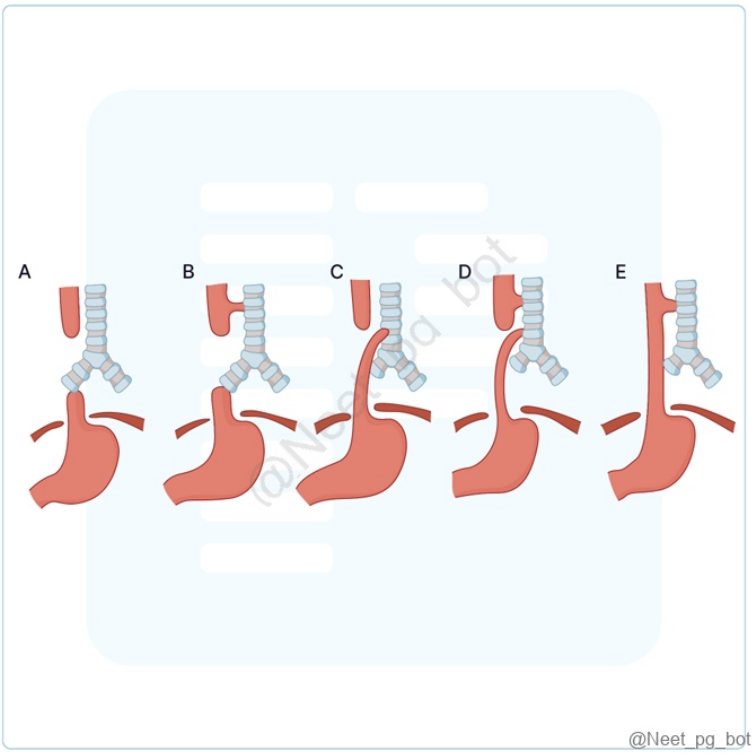
D. Respiratory distress syndrome

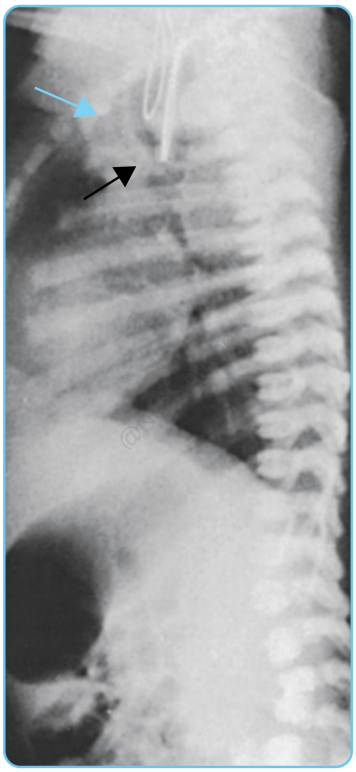


Correct Answer: C. Esophageal atresia with tracheo-esophageal fistula

Explanation: isruption during embryonic development of the trachea and oesophagus. Genetic Factors: Associated with syndromes like Feingold syndrome, CHARGE syndrome, and anophthalmia-esophageal-genital syndrome. Unknown Etiology: Factors such as advanced maternal age, ethnicity, obesity, low socioeconomic status, and smoking may be involved. Types of TEF Type A: Isolated oesophagal atresia without tracheoesophageal fistula Type B: Esophageal atresia with proximal tracheoesophageal fistula Type C: Proximal oesophagal atresia with

distal tracheoesophageal fistula Type D: Esophageal atresia with both proximal and distal tracheoesophageal fistulas Type E: Isolated tracheoesophageal fistula without associated oesophagal atresia Presentation Classic Symptoms: Frothing and bubbling at the mouth and nose, coughing, cyanosis, respiratory distress exacerbated by feeding. Aspiration Pneumonia: More severe with distal fistula. H-Type Fistula: Chronic respiratory issues, bronchospasm, recurrent pneumonia in isolated cases. Diagnosis Esophagogram Chest X-ray shows a gas-filled or gasless abdomen and a coiled tube in the upper oesophagus. {{caption_text}} Management Immediate Care: Maintain airway patency, prevent aspiration, and use antibiotics. Surgical Repair: Standard involves ligation of TEF and primary end-to-end anastomosis. Alternative Approaches: Delayed primary closure, fistula ligation, gastrostomy tube placement, or using gastric, jejunal, or colonic segments if the gap >3-4 cm. Complications Respiratory Complications: Risk of aspiration pneumonia. Esophageal Complications: Feeding difficulties, failure to thrive. Associated Anomalies: Often part of VACTERL association (vertebral, anal, cardiac, tracheal, esophageal, renal, limb). Prognosis Improved Outcomes: Better survival rates due to advancements in care. Long-Term Complications: Potential issues include feeding difficulties, esophageal strictures, and respiratory problems. Transient tachypnea of newborn (Option A) presents with mild respiratory distress that improves within 24-72 hours after birth. The X-ray shows normally inflated or hyperinflated lungs with streaky perihilar markings and a shaggy heart border with clear lung periphery. This condition is self-limiting and typically resolves spontaneously. {{caption_text}} Congenital diaphragmatic hernia (Option B) demonstrates characteristic X-ray findings of cyst-like structures (bowel loops) in the left hemithorax with mediastinal shift to the right and a relatively gasless abdomen. This condition results from a developmental defect in the diaphragm allowing abdominal contents to enter the thoracic cavity. {{caption_text}} Respiratory distress syndrome (Option D) typically affects premature infants and develops within 24 hours of birth. The X-ray shows hypoaeration with bilateral fine granular opacities and prominent air bronchograms. This condition is caused by surfactant deficiency and primarily affects premature infants.



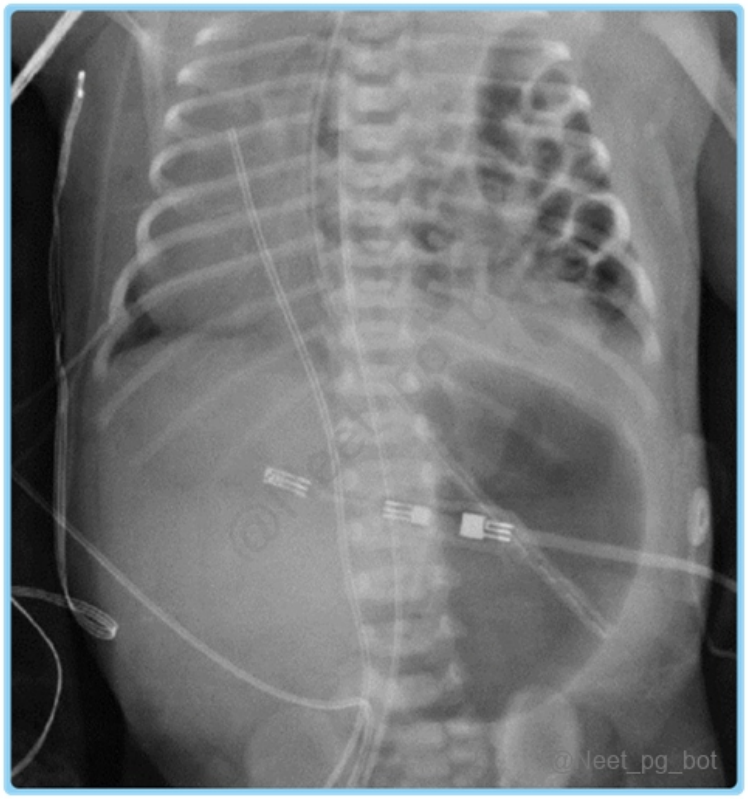


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Chest radiograph in transient tachypnea of the newborn. Straightened ribs and increased intercostal space due to mild hyperinflation lungs, streaky infiltrates (white asterisks), fluid in horizontal lung fissures (white arrow), perihilar streaking (Sunburst)

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References:

Nelson Textbook of Pediatrics, 21st edition, pg-1929,1930

https://www.ncbi.nlm.nih.gov/books/NBK560848/

↑ *Back to this question in Part A*

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Q32: An 11-year-old boy was brought to the outpatient clinic with intentional tremors, and poor scholastic performance. His sister has similar complaints. On examination, hepatomegaly is seen. The eye finding is shown in the image. What is the probable diagnosis? (Q855725)

A. Wilson's disease

B. Huntington's chorea

C. Glutaric aciduria

D. Hepatitis A



Correct Answer: A. Wilson's disease

Explanation: The clinical findings of intentional tremors, poor scholastic performance, hepatomegaly, and the presence of Kayser-Fleischer rings in the eye point towards the diagnosis of Wilson's disease. Wilson disease: Also known as hepatolenticular degeneration, is a rare autosomal recessive disorder caused by the abnormal accumulation of copper in the liver, brain, eyes, and other organs. This results in elevated free copper levels, along with increased copper levels in the liver and urine, while serum ceruloplasmin levels are decreased. Pathophysiology: Autosomal recessive (positive family history). Mutation in ATP7B gene (copper transporting P-type adenosine triphosphatase (ATPase), present in chromosome 13 (13q14) . Decreased biliary copper excretion and diffuse accumulation of copper in the cytosol of hepatocytes. Later, copper is redistributed to other tissues once the liver is saturated with copper. Clinical features: Liver: Asymptomatic hepatomegaly (with or without splenomegaly), subacute or chronic hepatitis, acute hepatic failure, and portal hypertension Neurology: Intention tremor , dysarthria, rigid dystonia, Parkinsonism, choreiform movements, lack of motor coordination, deterioration in school performance , psychosis, or behavioral changes Psychiatric manifestations: Depression, personality changes, anxiety, obsessive-compulsive behavior, or psychosis Eye: KF (Kayser Fleischer) ring in Descemet membrane layer of cornea Renal: Fanconi syndrome and renal failure Diagnosis: Decreased serum ceruloplasmin levels (<20 mg/dL) Serum-free copper level >1.6 µmol/L Urinary copper excretion (normally <40 µg/day) is increased to >100 µg/day Liver biopsy (Gold standard): Hepatic copper content >250 µg/g dry weight of liver Treatment: Dietary intake of copper (Avoid liver, shellfish, nuts, and chocolate) should be restricted to <1 mg/day Symptomatic patients: Copper-chelating agents D-penicillamine Triethylenetetramine dihydrochloride Zinc impairs the gastrointestinal absorption of copper Huntington's chorea (Option B) involves involuntary movements (chorea) and psychiatric symptoms due to a trinucleotide repeat disorder (CAG repeat), but it does not cause hepatomegaly or Kayser-Fleischer rings, which are specific to Wilson's disease. Glutaric aciduria (Option C) is an autosomal recessive disorder presents early in life with hypotonia, hyperkinetic movements (dystonia, choreoathetosis), and seizures, but it does not cause hepatomegaly or Kayser-Fleischer rings like in Wilson's disease. Hepatitis A (Option D) is caused by the fecal-oral route, leading to jaundice and flu-like symptoms (nausea, vomiting, mild fever), but it does not present with intentional tremors, poor scholastic performance, or

Kayser-Fleischer rings, all of which are characteristic of Wilson's disease.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2103-2104

↑ *Back to this question in Part A*

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Q33: A 5-year-old child is brought to you with complaints of 18 episodes of loose stools in the last 24 hours and vomiting twice in the last 4 hours. The child is irritable but drinking fluids. The optimal therapy for this child is— (Q857206)

A. Intravenous fluids

B. Oral rehydration therapy with ORS

C. Intravenous fluid initially for 4 hours followed by oral fluids

D. Plain water add lithium

Correct Answer: B. Oral rehydration therapy with ORS

Explanation: - Oral rehydration therapy with ORS The best therapy for this patient is oral rehydration therapy with ORS since the child is drinking fluids. Oral Rehydration Therapy (ORT) is based on the physiological principle that glucose-dependent sodium absorption in the gut remains functional during diarrhoea. In this process, glucose and sodium are transported together across the intestinal mucosa, helping to restore sodium and water lost during diarrhoea. The World Health Organization (WHO) Oral Rehydration Solution (ORS) uses a 1:1 molar ratio of glucose and sodium to optimize fluid and electrolyte replacement. Constituent WHO-ORS (Conventional ORS) Reduced osmolarity ORS Sodium 90 mmol/L 75 mmol/L Chloride 80 mmol/L 65 mmol/L Glucose, anhydrous 111 mmol/L 75 mmol/L Potassium 20 mmol/L 20 mmol/L Citrate 10 mmol/L 10 mmol/L Total osmolarity 311 mmol/L 245 mmol/L Options A, C & D are incorrect since oral rehydration therapy should be offered first to children with dehydration who are drinking orally. IV fluids are preferred in cases of severe dehydration.

References:

Ghai Essential Pediatrics, 10th Edition, Page: 311, 312.

↑ *Back to this question in Part A*

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Q34: A 3-day-old male neonate who has not yet passed meconium developed abdominal distension. There is no history of fever. On rectal examination, forceful expulsion of stool was observed. A barium enema is performed; the findings are shown in the image below. Which of the following is the gold standard for the diagnosis of the above condition? (Q857600)

A. Ultrasonography

B. MRI abdomen

C. Rectal biopsy

D. Anorectal manometry



Correct Answer: C. Rectal biopsy

Explanation: isease It is the most common congenital motility disorder and is characterised by the absence of ganglionic cells in the distal intestine. Pathophysiology: The absence of ganglionic cells (aganglionosis) in the distal segment of the intestine leads to tonic contraction and functional obstruction of the affected bowel segment. Clinical Presentation: Neonates: Delayed passage of meconium, constipation, obstruction Later presentation: Chronic constipation, failure to thrive, enterocolitis Classification: Short Segment (75%): Limited to the segment distal to the splenic flexure. Long Segment (20%): Extends proximal to the splenic flexure. Total Colonic Aganglionosis (5%): The entire colon is affected. Diagnosis: X-ray: Reveals bowel distension and air-fluid levels. Barium enema: Narrow aganglionic segment, transition zone, proximal dilation Anorectal manometry: Absence of

rectoanal inhibitory reflex Rectal suction biopsy: The Gold Standard Test for confirming Hirschsprung disease. Procedure: A biopsy must be taken 2 cm above the dentate line and must include adequate submucosa. Staining: Acetylcholinesterase: Identifies hypertrophied nerve bundles and the absence of ganglion cells. Calretinin: Used as an alternative when acetylcholinesterase staining is inadequate. Management: Primarily Surgical: Resection of the aganglionic bowel and pull-through of normal bowel. Medical Management: Stabilization and treatment of enterocolitis prior to surgery. Surgical Approach: Trend toward less invasive techniques, including laparoscopic and single-stage procedures. Ultrasonography (Option A) and MRI abdomen (Option B) are not the gold standard methods for diagnosis of Hirschsprung disease. Anorectal manometry (Option D): Evaluates rectoanal inhibitory reflex (RAIR) with high sensitivity and specificity (>90%), but not considered the definitive test for young infants and hence not the gold standard.

References:

Nelson Textbook of Pediatrics, 21st edition, Page: 1961-1964.

↑ *Back to this question in Part A*

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Q35: In a child presenting with infantile hypertrophic pyloric stenosis, what metabolic abnormality is commonly observed, given the presence of recurrent episodes of non-bilious vomiting? (Q856154)

A. Hypochloremic hypokalemic acidosis

B. Hypochloremic hypokalemic alkalosis

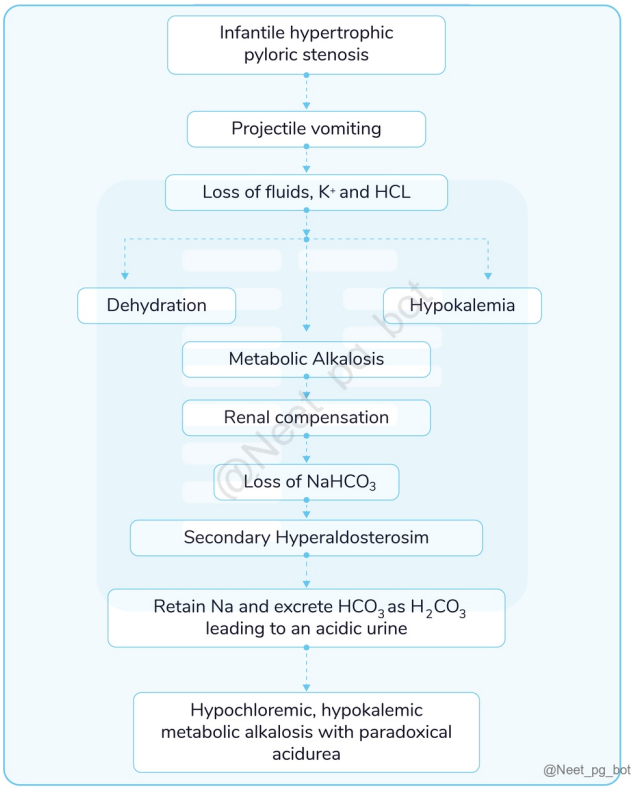
C. Hypokalemic hyperchloremic alkalosis

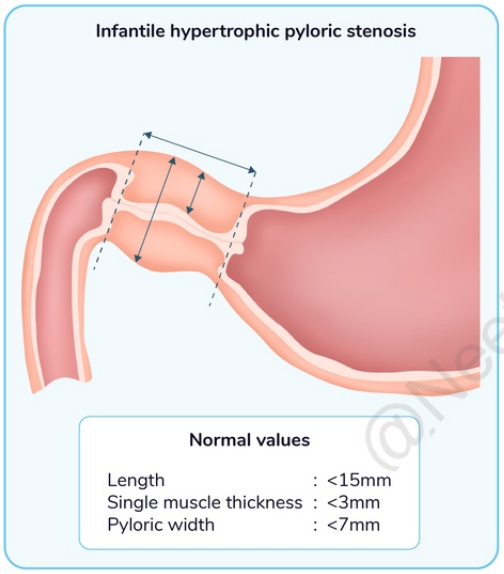
D. Hyperchloremic hypokalemic acidosis

Correct Answer: B. Hypochloremic hypokalemic alkalosis

Explanation: - Hypochloremic hypokalemic alkalosis: In infantile hypertrophic pyloric stenosis (IHPS), there is a thickening of the pyloric muscle, leading to the obstruction of the passage between the stomach and the small intestine. This obstruction results in persistent non-bilious vomiting. The vomiting in IHPS leads to the loss of gastric acid (HCl), causing a decrease in both chloride and hydrogen ions. This leads to hypochloremic metabolic alkalosis. Additionally, the loss of gastric fluid also leads to the loss of potassium (K+), resulting in hypokalemia. Congenital hypertrophic pyloric stenosis (CHPS): This involves hypertrophy of the pyloric muscle , leading to gastric outlet obstruction, mostly in first-born male infants, typically between 3 to 6 weeks of age. Clinical Presentation: Symptoms: Projectile, non-bilious vomiting after feeds Physical Examination: Visible gastric peristalsis from left to right and a palpable “olive-shaped” mass in the epigastric region. Hypochloremic hypokalemic metabolic alkalosis with paradoxical aciduria Diagnosis: Ultrasound (USG) is the investigation of choice for CHPS, characterised by Pyloric muscle thickness of ≥ 4mm Pyloric length ≥ 16 mm The pyloric channel appears elongated and thickened (10-14 mm) Contrast Studies (Upper GI Series): Less frequently used, demonstrating the classic "string sign" with a thin line of contrast through the elongated and narrowed pyloric

channel and delayed gastric emptying without duodenal dilation. {{caption_text}}







References:

Nelson Textbook of Pediatrics, 21st edition, Page 419, 1946, 1947, 1948

↑ *Back to this question in Part A*

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Q36: A 6-year-old child is brought for evaluation of short stature. His height is comparable with his parent's height and his bone age corresponds to his chronological age. What is the diagnosis? (Q858070)

A. Familial short stature

B. Constitutional delay

C. Undernutrition

D. Growth hormone deficiency

Correct Answer: A. Familial short stature

Explanation: Familial short stature The clinical presentation indicates familial short stature, which is characterized by height below the 3rd percentile for age and sex but is normal according to the child's genetic potential , as determined by parental heights. Key features supporting this diagnosis include bone age matching chronological age and height being consistent with parental heights, suggesting genetic rather than pathological short stature . Characteristics of Familial Short Stature: Child's height is <3rd percentile of expected according to age & sex, but is normal as per his target height Child has normal puberty Family history of short stature Bone age = chronological age Constitutional delay (Option B): In constitutional growth delay, the child presents with delayed bone age and delayed puberty, unlike this case where bone age matches chronological age. Most of these children tend to eventually grow to approximately the same height as their parents. Undernutrition (Option C): Undernutrition shows evidence of poor weight gain and delayed bone age, which are absent in this case. Nutritional deficiency would affect both growth and skeletal maturation, leading to discrepancy between bone age and chronological age. Growth hormone deficiency (Option D): Growth hormone deficiency, also known as dwarfism or pituitary dwarfism, typically presents with severe growth failure, delayed bone age, and height that is significantly below parental heights.

References:

Ghai Essential Paediatrics, 10th Edition, Page 18-21

↑ *Back to this question in Part A*

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Q37: What is the likely diagnosis for a newborn who has a liver and small intestine protruding through the umbilicus, covered by membranes at birth? (Q859940)

A. Omphalocele

B. Gastroschisis

C. Persistent vitellointestinal duct

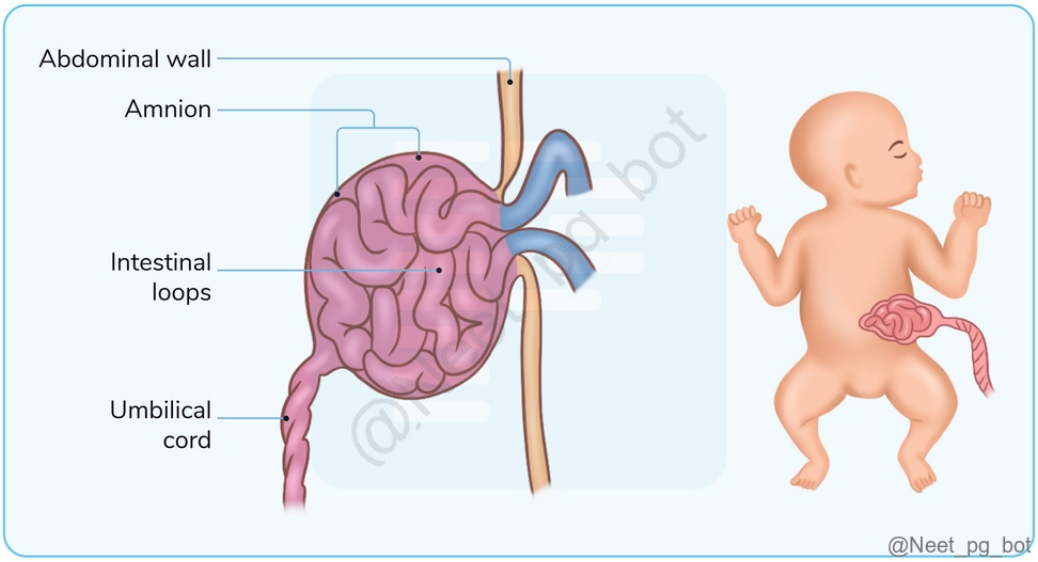
D. Bochdalek hernia

Correct Answer: A. Omphalocele

Explanation: The characteristic presentation of presence of a translucent membranous sac covering the herniated organs through the umbilical ring, containing typically the liver and intestines indicate an omphalocele , a congenital abdominal wall defect. This condition occurs due to failure of the lateral body folds to migrate centrally during fetal development , resulting in incomplete closure of the anterior abdominal wall. {{caption_text}} Gastroschisis (Option B) Omphalocele (Option A) Definition A congenital defect where the abdominal wall fails to close, leading to herniation of intestinal loops into the amniotic cavity. M/c in premature/SGA babies A congenital ventral body wall defect where portions of the midgut fail to return to the abdominal cavity after physiological herniation. Location of defect Right paraumbilical Central Sac Absent, bowel is exposed. Present (if not ruptured). Sac is made of amnion, Wharton's jelly and peritoneum Description Free intestinal loops. (Liver is not usually herniated) Firm mass including liver, intestine and/ other organs (like stomach, spleen) Umbilical cord Adjacent to the defect Attached to the sac Associated anomalies Associated anatomic defects are uncommon Associated abnormalities are common and include: Neural tube defect Cardiac abnormalities Chromosomal defect Detection Identified through fetal ultrasound. Elevated alpha-fetoprotein (AFP) levels in maternal serum and amniotic fluid. Elevated alpha-fetoprotein (AFP) concentrations in maternal serum and amniotic fluid, similar to gastroschisis. Complication Affected bowel loops may be damaged due to exposure to corrosive amniotic fluid . Risk of volvulus , where the bowel twists around itself, compromising blood supply. Feeding difficulties Failure to thrive Inguinal hernias Gastroesophageal reflux Occasionally esophagitis Prognosis Favorable High mortality rates Image {{caption_text}} Persistent vitellointestinal duct (Option C) manifests as a connection between the small intestine and the umbilicus, resulting in umbilical drainage, but does not involve herniation of abdominal organs. This anomaly represents a failure of the embryonic yolk stalk to obliterate completely. Bochdalek hernia (Option D) involves herniation of abdominal contents into the thoracic cavity through a posterolateral diaphragmatic defect. This condition typically presents with respiratory distress and is more common on the left side due to earlier closure of the right pleuroperitoneal canal during development.


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References:

https://www.ncbi.nlm.nih.gov/books/NBK519010/

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Q38: What is the diagnosis for a patient who has chronic small bowel diarrhea, claims to have a wheat allergy, and exhibits villous atrophy on duodenal biopsy with tests positive for anti-endomysial antibodies and tissue transglutaminase (TTG) IgA antibodies? (Q859947)

A. Cystic fibrosis

B. Whipple's disease

C. Tropical sprue

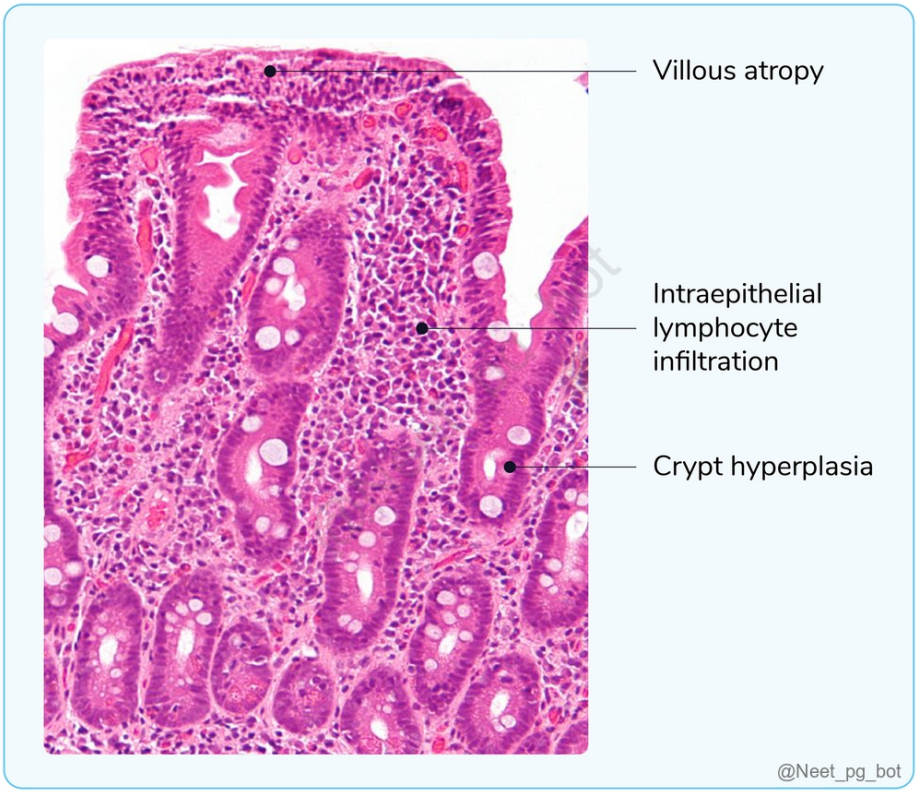
D. Celiac sprue

Correct Answer: D. Celiac sprue

Explanation: The clinical manifestations indicate Celiac sprue or Gluten-sensitive enteropathy based on the classic presentation of chronic small bowel diarrhea, wheat allergy, villous atrophy, and positive serologic markers (anti-endomysial and TTG IgA antibodies), which is a T-cell mediated autoimmune disorde r triggered by gluten ingestion. Celiac sprue / Celiac disease / Gluten-sensitive enteropathy Clinical manifestations Diarrhoea, growth failure, and anaemia. Temporal association with the introduction of wheat products at weaning. Abdominal distension, vomiting, anorexia, aphthous stomatitis, and bloating. Rickets, osteoporosis, short stature, muscular

atrophy, peripheral neuropathy, and irritability might be seen in some cases. Dermatitis herpetiformis can be seen. {{caption_text}} Diagnosis: ESPGHAN (European Society for Pediatric Gastroenterology, Hepatology & Nutrition) guidelines 2020 suggest that in all suspected cases (symptomatic, asymptomatic, and at-risk group), the first test should be total serum IgA and IgAtTG. Serology: Anti-TTG (Tissue Transglutaminase) Anti EMA (Endomysial antibody) Anti-DGP (Deamidated gliadin peptide) Upper GI endoscopy: The endoscopy may be normal or show the absence of folds or scalloped duodenal folds. Histopathology: Villous atrophy/Flat villi Crypt hyperplasia Intraepithelial lymphocyte infiltration . {{caption_text}} Treatment: Treatment involves a gluten-free diet (avoid wheat, rye, barley and oats). High-risk groups include type 1 diabetes mellitus, Down syndrome, selective IgA deficiency, autoimmune thyroid disease, Turner syndrome, Williams syndrome, Addison’s disease, autoimmune liver disease and first-degree relatives of patients with celiac disease. A temporal association may be present with the introduction of wheat products at weaning. While cystic fibrosis (Option A) can cause chronic diarrhea, it is typically associated with respiratory symptoms, pancreatic insufficiency, and positive sweat chloride tests. The specific findings of villous atrophy and positive antibodies are not typical of cystic fibrosis. Whipple's disease (Option B) causes malabsorption and diarrhea but is characterized by PAS-positive macrophages in biopsy. It has no association with wheat allergy and lacks the specific antibodies mentioned in the case. The condition is attributed to Tropheryma whipplei infection. Tropical sprue (Option C) can cause villous atrophy but occurs specifically in tropical regions. It has no association with wheat allergy and does not produce the specific antibodies seen in celiac disease. The condition typically responds to antibiotics and folate supplementation.





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1991-1993

↑ *Back to this question in Part A*

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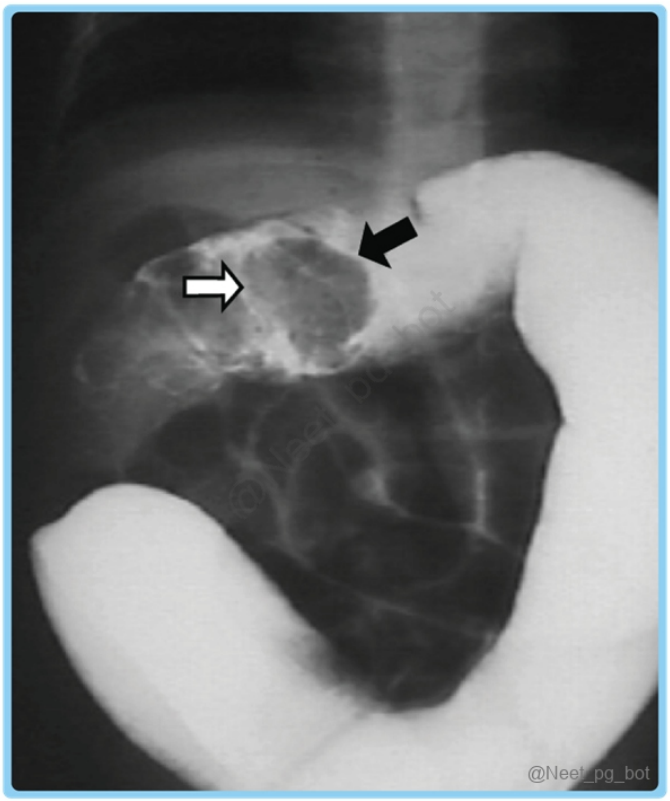
Q39: A baby presented with abdominal pain. On examination, a mass is palpated in the left lumbar region. A barium enema is done, and the image is given below. What is the likely diagnosis? (Q856071)

A. Intussusception

B. Volvulus

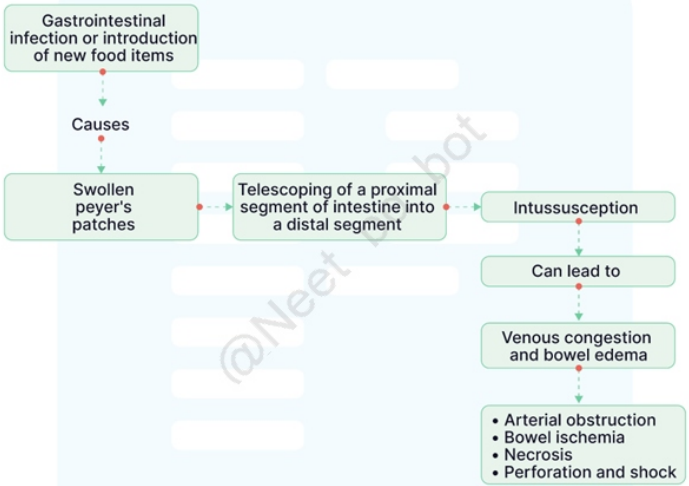
C. Duodenal atresia

D. Intestinal obstruction

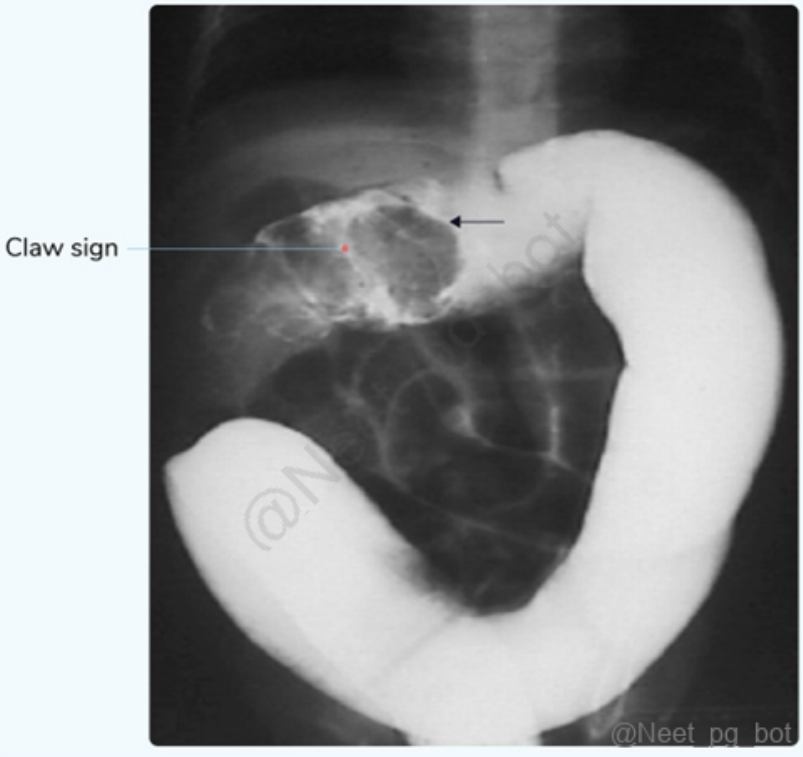


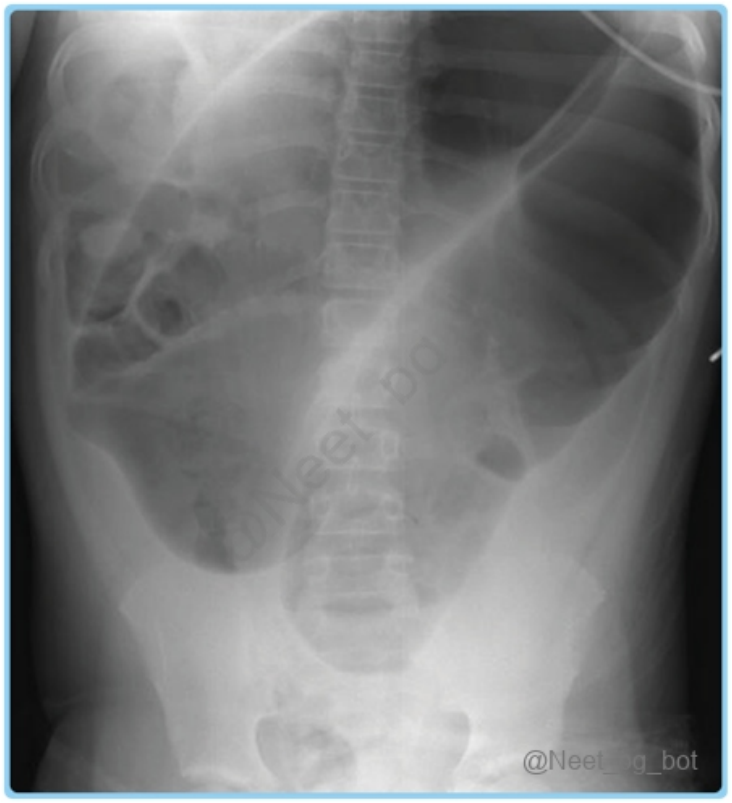
Correct Answer: A. Intussusception

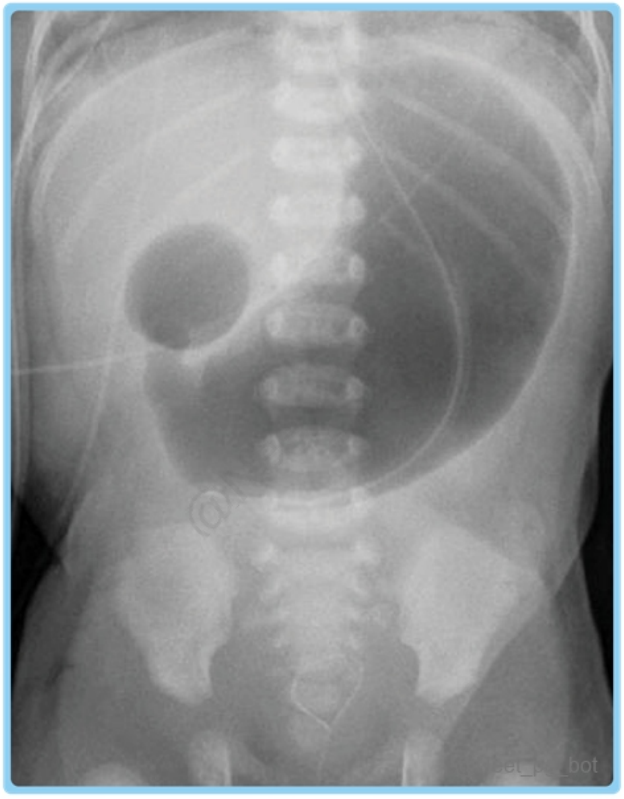
Explanation: Intussusception The clinical scenario of abdominal pain, a palpable mass in the left lumbar region, and the characteristic claw sign on barium enema suggests Intussusception. Intussusception: It refers to the telescoping of a proximal segment of the intestine (intussusceptum) into a distal segment (intussuscipiens). Most common cause of intestinal obstruction in 5 months to 6 years of age. It may be ileocolic (most common), colocolic or ileoileal. Clinical features: The classic triad of abdominal pain, red currant jelly stools (blood and mucus) and palpable mass are observed. Barium enema shows a ‘ Coiled Spring Sign or Claw Sign’. {{caption_text}} Management: Spontaneous resolution occurs in a few patients. Hydrostatic reduction under Fluoroscopic or USG guidance. Surgical reduction may be required if the child has refractory shock, suspected intestinal perforation or necrosis, or in case of multiple recurrences or peritonitis. Sigmoid volvulus (Option B) presents with abdominal pain, bloating, constipation, and inability to pass gas. Imaging typically shows the ‘coffee bean’ sign or omega sign on X-ray, not the claw sign seen in intussusception. {{caption_text}} Duodenal atresia (Option C) presents with bilious or non-bilious vomiting immediately after birth, without abdominal distension. Imaging shows the double bubble sign (gas in the stomach and proximal duodenum), not the claw sign or any barium study findings typical of intussusception. {{caption_text}} Intestinal obstruction (Option D) presents with abdominal pain, distension, and constipation. X-ray findings include multiple air-fluid levels, and barium studies are contraindicated in acute obstruction, unlike the findings specific to intussusception. {{caption_text}}


Gastrointestinal infection or introduction of new food items
Causes
Swollen peyer's patches
Telescoping of a proximal segment of intestine into a distal segment
Intussusception
Can lead to
Venous congestion and bowel edema
• Arterial obstruction
• Bowel ischemia
• Necrosis
• Perforation and shock

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Claw sign
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References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1965, 1966.

O.P. Ghai Essential Pediatrics, 10th Edition, Page 304, 305.

↑ *Back to this question in Part A*

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Q40: A 10-year-old child presents with diarrhea and weight loss. On examination, the height and weight are lesser than expected. Laboratory investigations were positive for class II HLA-DQ2. Which of the following will you advise the child? (Q856114)

A. Fat-free diet

B. Lactose-free diet

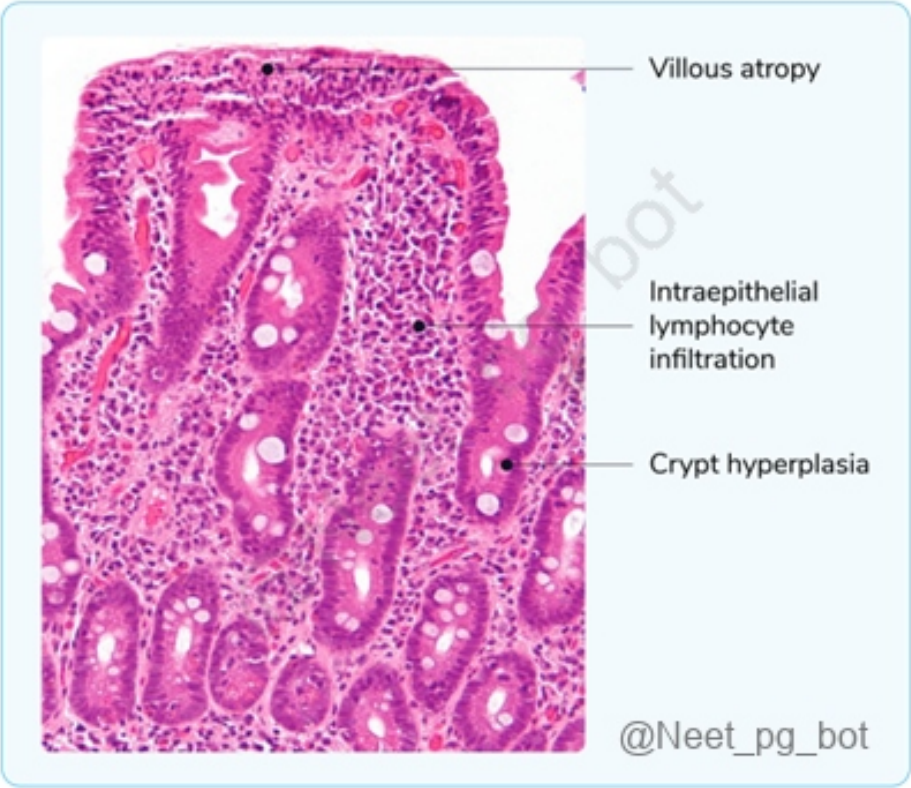
C. Low carbohydrate diet

D. Gluten-free diet

Correct Answer: D. Gluten-free diet

Explanation: eliac disease or Gluten-sensitive enteropathy: T-cell mediated autoimmune disorder triggered by the ingestion of gluten, associated with HLADQ2 and HLADQ8. High-risk groups: Type 1 diabetes mellitus, Down syndrome, selective IgA deficiency, autoimmune thyroid disease, Turner syndrome, Williams syndrome, Addison's disease, autoimmune liver disease and first-degree relatives of patients with celiac disease. Clinical manifestations: Diarrhoea, growth failure , and anemia. Temporal association with the introduction of wheat products during weaning. Abdominal distension, vomiting, anorexia, aphthous stomatitis, and bloating. Rickets, osteoporosis, short stature, muscular atrophy, peripheral neuropathy, and irritability might be seen in some cases. Dermatitis herpetiformis can be seen. {{caption_text}} Diagnosis: ESPGHAN (European Society for Pediatric Gastroenterology, Hepatology & Nutrition) guidelines 2020 suggest that in all suspected cases (symptomatic, asymptomatic, and at-risk group), the first test should be total serum IgA and IgA tTG (tissue transglutaminase IgA). Serology Anti-tTG (Tissue Transglutaminase) Anti EMA (Endomysial antibody) Anti-DGP (Deamidated gliadin peptide) Upper GI endoscopy The endoscopy may be normal or show the absence of folds or scalloped duodenal folds. Histopathology Villous atrophy/ Flat villi Crypt hyperplasia Intraepithelial lymphocyte infiltration. {{caption_text}} Treatment: Gluten-free diet (avoid wheat, rye, barley and oats)





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1991, 1992, 1993.

O.P. Ghai Essential Pediatrics, 10th Edition, Page 318, 319, 320.

↑ *Back to this question in Part A*

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Q41: A child presented with a history of loose stools with an increase in frequency for 4 days. On examination, he is drowsy, unable to feed, and skin on pinching goes back very slowly. According to the integrated management of neonatal and childhood illness (IMNCI), thischild will be classified as having: (Q856116)

A. Mild dehydration

B. Some dehydration

C. Severe dehydration

D. Moderate dehydration

Correct Answer: C. Severe dehydration

Explanation: Severe dehydration The child's history of loose stools with increased frequency for 4 days, drowsiness, inability to feed, and slow skin recoil with skin pinch suggests severe dehydration according to the Integrated Management of Neonatal and Childhood Illness (IMNCI) guidelines. Assessment of Dehydration in Children: Clinical Symptoms: Look for dry mucous membranes, sunken fontanelle (in infants), and irritability. Skin Turgor: Evaluate skin recoil; delayed recoil indicates dehydration . Capillary Refill Time: Assess capillary refill time; prolonged refill suggests dehydration. Urine Output: Monitor for decreased wet diapers or reduced frequency of urination. Vital Signs: Check for abnormal vital signs, such as elevated heart rate or low blood pressure. Mental Status and Behavior: Assess for changes in mental status, such as lethargy or confusion, which can indicate the severity of dehydration. IMNCI Classification of Dehydration in children: Sign/Symptom No/Mild Dehydration (Option A) Some Dehydration (Option B) Severe Dehydration Mental status Alert Irritable/restless Lethargic/unconscious Thirst Normal Increased Unable to drink Eyes Normal Slightly sunken Very sunken Tears Present Decreased Absent Mouth Moist Dry Parched Skin turgor Normal (Immediate skin recoil) Slow recoil (2-3sec) Very slow recoil (>3sec) Capillary refill Normal (<2sec) Prolonged (2-3sec) Prolonged (>3sec) Urine output Normal Decreased Minimal

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2027

↑ *Back to this question in Part A*

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Q42: While evaluating a 3-year-old with short stature, height is measured at 90cm and the lower segment is 45 cm. What is the likely diagnosis? (Q852540)

A. Achondroplasia

B. Congenital hypothyroidism

C. Rickets

D. Spondyloepiphyseal dysplasia

Correct Answer: D. Spondyloepiphyseal dysplasia

Explanation: In the given scenario, the upper segment: lower segment ratio of the child is 1:1, signifying upper segment short stature which is seen in spondyloepiphyseal dysplasia. The normal US: LS ratio for a 3-year-old child is 1.3:1. Here the height of the child is 90cm with LS = 45cm. Hence the US = 45cm. US: LS = 1:1. This means that the upper segment is shorter than normal. Spondyloepiphyseal dysplasia causes short-trunk dwarfism involving the vertebrae and proximal epiphyseal centres. The distal epiphyses are spared in this condition. Proportionate Short Stature Conditions Causing Short Stature with US > LS Conditions Causing Short Stature with US < LS Growth hormone deficiency Genetic syndromes: Noonan syndrome, Prader-Willi syndrome, 3M syndrome Environmental pollutants: Lead, calcium, hexachlorobenzene, polychlorinated biphenyl Family history

Achondroplasia (Option A) Congenital hypothyroidism (Option B) Rickets (Option C) Osteogenesis imperfecta Spondyliepiphyseal dysplasia (Option D) Mucopolysaccharidosis Caries spine/ Potts' disease Hemivertebrae/ Butterfly vertebra (Mnemonic - S hort M an C limbs H igh)

References:

O.P. Ghai Essential Pediatrics, 9th Edition, Page 34, 506 https://www.ncbi.nlm.nih.gov/books/NBK556031/ https://www.ncbi.nlm.nih.gov/books/NBK563282

↑ *Back to this question in Part A*

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Q43: At which of the following ages does maximum brain growth occur? (Q844231)

A. 1 year

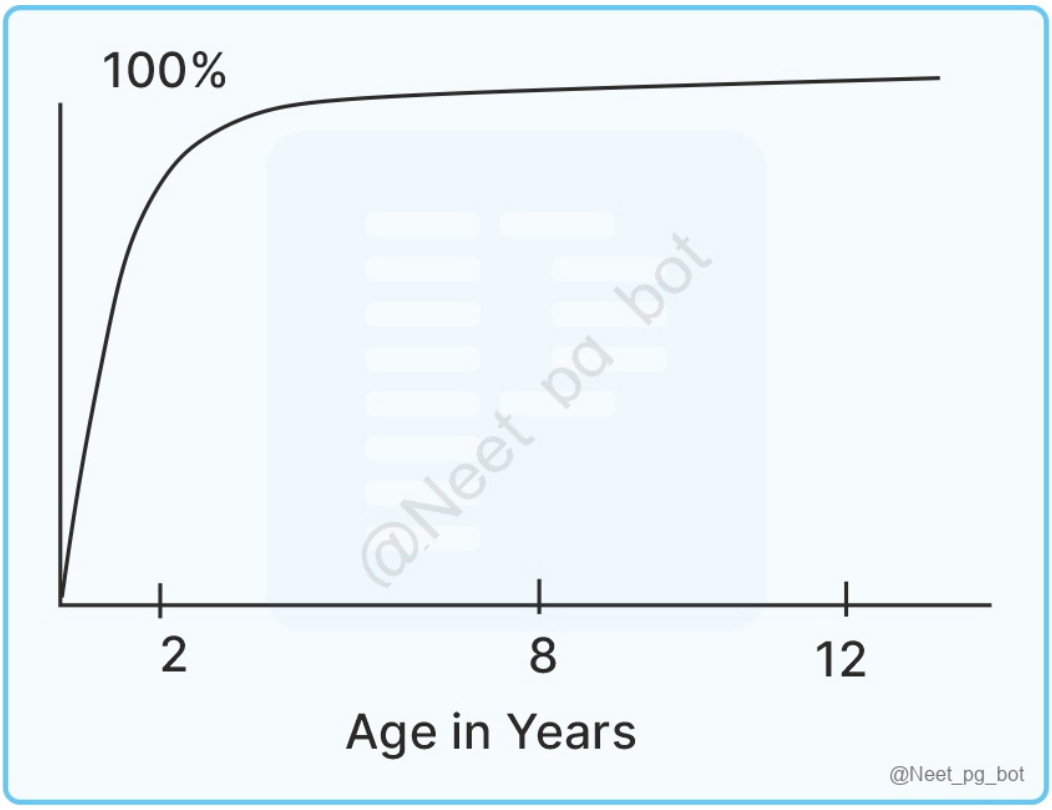
B. 2 years

C. 3 years

D. 4 years

Correct Answer: A. 1 year

Explanation: Correct Option: A) 1 year: The first year of life is marked by the most rapid brain growth. By the end of the first year, the brain reaches about 60% of its adult size. This period is critical for neurodevelopment, with significant increases in brain volume and neural connections. Maximum brain growth takes place in the first 2 years, after which the growth is stagnant. Incorrect options: Option B - 2 years : Brain growth continues, but the rate slows down after the first year. By 2 years of age, the brain is approximately 75% of its adult size, but the most intense phase of growth has already occurred. Option C - 3 years : By 3 years, the brain is about 80-85% of its adult size. Growth is still significant, but it is not as rapid as during the first year. Option D - 4 years : The brain's growth rate further decreases, reaching around 90% of its adult size by this age. Most brain development in terms of structure is completed, but functional maturation continues.



References:

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↑ *Back to this question in Part A*

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Q44: A 10 year old child presented to the clinic with complaints of recurrent infection. Physical examination shows low height for age and Z line score is <-2SD. The parents also have a history of incorrect feeding method. What is the appropriate term for the above mentioned condition? (Q820479)

A. Stunting

B. Wasting

C. Malnutrition

D. Kwashiorkor

Correct Answer: A. Stunting

Explanation: Correct Option A - Stunting: This is the correct answer. Stunting, or chronic malnutrition, is defined as low height-for-age. This condition is a result of long-term nutritional deprivation, often exacerbated by recurrent infections. A Z-score of less than -2 standard deviations (SD) below the median of the World Health Organization's child growth standards is indicative of stunting. The history of incorrect feeding method provided by the parents further supports this diagnosis. Incorrect Options: Option B - Wasting: Wasting, or acute malnutrition, is defined as low weight-for-height. It's a sign of recent and severe weight loss, which does not seem to be the case with the child described in the question. Option C - Malnutrition: While the child is indeed malnourished, this term is broad and doesn't specify the type of malnutrition. In this case, the child's low height-for-age and Z-score of <-2SD indicate stunting, a specific form of malnutrition. Option D - Kwashiorkor: Kwashiorkor is a form of severe malnutrition characterized by edema (swelling), discolored hair, and dermatosis. It's typically caused by a diet high in carbohydrates but deficient in protein. The question does not provide any information suggesting the child has these symptoms.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q45: Which of the following is the best sign to indicate adequate growth in an infant with a birth weight of 2.8 kg? (Q855497)

A. Increase in length of 25 cm in the first year

B. Weight gain of 300 grams per month till 1 year

C. Anterior fontanelle closure by 6 months of age

D. Weight under the 75th percentile and height under the 25th percentile

Correct Answer: A. Increase in length of 25 cm in the first year

Explanation: The best indicator of adequate growth in an infant is an increase in length of 25 cm in the first year. Normal length at birth: 50cm. In the first year, there is an increase of 25cm , so at 1 year the height is 75cm. In the second year there is an increase of 10-15cm, so at 2 years the height is 85-90cm. There is a steady increase of 6cm/year till 12 years. Height doubles by 4 years Height triples by 12 years Half of adult height in a normal child (80-85cm) is achieved by 2 years (18-24 months). Age Length At birth 50cm By 3 months 60cm By 9 months 70cm By 1 year 75cm At 2 years 90cm At 4-4.5 years 100cm Weech's formula to estimate the expected weight and height of children using age as a variable. For <1 year : x + 9 ÷ 2 (Where x is age in months) For 1-6 years : 2x + 8 (Where x is age in years) For 7-12 years : 7x - 5 ÷ 2 (Where x is age in years) Weight gain of 300 grams per month till 1 year (Option B): In the first few months, weight gain typically varies from 20-40 grams per day, and after 4 months, it increases to approximately 400 grams per month, with doubling at 5 months and tripling by 1 year. Anterior fontanelle closure by 6 months of age (Option C): The anterior fontanelle typically closes between 9 and 18 months, not by 6 months, making it an unreliable indicator for growth. Weight under the 75th percentile and height under the 25th percentile (Option D): Percentiles are used to compare an infant’s growth measurements with a reference population. However, being under the 75th percentile for weight and under the 25th percentile for height does not guarantee adequate growth.

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 12https://www.pedgen.org.in/growth.php

https://journals.lww.com/njcp/fulltext/2020/23090/comparison_of_age_based_weight_estimation_with.8.aspx

↑ *Back to this question in Part A*

@Neet_pg_bot

Q46: At what age would a child normally be able to make a tower of 6 cubes, turn a doorknob, and use pronouns like "I" "me" or "you" ? (Q488282)

A. 36 months

B. 18 months

C. 15 months

D. 24 months

Correct Answer: D. 24 months

Explanation: Correct option D - 24 months: At the age of 24 months, the baby can make a tower of 6 cubes, turn the door knob and use pronouns like I, me, and you. Incorrect options: Option A, B and C are incorrect.

References:

O. P. Ghai, 9th edition, page no. 46

↑ *Back to this question in Part A*

@Neet_pg_bot

Q47: A mother expresses concern about her child's unwillingness to eat properly . Her 15-month-old son's length falls 2 standard deviations below the median for his age . What is the most probable medical condition ? (Q793765)

A. Acute malnutrition

B. Severe wasting

C. Moderately underweight

D. Moderate stunting

Correct Answer: D. Moderate stunting

Explanation: Correct Option D - Moderate stunting: Stunting is defined as a length-for-age more than two standard deviations below the WHO Child Growth Standards median. This indicates that the child has not grown adequately in height and is considered short for age. In this case, the child's length-for-age is ≤ -2 SD below the median, which indicates moderate stunting. The reluctance to take feeds appropriately may be one reason for the child's stunted growth. Poor nutrition, frequent infections, and inadequate stimulation can also contribute to stunting. Stunting is associated with impaired cognitive development, poor school performance, and reduced economic productivity in adulthood Incorrect Options: Option A - Acute malnutrition: Acute malnutrition refers to a recent and severe deficiency of energy, protein, and other nutrients that can lead to wasting and/or edema. The child in this scenario is not showing signs of acute malnutrition. Option B - Severe wasting: Severe wasting is defined as a weight-for-height greater than three standard deviations below the WHO Child Growth Standards median. The child's weight is not provided in the scenario. Option C - Moderately underweight: Moderately underweight is defined as a weight-for-age greater than two standard deviations below the WHO Child Growth Standards median. The child's weight is not provided in the scenario.



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References:

Nelson Textbook of Pediatrics 21st Edition

↑ *Back to this question in Part A*

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Q48: A 3-year-old child is brought to the OPD for a regular check-up. His growth chart shows a BMI between the 85th and 95th percentile . Which of the following categories would you place him in? (Q793757)

A. Moderate wasting

B. Severe acute malnutrition

C. Overweight

D. Obese

Correct Answer: C. Overweight

Explanation: Correct Option C - Overweight: In children, BMI is calculated using age, sex, height, and weight, and the result is plotted on a growth chart to determine the child's BMI percentile. BMI percentiles in children are classified as follows: Underweight: Less than 5th percentile Healthy weight: 5th percentile to less than 85th percentile Overweight: 85th percentile to less than 95th percentile Obese: Equal to or greater than 95th percentile In this case, the child's BMI falls between 85th and 95th percentile, which places him in the overweight category. This means that the child's weight is higher than what is considered healthy for his age, sex, and height. Incorrect Options: Options A, B and D: The BMI in the given clinical scenario does not fit into any of these categories.

References:

Prepladder Notes

↑ *Back to this question in Part A*

@Neet_pg_bot

• [14_Pediatric Nephrology] 035 Renal Development And Congenital Disorders

« Back to Folder Directory

[14_Pediatric Nephrology] 035 Renal Development And Congenital Disorders — Quick Jump

Q1 (p. 1352) *Q2 (p. 1353)* *Q3 (p. 1354)* *Q4 (p. 1354)* *Q5 (p. 1355)* *Q6 (p. 1356)*
Q7 (p. 1356) *Q8 (p. 1357)* *Q9 (p. 1358)* *Q10 (p. 1359)* *Q11 (p. 1362)* *Q12 (p. 1362)*
Q13 (p. 1364) *Q14 (p. 1365)* *Q15 (p. 1366)* *Q16 (p. 1367)* *Q17 (p. 1368)* *Q18 (p. 1370)*
Q19 (p. 1370)

Q1: Which of the following is the most appropriate initial antihypertensive agent for a child with CKD and proteinuria? (Q850304)

A. Metoprolol

B. Amlodipine

C. Enalapril

D. Furosemide

Correct Answer: C. Enalapril

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: ACE inhibitors (Enalapril) and Angiotensin II Receptor Blockers (Losartan) are the antihypertensive medications of choice in all children with pediatric CKD as they decrease BP as well as proteinuria. Treatment of Pediatric CKD: Nutrition Management Dietary Protein restriction is not suggested. Children with CKD stage 2-5 should receive 100% of the daily reference intake of vitamins and minerals. Blood Pressure Control Antihypertensive drugs, like ACE inhibitors or ARBs, are often prescribed to manage high BP. Anemia Treatment Erythropoietin-stimulating agents (ESAs) or iron supplements. Phosphate Binders (Calcium carbonate, calcium acetate, Sevelamer, Ferric citrate) to maintain normal serum calcium and phosphorus levels. Ergocalciferol or Cholecalciferol Typically recommended to treat insufficient 25OH vitamin D Bicitra or Sodium Bicarbonate tablets Used to maintain the serum bicarbonate levels > 22mEq/L. Recombinant human growth hormone(rHuGH) Given by daily subcutaneous injections and continues until the patient reaches the 50 th percentile for mid-parental height. Dialysis and Kidney Transplantation Preferred treatment for children with end-stage renal disease. Vaccinations Special considerations for immunocompromised children. Metoprolol (Option A), Amlodipine (Option B) & Furosemide (Option D): They do not have the added benefit of reducing proteinuria or slowing the progression of CKD.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2776,2777 & 2778.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 13-year-old boy presents with excessive thirst, increased urination, and growth retardation. His family has a history of kidney disease. Laboratory tests show anemia, and ultrasound imaging reveals small, scarred kidneys with a few cysts. Which of the following genes is most likely involved in this patient's condition? (Q850298)

A. PKD1

B. PKD2

C. PKHD1

D. NPHP1

Correct Answer: D. NPHP1

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A 13-year-old with polyuria, polydipsia, growth retardation, and anemia suggests a chronic tubulointerstitial kidney disorder with impaired concentrating ability. The presence of small, scarred kidneys with a few cysts and a positive family history is characteristic of nephronophthisis. Definition Inherited cystic kidney disease Characterized by chronic tubulointerstitial nephritis Leads to kidney failure Etiology & Pathogenesis Caused by mutations in over 20 genes, NHPH 1-18, NHPH 1 being the most common at 13 years old. Disease Process Tubular atrophy (shrinkage of tubule cells) Interstitial fibrosis (scar tissue formation) Small cyst formation Clinical Features Polyuria and polydipsia (excessive thirst & urination) Anemia Growth retardation in children Hypertension Diagnosis Detailed medical history & physical exam Blood & urine tests for kidney function & anemia, Ultrasound, MRI, CT Genetic testing Complications End-stage renal disease (ESRD) Hypertension Anemia (severe fatigue, weakness) Fractures, liver fibrosis, eye abnormalities Treatment Adequate hydration, medication for polyuria Iron supplements Blood pressure control medications Management of extra-renal manifestations Renal replacement therapy (dialysis, kidney transplantation) PKD1 (Option A): PKD1 mutation causes a utosomal dominant polycystic kidney disease (ADPKD) . Features of ADPKD: Usually presents in adulthood (30-40 years) Enlarged kidneys with multiple large cysts Often associated with hypertension and berry aneurysms PKD2 (Option B): PKD2 also causes autosomal dominant polycystic kidney disease , but with: Later onset Milder disease compared to PKD1 Enlarged cystic kidneys PKHD1 (Option C): It causes autosomal recessive polycystic kidney disease (ARPKD) Presents in infancy/early childhood Enlarged echogenic kidneys , not small scarred ones

References:

Nelson's textbook of Paediatrics, 21st Edition, Pages 2737-2740

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: Which of the following is a common electrolyte imbalance associated with Acute Kidney Injury (AKI)? (Q850307)

A. Hypokalemia

B. Hypercalcemia

C. Hyperkalemia

D. Hyponatremia

Correct Answer: C. Hyperkalemia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The kidneys' impaired function leads to decreased excretion of potassium, causing its accumulation in the blood. Complications of Acute Kidney Injury(AKI) METABOLIC CARDIOPULMONARY GASTROINTESTINAL Hyperkalemia(M/C) Metabolic acidosis Hyponatraemia Hypocalcemia Hyperphosphatemia Hypermagnesemia Hyperuricemia Pericarditis Pulmonary oedema Arrhythmias Pericardial effusion Hypertension Myocardial infarction Pulmonary embolism Malnutrition Haemorrhage Uncontrolled projectile vomiting NEUROLOGIC HEMATOLOGIC OTHERS Asterixis Seizures Neuromuscular irritability Anaemia Haemorrhage Pneumonia Septicaemia Urinary tract infections Elevated parathyroid hormone levels Low thyroxine level levels Low total triiodothyronine levels Hypokalemia (Option A): AKI often leads to hyperkalemia due to the kidneys' reduced ability to excrete potassium. Hypercalcemia (Option B): AKI can actually lead to hypocalcemia (low calcium) due to reduced conversion of vitamin D to its active form, affecting calcium absorption. Hyponatremia (Option D): While fluid overload in AKI can dilute sodium levels, hyperkalemia is a more direct and frequent issue.

References:

Nelson Textbook of Pediatrics Edition 21,Page 2772

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: Which type of AKI is most commonly associated with posterior urethral valve? (Q850306)

A. Prerenal AKI

B. Intrarenal AKI

C. Postrenal AKI

D. Hypovolemic AKI

Correct Answer: C. Postrenal AKI

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Postrenal Acute Kidney Injury(AKI) is commonly associated with urolithiasis or an enlarged prostate (as prostate pushes over the ureter) Types of AKI TYPES OF AKI CAUSES CLINICAL FEATURES Prerenal AKI Dehydration Gastroenteritis Haemorrhage Burns Sepsis Cirrhosis Anaphylaxis Cardiac failure Capillary leak Hypotension Tachycardia Dry mucus membrane Oliguria Elevated BUN Intrinsic / Intrarenal AKI Acute tubular necrosis Cortical necrosis Renal vein thrombosis Acute interstitial nephritis Glomerulonephritis Haemolytic-uremic syndrome Toxin and drugs Tumor lysis syndrome Hematuria Proteinuria Edema Hypertension Granular or epithelial cell casts Postrenal AKI Urolithiasis Enlarged prostate Ureterocele Posterior urethral valves Ureteropelvic junction obstruction Ureterovesicular junction obstruction Neurogenic bladder Anticholinergic drugs Flank pain Anuria Intermittent urine flow Incomplete voiding Hydronephrosis

References:

Nelson Textbook of Pediatrics Edition 21, Page 2770,2771.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: Which of the following is NOT a criterion for diagnosing AKI according to KDIGO guidelines? (Q850305)

A. Increase in serum creatinine by ≥0.3 mg/dL

B. Anuria for 12 hours

C. Urine output less than 0.5 mL/kg/h for 6 hours

D. Decrease in GFR by 25%

Correct Answer: D. Decrease in GFR by 25%

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Staging of AKI based on the classification system proposed by Kidney Disease Improving Global Outcomes(KDIGO) STAGE SERUM CREATININE URINE OUTPUT Stage 1 Increase by ≥0.3 mg/dL OR increase to 1.5–1.9 times baseline < 0.5 mL/kg/h for 6–12 hours Stage 2 Increase to 2.0–2.9 times baseline < 0.5 mL/kg/h for ≥12 hours Stage 3 Increase to 3.0 times baseline OR increase by ≥4.0 mg/dL < 0.3 mL/kg/h for ≥24 hours - OR anuria for ≥12 hours

References:

Nelson Textbook of Pediatrics Edition 21, Page 2769,2770.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: Which stage of CKD is characterized by a GFR of 60-89 mL/min/1.73 m²? (Q850303)

A. Stage 1

B. Stage 2

C. Stage 3

D. Stage 4

Correct Answer: B. Stage 2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: CKD stages based on NFK KDOQI guidelines STAGE DESCRIPTION GFR(mL/min/1.73 m2) Stage 1 Kidney damage with normal or increased GFR ≥90 Stage 2 Kidney damage with a mild decrease in GFR 60-89 Stage 3 Moderate decrease in GFR 30-59 Stage 4 Severe decrease in GFR 15-29 Stage 5 Kidney failure <15 or on dialysis

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2774

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 16 year-old patient presents with sudden onset of flank pain and gross hematuria. Imaging studies reveal an enlarged kidney with a blood clot in the renal

vein. Which of the following conditions is most strongly associated with renal vein thrombosis? (Q850302)

A. Hypertension

B. Nephrotic syndrome

C. Polycystic kidney disease

D. Diabetes mellitus

Correct Answer: B. Nephrotic syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Nephrotic syndrome is strongly associated with the development of renal vein thrombosis (RVT). Renal Vein Thrombosis (RVT) Definition Renal vein thrombosis (RVT) is the formation of a blood clot in the renal vein. Causes Dehydration, particularly in infants. Central venous catheters Inherited thrombophilia Nephrotic syndrome Membranous glomerulonephritis Drug induced Immunological disorders like SLE, Rheumatoid arthritis Others: pregnancy, cancer, Hemolytic uremic syndrome Pathophysiology Damage to the renal vein's inner lining due to trauma, inflammation, or catheters. Activation of platelets and clotting factors leads to clot formation.The growing clot blocks blood flow, causing kidney swelling and dysfunction. Clinical Features Sudden flank pain Hematuria Kidney enlargement & decreased urine output Diagnosis Ultrasound CT Scan: useful if ultrasound is inconclusive. MRI. Complications Pulmonary embolism Stroke Kidney failure Treatment Blood thinners (anticoagulants) Thrombolytic therapy (clot busters). Surgery: To remove clot or repair vein. Hypertension (Option A): It is not directly associated with an increased risk of RVT. Polycystic kidney disease (Option C): This condition causes cyst formation in the kidneys and can lead to chronic kidney disease. Diabetes mellitus (Option D) is not specifically linked to an increased risk of RVT compared to nephrotic syndrome.

References:

Nelson's textbook of paediatrics, Edition 21, Page 429,871,971,2604,2742,2743

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 5-year-old child presents with a history of bloody diarrhea followed by decreased urine output, lethargy, and paleness. Laboratory tests reveal hemolytic anemia, thrombocytopenia, and elevated creatinine levels. What is the most likely diagnosis? (Q850301)

A. Immune Thrombocytopenic Purpura (ITP)

B. Disseminated Intravascular Coagulation (DIC)

C. Atypical Hemolytic Uremic Syndrome (aHUS)

D. Typical Hemolytic Uremic Syndrome

Correct Answer: D. Typical Hemolytic Uremic Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Hemolytic Uremic Syndrome (HUS) Types and Causes STEC-HUS: Caused by E. coli O157 (Shiga toxin) Atypical HUS: Caused by genetic mutations, immune issues, pregnancy, cancers, medications Pathophysiology and Pathology Shiga toxin damages blood vessels in kidneys and brain Clinical Features Typical HUS: Bloody diarrhea, decreased urine output, paleness, lethargy, seizures Atypical HUS: No bloody diarrhea, High blood pressure, mild breathing difficulties (Option C) . Diagnosis and Laboratory Investigations Triad: Hemolytic anemia Thrombocytopenia Acute kidney injury Blood tests: Anemia, low platelet count, elevated creatinine Stool cultures for E. coli O157 in STEC-HUS Complications Acute: Seizures, stroke, heart failure, death Chronic: Chronic kidney disease (CKD) Differential Diagnosis ITP: Affects platelets only, lacks hemolytic anemia and kidney injury (Option A) . DIC: Widespread clotting and bleeding, different clinical features (DIC) (Option B) Treatment Supportive care Plasma exchange for aHUS Antibiotics not recommended for STEC-HUS

References:

Nelson's textbook of paediatrics, Edition 21, Page 1978

OP Ghai's textbook of paediatrics, Edition 10, Page 517

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 7-year-old female presents with a complaint of continuous urinary incontinence despite normal voiding patterns. Which of the following is the most likely diagnosis? (Q850300)

A. Vesicoureteral reflux

B. Ectopic ureter

C. Urethral stricture

D. Neurogenic bladder

Correct Answer: B. Ectopic ureter

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Ectopic ureter Etiology Results from abnormal embryological development, often associated with ureteral duplication. Pathology Ectopic ureters drain to sites other than the bladder, commonly associated with duplication of the ureter. Pathophysiology Females, ectopic ureters open below the urethral sphincter or into the vagina, leading to incontinence. Males, ectopic ureters usually open above the external urethral sphincter, maintaining continence. Types Bilateral ectopic ureters (10% of cases). Unilateral ectopic ureters. Clinical Features Females: Continuous urinary incontinence despite normal voiding. Males: Typically asymptomatic or continent due to ureter opening above the sphincter. Diagnosis Computed Tomo-Urography (CTU). Magnetic Resonance Urography (MRU). Laboratory Investigations Primarily imaging-based diagnostics (CTU or MRU). Complications Persistent incontinence in females. Potential recurrent urinary tract infections. Differential Diagnosis Vesicoureteral Reflux (Option A) Urethral Stricture (Option C) : Difficulty in urination and weak stream, not continuous incontinence. Neurogenic Bladder (Option D) : Treatment Surgical correction: Reposition it into the bladder to restore normal continence. Vesicoureteral Reflux (Option A): usually seen in children, presenting with recurrent UTI. Urethral Stricture (Option C) : typically presents with hesitancy, poor flow, prolonged voiding time and rarely retention. Neurogenic Bladder (Option D): usually presents with increased urinary frequency and nocturia with or without urinary incontinence.

References:

Bailey & Love's Short Practice of Surgery Page 1467.

↑ *Back to this question in Part A*

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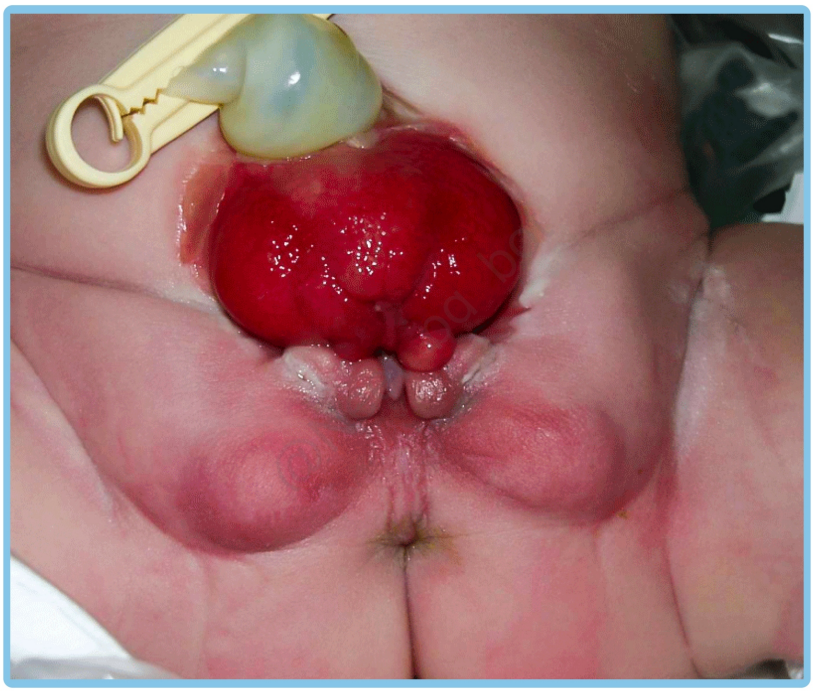
Q10: What is the most likely diagnosis and it’s best initial management? (Q850299)

A. Omphalocele; surgical repair after stabilization

B. Bladder exstrophy; surgery if required

C. Gastroschisis; urgent surgical closure of the defect

D. Bladder exstrophy; cover the exposed bladder with sterile plastic wrap and plan for surgery within the first 72 hours

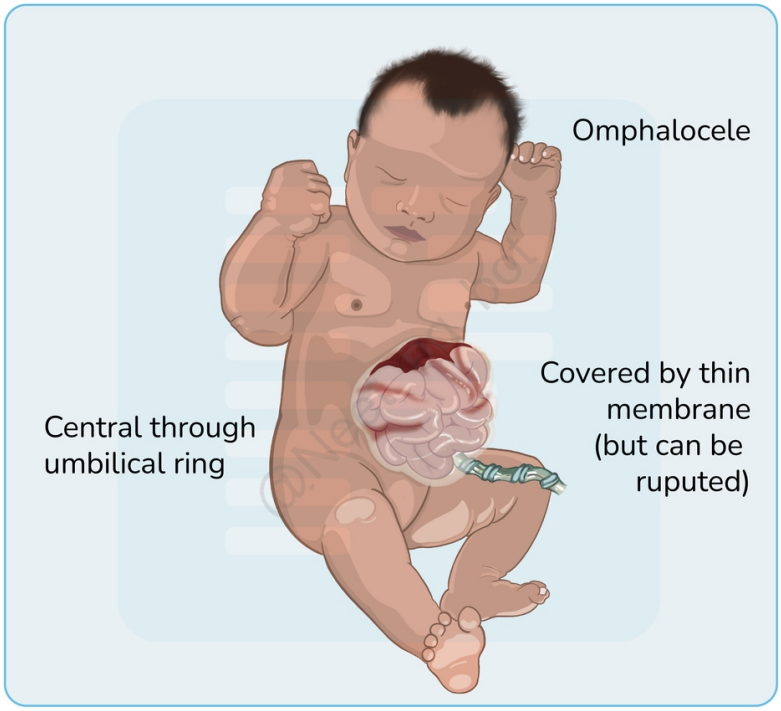


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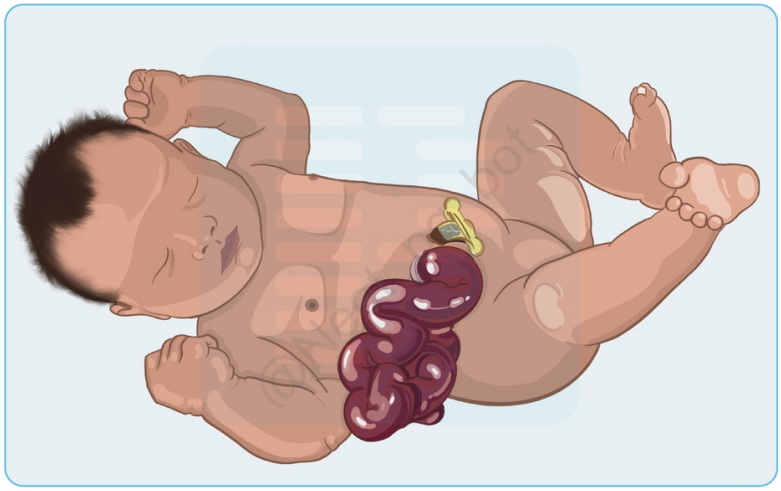
Correct Answer: D. Bladder exstrophy; cover the exposed bladder with sterile plastic wrap and plan for surgery within the first 72 hours

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Etiology Disruption in normal development during pregnancy. Exact triggers remain unclear. Pathology & Pathophysiology Improper development of the cloacal membrane. Early rupture leads to epispadias (incomplete urethral formation). Later rupture results in bladder exstrophy. Types Spectrum from simple epispadias to more complex forms of bladder exstrophy. Clinical Features Males: Shortened penis due to pubic bone separation (diastasis of the pubic symphysis). Widely spaced crura (internal, spongy columns within the penis). Underdeveloped corporeal tissue (erectile tissue). Females: Shortened and narrowed vagina, often positioned more anteriorly. Bifid clitoris (split into two parts). Complications Urinary function issues. Increased risk of infections. Risk factor for Adenocarcinoma.. Surgical Treatment Cover the bladder with a wet sterile plastic wrap and plan for surgery. Surgical repair, in multiple stages. Steps Include: Closing the bladder and placing it back inside the body. Reconstructing the urethra. Repairing the abdominal wall defect. Addressing genital abnormalities to ensure normal function and appearance. Omphalocele (Option A) Gastroschisis (Option C) Herniation of bowel contents that fails to return back Evisceration of bowel contents through a defect in anterior abdominal wall just lateral to the umbilicus Defect through the central umbilicus Defect through the right of the umbilicus Three-layer membrane covering present (peritoneum, Wharton’s jelly & amnion) Membrane cover absent Associated with aneuploidies , genetic syndromes (eg. Beckwith-Wiedemann), and other congenital anomalies Associated anomalies rare Gut malrotation/bowel atresia may be seen. Poor prognosis in long term due to associated anomalies Better prognosis in the long term



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References:

Bailey & Love's Short Practice of Surgery Page 270, 1492-1493.

https://www.ncbi.nlm.nih.gov/books/NBK563156/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: At what gestational age does glomerular filtration begin, indicating the kidney's initial role in fetal fluid balance? (Q850289)

A. 3-4 weeks

B. 5-9 weeks

C. 10-12 weeks

D. 13-15 weeks

Correct Answer: B. 5-9 weeks

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Development of kidneys Structural Development Pronephros: Emerges at 4 weeks and regresses by the end of the fourth week. Mesonephros: Develops at 4 weeks, temporarily functional, mostly degenerates by the second month. Male mesonephros contributes to genital system. Metanephros Permanent kidney develops from the fifth week. Forms excretory units and collecting system. Kidneys ascend to final position between 6-9 weeks gestation. Size increases from 1.0 cm to 4.0 cm between 12-40 weeks. Ultrasound detects kidneys at 12-13 weeks. Functional Development Glomerular filtration begins at 5-9 weeks. (Option B) Tubular function starts at 14 weeks. Renal function matures by two years.

References:

Nelson Textbook of Pediatrics 21st edition, Page 2786

OP Ghai essential pediatrics Edition 10, Page 488

Langman’s Medical Embryology-14th edition, Page 256-263

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: Which of the following statements regarding Autosomal Dominant Polycystic Kidney Disease (ADPKD) are true? Kidneys are enlarged Cysts originates from all regions of a nephron Symptomatic most commonly in the fourth or fifth decade

Majority of the cases are PKD1 mutation which is more severe Associated with saccular cerebral aneurysms Cysts seen in other organs as well (Q850297)

A. 1,2,5

B. 2,6

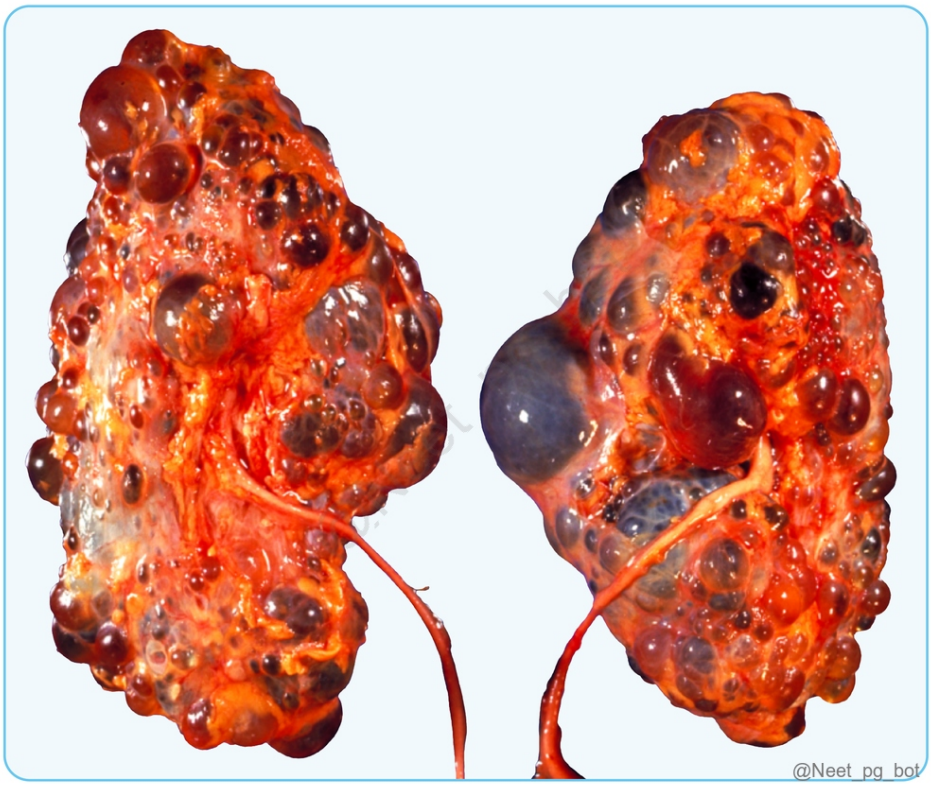
C. 1,2,5,6

D. 1,2,3,4,5,6

Correct Answer: D. 1,2,3,4,5,6

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Autosomal Dominant Polycystic Kidney Disease (ADPKD): Synonym Adult-onset polycystic kidney disease Pathology Enlarged kidneys with large cortical and medullary cysts originating from all regions of the nephron Outer contour destroyed. Systemic Involvement Cyst formation in multiple organs : liver, pancreas, spleen, brain; associated with saccular cerebral aneurysms Genetic Basis 85% of cases: mutations in PKD1 gene (chromosome 16), more severe disease 10-15% of cases: mutations in PKD2 gene (chromosome 4) GANAB mutations reported in PKD1- and PKD2-negative patients 8-10% of cases involve de novo mutations Clinical Presentation Symptomatic most commonly in the fourth or fifth decade Symptoms: hematuria, bilateral flank pain, abdominal masses, hypertension, UTIs Pediatric Presentation Symptoms can appear in neonates, children, and adolescents Diagnosed by abnormal renal sonography in asymptomatic, at-risk offspring Renal Ultrasound Findings Multiple bilateral macrocysts in enlarged kidneys Normal kidney size or unilateral disease may be seen in the early phases



References:

Nelson Textbook of Pediatrics 21st edition, Pages 2747

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: An 8-year-old boy has a genetic disease involving the PKHD1 gene which encodes for fibrocystin. Which of the following features will not be found in him? (Q850296)

A. Large cystic kidneys

B. Progressive hepatic fibrosis

C. Spontaneous pneumothorax

D. Hypotension

Correct Answer: D. Hypotension

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The scenario is that of Autosomal Recessive Polycystic Kidney Disease (ARPKD) Autosomal Recessive Polycystic Kidney Disease (ARPKD) : Genetic Basis Autosomal recessive disorder; gene involved: PKHD1, encoding fibrocystin Pathology - Kidney Markedly enlarged kidneys with numerous small cysts in cortex and medulla Dilated, ectatic collecting ducts Progressive interstitial fibrosis and tubular atrophy Pathology - Liver Ductal plate abnormality Bile duct proliferation and ectasia Progressive hepatic fibrosis Clinical Manifestations Bilateral flank masses Respiratory distress, spontaneous pneumothorax Hypertension Oligohydramnios, Potter syndrome Renal and hepatic disease

References:

Nelson Textbook of Pediatrics 21st edition, Pages 2744-2745

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: Which of the following statements about Horseshoe kidney is false? (Q850295)

A. Lower poles fused in midline

B. Isthmus ascent is prevented by Inferior mesenteric artery.

C. Can be associated with Multicystic Dysplastic Kidney (MCDK) affecting one side.

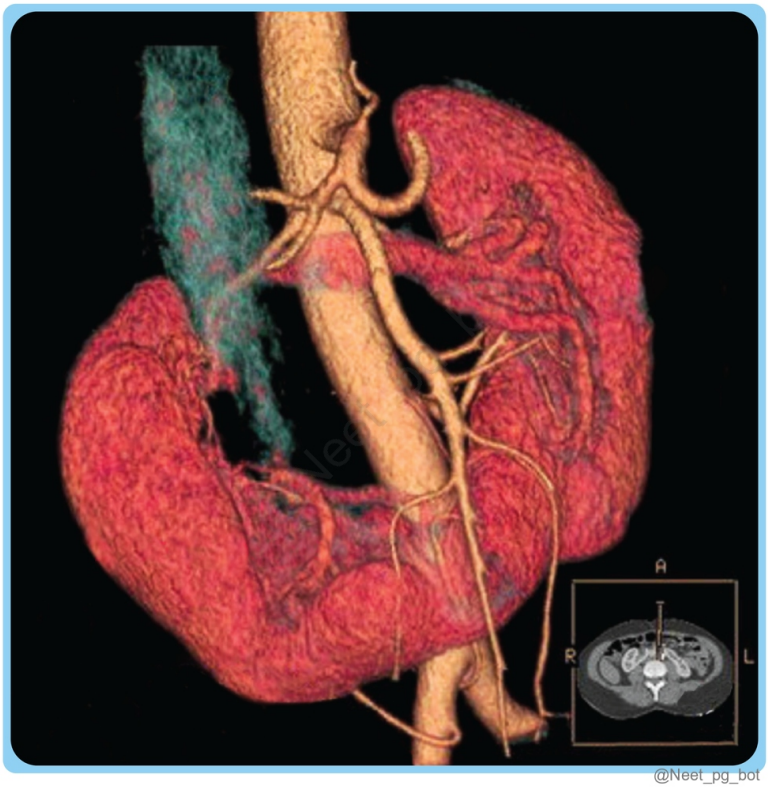
D. Isthmectomy is done to relieve symptoms

Correct Answer: D. Isthmectomy is done to relieve symptoms

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Horseshoe kidney: Description A condition where the lower poles of the kidneys fuse in the midline. (Option A) More common in males Isthmus lies at level of L3 and its ascent is prevented by the origin of inferior mesenteric artery (IMA). (Option B) Associations Turner syndrome Edward syndrome Down syndrome Risk of Wilms Tumor Four times more common in children with horseshoe kidneys than in the general population. Potential Complications Stone disease. Hydronephrosis secondary to ureteropelvic junction obstruction. Increased incidence of Multicystic Dysplastic Kidney (MCDK) affecting one side. (Option C) Management Treatment of complications like PCNL in case of calculus Isthmectomy, which was done before, is no longer a mode of management. The isthmus is never divided as it contains functional tissue. (Option D)



References:

Nelson Textbook of Pediatrics 21st edition, Pages 2788-2789

https://www.ncbi.nlm.nih.gov/books/NBK431105/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: Which of the following statements regarding Multicystic Dysplastic Kidney (MCDK) is false? (Q850294)

A. Usually unilateral

B. Increased risk of Wilms tumor

C. Most common cause of abdominal mass in newborn

D. Mostly autosomal dominant inheritance

Correct Answer: D. Mostly autosomal dominant inheritance

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Multicystic Dysplastic Kidney (MCDK): A congenital condition where the kidney is replaced by cysts and does not function. Can result from ureteral atresia. Highly variable kidney size Usually unilateral (Option A) and generally not inherited. (Option D) Bilateral MCDK is incompatible with life. Most common cause of an abdominal mass in the newborn (Option C) (though most are nonpalpable at birth). Risk of Wilms tumor is increased. (Option B) Bunch of grapes appearance seen Management: Nephrectomy can be done in unilateral cases

References:

Nelson Textbook of Pediatrics 21st edition, Pages 2787-2788

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A neonate died shortly after birth due to pulmonary hypoplasia. The neonate has characteristic “Potter Facies” as given below. What is the basic etiology of this condition? (Q850293)

A. Bilateral renal agenesis

B. Hepatic agenesis

C. Urinary outlet obstruction

D. Lack of pulmonary circulation



Correct Answer: A. Bilateral renal agenesis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The scenario is that of Potter syndrome which is caused by bilateral renal agenesis Potter syndrome: Cause Bilateral renal agenesis ARPKD Obstructive uropathy (eg. posterior urethral valve) Chronic placental insufficiency Outcome Death shortly after birth due to pulmonary hypoplasia Facial Appearance Characteristic facial appearance called " Potter facies ": Widely separated eyes with epicanthic folds Low set ears Broad and flat nose Receding chin Other Physical Anomalies Limb anomalies Prenatal Indicators Oligohydramnios Non-visualization of the bladder Absent kidneys in maternal ultrasound

References:

Nelson Textbook of Pediatrics 21st edition, Page 2786

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: A child 5 y/o who had recurrent UTI when evaluated was incidentally found to have a simple renal cyst of 1 cm diameter. What is the treatment plan for this child? (Q850292)

A. Nil intervention and follow up

B. Surgical Excision

C. Regular follow up .

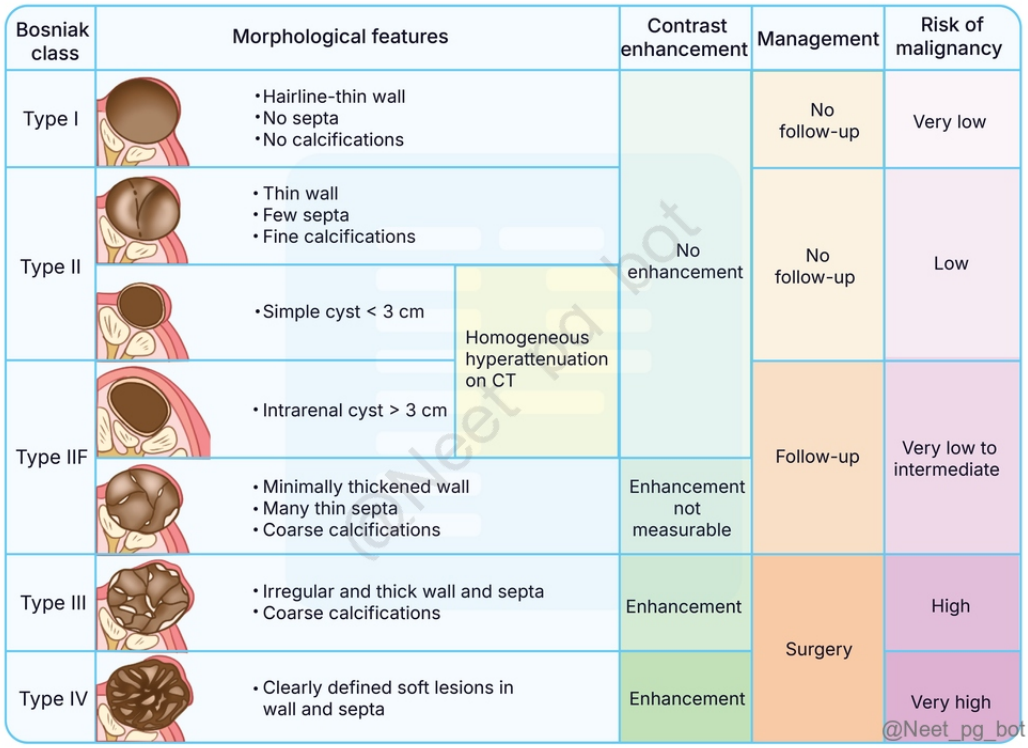
D. Medical Management

Correct Answer: A. Nil intervention and follow up

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Nil intervention and follow up Simple renal cysts Overview Most common renal cystic disease in children Occurs in one or both kidneys Typically benign and asymptomatic Usually discovered incidentally Diagnosis Ultrasound, CT Scan , MRI , urine and blood tests (to assess kidney function and rule out serious conditions) Treatment Bosniak Classification : Categorizes cystic lesions into four types to guide treatment decisions.



References:

Nelson Textbook of Pediatrics, 21st edition, Page 2788

https://pubs.rsna.org/doi/10.1148/radiol.2019182646#

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4341374/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A 6-year-old child has a height of 110 cm and a serum creatinine level of 0.8 mg/dL. Using the Schwartz formula with a constant "k" value of 0.42, what is the estimated GFR (mL/min/1.73 m²)? (Q850291)

A. 50.75 mL/min/1.73 m²

B. 57.75 mL/min/1.73 m²

C. 61.75 mL/min/1.73 m²

D. 66.75 mL/min/1.73 m²

Correct Answer: B. 57.75 mL/min/1.73 m²

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Schwartz formula GFR (mL/min/1.73 m²) = (k x height (cm)) / Serum creatinine (mg/dL) Substituting the values; GFR = (0.42 x 110 cm) / 0.8 mg/dL = 57.75 mL/min/1.73 m². (Option B) Purpose: Quick, bedside estimation of GFR using serum creatinine and height. Creatinine-Based: Relies on serum creatinine, influenced by age, muscle mass, and diet. Height Inclusion: Reflects correlation between body size and kidney function, especially in children. Constant "k": Accounts for age-related variations in creatinine; values range from 0.41 to 0.43. Age Group GFR (mL/min/1.73 m²) Inference Birth (Full-term Infants) 15-20 GFR is low at birth; renal function is still maturing. Birth (Preterm Infants) 10-15 Lower GFR compared to full-term infants due to underdeveloped kidneys. 2 Weeks 35-45 A rapid increase in GFR as renal function starts maturing. 2 Months 75-80 Continued rapid increase, nearing levels seen in older infants. Childhood (up to 2 years) Approaches 80-120 (comparable to adults after correction for body size) Renal function continues to improve, reaching near-adult GFR levels by age two when corrected for body surface area.

References:

Nelson Textbook of Pediatrics 21st edition, Pages 2716

OP Ghai essential pediatrics Edition 10, Page 491

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: A 5-year-old child presents with persistent hypertension and growth retardation. Urine examination reveals proteinuria, and blood tests show elevated creatinine levels.

Which of the following methods is the most appropriate for estimating the glomerular filtration rate (GFR) in this child? (Q850290)

A. Serum creatinine measurement

B. Blood urea nitrogen (BUN) test

C. Creatinine clearance

D. Clearance of PAH (Paraaminohippuric acid)

Correct Answer: C. Creatinine clearance

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Kidney Function Assessment Clinical Features Abnormal Urine Stream: Weak/intermittent stream (posterior urethral valves); dribbling (abnormal ureteral insertion, neurogenic bladder) Urinary Symptoms: Dysuria, flank pain, ureteric colic (UTIs, urinary tract stones) Polyuria & Polydipsia: Excessive urination/thirst (diabetes insipidus) Hypertension: High blood pressure (renal parenchymal/renovascular disease) Growth Retardation & Anemia: Growth delays, normocytic normochromic anemia (advanced CKD) Abdominal Mass: Palpable mass (multicystic dysplastic kidney, polycystic kidneys, renal vein thrombosis, hydronephrosis, Wilms' tumor) Urine Examination Color: Normal is clear yellow; red urine may indicate hematuria (postinfectious glomerulonephritis) Proteinuria: Excess protein indicates renal injury (glomerular disease) Microscopic Exam: Identifies cellular elements, crystals, and casts for kidney issues Blood Tests Renal Function: Creatinine and urea levels (creatinine more reliable than BUN) Other Tests: May include albumin, cholesterol, antibodies, and electrolytes. Glomerular Filtration Rate (GFR) Creatinine Clearance: Estimates GFR by measuring creatinine clearance from blood Plasma Clearance of Iohexol: Accurately estimates GFR using iohexol Radionuclide Clearance: Measures GFR with minimal radiation using radionuclides Imaging of the Urinary Tract Ultrasonography: First-line for visualizing kidneys and detecting abnormalities (e.g., hydronephrosis, tumors) Micturating Cystourethrography (MCU): Diagnoses vesicoureteric reflux, posterior urethral valves, neurogenic bladder Radionuclide Imaging: Non-invasive method to assess kidney function and detect abnormalities Genetic Testing Diagnosing inherited kidney disorders; includes next-generation sequencing and multiplex ligation-dependent probe amplification Kidney Biopsy Used when non-invasive methods are insufficient. Helps diagnose conditions like IgA nephropathy and various types of glomerulonephritis. Serum creatinine measurement (Option A): It is not the most accurate standalone measure, especially in children, where muscle mass can influence creatinine levels. Blood urea nitrogen (BUN) test (Option B): BUN levels can be influenced by factors other than kidney function, such as hydration status and protein intake, making it less reliable for estimating GFR. Clearance of PAH (Para Aminohippuric acid) (Option D): PAH clearance is used to measure renal plasma flow, not GFR.

References:

Nelson Textbook of Pediatrics 21st edition, Pages 2715,2716

OP Ghai essential pediatrics Edition 10, Page 489,490,491,492

↑ *Back to this question in Part A*

• [14_Pediatric Nephrology] 036 Renal Disorders

« Back to Folder Directory

[14_Pediatric Nephrology] 036 Renal Disorders — Quick Jump

Q1 (p. 1373) *Q2 (p. 1374)* *Q3 (p. 1375)* *Q4 (p. 1375)* *Q5 (p. 1377)* *Q6 (p. 1378)*
Q7 (p. 1379) *Q8 (p. 1381)* *Q9 (p. 1381)* *Q10 (p. 1382)* *Q11 (p. 1383)* *Q12 (p. 1385)*
Q13 (p. 1386) *Q14 (p. 1387)* *Q15 (p. 1388)* *Q16 (p. 1389)* *Q17 (p. 1390)* *Q18 (p. 1392)*
Q19 (p. 1393)

Q1: A 7-year-old child presents with symptoms indicative of acute pyelonephritis, including high fever, flank pain and nausea. The child is stable but unable to tolerate oral medications. What is the most appropriate initial treatment for this child? (Q850335)

A. Start oral Nitrofurantoin and follow with a 3-day course of antibiotics.

B. Begin intravenous Ceftriaxone and transition to oral Cefixime after 3 days.

C. Administer oral Amoxicillin and monitor for 5 days.

D. Initiate treatment with intravenous Fluoroquinolones and assess after 7 days.

Correct Answer: B. Begin intravenous Ceftriaxone and transition to oral Cefixime after 3 days.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Intravenous Ceftriaxone is effective for initial treatment of acute pyelonephritis, then oral Cefixime can be used to complete the treatment course. Urinary Tract Infections (UTIs) Etiology and Prevalence: Primary Cause: Colonic bacteria ascending the urinary tract. Common Pathogen: Escherichia coli (54-67% of cases). Other Pathogens: Klebsiella spp., Proteus spp., Enterococcus, Pseudomonas. Clinical Features and Classification: Pyelonephritis (Kidney Infection): Upper renal collecting system involved Symptoms: Abdominal/back/flank pain, fever, malaise, nausea, vomiting, diarrhea. Newborns: Non-specific symptoms like poor feeding, irritability, jaundice, weight loss. Cystitis (Bladder Infection): Only bladder involved Symptoms: Dysuria, urgency, frequency, suprapubic pain, incontinence, malodorous urine. Typically does not cause high fever or renal injury. Risk Factors for Recurrent UTI: Vesicoureteral Reflux (VUR) Bladder-Bowel Dysfunction (BBD) Obstructive Uropathy Urinary Tract Abnormalities: Anatomical issues like labial adhesion. Neuropathic Bladder Catheterisation: Procedures introducing bacteria. Sexual Activity: Increases UTI risk in females. Diagnosis: Urine Culture: Gold standard for UTI diagnosis; identifies and quantifies bacteria. Interpretation: A colony count of >50,000 colony-forming units/mL of a single pathogen, along with pyuria or bacteriuria in a symptomatic child, is generally considered diagnostic of a UTI. Urinalysis: Leukocyte Esterase and Nitrites positive. Imaging Studies: Age < 1 year Age > 1 year USG KUB DMSA scan Micturating cystourethrogram (MCU) USG KUB (abnormal),

DMSA scan (abnormal), MCU Treatment: Antibiotic Therapy: Mainstay of UTI treatment. Treatment Specific to UTI Presentations Acute Cystitis Common Antibiotics: TMP-SMX, Nitrofurantoin, Amoxicillin (Option C) Duration: 3-5 days Acute Pyelonephritis Hospitalized: IV Ceftriaxone, Cefepime, Cefotaxime Outpatient: Oral Cefixime, Cephalexin Avoid Nitrofurantoin (Option A) ; use Fluoroquinolones for resistant strains (Option D). Duration: 7-14 days Acute Lobar Nephronia/Abscess Similar to pyelonephritis, but longer duration (14-21 days) Percutaneous or surgical drainage for abscesses

References:

Nelson's textbook of pediatrics, Edition 21, Page 2789 - 2794

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: Which of the following features will not be seen in a child with Type I RTA? (Q850322)

A. Urine pH < 5.5

B. Nephrocalcinosis

C. Hypercalciuria

D. Bone diseases

Correct Answer: A. Urine pH < 5.5

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Urine pH in Type I RTA is always > 5.5 Distal Renal Tubular Acidosis (RTA) = Type I RTA Etiology Sporadic or inherited Primary or secondary to other diseases of the distal tubules. Pathogenesis Impaired functioning of transporters involved in acidification ↓ Impaired hydrogen ion excretion ↓ Urine pH > 5.5 despite severe metabolic acidosis ↓ Increased chloride absorption and compensatory potassium secretion ↓ Hypercalciuria (Option C) and hypocitraturia (risk of nephrocalcinosis (Option B) and nephrolithiasis) ↓ Chronic acidosis mobilizes bone components as buffers ↓ Bone disease (Option D) Clinical Manifestations Same as proximal RTA Distinguishing features: nephrocalcinosis, hypercalciuria Feature Proximal (Type 2) RTA Distal (Type 1) RTA Hyperkalemic (Type 4) RTA Causes Genetic (e.g., cystinosis), systemic diseases (e.g., Wilson disease), dysproteinemias, vitamin D deficiency. Familial, autoimmune disorders (e.g., hyperglobulinemic purpura), hypercalciuria, endemic cases. Mineralocorticoid deficiency/resistance, drugs (e.g., amiloride), kidney disorders (e.g., lupus nephritis). Pathogenesis Impaired bicarbonate reabsorption in the proximal tubules, often seen with Fanconi syndrome. Defective hydrogen ion excretion in distal tubules, causing hyperchloremia, hypokalemia, hypercalciuria. Aldosterone issues impair potassium excretion, leading to hyperkalemia and acidosis. Findings Growth failure Dehydration Acidic urine (pH < 5.5) Risk of chronic renal insufficiency. Growth failure Nephrocalcinosis Hypercalciuria Non-anion gap metabolic acidosis. Growth failure Polyuria Dehydration Hyperkalemia Life-threatening acidosis.

References:

Nelson Textbook of Pediatrics 21st edition, Page 2762-2765

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: Which of the following laboratory findings is not indicative of Minimal Change Disease (MCD) compared to Post-Streptococcal Glomerulonephritis (PSGN)? (Q850339)

A. Normal serum complement C3

B. Hypercholesterolemia

C. Prominent hematuria

D. Heavy proteinuria on dipstick

Correct Answer: C. Prominent hematuria

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Prominent hematuria (cola-colored urine) is highly indicative of PSGN and is rarely seen in MCD. This makes it a key differentiator between the two conditions. Feature Minimal Change Disease (MCD) Post-Streptococcal Glomerulonephritis (PSGN) Clinical Presentation Nephrotic syndrome: Edema, heavy proteinuria, but normal renal function Acute nephritic syndrome: Hematuria, oliguria, edema, hypertension Proteinuria Heavy (3+ to 4+) on dipstick (Option D) (1+ to 2+) levels of proteinuria Hematuria Rare, microscopic hematuria may occur Common, with cola-colored urine due to gross hematuria (Option C) Urinary Casts Hyaline and granular casts Red blood cell casts (indicating glomerular inflammation) Serum Albumin Low (<1 g/dL) Usually normal unless severe renal impairment Blood Urea and Creatinine Normal unless hypovolemia or acute kidney injury Elevated due to impaired renal function Serum Complement C3 Normal (Option A) Low in 90% of cases, returns to normal in 8-12 weeks Cholesterol Hypercholesterolemia (may cause milky plasma) (Option B) No significant hypercholesterolemia ASO/Anti-DNase B Titers Not elevated Elevated ASO titers (pharyngitis) or anti-DNase B (skin infection)

References:

OP Ghai's textbook of pediatrics, Edition 10, Page 497, 501, 502.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: Match the grade of VUR with its description. Grade of VUR Description 1. Grade I A. Reflux into a grossly dilated ureter 2. Grade II B. Reflux into a nondilated ureter 3. Grade III C. Massive reflux with significant ureteral dilation and tortuosity 4. Grade IV D. Reflux into the upper collecting system without dilation 5. Grade V E. Reflux into a dilated ureter and/or blunting of calyceal fornices (Q850334)

A. 1-B, 2-D, 3-E, 4-A, 5-C

B. 1-A, 2-E, 3-C, 4-D, 5-B

C. 1-D, 2-C, 3-A, 4-E, 5-B

D. 1-E, 2-B, 3-D, 4-C, 5-A

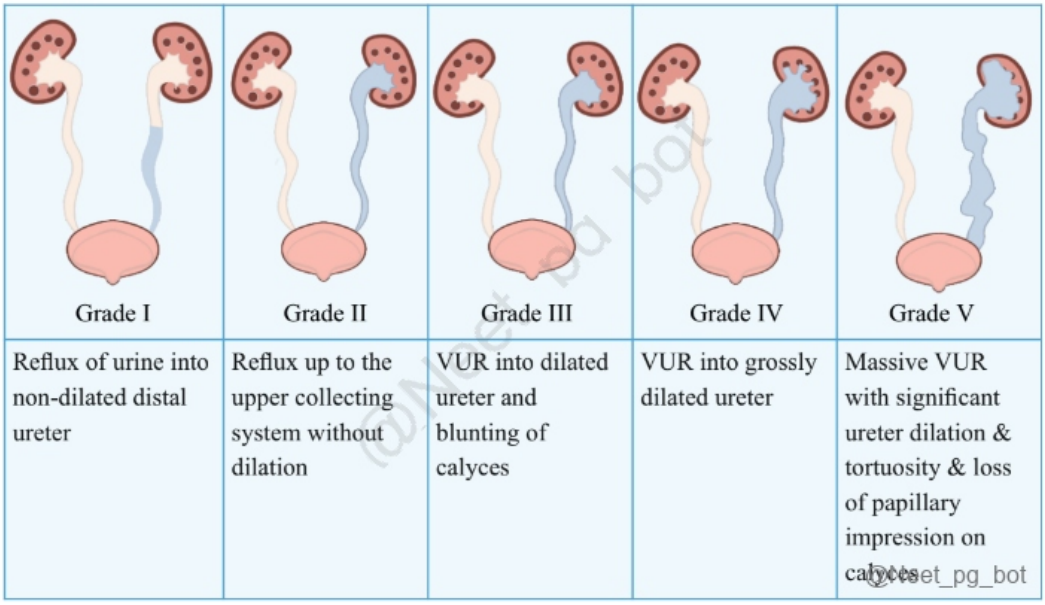
Correct Answer: A. 1-B, 2-D, 3-E, 4-A, 5-C

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Vesico-Ureteric Reflux (VUR) Retrograde urine flow from the bladder to the ureters/kidneys due to an incompetent valve at the ureter-bladder junction. Grading of VUR: Grade Description I Reflux into a nondilated ureter II Reflux into the upper collecting system without dilation III Reflux into a dilated ureter and/or blunting of calyceal fornices IV Reflux into a grossly dilated ureter V Massive reflux with significant ureteral dilation and tortuosity

Grading of VUR



Grade I	Grade II	Grade III	Grade IV	Grade V
Reflux of urine into non-dilated distal ureter	Reflux up to the upper collecting system without dilation	VUR into dilated ureter and blunting of calyces	VUR into grossly dilated ureter	Massive VUR with significant ureter dilation & tortuosity & loss of papillary impression on calyces

@Neet_pg_bot

References:

Nelson’s textbook of pediatrics, Edition 21, Page 2796 - 2800

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: Which of the following correctly represents the classic triad of symptoms associated with Prune Belly Syndrome? (Q850333)

A. Deficient abdominal musculature, hydronephrosis and pulmonary hypoplasia.

B. Cryptorchidism, urinary tract abnormalities and pulmonary hypoplasia.

C. Deficient abdominal musculature, cryptorchidism and urinary tract abnormalities.

D. Cryptorchidism, gastrointestinal malformations and hydronephrosis.

Correct Answer: C. Deficient abdominal musculature, cryptorchidism and urinary tract abnormalities.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: PRUNE BELLY SYNDROME Rare congenital disorder mainly in males. Characterized by a triad: (Option C) Deficient abdominal musculature Cryptorchidism Urinary tract abnormalities Etiology The exact cause is unknown . Proposed theories: Urethral Obstruction-Malformation Complex: Obstruction during development leads to bladder distension and impacts urinary tract, abdominal wall and testicular development. Yolk Sac Defect: A defect in the yolk sac may contribute to the syndrome. Lateral Plate Mesoderm Defect: Defect in embryological layer forming ureters, bladder, prostate, urethra and gubernaculum. Clinical Presentation Deficient Abdominal Musculature : Wrinkled abdominal appearance. Cryptorchidism : Undescended testicles in most male infants. Urinary Tract Abnormalities : Hydronephrosis, Vesicoureteral reflux, and Recurrent UTIs Treatment Medical Management: Prophylactic Antibiotics : To prevent UTIs, especially in patients with vesicoureteral reflux. Management of Constipation : Important to prevent exacerbation of urinary issues. Surgical Interventions: Orchiopexy : Corrects undescended testicles, typically around 6 months of age. Urinary Tract Reconstruction : For recurrent UTIs or progressive renal issues. Abdominal Wall Reconstruction : For significant abdominal wall deficiencies, often with other surgeries.



References:

https://www.ncbi.nlm.nih.gov/books/NBK544248/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 6-year-old child presents with recurrent episodes of flank pain, hematuria and failure to thrive. An abdominal ultrasound reveals bilateral hydronephrosis and a voiding cysto-urethrogram (VCUG) shows no evidence of vesico-ureteric reflux (VUR). Laboratory tests reveal hypercalciuria. What is the most appropriate initial management for this patient? (Q850332)

A. Immediate surgical intervention

B. Increased fluid intake and dietary modification

C. Start on antibiotics to prevent UTI

D. Dietary calcium restriction

Correct Answer: B. Increased fluid intake and dietary modification

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical scenario is suggestive of nephrolithiaisis due to hypercalciuria. First-line management for the child includes increased fluid intake to promote urine dilution and dietary modification to prevent stone formation. Nephrolithiasis Etiology Metabolic Causes: Hypercalcemia, hyperphosphatemia, idiopathic hypercalciuria, hyperuricemia, hyperoxaluria, cystinosis. Genetic Disorders: Bartter syndrome, Gitelman syndrome, Dent disease (X-Linked disease). Other Causes: Primary hyperparathyroidism. Pathophysiology Idiopathic Hypercalciuria: increased urinary calcium excretion promotes calcium stone formation. Types of Stones Common Components: Calcium oxalate, calcium phosphate. Clinical Features Neonates/Infants: Weak urinary stream, straining during micturition, distended & palpable bladder. Older Infants/Children: Failure to thrive, recurrent UTIs, sepsis, possible uremia. Common Symptoms: Microscopic or gross hematuria, renal colic (flank/abdomen pain), dysuria, urgency, frequency. Diagnosis USG, VCUG or MCU, DMSA scan. Imaging: Abdominal X-ray (radio-opaque calculi), USG, Spiral CT of abdomen & pelvis. Laboratory Tests: Urine calcium (hypercalciuria), uric acid levels, 24-hour urine collection. Complications Recurrent stone formation UTI Treatment Increased fluid intake, dietary modifications (reduce sodium). Medications: Thiazide diuretics to reduce urinary calcium excretion (in hypercalciuria cases). Surgical Intervention: Required for larger stones (Option A) or if conservative measures fail; procedures used lithotripsy, ureteroscopy, percutaneous nephrolithotomy. Dietary Recommendations: High fluid intake, avoid high-protein diet, dietary calcium usually not restricted (Option D) .

References:

Nelson’s textbook of pediatrics, Edition 21, Page 409,819,2953.

OP Ghai's textbook of pediatrics, Edition 10, Page 525-527.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 2-month-old male infant presents with a history of reduced urine passage and recurrent UTIs. His antenatal scan showed findings as below. Which of the following is the most appropriate next step in confirming the diagnosis ? (Q850331)

A. Renal ultrasound

B. Retrograde Urethrogram

C. Voiding cystourethrogram (VCUG)

D. Intravenous pyelography (IVP)



Correct Answer: C. Voiding cystourethrogram (VCUG)

- *Listen (English)*
- *Listen (Hindi)*

Explanation: The voiding cystourethrogram (VCUG) is the gold standard imaging test for diagnosing posterior urethral valves (PUVs). It not only confirms the presence of PUVs but also assesses the degree of bladder and ureteral dilation. Posterior Urethral Valves (PUVs) Etiology Male infants Thin, membrane-like structures in the posterior urethra Pathogenesis Abnormal fusion of urethral folds forming valves Obstruction leads to possible backflow of urine into ureters and kidneys (Vesicoureteral Reflux - VUR) Clinical Features Distended bladder (palpable, firm) Recurrent UTIs Poor urine stream Failure to thrive (difficulty gaining weight, growth delay) Prenatal detection via ultrasound (enlarged bladder, dilated ureters, kidney damage) Diagnosis Physical Examination: Palpable enlarged bladder Voiding Cystourethrogram (VCUG): Gold standard test, visualizes urethral valves, assesses bladder and ureteral dilation Ultrasound: Initial test for kidney, bladder and ureter dilation Complications Recurrent UTIs Hydronephrosis leading to CKD Bladder dysfunction Electrolyte imbalances due to kidney dysfunction Treatment Bladder Drainage: Immediate catheterization in severe cases Cystoscopic Valve Ablation Antibiotics for UTI Renal ultrasound (Option A) is often used as an initial imaging test, it is not definitive for diagnosing PUVs. Retrograde Urethrogram (Option B): X-ray examination that visualizes the urethra by injecting contrast material directly into it. Primarily used to evaluate urethral strictures or trauma and is not typically the first test for a suspected urinary tract obstruction or reflux in infants. Intravenous pyelography (IVP) (Option D) is an older imaging modality that has largely been replaced by more advanced techniques like VCUG and ultrasound.

References:

Nelson's textbook of pediatrics 21st edition, Page 2808-2810

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 5-year-old boy presents with an asymptomatic flank mass. Ultrasonography reveals a dilated renal pelvis without ureteric dilatation. Which of the following is the most appropriate next step in confirming the diagnosis? (Q850328)

A. Intravenous pyelography (IVP)

B. MAG 3 scan

C. MRI

D. CT scan

Correct Answer: B. MAG 3 scan

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The diagnosis of PUJ obstruction usually is done by ultrasonography and MAG 3 scan diuretic renography. Pelviureteric Junction (PUJ) obstruction PUJ obstruction Unilateral (common), Bilateral (rare) More common in boys Associated Kidney Anomalies Ectopic kidney Malrotated kidney Horseshoe kidney Clinical Presentation Asymptomatic flank mass Upper abdominal pain Urinary tract infection (UTI) Hematuria Ultrasonography Findings Dilated renal pelvis without ureteric dilatation MAG 3 scan The diagnosis of PUJ obstruction usually is done by ultrasonography and MAG 3 scan diuretic renography. Radionuclide (DTPA) Renal Scan Findings Impaired drainage of the affected kidney No improvement with administration of furosemide Alternative Imaging (Option A ruled out) Intravenous pyelography (IVP) : Renal pelvis dilatation with an abrupt cut-off at the PUJ Surgical Treatment Options Pyeloplasty Nephrectomy (for severe hypertension or recurrent UTI) MRI (Option C) and CT scan (Option D) can provide anatomical details but are not the primary investigations for functional assessment of the renal system in PUJ obstruction.

References:

OP Ghai's textbook of pediatrics, Edition 10, Page 529.

Nelson's textbook of pediatrics, Edition 21, Page 2805

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 6-year-old boy with muscle spasms and polyuria has been diagnosed with Gitelman syndrome. Which of the following is not likely to be seen in him? (Q850326)

A. Hypochloremia

B. Hypokalemia

C. Hypocalciuria

D. Hypermagnesemia

Correct Answer: D. Hypermagnesemia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Gitelman syndrome presents with hypomagnesemia, not hypermagnesemia. Gitelman syndrome Etiology Rare autosomal recessive disorder Pathogenesis Defects in the gene encoding the sodium chloride co-transporter in the distal convoluted tubule Clinical Presentation Presents in late childhood or early adulthood Recurrent muscle cramps Spasms Nocturia Polyuria Occasional hypotension Less prominent growth failure Biochemical Abnormalities Hypokalemia (Option B) Hypochloremic metabolic alkalosis (Option A) Hypomagnesemia, elevated urinary magnesium levels Hypocalciuria (Option C) Feature Bartter Syndrome Gitelman Syndrome Liddle Syndrome Affected Area Ascending loop of Henle Distal convoluted tubule Collecting duct Genetic Cause Mutations in NKCC2, ROMK1, ClC-Kb, Barttin, CLC-Ka Mutations in NCCT (sodium-chloride cotransporter) Gain-of-function mutations in ENaC (epithelial sodium channel) Presentation Antenatal: Severe, starts in infancy with salt wasting, polyhydramnios Classic: Childhood onset, failure to thrive, dehydration Late childhood/early adulthood, muscle cramps, polyuria, sometimes low blood pressure Hypertension due to excessive sodium reabsorption Key Findings Hypokalemic hypochloremic metabolic alkalosis Hypercalciuria Elevated renin and aldosterone Increased prostaglandin E Hypokalemic hypochloremic metabolic alkalosis Hypocalciuria Hypomagnesemia Normal/low renin and aldosterone Hypertension Hypokalemia Suppressed aldosterone levels Distinctive Features Hypercalciuria, normal magnesium levels Hypocalciuria, hypomagnesemia Severe hypertension, low aldosterone levels

References:

Nelson Textbook of Pediatrics 21st edition, Page 2767-2769

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: Which of the following is the cause of Type IV RTA? (Q850324)

A. Hypoaldosteronism

B. Pseudohypoaldosteronism

C. Either A or B

D. Neither A or B

Correct Answer: C. Either A or B

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Type IV RTA is due to impaired aldosterone production (hypoaldosteronism) or impaired renal responsiveness to aldosterone (pseudohypoaldosteronism) Hyperkalemic Renal Tubular Acidosis (RTA) = Type IV RTA Etiology Impaired aldosterone production (hypoaldosteronism) or impaired renal responsiveness to aldosterone (pseudohypoaldosteronism) (Option C) Pathogenesis Lack of aldosterone → Hyperkalemia ↓ H+/ATPase function affected ↓ Impaired hydrogen secretion ↓ Acidosis Clinical Manifestations Growth failure within the first few years of life Polyuria Dehydration (due to salt wasting) Severe Cases: Life-threatening hyperkalemia Obstructive Uropathies

References:

Nelson Textbook of Pediatrics 21st edition, Page 2764

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: Which of the following is a characteristic renal biopsy finding in post-streptococcal glomerulonephritis (PSGN)? (Q850308)

A. Immune complex deposition in the mesangial area

B. Subepithelial immune complex deposits with a hump appearance

C. Linear staining of glomerular basement membrane for IgG

D. Diffuse glomerular sclerosis with hyaline deposits

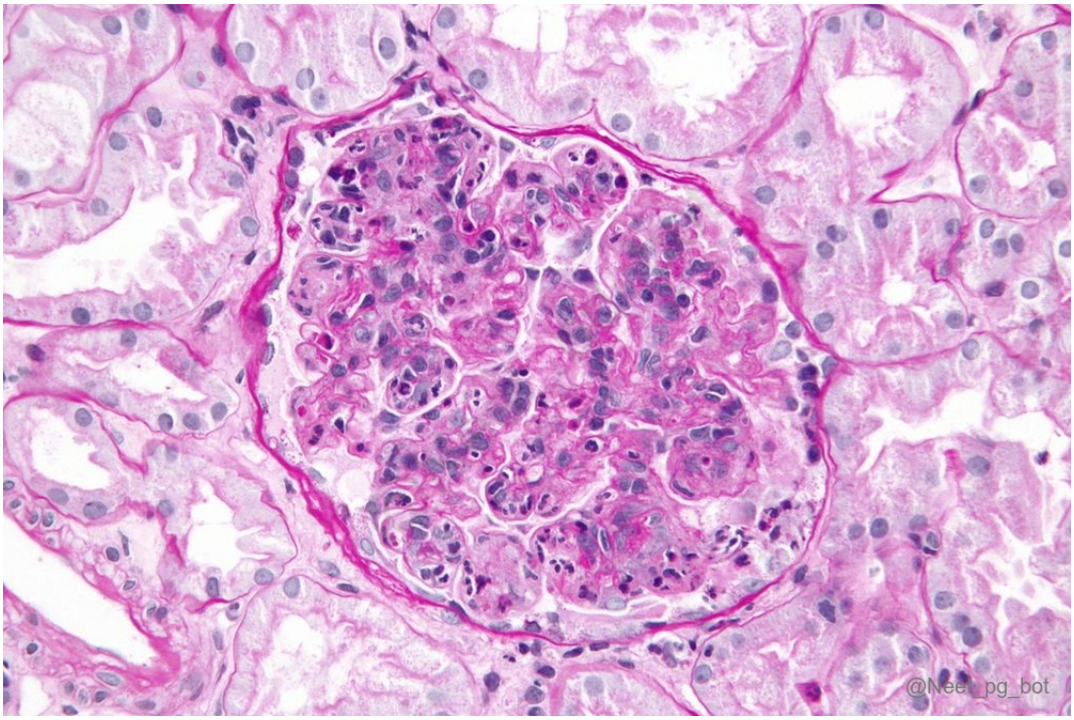
Correct Answer: B. Subepithelial immune complex deposits with a hump appearance

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: PSGN renal biopsy findings : Subepithelial immune complex deposits with a characteristic hump appearance is a hallmark of PSGN. The hump appearance refers to the subepithelial immune complex deposits that protrude into the glomerular capillary lumen, visible in electron microscopy. Diffuse glomerular hypercellularity: Increased number of cells in the glomeruli, often including glomerular endothelial cells and mesangial cells. Endocapillary proliferation: Proliferation of cells within the capillary loops. Light Microscopy: Electron Microscopy: Immune complex deposition of IgA and C3 (Option A): This finding is more typical of IgA

nephropathy (Berger’s disease).PSGN usually involves subepithelial deposits not mesangial deposits. Linear IgG staining of the glomerular basement membrane (Option C): This finding is characteristic of anti-glomerular basement membrane (GBM) disease or Goodpasture syndrome not PSGN. PSGN typically shows granular staining rather than linear. Diffuse glomerular sclerosis with hyaline deposits (Option D): Associated with chronic kidney diseases or diabetic nephropathy, not PSGN, which typically presents with acute changes and immune complex deposits.





References:

Nelson Textbook of Pediatrics Edition 21, Page 2723,2725.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 2-year-old child presents with polyuria, growth failure, fair skin, blond hair, and photophobia. Slit-lamp examination reveals cystine crystals in the cornea. Which genetic mutation is most likely responsible for this patient's condition? (Q850320)

A. CFTR

B. PKD1

C. CTNS

D. HFE

Correct Answer: C. CTNS

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The scenario is that of Cystinosis. Cystinosis Etiology Mutations in the CTNS gene (Option C) (encoding the protein cystinosin, a cystine transporter) → Defect in cystinosin → Accumulation of cystine crystals in major organs (kidney, liver, eyes, brain) Clinical Features Renal : Fanconi syndrome, polyuria, polydipsia, rickets, growth failure Skin/Hair : Fair skin, blond hair Eyes : Photophobia, retinopathy, ↓ visual acuity Other : Fever (↓ sweating), hypothyroidism, hepatosplenomegaly, delayed puberty Diagnosis Detection of cystine crystals in the cornea . Confirmed by measuring increased cystine content in leukocytes. Treatment Therapy with cysteamine (converts cystine to cysteine) Cysteamine eye drops for ocular involvement.

References:

Nelson Textbook of Pediatrics 21st edition, Page 2763

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: Which of the following statements about Fanconi syndrome is false? (Q850318)

A. Rickets is seen

B. Anorexia is a symptom

C. Growth retardation is seen

D. Only tubular dysfunction is bicarbonaturia

Correct Answer: D. Only tubular dysfunction is bicarbonaturia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Fanconi syndrome involves multiple tubular defects , not just bicarbonaturia. There is defective reabsorption of: Glucose → Glycosuria Phosphate → Phosphaturia Amino acids → Aminoaciduria Bicarbonate → Bicarbonaturia Uric acid and other solutes Therefore, stating that only bicarbonaturia is involved is false. Fanconi syndrome is a type of Proximal Renal Tubular Acidosis (RTA) in which there is reduced proximal reabsorption of bicarbonate. Etiology Generalized proximal tubular dysfunction, causing proteinuria, aminoaciduria, bicarbonaturia, phosphaturia, electrolyte wasting and glycosuria Clinical Features Growth retardation (Option C ruled out) Irritability, anorexia (Option B ruled out) Rickets (Option A ruled out) Associated Conditions Idiopathic or secondary to: Metabolic disorders (e.g., cystinosis, Lowe syndrome, galactosemia, Wilson disease) Drugs (e.g., ifosfamide, aminoglycosides, cisplatin) Toxins (e.g., cadmium, lead, mercury) Tubulointerstitial nephritis Rickets is seen (Option A) : Phosphate wasting due to proximal tubular dysfunction leads to hypophosphataemia , resulting in rickets in children. Rickets manifests with bone deformities and delayed growth plate mineralisation. Anorexia is a symptom (Option B) : Anorexia and failure to thrive are commonly reported in children with Fanconi syndrome. These result from metabolic acidosis , electrolyte disturbances , and general illness-related fatigue. Growth retardation is seen (Option C) : Chronic loss of bicarbonate, phosphate, glucose, and other nutrients causes growth retardation due to persistent metabolic acidosis and bone disease (rickets or osteomalacia).

References:

OP Ghai Essential Pediatrics 10th edition, Pages 522-523

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A 3 month old infant is diagnosed with congenital nephrotic syndrome (CNS) and presents with severe generalised edema, recurrent infections and failure to thrive. Genetic testing reveals a mutation of NPHS1 gene. Which of the following is the definitive treatment for this patient's condition? (Q850317)

A. Albumin infusions and diuretics

B. ACE inhibitors and/or angiotensin II receptor blockers

C. Bilateral nephrectomy followed by chronic dialysis

D. Renal transplantation

Correct Answer: D. Renal transplantation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Renal transplantation is the most definitive treatment for primary congenital nephrotic syndrome. It offers the best chance for long-term survival and improved quality of life, even though there is a risk of recurrence post-transplantation. Treatment of Congenital Nephrotic Syndrome (CNS) Primary CNS Manage symptoms and complications. Slow renal insufficiency progression. Supportive Care: Albumin infusions and diuretics for severe edema and fluid overload. (Option A) Nutritional support: High-protein diet (3-4 g/kg), high caloric intake, lipid supplementation Vitamin and thyroid hormone replacement to compensate for urinary losses Infection prophylaxis: Aggressive prevention, including pneumococcal and annual influenza vaccinations for the child and household contacts Pharmacological Management: ACE inhibitors and/or angiotensin II receptor blockers to reduce proteinuria and slow kidney damage progression. (Option B) Prostaglandin synthesis inhibitors (e.g., indomethacin) to decrease proteinuria and glomerular filtration rate, with close renal function monitoring. Surgical Intervention: Unilateral nephrectomy for severe symptoms to reduce proteinuria. Bilateral nephrectomy for persistent severe edema, recurrent infections, or complications from enlarged kidneys; requires chronic dialysis until kidney transplant is available. (Option C) Renal Transplantation: Definitive treatment offering the best chance for long-term survival and quality of life, though recurrence of nephrotic syndrome post-transplantation is possible Secondary CNS Address the underlying cause (e.g., antibiotics for congenital syphilis) If unresolved: Management similar to primary CNS, including supportive care, medications, potential dialysis, and transplantation Specific Genetic Syndromes Denys-Drash Syndrome: Management includes addressing Wilms tumors if present. Pierson Syndrome: Supportive care focusing on CNS and associated eye abnormalities.

References:

Nelson Textbook of Paediatrics, Edition 21, Page 2745, 2760

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A 3 month old infant presents with severe generalised edema and poor growth even with adequate feeds and recurrent infections. On further investigations, the infant is found to have hypoalbuminemia and proteinuria. Genetic testing confirms a mutation in the NPHS1 gene. Which of the following conditions is most likely associated with this clinical presentation? (Q850316)

A. Denys-Drash syndrome

B. Finnish type of Congenital Nephrotic Syndrome

C. Pierson syndrome

D. Focal segmental glomerulosclerosis (FSGS)

Correct Answer: B. Finnish type of Congenital Nephrotic Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical presentation of severe generalised edema, poor growth, recurrent infections, and hypoalbuminemia in a young infant suggests congenital nephrotic syndrome (CNS). The identification of a mutation in the NPHS1 gene is strongly indicative of the Finnish type of congenital nephrotic syndrome, which is characterised by massive proteinuria, often present at birth. The Finnish type of CNS is caused by mutations in the NPHS1 gene encoding nephrin, a critical protein for glomerular filtration. Clinical Features General Symptoms: Severe generalised edema Poor growth, nutrition and hypoalbuminemia. Increased susceptibility to infections Hypothyroidism due to urinary loss of thyroxine-binding globulin. Increased risk of thrombotic events. Progressive renal insufficiency in most infants. Finnish Type: Edema caused by massive proteinuria, often present at birth. Galloway-Mowat syndrome Marked by the presence of microcephaly, hiatal hernia and congenital nephrotic syndrome. Kidney biopsies in affected patients typically reveal distinctive abnormalities, including deficient or poorly formed basement membranes, or basement membranes infiltrated by fibrils. Investigations Initial Investigations: Urine Analysis: Confirm nephrotic range proteinuria with a spot urine protein. ratio >2.0. Serum Tests: Assess severity with electrolytes, blood urea nitrogen, creatinine, albumin, and cholesterol levels. Evaluation for Secondary Causes: Especially in infants >10 months, including: Complement C3 level Antinuclear antibody Double-stranded DNA Hepatitis B and C testing (high-risk populations) HIV testing (high-risk populations) Additional Investigations: Genetic Testing: Confirm primary CNS. Finnish Type: Mutations in NPHS1 or NPHS2 genes. Denys-Drash Syndrome: Mutations in WT1 gene. (Option A) Pierson Syndrome: Mutations in LAMB2 gene. (Option C) Prenatal Testing: Genetic analysis in families with a history, elevated maternal and amniotic α-fetoprotein levels. Renal Biopsy: Identify specific type of CNS or secondary causes. Other Tests: Liver biopsy, ophthalmologic exams, renal ultrasound. Indications for Biopsy Infants >12 months:

Less likely to have minimal change nephrotic syndrome (MCNS). Atypical Presentation: Gross hematuria, hypertension, renal insufficiency, or hypocomplementemia. Suspicion of Secondary CNS: Systemic diseases or infections suspected. Steroid-resistant Nephrotic Syndrome: Confirm diagnosis and differentiate between causes like focal segmental glomerulosclerosis (FSGS), MCNS, or membranoproliferative glomerulonephritis.

References:

Nelson Textbook of Paediatrics, Edition 21, Page 2757, 2758, 2760

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 2-month-old infant presents with generalised edema, hypoalbuminemia, and oliguria. Prenatal records indicate elevated alpha-fetoprotein (AFP) levels in maternal serum and amniotic fluid. Which of the following genetic mutations is most likely responsible for this condition? (Q850314)

A. WT1

B. NPHS1

C. PLCE1

D. NPHS2

Correct Answer: B. NPHS1

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: NPHS1 mutation causes Finnish Type Congenital Nephrotic Syndrome (CNS), which is the most common form of CNS. Characterised by severe proteinuria in utero and elevated AFP levels, with symptoms manifesting soon after birth. Congenital nephrotic syndrome Congenital nephrotic syndrome is a group of disorders characterized by nephrotic syndrome onset within the first three months of life. Key Features: Anasarca, hypoalbuminemia, oliguria. Genetic Defects and Associated Syndromes 1. Finnish Type CNS Inheritance: Autosomal recessive. Gene Defect: NPHS1 gene mutation (nephrin protein). Clinical Features: Severe in utero proteinuria, maternal complications like polyhydramnios, symptoms of nephrotic syndrome soon after birth. Diagnosis: Prenatal detection of elevated alpha-fetoprotein (AFP) levels in maternal serum and amniotic fluid. 2. Denys-Drash Syndrome Gene Defect: WT1 gene mutation (tumour suppressor gene on chromosome 11). (Option A ruled out) Clinical Features: Congenital nephrotic syndrome, male pseudohermaphroditism, increased risk of Wilms' tumour. Diagnosis: Genetic testing for WT1 mutations; renal biopsy may show diffuse mesangial sclerosis. 3. Other Genetic Causes Genes Involved: Mutations in PLCE1, NPHS2. (Option C & D ruled out) Role: Affect podocyte function and glomerular development. Diagnosis and Genetic Testing Indications for Testing : CNS onset before 3 months of age, initial steroid resistance in infancy, familial steroid resistance. Testing Methods: Next-generation sequencing, targeted gene panels, whole-exome sequencing. Management and Prognosis

Management: Control edema with medications and fluid management. Manage proteinuria with ACE inhibitors. Ensure adequate nutrition. Prompt infection treatment. Address specific complications. Prognosis: Varies by genetic defect; Finnish-type CNS may lead to renal failure by 2-3 years.

References:

OP Ghai essentials of Pediatrics Edition 10, Page 505, 506

↑ *Back to this question in Part A*

@Neet_pg_bot

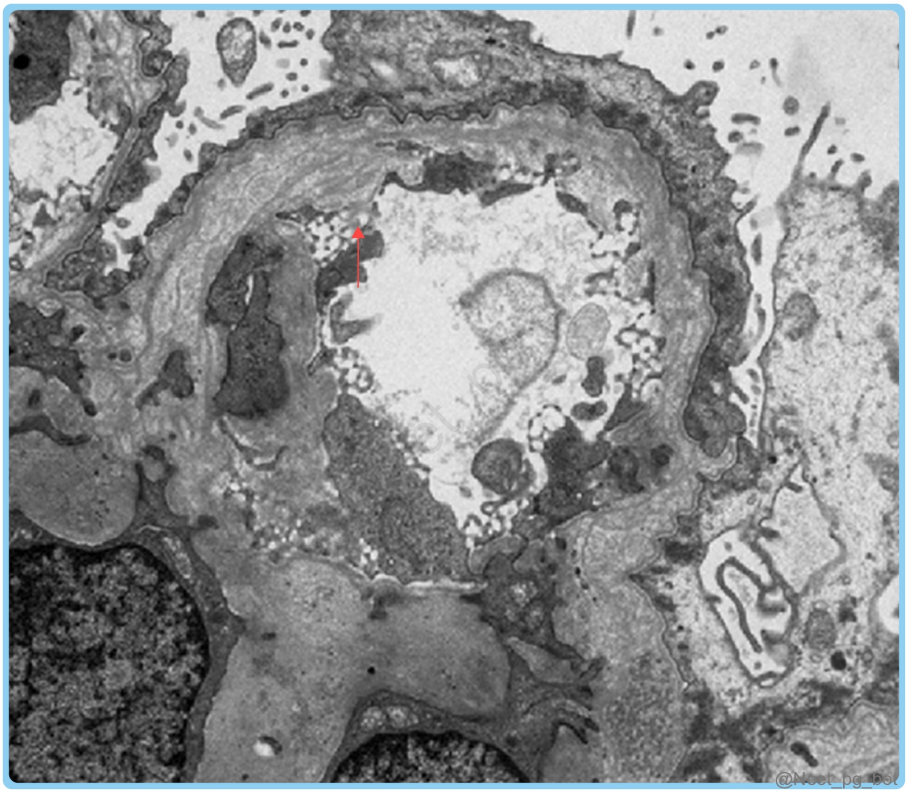
Q17: A 13 y/o child presents with progressive hearing loss and occasional visual disturbances. His investigation reports show persistent microscopic hematuria and moderate proteinuria. Kidney biopsy shows irregularities in the glomerular basement membrane. Genetic testing reveals a mutation in the COL4A gene. What is the most likely diagnosis? (Q850312)

A. Alport Syndrome

B. Goodpasture Syndrome

C. IgA Nephropathy

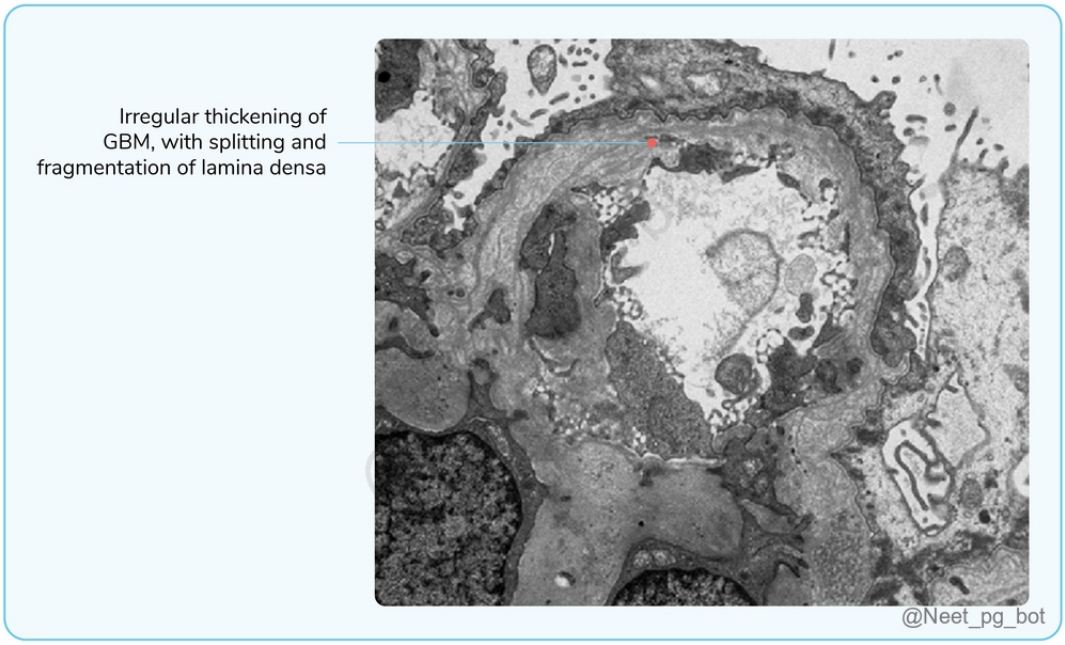
D. Thin Basement Membrane Disease



Correct Answer: A. Alport Syndrome

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Alport Syndrome Key features: Persistent microscopic hematuria, moderate proteinuria, progressive kidney failure. Associated with sensorineural deafness and ocular defects (lenticonus, cataracts, macular flecks). Genetic Cause: Mutation in genes encoding type IV collagen (COL4A). Type IV collagen is crucial in basement membranes, especially the glomerular basement membrane (GBM). Kidney Ultrastructure: Irregular GBM with varying thickness seen in Alport syndrome patients. {{caption_text}} Diagnosis Electron microscopy of kidney tissue. Non-invasive clinical exome sequencing. Treatment Supportive care with ACE inhibitors. Management of high blood pressure. Reduction of proteinuria through a low-salt diet. Prognosis Most males with Alport syndrome progress to kidney failure. Autosomal recessive Alport syndrome and thin GBM disease show rapid progression. Goodpasture Syndrome (Option B): Presents with hematuria and hemoptysis but is associated with anti-GBM antibodies and not COL4A mutations. IgA Nephropathy (Option C): Typically presents with episodic hematuria following respiratory infections and does not involve hearing loss or ocular defects. Thin Basement Membrane Disease (Option D): Milder form of GBM disorder, typically without progressive hearing loss or the severe symptoms seen in Alport Syndrome.



References:

OP Ghai Essentials of Pediatrics, 10th Edition, Pages 487, 489, 495

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A 13 year old boy who has upper respiratory infections presents with recurrent episodes of blood in his urine and hypertension. A renal biopsy reveals IgA deposition in the mesangium. Which of the following is the most appropriate initial treatment for controlling his condition? (Q850310)

A. Daily use of diuretics

B. ACE inhibitors or angiotensin II receptor blockers

C. Antibiotics to prevent infections

D. High-dose corticosteroids

Correct Answer: B. ACE inhibitors or angiotensin II receptor blockers

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: ACE inhibitors or angiotensin II receptor blockers are recommended to control blood pressure and reduce proteinuria in managing IgA nephropathy. IgA Nephropathy (Berger Disease) Overview Most common chronic glomerular disease in children; immune complex disease causing glomerular inflammation and damage. Can present as a severe form of RPGN in certain cases, though not typically classified as RPGN Causes Immune Response: Triggered by environmental factors like infections. Genetic Factors: Higher prevalence in certain ethnic groups. Pathology & Diagnosis IgA deposition in the mesangium. Diagnosis: Renal biopsy confirms and assesses histologic severity. Symptoms Hematuria: Blood in urine, often following respiratory or gastrointestinal infections. Other Symptoms: Loin pain, proteinuria, hypertension, edema. Treatment Blood Pressure Control: ACE inhibitors or angiotensin II receptor blockers. Additional Therapy: Fish oil (anti-inflammatory), corticosteroids for severe cases. Prognosis Children: Generally favorable with minimal long-term kidney damage. Adults: 20-30% may develop progressive disease, potentially leading to kidney failure. Daily use of diuretics (Option A) : Not the first line of treatment for IgA nephropathy; primarily used in cases with significant fluid retention or hypertension. Antibiotics to prevent infections (Option C) : While infections can trigger episodes, antibiotics are not a primary treatment for IgA nephropathy. High-dose corticosteroids (Option D) : Considered for severe cases with significant proteinuria or rapid progression but not as an initial treatment.

References:

Nelson Textbook of Paediatrics, Edition 21, Page 2720-2725

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: A 13 year old boy presents with hemoptysis. His investigation reports are suggestive of rapidly worsening renal function. Kidney biopsy shows linear IgG deposits along the glomerular basement membrane. Which type of rapidly progressive glomerulonephritis (RPGN) is most consistent with these findings? (Q850309)

A. Type I RPGN (Anti-GBM Antibody Disease)

B. Type II RPGN (Immune Complex Mediated)

C. Type III RPGN (Pauci-Immune)

D. Membranoproliferative glomerulonephritis

Correct Answer: A. Type I RPGN (Anti-GBM Antibody Disease)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Type I RPGN (Anti-GBM Antibody Disease); characterized by the presence of anti-GBM antibodies, which cause linear IgG deposits along the glomerular basement membrane, and is associated with Goodpasture syndrome (hemoptysis and glomerulonephritis). RPGN (Crescentic glomerulonephritis) is characterized by the formation of crescents in Bowman's space due to the proliferation of parietal epithelial cells. Classified into

primary and secondary types based on the underlying cause: Primary RPGN Cause is unknown or not linked to systemic disease. Diagnosed primarily through kidney biopsy and exclusion of systemic causes. Secondary RPGN Triggered by systemic diseases that also affect the kidneys. Often associated with systemic autoimmune diseases or infections (Systemic lupus erythematosus, Henoch-Schönlein purpura, membranoproliferative glomerulonephritis, postinfectious GN). Detected by clinical presentation and serological tests. Types of Rapidly Progressive Glomerulonephritis (RPGN) RPGN Type Cause Associated Conditions Characteristics Type I RPGN Autoimmune attack on the glomerular basement membrane (GBM). Goodpasture syndrome (lung hemorrhage + RPGN). Presence of anti-GBM antibodies in blood, severe kidney damage, and lung involvement in Goodpasture syndrome. Type II RPGN Immune complex deposition in the glomeruli. Lupus nephritis IgA nephropathy postinfectious GN. Immune complexes trigger inflammation; can be a severe form of immune-related diseases. Type III RPGN Characterized by few or no immune complexes in the glomeruli, associated with ANCA. Granulomatosis with polyangiitis, microscopic polyangiitis. Known as pauci-immune; detected by the presence of ANCA in blood, with no significant immune complex deposits on kidney biopsy. Type II RPGN (Immune Complex Mediated) (Option B): Involves immune complex deposition but not linear IgG deposits. Type III RPGN (Pauci-Immune)(Option C): Characterized by the absence of significant immune complex deposits and presence of ANCAs, not linear IgG deposits. Membranoproliferative glomerulonephritis(Option D): Usually presents with immune complex deposition, not linear IgG deposits.

References:

Nelson Textbook of Paediatrics, Edition 21, Page 2727,2728

↑ *Back to this question in Part A*

@Neet_pg_bot

• [14_Pediatric Nephrology] 037 Previous Year Questions

« Back to Folder Directory

[14_Pediatric Nephrology] 037 Previous Year Questions — Quick Jump

Q1 (p. 1395)	*Q2 (p. 1395)*	*Q3 (p. 1396)*	*Q4 (p. 1397)*	*Q5 (p. 1397)*	*Q6 (p. 1398)*
Q7 (p. 1400)	*Q8 (p. 1401)*	*Q9 (p. 1402)*	*Q10 (p. 1403)*	*Q11 (p. 1404)*	*Q12 (p. 1408)*
Q13 (p. 1408)	*Q14 (p. 1409)*	*Q15 (p. 1410)*			

Q1: A 12-year-old child is diagnosed with systemic lupus erythematosus (SLE) and presents with nephrotic-range proteinuria. Renal biopsy reveals "wire loop lesions. Which of the following is the drug of choice in this case? (Q865419)

A. IV Steroids only

B. IV Steroids + cyclophosphamide

C. Mycophenolate mofetil

D. Cyclophosphamide only

Correct Answer: B. IV Steroids + cyclophosphamide

Explanation: IV Steroids only: This is generally insufficient for active, proliferative lupus nephritis like Class IV, especially with nephrotic-range proteinuria. (Option A ruled out) Mycophenolate mofetil: While MMF is a valid option for induction, it's usually given in combination with steroids, not as monotherapy for initial severe cases. The option doesn't specify "IV steroids + MMF." (Option C ruled out) Cyclophosphamide only: This is also not typically used as monotherapy for induction; it's combined with steroids. (Option D ruled out)

References:

Ghai Essential Pediatrics, 10th Edition, Page 656

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 5-year-old child with chronic kidney disease (CKD) presents with bow legs. Laboratory investigations reveal: Serum Calcium: 9.1 mg/dL (normal) Serum Phosphate: 6.9 mg/dL (elevated) Alkaline Phosphatase: Elevated 25(OH) Vitamin D: Low What is the most appropriate next step in management? (Q866394)

A. Calcium supplementation

B. Phosphate binder

C. Oral calcium + Vitamin D

D. Growth hormone therapy

Correct Answer: B. Phosphate binder

Explanation: Phosphate binder. This child has CKD-related rickets/renal osteodystrophy, which occurs due to: Hyperphosphatemia (due to reduced phosphate excretion in CKD) Low active Vitamin D production (due to loss of renal 1α-hydroxylase activity) Resulting secondary hyperparathyroidism → bone changes (e.g., bow legs) Key lab clues in this case: Normal serum calcium → indicates that hypocalcemia is not the primary driver at this stage High serum phosphate → needs correction first to break the phosphate- PTH- bone cycle Low 25(OH) Vitamin D → will also need correction, but not before controlling phosphate levels First-line management: Control phosphate with dietary restriction and phosphate binders (calcium carbonate or sevelamer) to prevent further hyperparathyroidism and bone damage. Once phosphate is under control, give active vitamin D analogs (calcitriol/alfacalcidol) to correct the low vitamin D status. Calcium supplementation (Option A): Not needed immediately since calcium is normal, and adding calcium without controlling phosphate can worsen vascular calcifications. Oral calcium + Vitamin D (Option C): Will not address hyperphosphatemia and can worsen the phosphate load if the binder role is not addressed first. Growth hormone therapy (Option D): Used in CKD-related short stature, but here the immediate issue is bone mineral disturbance, not growth failure management.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 10-year-old child, treated with antibiotics for follicular tonsillitis, presents with periorbital edema. Blood work reveals eosinophilia and urine microscopy shows WBC casts. What is the most likely diagnosis? (Q840084)

A. Pyelonephritis

B. Allergic interstitial nephritis

C. Glomerulonephritis

D. IgA nephritis

Correct Answer: B. Allergic interstitial nephritis

Explanation: Correct Option: B) Allergic interstitial nephritis: The presence of eosinophilia along with WBC casts in the urine of a patient after consuming a course of antibiotics indicates a potential diagnosis of allergic interstitial nephritis (AIN). Incorrect Options: Options A, B, and C do not exhibit eosinophilic casts in the urine.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 4-year-old child presents with a 14 cm tender mass in the flank region. The parents report noticing the mass gradually increasing in size over the past few weeks. On physical examination, the child appears well but discomforted due to the mass. The mass is non-fluctuant, firm, and non-mobile, with no signs of inflammation or skin changes. There are no other associated symptoms. What is the most likely diagnosis? (Q820483)

A. Wilm’s tumor

B. Angiomyolipoma

C. Renal cell carcinoma

D. Neuroblastoma

Correct Answer: A. Wilm’s tumor

Explanation: Correct Option A - Wilm's tumor: This is the correct answer. Wilm's tumor, also known as nephroblastoma, is a rare kidney cancer that primarily affects children. The symptoms described, including a large, firm, non-mobile mass in the flank region, are consistent with this diagnosis. Wilm's tumor is the most common kidney cancer in children, and most cases are diagnosed before the age of 5. Incorrect Options: Option B - Angiomyolipoma: Angiomyolipomas are benign tumors that typically occur in the kidney. While they can cause a palpable mass, they are much more common in adults and are very rare in children. Option C - Renal cell carcinoma: Renal cell carcinoma is the most common type of kidney cancer in adults, but it is very rare in children. The child's age and the characteristics of the mass make this an unlikely diagnosis. Option D - Neuroblastoma: Neuroblastoma is a cancer that often starts in the adrenal glands, which are on top of the kidneys. It can cause a mass in the abdomen, but it is usually associated with other symptoms such as fever, bone pain, and unexplained weight loss.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 4-year-old male child with a body weight of 15kg and height of 100cm is admitted with renal failure. His blood urea was 100 mg/dL and serum creatinine was 1

mg/dL. What is the closest calculated eGFR in the patient? (Q855027)

A. 33 ml/min/1.73 m2 BSA

B. 40 ml/min/1.73 m2 BSA

C. 55 ml/min/1.73 m2 BSA

D. 80 ml/min/1.73 m2 BSA

Correct Answer: C. 55 ml/min/1.73 m2 BSA

Explanation: The closest calculated eGFR in the patient is 55 ml/min/1.73 m2 BSA. Schwartz formula GFR (mL/min/1.73 m^2) = (k x height (cm)) / Serum creatinine (mg/dL) Substituting the values: GFR = (0.55 x 100 cm) / 1 mg/dL = 55 mL/min/1.73 m^2 BSA. Purpose: Quick, bedside estimation of GFR using serum creatinine and height. Creatinine-Based: The formula uses serum creatinine as a marker, which can be affected by factors such as age, muscle mass, and diet. Height Inclusion: Height is included in the formula to account for the relationship between body size and kidney function, which is particularly important in growing children. Constant "k": The value of k varies as a function of age and sex being 0.33 in preterm infants, 0.45 in full-term infants, 0.55 in children and adolescent girls, and 0.70 in adolescent boys. This formula is generally used for estimating GFR in children and adolescents up to 18 years old . Limitations: Accuracy issues in populations with altered creatinine production or excretion. Not a gold standard ; less accurate compared to inulin or iohexol clearance. Clinical use: Often used alongside other findings to assess kidney function. Interpret results within the broader clinical picture, recognizing limitations. Age Group GFR (mL/min/1.73 m^2) Inference Birth (Full-term Infants) 15-20 GFR is low at birth; renal function is still maturing. Birth (Preterm Infants) 10-15 Lower GFR compared to full-term infants due to underdeveloped kidneys. 2 Weeks 35-45 Rapid increase in GFR as renal function starts maturing. 2 Months 75-80 Continued rapid increase, nearing levels seen in older infants. Childhood (up to 2 years) Approaches 80-120 (comparable to adults after correction for body size) Renal function continues to improve, reaching near-adult GFR levels by age two when corrected for body surface area.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2716 O.P. Ghai Essential Pediatrics, 10th Edition, Page 491
https://pmc.ncbi.nlm.nih.gov/articles/PMC4921380/
https://www.kidney.org/professionals/kdoqi/gfr_calculatorPed

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: Regarding urinary tract infection (UTI) in children, which of the following is true? Most common cause of UTI is Streptococcus pneumoniae. Bowel, bladder dysfunction increases the risk of recurrence. Cotrimoxazole is not given. Micturating cysto-urethrogram (MCU) is done in children with recurrence of UTI. (Q855048)

A. 1, 3, 4

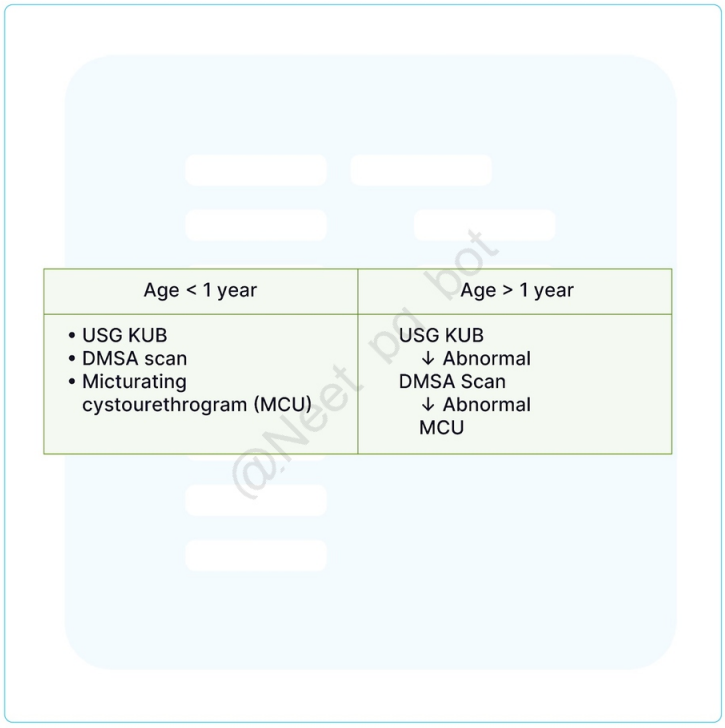
B. 2, 4

C. 2, 3, 4

D. 1, 4

Correct Answer: B. 2, 4

Explanation: The true statements regarding urinary tract infections (UTI) in children are that bowel-bladder dysfunction increases the risk of UTI recurrence , and micturating cysto-urethrogram (MCU) is performed in cases of recurrence. Urinary Tract Infections (UTIs) in Children: Etiology and Prevalence: Primary Cause: Colonic bacteria ascending the urinary tract. Common Pathogen: Escherichia coli (54-67% of cases). (1) Other Pathogens: Klebsiella spp., Proteus spp., Enterococcus, Pseudomonas. Clinical Features and Classification: Pyelonephritis (Kidney Infection): Upper renal collecting system involved Symptoms: Abdominal/back/flank pain, fever, malaise, nausea, vomiting, diarrhea. Newborns: Non-specific symptoms like poor feeding, irritability, jaundice, weight loss. Cystitis (Bladder Infection): Only bladder involved Symptoms: Dysuria, urgency, frequency, suprapubic pain, incontinence, malodorous urine. Typically does not cause high fever or renal injury. Risk Factors for Recurrent UTI: Vesicoureteral Reflux (VUR) Bladder-Bowel Dysfunction (BBD) (2) Obstructive Uropathy Urinary Tract Abnormalities: Anatomical issues like labial adhesion. Neuropathic Bladder Catheterisation: Procedures introducing bacteria. Sexual Activity: Increases UTI risk in females. Diagnosis: Urine Culture: Gold standard for UTI diagnosis; identifies and quantifies bacteria. Interpretation: A colony count of >50,000 colony-forming units/mL of a single pathogen, along with pyuria or bacteriuria in a symptomatic child, is generally considered diagnostic of a UTI. Urinalysis: Leukocyte Esterase and Nitrites positive. Imaging Studies: Treatment: Antibiotic Therapy: Mainstay of UTI treatment. Treatment Specific to UTI Presentations Acute Cystitis • Common Antibiotics: TMP-SMX (cotrimoxazole) (3) , Nitrofurantoin, Amoxicillin • Duration: 3-5 days Acute Pyelonephritis • Hospitalized: IV Ceftriaxone, Cefepime, Cefotaxime • Outpatient: Oral Cefixime, Cephalexin • Avoid Nitrofurantoin , use Fluoroquinolones for resistant strains. • Duration: 7-14 days Acute Lobar Nephronia/Abscess • Similar to pyelonephritis, but longer duration (14-21 days) • Percutaneous or surgical drainage for abscesses



Age < 1 year	Age > 1 year
• USG KUB • DMSA scan • Micturating cystourethrogram (MCU)	USG KUB ↓ Abnormal DMSA Scan ↓ Abnormal MCU

@Neet_pg_bot

References:

Nelson’s Textbook of Pediatrics, 21st Edition, Page 2789 - 2794

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: An 8-year-old boy presented with dark-coloured urine, oliguria, hypertension, and facial puffiness for 3 days. The urine test is positive for albumin. He had a history of throat infection 2 weeks back. On microscopic examination, enlarged, pale glomeruli and epithelial humps are seen. Which of the following is the most likely diagnosis? (Q857589)

A. Post-staphylococcal glomerulonephritis

B. Post-streptococcal glomerulonephritis

C. Nephrotic syndrome

D. IgA nephropathy

Correct Answer: B. Post-streptococcal glomerulonephritis

Explanation: cute nephritic syndrome: Hematuria, oliguria, edema, hypertension Proteinuria (1+ to 2+) levels of proteinuria Hematuria Common, with cola-colored urine due to gross hematuria Urinary Casts Red blood cell casts (indicating glomerular inflammation) Serum Albumin Usually normal unless severe renal impairment Blood Urea and Creatinine Elevated due to impaired renal function Serum Complement C3 Low in 90% of cases, returns to normal in 8-12 weeks Cholesterol No significant hypercholesterolemia ASO/Anti-DNase B Titers Elevated ASO titers (pharyngitis) or anti-DNase B (skin infection) Post-staphylococcal glomerulonephritis (Option A): While Staphylococcus aureus infections can also cause glomerulonephritis, they are less commonly associated with the classic immune complex deposits seen in PSGN. Nephrotic syndrome (Option C) involves the clinical findings of hypoalbuminemia, oedema, proteinurua and hyperlipidemia. Even though some clinical findings are similar to that given in the scenario, nephrotic syndrome does not cause dark-coloured urine IgA nephropathy (Option D) or Berger nephropathy is a chronic glomerular disease in children characterised by an increased concentration of IgA in the mesangial glomerular deposits with no systemic disease. It presents with gross hematuria within 1-2 days of a previous upper respiratory or GI infection and not after weeks; hence, it is not the diagnosis here.

References:

Nelson’s Textbook of Paediatrics, Page: 2720, 2721,

Ghai's textbook of Paediatrics Page: 497, 501, 502.

↑ *Back to this question in Part A*

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Q8: What is the most probable diagnosis for a young girl who experiences constant urine dribbling, despite voiding normally, and has never been completely dry since birth, according to her parents? (Q856428)

A. Ectopic ureter

B. Ureterocele

C. Congenital megaureter

D. Vesicoureteric reflux

Correct Answer: A. Ectopic ureter

Explanation: The clinical scenario is suggestive of an ectopic ureter. This is a condition where the ureter, instead of terminating into the urinary bladder, terminates at a different site. Ectopic ureter Etiology Results from abnormal embryological development, often associated with ureteral duplication. Pathology Ectopic ureters drain to sites other than the bladder, commonly associated with duplication of the ureter. Pathophysiology Females, ectopic ureters open below the urethral sphincter or into the vagina, leading to incontinence. Males, ectopic ureters usually open above the external urethral sphincter, maintaining continence. Types Bilateral ectopic ureters (10% of

cases). Unilateral ectopic ureters. Clinical Features Females: Continuous urinary incontinence despite normal voiding. Males: Typically asymptomatic or continent due to ureter opening above the sphincter. Diagnosis Computed Tomo-Urography (CTU). Magnetic Resonance Urography (MRU). Laboratory Investigations Primarily imaging-based diagnostics (CTU or MRU). Complications Persistent incontinence in females. Potential recurrent urinary tract infections. Differential Diagnosis Vesicoureteral Reflux Urethral Stricture : Difficulty in urination and weak stream, not continuous incontinence. Neurogenic Bladder : Treatment Surgical correction: Reposition it into the bladder to restore normal continence. Ureterocele (Option B) is a condition where the lower end of the ureter balloons out and forms a cyst-like structure within the bladder. This can cause urinary obstruction and lead to symptoms such as urinary frequency, urgency, or recurrent urinary tract infections. Congenital megaureter (Option C) refers to the dilation or enlargement of the ureter. It can be caused by an obstruction or a functional abnormality of the ureter. Congenital megaureter can cause urinary stasis, infections, or vesicoureteric reflux, but does not cause continuous urine leakage. Vesicoureteric reflux (Option D) is a condition where urine flows backwards from the bladder up into the ureters. It presents with recurrent UTIs and possible hydronephrosis but does not cause continuous dribbling.

References:

Bailey & Love's Short Practice of Surgery, 28th edition, Page 1467

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: What is true about vaccination in a child with steroid-dependent nephrotic syndrome who is brought to the OPD? (Q856449)

A. All live vaccines under NIS can be given as per schedule

B. All killed vaccines under NIS can be given

C. Only pneumococcal vaccine should be given to the child in the acute phase

D. Live vaccines are contraindicated in the child's sibling

Correct Answer: B. All killed vaccines under NIS can be given

Explanation: All killed vaccines under the NIS (National Immunization Schedule) can be given to a child suffering from steroid-dependent nephrotic syndrome. They have compromised immune systems, making them more susceptible to infections, so live vaccines are not given. Live vaccines can be administered in children receiving prednisolone dose < 1mg/kg daily or 2mg/kg on alternate days. If a patient is receiving steroid-sparing agents, live vaccines are contraindicated. In this case, as the patient is dependent on steroids, he must be receiving a higher dose of steroid/steroid-sparing agents. Hence, live vaccines are contraindicated in this case, as live vaccines contain weakened forms of the virus that can potentially cause the disease in individuals with weakened immune responses. (Option A ruled out) While the pneumococcal vaccine is important and can be given to a child with steroid-dependent nephrotic syndrome, it is not the only vaccine (Option C) that should be administered in the acute phase. Full pneumococcal vaccination and influenza vaccination can be given to the child and their

household contact. Immunisation of siblings (Option D) and household contacts with live vaccines are important to reduce the risk of transmission to the immunocompromised child. Direct exposure to gastrointestinal and respiratory secretions is avoided for about 3 -6 weeks after immunization.

References:

Nelson Textbook of pediatrics, 21st edition, Page 2752, 2758, 2759

Essential Pediatrics, 10th Edition, Page 503

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A male infant was brought to the emergency pediatric unit with abdominal distention. There was a history of recurrent urinary tract infections. On examination, he was found to have urinary retention. Imaging showed bilateral hydronephrosis. What could be the probable diagnosis of his condition? (Q859501)

A. Vesicoureteric reflux

B. Posterior urethral valves

C. Horseshoe kidney

D. Pelviureteric junction obstruction

Correct Answer: B. Posterior urethral valves

Explanation: The presentation of abdominal distention, recurrent urinary tract infections, and urinary retention is consistent with the diagnosis of Posterior urethral valves (PUV). Also the bilateral hydronephrosis, which is the dilation of the renal pelvis and calyces due to urinary obstruction, further supports this diagnosis. Posterior urethral valves (PUV) are a congenital abnormality that occurs only in males. It is characterized by the presence of abnormal leaflets or flaps of tissue in the posterior urethra, leading to partial or complete obstruction of urine flow. Posterior urethral valves: Feature Description Definition Abnormal flaps of tissue in the posterior urethra that obstruct the flow of urine in male infants Etiology Developmental anomaly during fetal development Clinical Presentation Urinary tract obstruction symptoms, such as poor urinary stream, dribbling, or difficulty urinating Urinary tract infections (UTIs) with fever, irritability, and poor feeding Enlarged bladder (palpable abdominal mass) Hydronephrosis (swelling of the kidneys due to urine backup) Poor weight gain and growth Diagnostic Evaluation Voiding cystourethrogram (VCUG): Radiographic imaging to visualize the urinary tract and identify the valves Ultrasound of the kidneys and bladder to assess for hydronephrosis Blood tests: Renal function tests and electrolyte levels Management Endoscopic valve ablation or fulguration to remove or destroy the obstructing valves Surgical intervention: Valve resection or reconstruction in severe cases Management of urinary tract infections and associated complications Prognosis The prognosis varies depending on the severity of the obstruction and associated renal damage Early diagnosis and intervention can lead to better outcomes and improved renal function Long-term monitoring and follow-up are necessary to monitor renal function and manage

any potential complications Incorrect Options: Vesicoureteric reflux (Option A): VUR is urine flow from the bladder to the ureters/kidneys due to an incompetent valve at the ureter-bladder junction. While this condition can cause recurrent UTIs, the primary feature is retrograde flow of urine & it typically doesn't present with significant urinary retention or abdominal distention. Horseshoe kidney (Option C): A horseshoe kidney is a congenital fusion anomaly of the kidneys, where the kidneys are fused at the lower poles. While it may be associated with hydronephrosis, it does not typically cause urinary retention or recurrent UTIs as described in the scenario. Pelviureteric junction obstruction (Option D): Although this condition can cause hydronephrosis, it typically presents unilaterally rather than bilaterally. Additionally, its presentation includes asymptomatic flank mass, upper abdominal pain & urinary tract infection (UTI).

References:

Nelson's Textbook of Pediatrics Edition 21st Page 2808-2810

↑ *Back to this question in Part A*

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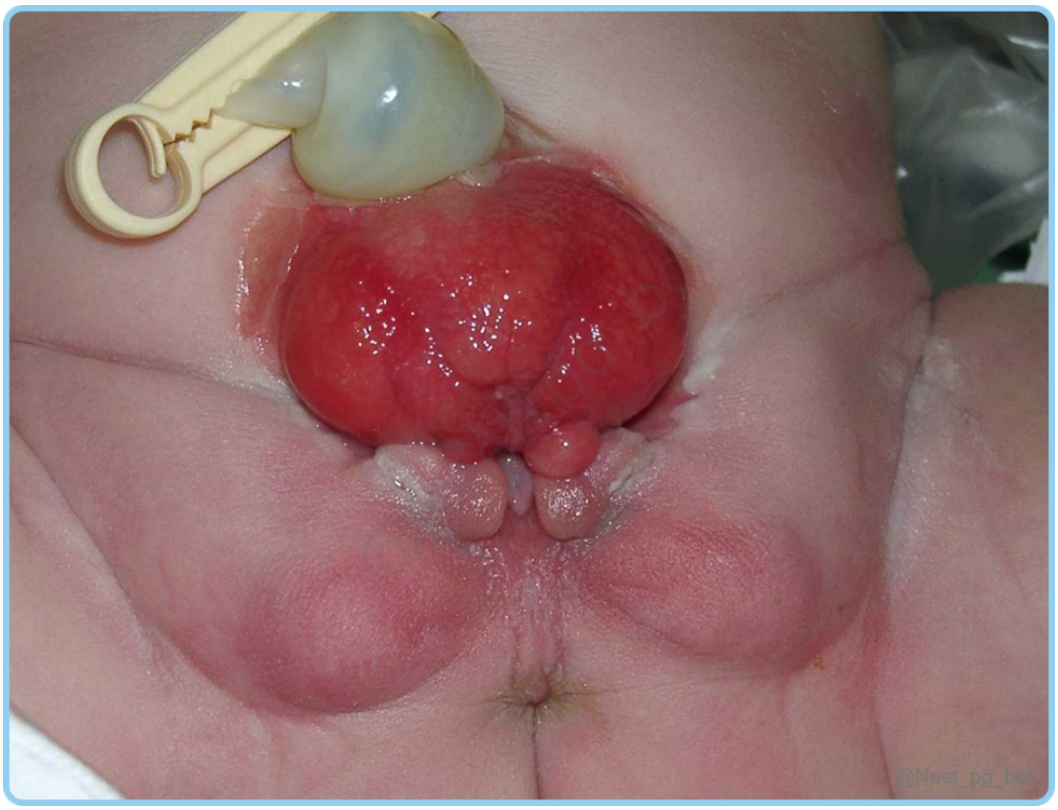
Q11: Identify the condition? (Q856103)

A. Bladder exstrophy

B. Omphalocele

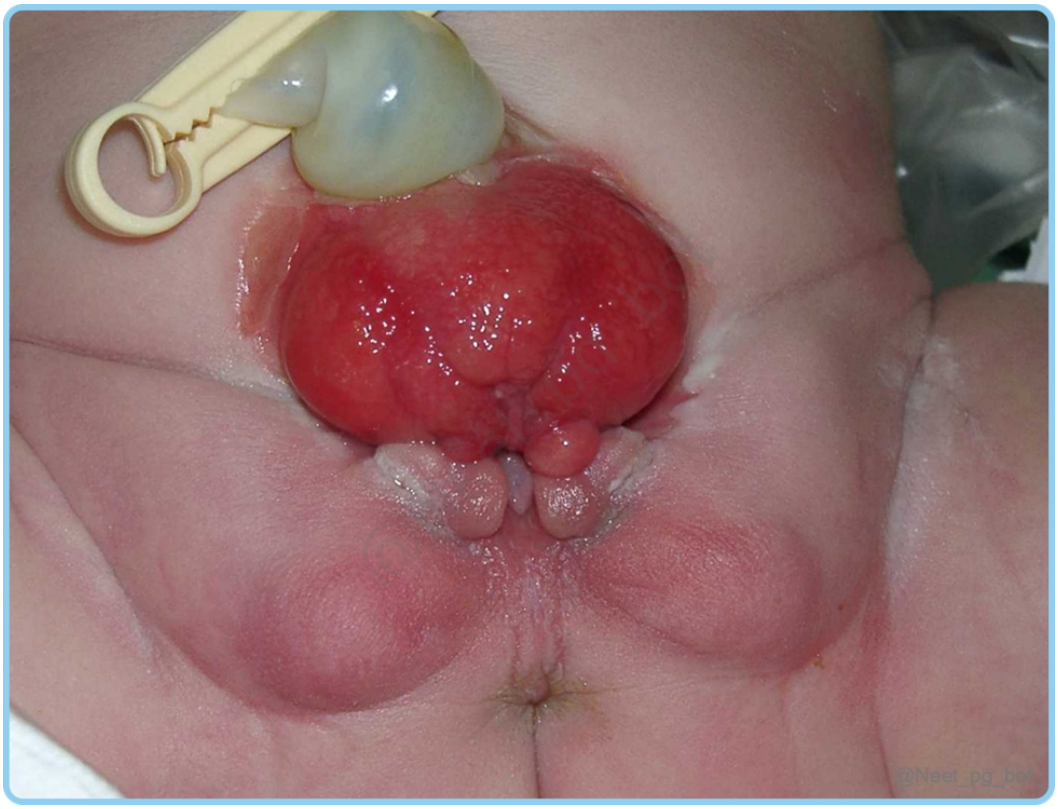
C. Persistent vitellointestinal duct

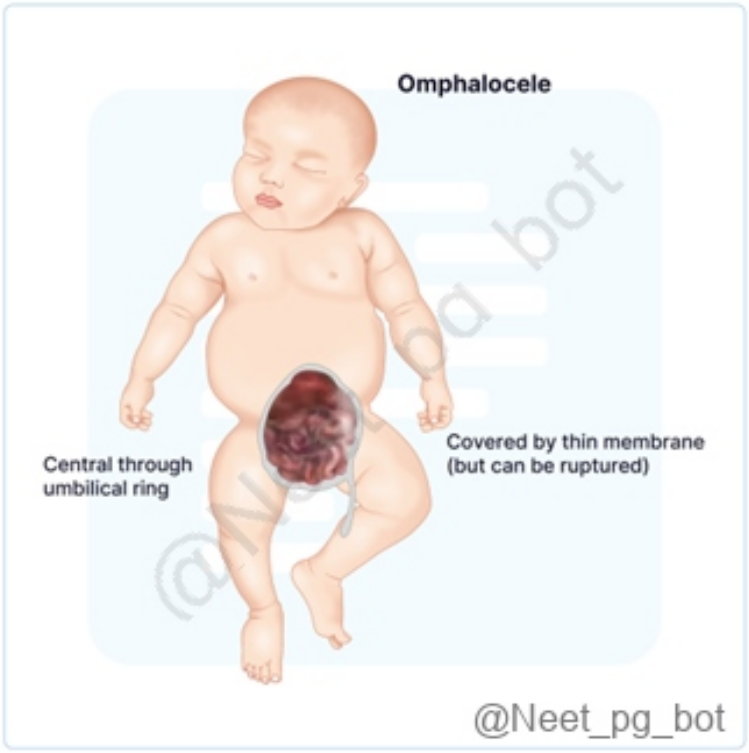
D. Gastroschisis



Correct Answer: A. Bladder exstrophy

Explanation: Bladder exstrophy The above image is suggestive of Bladder exstrophy. Bladder exstrophy: {{caption_text}} Etiology Disruption in normal development during pregnancy. Exact triggers remain unclear. Pathology & Pathophysiology Improper development of the cloacal membrane. Early rupture leads to epispadias (incomplete urethral formation). Later rupture results in bladder exstrophy. Types Spectrum from simple epispadias to more complex forms of bladder exstrophy. Clinical Features Males : Shortened penis due to pubic bone separation (diastasis of the pubic symphysis). Widely spaced crura (internal, spongy columns within the penis). Underdeveloped corporeal tissue (erectile tissue). Females : Shortened and narrowed vagina, often positioned more anteriorly. Bifid clitoris (split into two parts). Complications Urinary function issues. Increased risk of infections. Risk factor for Adenocarcinoma. Surgical Treatment Cover the bladder with a wet sterile plastic wrap and plan for surgery. Surgical repair, in multiple stages. Steps Include: Closing the bladder and placing it back inside the body. Reconstructing the urethra. Repairing the abdominal wall defect. Addressing genital abnormalities to ensure normal function and appearance. Omphalocele (Option B) Gastroschisis (Option D) Herniation of bowel contents that fails to return back Evisceration of bowel contents through a defect in the anterior abdominal wall just lateral to the umbilicus {{caption_text}} Defect through central umbilicus Defect through right of umbilicus Three-layer membrane covering present (peritoneum, Wharton's jelly & amnion) Membrane cover absent Associated with aneuploidies , genetic syndromes (eg. Beckwith -Wiedemann) and other congenital anomalies Associated anomalies rare. Gut malrotation/bowel atresia may be seen. Poor prognosis in long term due to associated anomalies Better prognosis in long term Persistent vitellointestinal duct (Option C) occurs when the vitelline duct remains patent over its entire length, leading to direct communication between the umbilicus and the intestines. This results in fecal discharge from the umbilicus. {{caption_text}}


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Omphalocele
Central through umbilical ring
Covered by thin membrane (but can be ruptured)
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Ileal prolapse through patent vitellointestinal duct

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References:

Bailey & Love's Short Practice of Surgery, 28th Edition, Page 270, 1492-1493.

https://www.ncbi.nlm.nih.gov/books/NBK563156/

↑ *Back to this question in Part A*

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Q12: A 10-year-old presents with edema and anasarca. A diagnosis of minimal change disease is made. Which of the following is true about this condition? (Q856113)

A. Light microscopy shows effacement of podocytes

B. Good response to steroids

C. Most common in adults

D. Non-selective proteinuria

Correct Answer: B. Good response to steroids

Explanation: Good response to steroids The correct statement about minimal change disease is that it shows a good response to steroids. Feature Minimal Change Disease (MCD) Clinical Presentation Nephrotic syndrome: Edema, heavy selective proteinuria , but normal renal function (Option D ruled out) Age Appears between 2 to 6 years of age (Option C ruled out) Proteinuria Heavy (3+ to 4+) on dipstick Hematuria Rare, microscopic hematuria may occur Urinary Casts Hyaline and granular casts Serum Albumin Low (<1 g/dL) Blood Urea and Creatinine Normal unless hypovolemia or acute kidney injury Serum Complement C3 Normal Cholesterol Hypercholesterolemia (may cause milky plasma) ASO/Anti-DNase B Titers Not elevated Light Microscopy Glomeruli appears normal Electron Microscopy Diffuse effacement of podocytes. (Option A ruled out) Treatment Corticosteroid

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 472

Nelson Textbook of Pediatrics, 21st Edition, Page 2757,2758

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: 10-year-old child, treated with antibiotics for follicular tonsillitis, presents with periorbital edema. Blood work reveals eosinophilia, and urine microscopy shows WBC casts. What is the most likely diagnosis? (Q853243)

A. Pyelonephritis

B. Allergic interstitial nephritis

C. Glomerulonephritis

D. IgA nephritis

Correct Answer: B. Allergic interstitial nephritis

Explanation: Allergic interstitial nephritis The presence of eosinophilia along with WBC casts in the urine of a patient after consuming a course of antibiotics indicates a potential diagnosis of allergic interstitial nephritis (AIN) . Pyelonephritis (Option A) , Glomerulonephritis (Option C) , and IgA nephritis (Option D) do not exhibit eosinophilic casts in the urine. Causes of Eosinophiluria: Atheroembolic kidney disease Acute kidney injury due to fragmentation of atherosclerotic plaque while performing coronary angiography causes fragments to get trapped in the renal artery. Renal function tests are deranged, post coronary angiography, and there is the presence of purpura all over the body of the patient. Development of gangrene of toes post angiography. Allergic interstitial nephritis Acute kidney injury secondary to antibiotic intake Schistosomiasis

References:

Ghai Essential Pediatrics, 10th edition, Page 507

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: What is the usual method of collecting a sample of urine to detect UTI? (Q852693)

A. Early morning sample

B. Midstream catch

C. Supra pubic catheter

D. Starting stream collection

Correct Answer: B. Midstream catch

Explanation: In a toilet-trained child, the usual method of collecting urine for evaluation of urinary tract infection is midstream catch . This is preferred since it poses the least risk of contamination and is easy and non-invasive. Methods of Urine Sample Collection: Midstream Sample (Toilet-Trained Children): Suitable for most toilet-trained children. Clean the introitus before collecting the sample. Voided Sample (Uncircumcised Males): Prepuce must be retracted to avoid contamination. Non-retractable prepuce can lead to unreliable, contaminated samples. Catheterized or Suprapubic Aspiration (Children Not Toilet-Trained): Preferred methods for children under 2 years old. Adhesive Collection Bag: Can be used in children not toilet-trained if the skin is disinfected. Useful for negative urinalysis or culture; has a 99% negative predictive value. Not recommended if immediate treatment is planned due to high contamination risk. Suprapubic Aspirate : (Option C) Rarely needed; generally not recommended unless there are specific concerns. Contamination Concerns: Bagged Specimen: Positive cultures can result from contamination, especially in females and uncircumcised males. Contamination Risk: A high rate of contamination may occur, especially with mixed organisms. The early morning sample (Option A) is for evaluating proteinuria and not UTI. Starting stream collection (Option D) is not preferred as this can contain

commensals that might give incorrect results.

References:

Nelson Paediatrics, 21st Edition, Page 2792

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A 3-year-old boy who presents with repetitive episodes of urinary tract infection. The mother reports that he urinates frequently but has a weak urinary flow and dribbling of urine. Upon examination, a palpable bladder is detected. What is the most sensitive investigation that can be employed to determine the underlying diagnosis? (Q859928)

A. Ultrasonogram

B. Micturating cystourethrography

C. Urine routine examination

D. DMSA scan

Correct Answer: B. Micturating cystourethrography

Explanation: MCU is the most sensitive investigation for diagnosing vesicoureteral reflux (VUR) and can also detect posterior urethral valves . It allows visualization of urine reflux during micturition and is the gold-standard test in a child with recurrent UTIs and signs of lower urinary tract obstruction. Ultrasonogram (Option A): Useful as an initial screening tool to detect hydronephrosis or structural abnormalities, but cannot demonstrate reflux or voiding dynamics. Therefore, it is not the most sensitive test for VUR. Urine routine examination (Option C): Helps detect active UTI, pyuria, or bacteriuria, but gives no information about urinary tract anatomy , obstruction, or reflux. It does not identify the underlying cause of recurrent infections. DMSA scan (Option D): Best for detecting renal scarring and assessing cortical function, but cannot evaluate the bladder or urethra during voiding and cannot diagnose VUR. It is used after UTI to evaluate renal damage, not for primary diagnosis of reflux.

References:

Ghai Essential Pediatrics, 10th Edition, Page 510-511

↑ *Back to this question in Part A*

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• [15_Pediatric Endocrinology] 038 Pituitary Thyroid And Adrenal Disorders

« Back to Folder Directory

[15_Pediatric Endocrinology] 038 Pituitary Thyroid And Adrenal Disorders — Quick Jump

Q1 (p. 1411)	*Q2 (p. 1412)*	*Q3 (p. 1413)*	*Q4 (p. 1414)*	*Q5 (p. 1415)*	*Q6 (p. 1416)*
Q7 (p. 1418)	*Q8 (p. 1419)*	*Q9 (p. 1420)*	*Q10 (p. 1421)*	*Q11 (p. 1422)*	*Q12 (p. 1424)*
Q13 (p. 1425)	*Q14 (p. 1427)*	*Q15 (p. 1427)*	*Q16 (p. 1430)*	*Q17 (p. 1431)*	*Q18 (p. 1432)*

Q1: A 30-year-old woman had been taking medications for depression for the last 3 months, but antidepressants were found not to be very effective with her. The doctor started with another drug, and after 3 weeks, she came for a follow-up and reported that she was able to get sound sleep. The woman was also in her first trimester of pregnancy, but she forgot to tell the psychiatrist and continued to take the drug for the next 2 months. After the delivery, she found that she was not able to feed her baby as there was no lactation. Which of the following drugs led to suppressed lactation in this patient? (Q882138)

A. Amphetamine

B. Carbamazepine

C. Labetalol

D. Ibuprofen

Correct Answer: A. Amphetamine

Explanation: Correct Option A - Amphetamine: Medications absolutely contraindicated for a breastfeeding mother include: Lithium Cyclosporin Antineoplastic agents Drugs like cocaine, amphetamines , ergotamines, and bromocriptine suppress lactation . Antibiotics are generally safe, with only a few exceptions (such as tetracyclines and chloramphenicol). While sedatives and narcotic pain medications are probably safe, the infant must be observed for sedation. Incorrect Options: Option B - Carbamazepine: Carbamazepine i s an anticonvulsant medication that is used for the treatment of epilepsy and neuropathy pain. Carbamazepine is not associated with suppressed lactation. Option C - Labetalol: Taking labetalol during pregnancy can affect the growth of the baby. Oral labetalol does not affect prolactin. Option D - Ibuprofen: Ibuprofen is a painkiller that has no side effects on prolactin and decreases breast milk. Ibuprofen can be recommended for breastfeeding mothers.

References:

Nelson Textbook of Pediatrics 20th edition/ page- 801-802

↑ *Back to this question in Part A*

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Q2: A 10-year-old girl presents with a 3-month history of unexplained weight loss (5 kg) despite increased appetite. She reports feeling constantly warm, sweating excessively, experiencing palpitations, and having decreased concentration in class. On examination, she has visible neck swelling, moist skin, and fine tremors in her outstretched hands. What is the most appropriate initial treatment? (Q850261)

A. Propylthiouracil

B. Methimazole

C. Prednisolone

D. Propranolol

Correct Answer: B. Methimazole

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most appropriate initial treatment for this 10-year-old girl with symptoms suggestive of hyperthyroidism (weight loss, increased appetite, heat intolerance, palpitations, tremors, and neck swelling) is Methimazole. The dosage is 0.5-1.0 mg/kg/day in 3-4 divided doses. Hyperthyroidism in Children Etiology: Infancy: Transplacental passage of thyroid antibodies, TSH receptor activating mutation. After Infancy: Graves disease (TSH receptor stimulating antibody), toxic thyroid nodule, toxic multinodular goiter, pituitary resistance to T3. Transient: Release of preformed thyroid hormone due to viral or bacterial infections of the thyroid (acute or subacute thyroiditis), early Hashimoto thyroiditis (Hashitoxicosis), iatrogenic. Clinical Features: Symptoms: Weight loss with increased appetite, tremors, diarrhea, warm extremities, increased sweating, anxiety, inability to concentrate, personality changes, mood instability, and poor school performance. Signs: Firm homogeneous goiter, tachycardia, cardiac arrhythmia, high output cardiac failure. Eye Signs: Less common in children compared to adults; may include lid lag, ophthalmoplegia, absence of wrinkling, chemosis, and proptosis. Diagnosis: Elevated serum FT4 and FT3 levels confirm diagnosis. Goiter, eye signs, and hyperthyroidism suggest Graves disease. Diffusely increased radiotracer uptake suggests Graves disease; reduced uptake indicates AIT. Management: Medication: Antithyroid Drugs: Initially started with Methimazole (0.5-1.0 mg/kg/day in 3-4 divided doses). Propylthiouracil is contraindicated due to hepatotoxicity. (Option A) It is typically reserved for specific situations, such as during the first trimester of pregnancy or in cases of methimazole intolerance. Beta-Blockers: Propranolol (2 mg/kg/day in 2-3 divided doses) to manage sympathetic symptoms. (Option D) It is used to manage the adrenergic symptoms (e.g., tremors, anxiety, palpitations) of hyperthyroidism, but it does not treat the underlying cause. It is often used in conjunction with antithyroid drugs like methimazole. Corticosteroids: Prednisolone (1-2 mg/kg/day) for hyperthyroid storm and to inhibit peripheral conversion of T4 to T3. (Option C)

It is not an initial treatment for hyperthyroidism. Surgery and Radioiodine: Considered for patients with failure of medical management or relapse. Surgery: Partial or total thyroidectomy for large or toxic nodular goiter. Radioiodine: Increasingly used in childhood Graves disease.

References:

Ghai's Essentials of Pediatrics, 10th Edition, Pages 540-541

↑ *Back to this question in Part A*

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Q3: In a pediatric patient presenting with hypertension and episodic symptoms such as palpitations, sweating, and headaches, which of the following diagnostic tests is most appropriate? (Q850268)

A. Serum calcium level

B. Plasma fractionated metanephrines

C. Thyroid function test

D. MRI of the brain

Correct Answer: B. Plasma fractionated metanephrines

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Symptoms such as episodic hypertension, palpitations, sweating, and headaches suggest Pheochromocytoma. In pheochromocytoma, there is an increase in urinary VMA (Vanillyl mandelic acid) and metanephrines. A Plasma fractionated metanephrines test is the most appropriate initial diagnostic test to confirm. Pheochromocytoma: A catecholamine-secreting tumor that arises from the chromaffin cells of the abdominal sympathetic chain/ adrenal medulla Co-exist with neurofibromatosis, VHL syndrome, MEN syndrome Clinical features: Classical triad - Headache (most common), profuse sweating, palpitation and tachycardia Hypertension (sustained or intermittent) Anxiety, panic attacks Hyperglycemia and Hypercalcemia Pallor- due to alpha-1 mediated vasoconstriction Polyuria and polydipsia Orthostatic hypotension Dilated cardiomyopathy Erythrocytosis Constipation Abdominal pain Weakness Weight Loss The rule of 10 in Pheochromocytoma includes: 10% are bilateral 10% are extra-adrenal 10% are malignant 25-33% are inherited Symptomatic patients do not follow the Rule of 10's Diagnosis: Measurement of the plasma fractionated metanephrines is the most sensitive screening test Increase 24 hour urinary VMA(Vanillyl mandelic acid) and metanephrines MRI is the investigation of choice. (Option D) Biopsy and CT contrast scans are contraindicated in order to avoid hypertensive crises. Treatment: Adrenalectomy is the treatment of choice Size<5cm- Laparoscopic adrenalectomy Preop Alpha-blockers should be given Mitotane should be started as adjuvant or palliative treatment Averbuch's chemotherapy protocol for Malignant pheochromocytoma includes the following: Dacarbazine (600mg/msq on days 1 and 2) Cyclophosphamide (750mg/msq on day 1) Vincristine (1.4mg/msq on day1) All are repeated every

21 days for three to six cycles.

References:

OP GHAI Essentials of Pediatrics. 10th edition. Pg. 545,546

Pheochromocytoma - StatPearls - NCBI Bookshelf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A pediatric patient presents with resistant hypertension and hypokalemia. Which of the following diagnostic tests is most appropriate to evaluate for primary hyperaldosteronism? (Q850267)

A. Serum cortisol level

B. Plasma aldosterone concentration to plasma renin activity ratio

C. Serum sodium level

D. 24-hour urinary calcium excretion

Correct Answer: B. Plasma aldosterone concentration to plasma renin activity ratio

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Plasma aldosterone concentration to plasma renin activity is typically elevated in primary hyperaldosteronism due to high aldosterone levels and suppressed renin activity. Primary hyperaldosteronism, also known as Conn's syndrome, is characterized by excess production of aldosterone, leading to hypertension and hypokalemia. Primary Aldosteronism / Conn Syndrome Secondary Hyperaldosteronism Due to adrenal adenoma/ hyperplasia Glucocorticoid remediable hypertension Due to the stimulation of the renin-angiotensin pathway Renal artery stenosis Renin- secreting tumor Congestive cardiac failure Nephrotic/nephritic syndrome Liver disease Clinical Presentation: Hypertension Hypokalemia - Muscle weakness Metabolic alkalosis Serum cortisol level (Option A): Serum cortisol level is used to evaluate for conditions like Cushing's syndrome, not hyperaldosteronism Serum sodium level (Option C): Serum sodium level, while related, is not a specific diagnostic hyperaldosteronism 24-hour urinary calcium excretion (Option D): 24-hour urinary calcium excretion is more relevant in conditions like hyperparathyroidism or idiopathic hypercalciuria and is not related to primary hyperaldosteronism .

References:

OP GHAI Essentials of Pediatrics. 10th edition. Pg.545

↑ *Back to this question in Part A*

Q5: A 15-year-old girl presents with weight gain, easy bruising, and fatigue. She has a history of hypertension. O/E, she has a rounded face, purple striae on her abdomen, and proximal muscle weakness. Which of the following is the most appropriate initial diagnostic test to confirm the suspected diagnosis? (Q850266)

A. 24-hour urinary free cortisol test

B. Overnight DST

C. Serum cortisol level measurement at 8 am

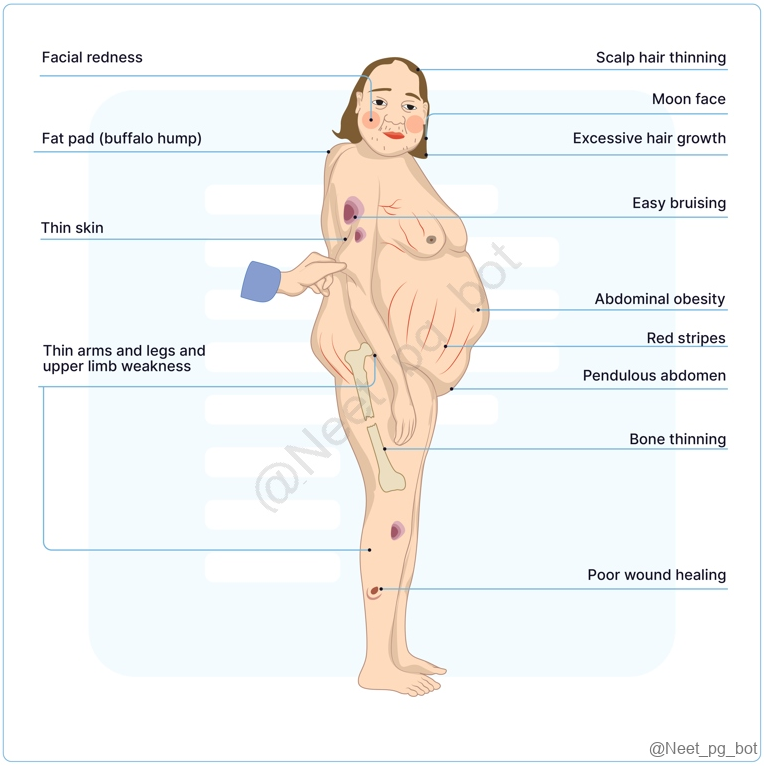
D. ACTH stimulation test

Correct Answer: A. 24-hour urinary free cortisol test

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most appropriate initial diagnostic test is a 24-hour urinary-free cortisol test because it effectively screens for excess cortisol production indicative of Cushing syndrome. Causes of Cushing's Syndrome: Exogenous causes (Iatrogenic) Prolonged administration of glucocorticoids (the most common cause of Cushing's). ACTH dependent Cushing's disease: ACTH-secreting pituitary adenoma(most common) Hypothalamic lesions Ectopic source - Neuroblastoma, Wilms tumor, Carcinoid syndrome ACTH independent Adrenal adenoma/ carcinoma Pigmented nodular hyperplasia McCune Albright syndrome Clinical Features: Obesity, striae Moon facies, and buffalo hump Short stature Hypertension Bone pains Muscle weakness Behavioral problems Hirsutism Diagnosis: Screening test Loss in diurnal cortisol rhythm Overnight Dexamethasone suppression test: Plasma cortisol >1.8microgram at 8 a.m after overnight exposure to dexamethasone (1mg given at 11 p.m) 24hr urinary free cortisol excretion: Increased three times the normal value High-dose dexamethasone suppression test differentiates between pituitary and ectopic ACTH production; high doses of dexamethasone suppress ACTH levels in pituitary lesions but not in ectopic ACTH cases. Low dose dexamethasone suppression test (highly specific test): ACTH levels: a) <5pg/ml: ACTH independent cause b) 5-15pg/ml: ACTH-dependent cause c) 100pg/ml: Ectopic ACTH The best test to identify the source of ACTH production - Inferior petrosal sinus sampling Test to rule out pseudo-Cushing's syndrome: Low-dose DST+CRH stimulation test: Plasma cortisol levels are increased in true Cushing's but remain unaffected in pseudo-Cushing's. Dexa-induced negative feedback is overcome by CRH in true Cushing's. Treatment: Surgical resection of pituitary/ adrenal lesions Medical: Metyrapone, Ketoconazole, Mitotane Overnight Dexamethasone suppression test (Option B) : Plasma cortisol >1.8 microgram at 8 a.m. after overnight exposure to dexamethasone (1mg given at 11 p.m.). This test helps to differentiate between Cushing syndrome and other causes of elevated cortisol. Serum cortisol level measurement at 8 AM (Option C) - this is less specific and can be influenced by the body's natural cortisol rhythm. ACTH stimulation test (Option D) : This test assesses the adrenal gland's response to ACTH and is typically used to elevate adrenal insufficiency or the cause of Cushing syndrome rather than as an initial diagnostic test.



References:

OP GHAI Essentials of Pediatrics. 10th edition. Pg.543-547

↑ *Back to this question in Part A*

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Q6: A 14-year-old girl presents with fatigue, weight loss, and hyperpigmentation of her skin. She also reports experiencing abdominal pain and orthostatic dizziness. Laboratory tests reveal low serum cortisol levels, elevated ACTH levels, and normal aldosterone levels. What is the most likely diagnosis? (Q850265)

A. Primary adrenal insufficiency

B. Secondary adrenal insufficiency

C. Tertiary adrenal insufficiency

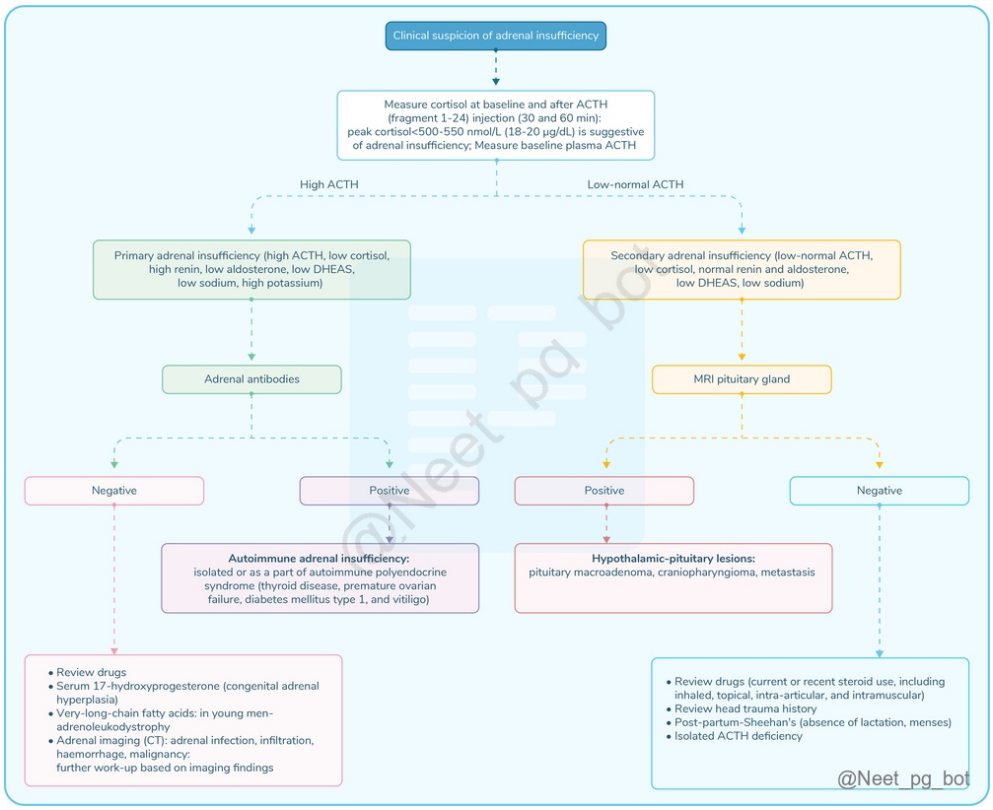
D. Cushing’s syndrome

Correct Answer: A. Primary adrenal insufficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most likely diagnosis is Primary adrenal insufficiency, also known as Addison’s disease, which is characterized by damage to the adrenal glands leading to low cortisol and high ACTH levels. The increased levels of adrenocorticotropic hormone (ACTH) cause hyperpigmentation of the skin due to the conversion of pro-opiomelanocortin (POMC) to melanocyte-stimulating hormone (MSH). Etiology: Primary adrenal insufficiency Secondary adrenal insufficiency Autoimmune mediated/Addison disease Infections: TB/HIV Adrenal Hemorrhage(Waterhouse- Friderichsen syndrome) CAH due to 3 beta -HSD deficiency Anatomical destruction of the gland Surgical removal Amyloidosis, sarcoidosis, hemochromatosis Congenital malformations(e.g. Holoprosencephaly) Acquired insults (CNS trauma, surgery, irradiation) Pituitary tumors Sudden discontinuation of steroids after prolonged treatment Genetic defects Clinical features: Hyperpigmentation seen in primary Adrenal insufficiency- seen in palmar creases, dorsal aspect of the foot, nipples, and axillary region Dehydration- lethargy Shock Abdominal pain, nausea, vomiting, salt cravings Hypoglycemia Dizziness and postural hypotension Hyponatremia Loss of libido Loss of pubic and axillary hair Anorexia, weight loss, fatigue, myalgia, arthralgia Investigations: Treatment: Acute adrenal insufficiency requires immediate initiation of the following therapeutic strategies: Rehydration - saline infusion at an initial rate of 1 l/hr with continuous cardiac monitoring. Glucocorticoid replacement - bolus injection of 100 mg hydrocortisone, followed by the maintenance dose of 100-200mg over 24hr Mineralocorticoid replacement - initiated once the daily hydrocortisone dose has been reduced to <50 mg as higher doses of hydrocortisone have sufficient mineralocorticoid action. Secondary adrenal insufficiency (Option B) is caused by inadequate ACTH secretion from the pituitary gland. This leads to low cortisol levels but normal or low ACTH levels. Tertiary adrenal insufficiency (Option C) results from inadequate corticotropin-releasing hormone production from the hypothalamus, leading to low ACTH and cortisol levels. Cushing’s syndrome (Option D) is characterized by excess cortisol levels. Symptoms include weight gain, hypertension, and moon facies, but not typically low cortisol levels or high ACTH levels with skin hyperpigmentation.



References:

OP GHAI Essentials of Pediatrics. 10th edition. Pg.546

↑ *Back to this question in Part A*

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Q7: A 16-year-old girl presents with hypertension, hypokalemia, and amenorrhea. She has a history of reduced secondary sexual characteristics and has not menstruated since puberty. Lab reports reveal elevated serum aldosterone levels, normal cortisol levels, and low serum testosterone levels. What is the most likely diagnosis? (Q850264)

A. 17 ■ hydroxylase deficiency

B. 11 hydroxylase deficiency

C. 3 ■ HSD deficiency

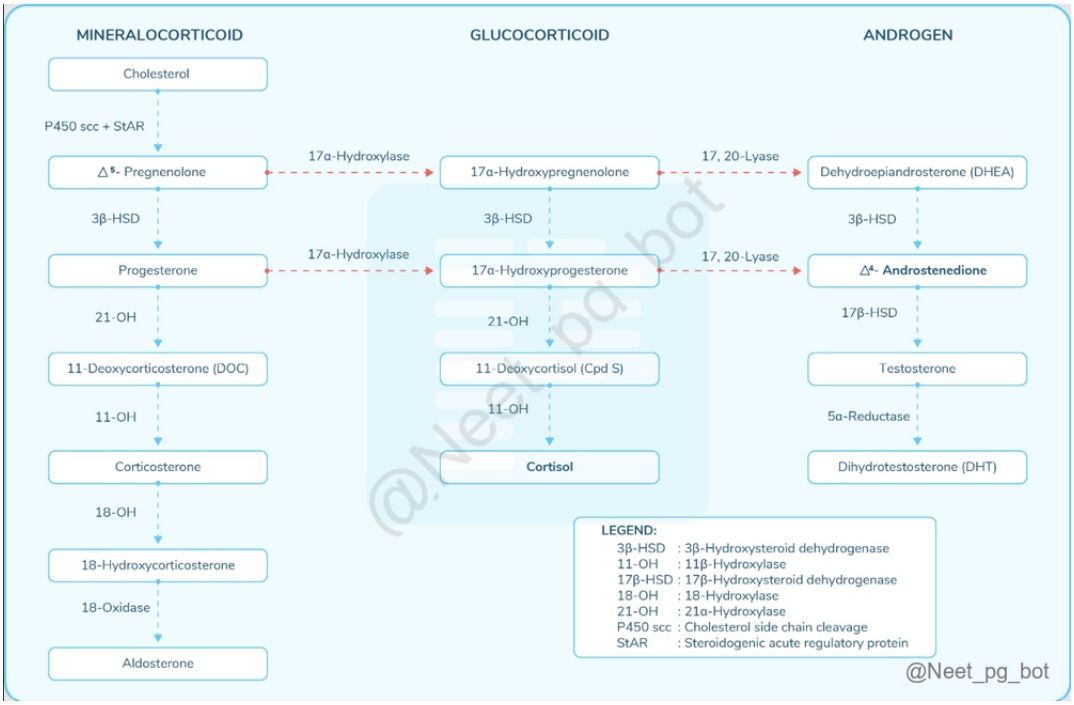
D. None of the above

Correct Answer: A. 17 ■ hydroxylase deficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient’s symptoms of hypertension, hypokalemia, and amenorrhoea with normal cortisol and low testosterone levels fit with 17 ■ hydroxylase deficiency. 17 ■ Hydroxylase deficiency: Normal cortisol and low sex hormones Excess mineralocorticoids: Hypertension, hypokalemia, and salt retention No sex steroids production: under virilization (ambiguous genitalia) in males 11 ■ Hydroxylase Deficiency (Option B): Deficiency of cortisol Increase in deoxycorticosterone (weak mineralocorticoid) and testosterone Salt retention and hypertension Excess sex steroid - Ambiguous genitalia in females Precocious puberty in males 3 ■ HSD deficiency (Option C): Deficient glucocorticoids and mineralocorticoids: shock, dehydration and hyperkalemia Salt-wasting crisis Deficient sex steroids: Normal genitalia in females Ambiguous genitalia in males



References:

OP GHAI Essentials of Pediatrics. 10th edition. Pg. 547

↑ *Back to this question in Part A*

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Q8: A 6-week-old infant is brought to the emergency room with symptoms of vomiting, dehydration, and shock. On physical examination, the infant's genitalia are noted to be ambiguous. Initial laboratory tests reveal severe electrolyte imbalances. Given these clinical findings, which of the following is the most likely diagnosis and the appropriate diagnostic test to confirm it? (Q850263)

A. 21-Hydroxylase deficiency with simple virilizing form; ACTH stimulation test with 17-OHP levels

B. 21-Hydroxylase deficiency with salt-wasting form; elevated 17-OHP levels

C. Non-Classic 21-Hydroxylase deficiency; Measurement of 17-OHP levels before and after ACTH stimulation

D. 11-Hydroxylase deficiency; Hydrocortisone alone

Correct Answer: B. 21-Hydroxylase deficiency with salt-wasting form; elevated 17-OHP levels

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The infant's symptoms (vomiting, dehydration, shock, and ambiguous genitalia) are characteristic of the salt-wasting form of 21-hydroxylase deficiency. This severe form results in almost absent enzyme activity, leading to critical electrolyte imbalances. The definitive diagnostic test for this condition is measuring extremely elevated levels of 17-hydroxyprogesterone (17-OHP), which typically exceeds 10000 ng/dL in salt-wasting forms. 21-Hydroxylase Deficiency Most common form of CAH (90%) Enzyme Affected: 21-hydroxylase Pathogenesis 21-hydroxylase deficiency impairs the synthesis of cortisol and aldosterone. Low cortisol levels lead to elevated ACTH levels. Elevated ACTH causes the accumulation of steroid precursors, including dehydroepiandrosterone (DHEA), androstenedione, and 17-hydroxyprogesterone (17-OHP). Clinical Manifestations Salt-Wasting Form: Severe deficiency with nearly absent enzyme activity. Presents in neonates with salt-wasting, virilization, ambiguous genitalia in girls, failure to thrive, polyuria, hyperpigmentation, and shock. Diagnosis may be missed in boys. Simple Virilizing Form: Partial enzyme activity (25%) allows aldosterone production. Features include virilization in girls and peripheral precocious puberty in boys . (Option A ruled out) Non-Classic Form: Mild enzyme deficiency with mild hyperandrogenism. Symptoms include hirsutism, acne, and menstrual irregularities in adolescents. (Option C ruled out) Diagnosis Salt-Wasting Form: Extreme elevations of 17-OHP levels (10000-20000 ng/dL, normal <200 ng/dL) in the context of clinical signs of adrenal insufficiency. Simple Virilizing and Non-Classic Forms: Elevated 17-OHP levels measured before and 60 minutes after an intramuscular ACTH injection (0.25 mg). Treatment Salt-wasting and Virilizing Forms treated with Hydrocortisone (10-15 mg/m²/day) and Fludrocortisone (0.1 mg/day). Long-acting glucocorticoid preparations (dexamethasone or prednisolone) may be used after growth and puberty are complete. 11-Hydroxylase Deficiency; Hydrocortisone alone (Option D); 11-Hydroxylase deficiency typically presents with hypertension rather than the salt-wasting and ambiguous genitalia seen in the scenario. This condition is managed with hydrocortisone, but it does not fit the clinical picture described here.

References:

OP GHAI Essentials of Pediatrics. 10th edition. Pg. 547

↑ *Back to this question in Part A*

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Q9: A 5-day-old neonate is admitted to the NICU with tachycardia, irritability, and poor weight gain. The infant's mother has a history of Graves' disease and was treated

with propylthiouracil throughout her pregnancy. Initial examination reveals a heart rate of 170 bpm, and thyroid function tests show elevated T3 and T4 levels with suppressed TSH.Which of the following statements about this condition is false? (Q850262)

A. Affects infants born to mothers with Graves' disease

B. Treatment with corticosteroids only

C. Symptoms of neonatal thyrotoxicosis can be delayed due to maternal antithyroid medications

D. Infants are prone to cardiac failure

Correct Answer: B. Treatment with corticosteroids only

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The treatment for neonatal thyrotoxicosis involves a combination of antithyroid drugs , propranolol to manage symptoms, and corticosteroids to address inflammation and related issues. Neonatal Thyrotoxicosis: Occurrence: Affects 1% of infants born to mothers with Graves' disease, presenting with fetal thyrotoxicosis and possible cardiac failure. (Options A & D) Typically appears within the first week of life but can be delayed if the mother is on antithyroid medications or has TSH receptor-blocking antibodies. (Option C) Clinical presentation: Goiter, tachypnea, tachycardia, diarrhea, sweating, low birth weight, irritability, and features of heart failure Treatment: Includes a combination of antithyroid drugs, propranolol, and corticosteroids.

References:

OP GHAI Essentials of Pediatrics. 10th edition. Pg. 541

Fetal and neonatal thyrotoxicosis - PMC (nih.gov)

↑ *Back to this question in Part A*

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Q10: A 6-year-old boy is brought to the clinic due to concerns about his short stature. His height is below the 1st percentile for age, and his growth velocity has been consistently below the 25th percentile for the past two years. He was born at term with normal birth weight and length. Physical examination reveals proportionate short stature without dysmorphic features. Laboratory tests show low IGF-1 levels and two provocative growth hormone stimulation tests reveal peak GH levels of 3 ng/mL and 4 ng/mL. Which of the following is the most appropriate next step in management? (Q850252)

A. Observe and reassess in 6 months as normal growth might occur on its own

B. Start recombinant human growth hormone therapy

C. Perform genetic testing for PROP1 mutations

D. Initiate monotherapy with gonadotropin-releasing hormone agonist to delay epiphyseal fusion

Correct Answer: B. Start recombinant human growth hormone therapy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's clinical presentation and laboratory findings are consistent with isolated growth hormone deficiency (IGHD) . The most appropriate next step in management is to start recombinant human growth hormone (rhGH) therapy. IGHD is characterized by impaired linear growth due to insufficient production or secretion of growth hormone (GH) without deficiencies in other pituitary hormones. Isolated growth hormone deficiency (IGHD): Definition Insufficient production or secretion of growth hormone (GH) without deficiencies in other pituitary hormones Clinical Features Height below 1st percentile or >2 SD below mid-parental height Growth velocity below 25th percentile Delayed bone age High-pitched voice Normal birth weight and length Proportionate short stature- Upper segment (US): Lower segment (LS) ratio normal Biochemical Findings Low IGF-1 levels Peak GH levels <10 ng/mL on two provocative tests (on GH stimulation test) Diagnosis Measurements of IGF-1 and IGF-binding protein levels GH stimulation test Done using arginine/clonidine/insulin Peak GH level <10 ng/ml → GH deficiency Bone age < Chronological age Treatment Recombinant human growth hormone (rhGH) Initial dose: 0.16-0.24 mg/kg/week Administered subcutaneously once daily GH therapy should be continued until near-final height is achieved.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg. 2880 - 2886

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 7-year-old child from a region with known iodine deficiency presents to the clinic with symptoms including developmental delay, short stature, and coarse facial features. The child’s parents report a high prevalence of goiter in their community. To prevent similar cases in the future, which of the following preventive measures is the most appropriate? (Q850260)

A. Prescribing high-dose thyroid hormone replacement therapy

B. Recommending the use of iodinated salt or iodized oil

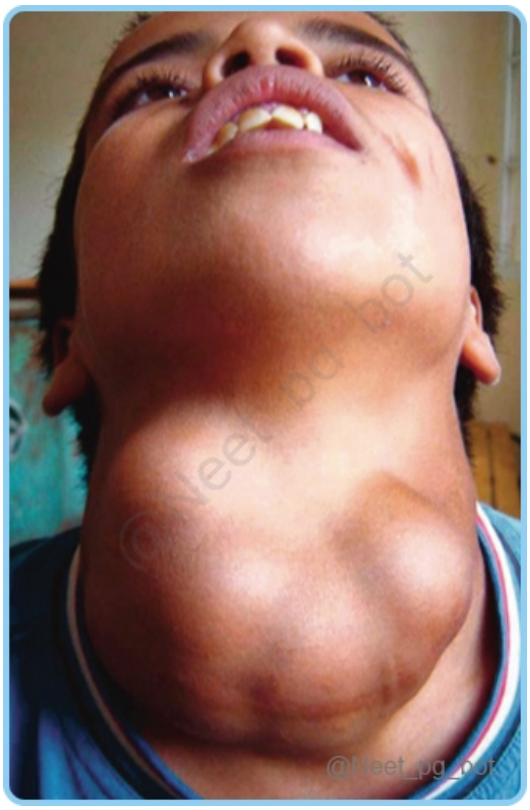
C. Advising on a diet high in vegetables and fruits

D. Performing regular thyroid function tests for all community members

Correct Answer: B. Recommending the use of iodinated salt or iodized oil

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Iodine deficiency disorders, including endemic cretinism, are best prevented through the use of iodinated salt or iodized oil. This approach addresses the root cause of iodine deficiency and is effective in preventing the associated disorders. Endemic Cretinism: Endemic cretinism is associated with endemic goiter and severe iodine deficiency. It manifests in two main forms: neurological cretinism and myxedematous cretinism A 14-year-old boy with a large nodular goiter - in an area of severe iodine-deficiency disorders in northern Morocco. Types of Endemic Cretinism: Neurological Cretinism : Characterized by deaf-mutism, squint, proximal spasticity and rigidity, and severe intellectual disability. Myxedematous Cretinism : Characterized by less severe intellectual impairment, severe short stature, coarse facial features, and myxedema. Prevention and Control: Prevention : Iodine deficiency disorders are best prevented through iodinated salt or iodized oil, as treatment is largely ineffective. Treatment : While signs of hypothyroidism may improve, neuromotor and intellectual deficiencies are irreversible. Surgical removal of large goiters is reserved for airway obstruction or cosmetic reasons. National Goiter Control Program (India): Launched in 1962 to control iodine deficiency disorders through salt iodination. Recommended daily iodine intake: 40-120 µg for children under 10 years. 150 µg for older children and adults. Additional 25-50 µg during pregnancy and lactation. Prescribing high-dose thyroid hormone replacement therapy (Option A): This option is not a preventive measure. While thyroid hormone replacement therapy can treat hypothyroidism and its symptoms, it does not prevent iodine deficiency or its associated disorders, such as endemic cretinism. Advising on a diet high in vegetables and fruits (Option C): While a healthy diet is beneficial for overall health, vegetables and fruits alone do not provide sufficient iodine to prevent iodine deficiency disorders. Performing regular thyroid function tests for all community members (Option D) focuses on monitoring rather than prevention. Regular thyroid function tests are useful for diagnosing thyroid disorders but do not prevent iodine deficiency.



References:

Ghai's Essentials of Pediatrics, 10th Edition, Page 540

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: What is the most effective method for screening newborns for congenital hypothyroidism to ensure early detection and intervention? (Q850259)

A. Heel prick test for TSH

B. Heel prick test for thyroid hormone (T4 and T3)

C. USG of the thyroid gland

D. Clinical assessment of physical signs of hypothyroidism

Correct Answer: A. Heel prick test for TSH

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The most effective method for screening newborns for congenital hypothyroidism is the heel prick test for TSH. TSH is a more sensitive indicator for thyroid disorders compared to T4 or T3 levels. Diagnosis: Primary hypothyroidism: T4 level: low TSH usually>100mIU/L Central hypothyroidism: Low TSH, T3, and T4 levels X-ray findings in congenital hypothyroidism: Absence of distal femoral and proximal tibial epiphysis at birth Punctate epiphyseal dysgenesis Deformity or breaking of the 12th thoracic or 1st or 2nd lumbar vertebrae X-ray image of skull- large fontanelle and wide sutures Screening: Universal newborn screening for congenital hypothyroidism At birth, with umbilical cord blood Heel prick: dried blood spots, sample collected beyond 48 hrs or 48-72hrs Should not be done in first 1-2 days, to avoid TSH surge Most sensitive approach- check for T4 and TSH both ASH's first strategy: Initial TSH screening using dried blood spot If TSH>20mIU/L, recheck Obtain a venous blood sample to check T4 and TSH levels if TSH remains elevated. Treatment Oral levothyroxine (early morning with empty stomach for older children and for newborns it is to be given at a fixed time) The dose is higher in the earlier age group and as the babies grow the dose reduces. Newborn- 10-15mg/kg/day Children- 2-4mg/kg/day

References:

GHAI Essential Pediatrics, 10th edition pg no: 537-541, 676

↑ *Back to this question in Part A*

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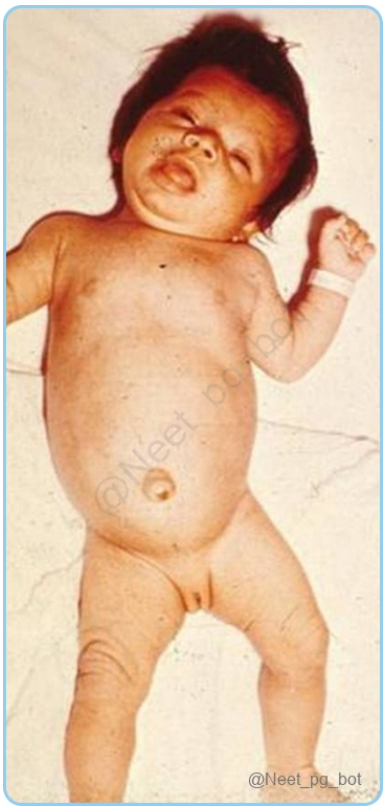
Q13: Which of the following is not typically a finding in the shown condition? (Q850258)

A. Poor feeding

B. Constipation

C. Hypertonia

D. Jaundice



Correct Answer: C. Hypertonia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given picture is that of a child with untreated congenital hypothyroidism. In congenital hypothyroidism, hypotonia is seen and not hypertonia Congenital hypothyroidism is the most common preventable cause of mental retardation which results from a deficient production of thyroid hormone. More common among girls The most common cause of congenital hypothyroidism is thyroid dysgenesis. Etiology of congenital hypothyroidism: 1. Primary hypothyroidism: Thyroid dysgenesis Thyroid dyshormonogenesis Iodine deficiency (endemic goiter) Defect in thyroid hormone transporter- Mutation in MCT8 (monocarboxylate transporter 8) gene Maternal antibodies- TRBAb (thyrotropin receptor-blocking antibody) Maternal medications- Iodides, amiodarone, propylthiouracil, methimazole, radioiodine 2. Central (hypopituitary) hypothyroidism: TSH deficiency- mutation in TSH beta subunit gene TRH deficiency- mutation in the TRH gene TRH unresponsiveness- mutation in TRH receptor gene Multiple congenital pituitary hormone deficiencies Clinical features of congenital hypothyroidism: Prolongation of physiological jaundice (Option D) - early sign (it is due to delayed maturation of glucuronide conjugation) Constipation - not responsive to treatment (Option B) Wide open anterior and posterior fontanelles Developmental delay, delayed bone growth, delayed dentition A dull-looking face with macroglossia, feeding difficulties (Option A) , choking spells Hypothermia, hypotonia, slow relaxation of deep tendon reflexes Macrocytic anemia refractory to treatment

References:

GHAI Essential Pediatrics, 10th edition pg no: 537-541, 676

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: Which of the following is not typically associated with MEN 1 syndrome? (Q850257)

A. Pituitary adenoma

B. Hyperparathyroidism

C. Gastrinoma

D. Medullary thyroid carcinoma

Correct Answer: D. Medullary thyroid carcinoma

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Medullary thyroid carcinoma is seen in MEN2A syndrome MEN1 syndrome Features: Chromosome 11q13/MEN1 gene Also known as Wermer's syndrome Classical tumors seen are: Parathyroid adenoma (90%) - Most common overall. (Option B ruled out) Enteropancreatic tumors - The most common functioning tumor is gastrinoma(the most common site is duodenum) (Option C ruled out) Pituitary adenoma - Most common in prolactinoma (Option A ruled out) Associated tumors: Angiofibroma, Collagenoma, Adrenal cortical tumors, lipoma, neuroendocrine tumors, Meningioma, pheochromocytoma, carcinoid tumors MEN 2 Syndrome Features: MEN2A Known as Sipple's syndrome Chromosome 10/RET gene Associated conditions are- Medullary thyroid carcinoma (Option D) Pheochromocytoma Parathyroid adenoma MEN2B Known commonly as MEN 3 syndrome Chromosome 10/RET gene Associated conditions are: 1) Medullary thyroid carcinoma 2) Pheochromocytoma Other associated abnormalities include- Mucosal neuroma, Marfanoid habitus, Megacolon MEN 4 Syndrome Associated with CDKN1B gene on chromosome 12 Associated conditions: parathyroid adenoma, pituitary adenoma, adrenals and renal tumors, and reproductive organ tumors like testicular carcinoma.

References:

https://www.ncbi.nlm.nih.gov/books/NBK7029/

↑ *Back to this question in Part A*

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Q15: A 10-year-old child presents with excessive thirst and frequent urination for the past several months, causing him to wake up multiple times at night to drink water. Lab tests show hypernatremia and dilute urine with low urine osmolality. What is the most appropriate treatment for managing his condition? (Q850256)

A. Insulin therapy

B. Desmopressin

C. Metformin

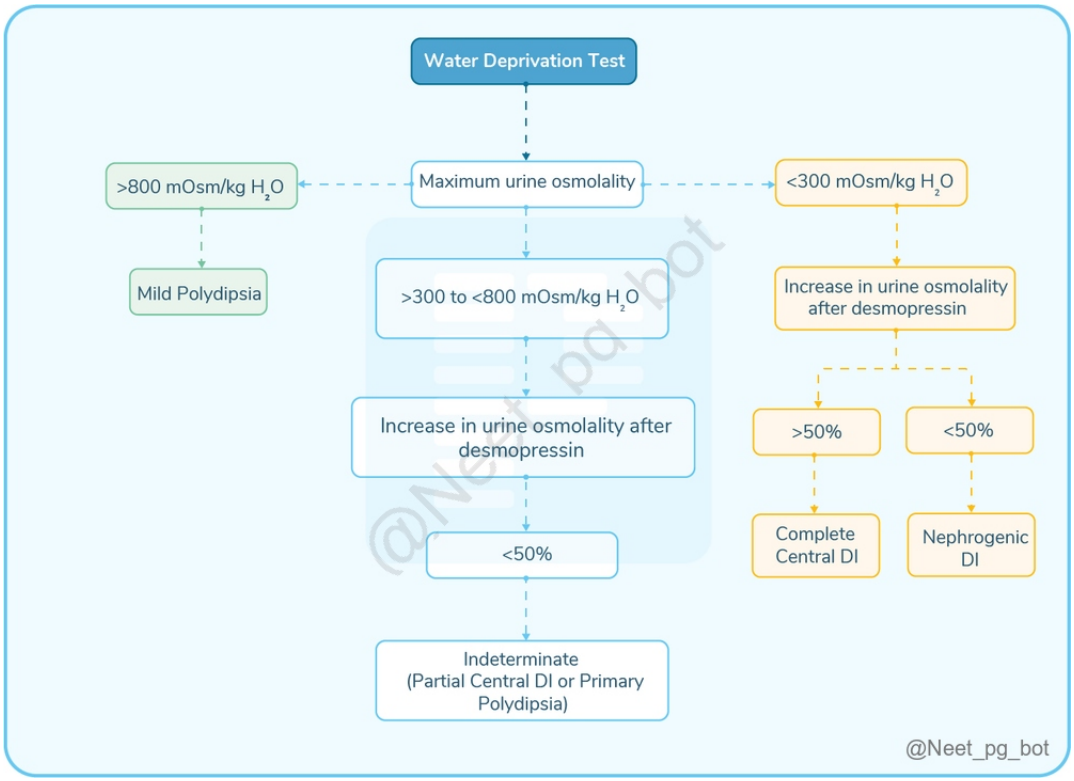
D. Spironolactone

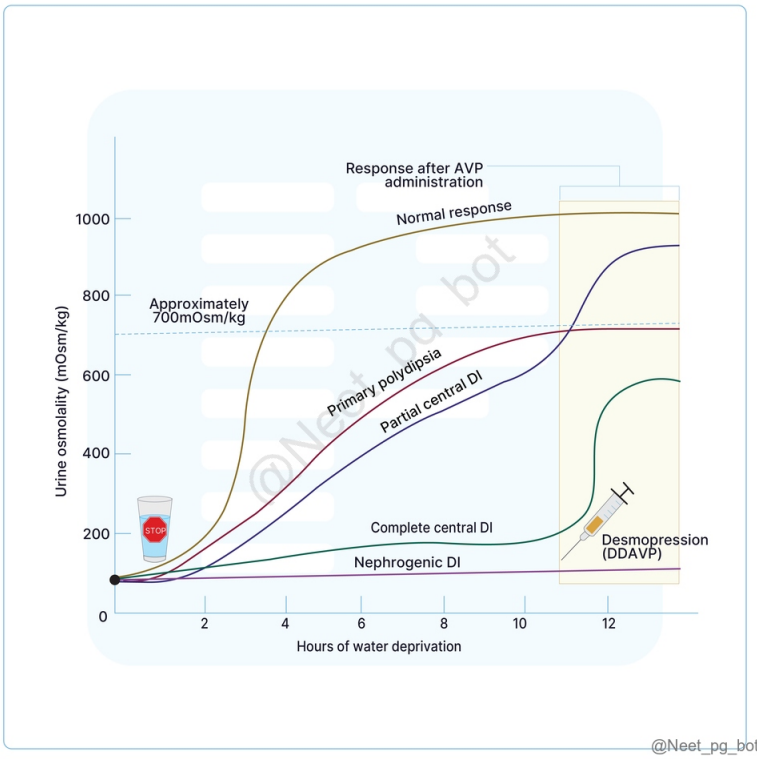
Correct Answer: B. Desmopressin

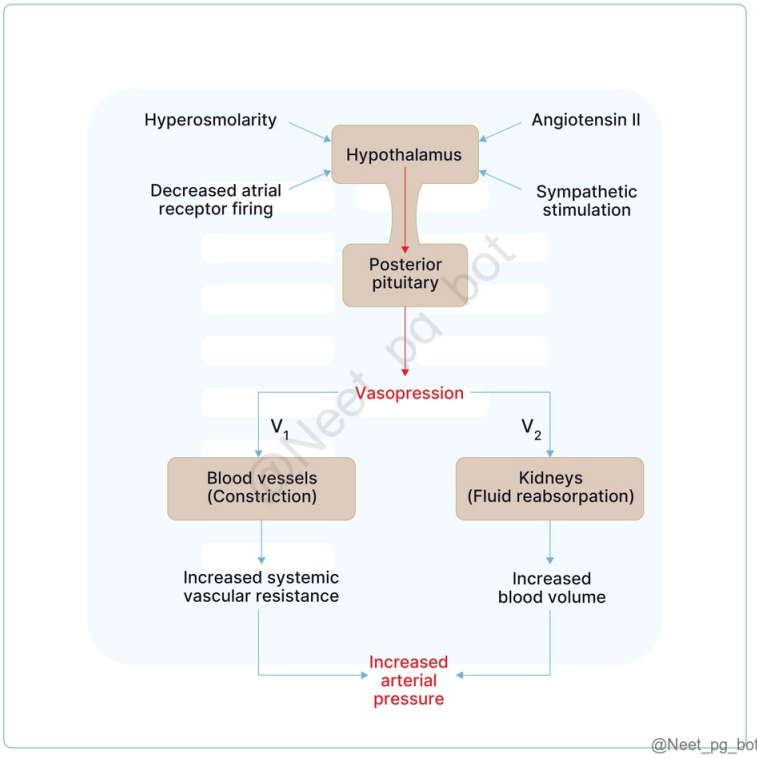
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's symptoms of excessive thirst, frequent urination, hypernatremia, and dilute urine are consistent with central diabetes insipidus (DI) , a condition caused by a deficiency of antidiuretic hormone (ADH). Desmopressin is a synthetic analog of ADH and is the primary treatment for central diabetes insipidus. It helps to reduce the excessive urine output by mimicking the action of ADH, thus improving the body's ability to concentrate urine Diagnosis: Low urine osmolality (<600 mosm/L) in association with high plasma osmolality {>300 mosm/L} Water deprivation test → differentiates psychogenic polydipsia from DI Water deprivation test Water deprivation test The vasopressin response test → to differentiate central DI and nephrogenic DI An increase in urine osmolality by >50% of the baseline indicates Central DI Treatment: Central DI: Vasopressin analogue (Desmopressin) Nephrogenic DI: Thiazide diuretics, Indomethacin, and salt restriction. Other Uses of Desmopressin include: Central Diabetes Insipidus (CDI) Nocturnal Enuresis Von Willebrand Disease Diagnostic Testing for CDI Temporary treatment of Polyuria-Polydipsia Syndrome Post-lumbar puncture headache (Option B) Insulin therapy is used for managing diabetes mellitus (Option C) Metformin Is used for treating type 2 DM (Option D) Spironolactone is a potassium-sparing diuretic used to treat conditions like hypertension, and edema.







↑ *Back to this question in Part A*

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Q16: A 10-year-old girl presents to her primary care physician with complaints of excessive thirst and urination for the past 3 months. Laboratory tests reveal: Serum sodium: 147 mEq/L (Normal: 135-145 mEq/L) Serum osmolality: 305 mOsm/kg (Normal: 275-295 mOsm/kg) Urine osmolality: 150 mOsm/kg (Normal: 300-900 mOsm/kg) Urine specific gravity: 1.005 (Normal: 1.005-1.030) A water deprivation test is performed, and after 8 hours, the patient's urine osmolality remains at 200 mOsm/kg. Administration of desmopressin results in a rapid increase in urine osmolality to 600 mOsm/kg within 2 hours. Which of the following is the most characteristic symptom of this condition? (Q850255)

A. Polyuria and polydipsia

B. Hyperglycemia

C. Edema

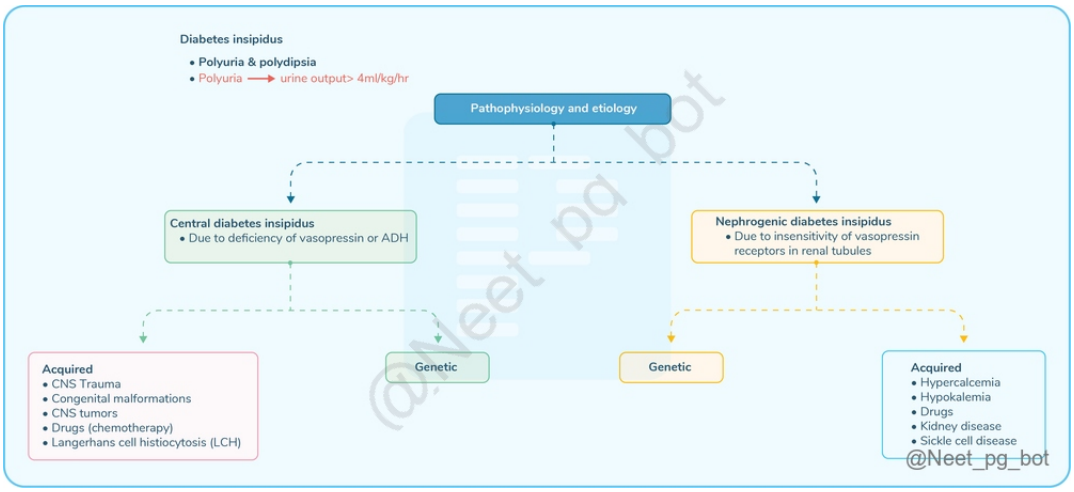
D. Polyphagia

Correct Answer: A. Polyuria and polydipsia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In diabetes insipidus, the kidney’s inability to concentrate urine leads to large volumes of dilute urine (Polyuria). Polydipsia means excessive thirst because the body tries to compensate for high fluid loss by increasing thirst to encourage more fluid intake. Diabetes insipidus is a condition in which there is the absence of or poor response to anti-diuretic hormone (ADH). This results in reduced distal tubule and collecting duct permeability to water. This causes the kidneys to excrete large amounts of dilute urine that clinically manifests as polyuria and polydipsia. (Option B and D) Polyphagia and hyperglycemia - are symptoms of diabetes mellitus (Option C) Edema is due to fluid retention which is typically not seen in DI



References:

GHAI Essential Pediatrics, 10th edition pg no: 61, 62, 524

↑ *Back to this question in Part A*

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Q17: A 12-year-old boy is brought to the endocrinology clinic due to rapid growth over the past year. He has grown 12 cm in the last 12 months and is now 175 cm tall (>97th percentile). Physical examination reveals coarse facial features, large hands and feet, and a deep voice. Laboratory tests show elevated IGF-1 and IGFBP-3 levels. An oral glucose tolerance test fails to suppress GH levels below 5 ng/mL. An MRI of the brain revealed no significant findings. What is the most appropriate initial treatment for this patient? (Q850254)

A. Trans-sphenoidal surgery

B. Pegvisomant

C. Octreotide

D. Cabergoline

Correct Answer: C. Octreotide

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's clinical features and biochemical tests indicate growth hormone excess disorder , which can occur due to multiple causes. Since MRI does not reveal the presence of any adenoma, the patient is to be put

on medical therapy, which is primarily done using Octreotide (Somatostatin analog) in pediatric patients. Growth Hormone Excess Disorder: Clinical Features Rapid linear growth Tall stature Coarse facial features Enlarged hands and feet Deep voice Possible headaches or visual disturbances Diagnosis Elevated IGF-1 and IGFBP-3 levels Failure to suppress GH on oral glucose tolerance test (>5 ng/mL in adolescents) MRI showing pituitary adenoma Treatment Options Trans-sphenoidal surgery (first-line for well-circumscribed adenomas) (Option A) Radiation therapy (if surgery fails or is contraindicated) Medical therapy: 1st line- Somatostatin analogs (octreotide, lanreotide) Refractory cases- GH receptor antagonist (pegvisomant) (Option B) Adjuvant- Dopamine agonists (cabergoline, bromocriptine) (Option D)



References:

Nelson Textbook of Pediatrics, 21st Edition, Pg. 2896, 2897

Pubmed

↑ *Back to this question in Part A*

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Q18: A pediatric endocrinology fellow is reviewing hormone profiles of patients with various growth disorders. Match the following conditions with their expected hormone levels: a. GHRH deficiency 1. Low GH, low IGF-1, normal or high GHRH b. GHRH receptor resistance 2. High GH, low IGF-1, high GHRH c. GH deficiency 3.

Low GH, low IGF-1, low GHRH d. GH receptor resistance (Laron syndrome) 4. Normal or high GH, low IGF-1, high GHRH (Q850253)

A. a-3, b-1, c-1, d-2

B. a-3, b-4, c-1, d-2

C. a-1, b-2, c-3, d-3

D. a-3, b-1, c-4, d-2

Correct Answer: A. a-3, b-1, c-1, d-2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Disease GHRH GH IGF-1 GHRH deficiency Low Low Low GHRH receptor resistance Normal / High Low Low GH deficiency Normal / High Low Low GH receptor resistance (Laron syndrome) Normal / High Normal / High Low a. GHRH Deficiency → 3 GHRH : ↓ (primary hypothalamic problem) GH : ↓ (no stimulation) IGF-1 : ↓ (due to GH deficiency) Justification : Since the hypothalamus isn't producing GHRH, pituitary GH is low, leading to reduced IGF-1. b. GHRH Receptor Resistance → 1 GHRH : ↑ or normal (trying to stimulate pituitary) GH : ↓ (pituitary unresponsive to GHRH) IGF-1 : ↓ (low GH activity) Justification : Hypothalamus senses low IGF-1 → increases GHRH, but pituitary cannot respond due to receptor defect. c. GH Deficiency → 1 GHRH : Normal or ↑ (compensatory increase) GH : ↓ (pituitary issue) IGF-1 : ↓ (low GH secretion) Justification : Classic isolated GH deficiency shows low GH/IGF-1 despite normal/high GHRH. d. GH Receptor Resistance (Laron Syndrome) → 2 GHRH : ↑ (due to low IGF-1 feedback) GH : ↑ (pituitary overactive) IGF-1 : ↓ (GH cannot act on liver receptors) Justification : Characteristic of Laron syndrome — high GH, low IGF-1, high GHRH.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg. 2880, 2882, 2883, 2884

↑ *Back to this question in Part A*

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• [15_Pediatric Endocrinology] 039 Pediatric Endocrinology And Metabolism

« Back to Folder Directory

[15_Pediatric Endocrinology] 039 Pediatric Endocrinology And Metabolism — Quick Jump

Q1 (p. 1434)	*Q2 (p. 1435)*	*Q3 (p. 1436)*	*Q4 (p. 1438)*	*Q5 (p. 1441)*	*Q6 (p. 1442)*
Q7 (p. 1443)	*Q8 (p. 1444)*	*Q9 (p. 1445)*	*Q10 (p. 1446)*	*Q11 (p. 1447)*	*Q12 (p. 1449)*
Q13 (p. 1450)	*Q14 (p. 1451)*	*Q15 (p. 1452)*	*Q16 (p. 1453)*	*Q17 (p. 1454)*	*Q18 (p. 1455)*

Q1: Which of the following clinical features is most likely associated with severe Diabetic Ketoacidosis? (Q850243)

A. Venous pH between 7.25 and 7.35, alert patient

B. Venous CO 2 between 16 and 20 mEq/L, patient with mild fatigue

C. Venous pH less than 7.15, patient with Kussmaul respirations and depressed sensorium

D. Venous CO 2 between 10 and 15 mEq/L, patient who is sleepy but arousable

Correct Answer: C. Venous pH less than 7.15, patient with Kussmaul respirations and depressed sensorium

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This is characteristic of severe DKA, where the patient may progress to a coma if not treated promptly. Kussmaul respirations refer to deep, rapid breathing patterns as a compensatory response to metabolic acidosis. These patients also have a fruity odour in their breath due to acetone. Classification of DKA: Severity Venous pH Venous CO2 (mEq/L) Clinical Presentation Mild DKA 7.25 - 7.35 (Option A ruled out) 16 - 20 (Option B ruled out) Alert, possible fatigue. Moderate DKA 7.15 - 7.25 10 - 15 (Option D ruled out) Kussmaul respirations, sleepy but arousable. Severe DKA < 7.15 < 10 Kussmaul or depressed respirations, sleepy to coma, severe hypernatremia (Na+ > 150 mEq/L).

References:

Nelson Textbook of Paediatrics, Ed. 21, Pg. 3027, 3028, 3029

↑ *Back to this question in Part A*

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Q2: A 17 y/o patient presents with symptoms of polyuria, polydipsia, and fatigue. The patient reports a family history of diabetes and has recently experienced weight loss. Genetic testing identifies a mutation in the GCK gene. Based on this information, what is the most likely diagnosis? (Q850251)

A. Type 1 Diabetes Mellitus

B. Type 2 Diabetes Mellitus

C. Maturity Onset Diabetes of the Young

D. Latent Autoimmune Diabetes of Adults

Correct Answer: C. Maturity Onset Diabetes of the Young

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Maturity Onset Diabetes of the Young (MODY) is characterized by an autosomal dominant inheritance pattern and is often diagnosed in individuals under 25 years of age. The patient's age, symptoms, and GCK mutation make MODY the most likely diagnosis. Aspect Type 1 diabetes mellitus Type 2 diabetes mellitus Maturity-onset diabetes of the young (MODY) Latent autoimmune diabetes of adults (LADA/ T1.5 DM) Age at diagnosis 6 mo-18 yrs Puberty; rarely younger than 10 yrs Younger than 25 yrs Age greater than 30 years Causes and genetic factors Autoimmune; genetic predisposition (HLA and other genes) Obesity; genetic and ethnic predisposition Autosomal dominant; HNF1A, HNF4A, GCK, HNF1B (rare) Positive autoantibodies to islet β cells; glutamic acid decarboxylase antibody is the most predominant. Associated Features Lean or weight loss at diagnosis; thyroid autoimmunity; celiac disease Obesity; acanthosis nigricans; polycystic ovarian syndrome; hypertension; hyperlipidemia; fatty liver disease; family history Lean or weight loss at diagnosis; GCK mutations are asymptomatic Polyuria, polydipsia, nocturia, fatigue, visual changes, tingling in the feet, and weight loss; family history; low birth weight history Diabetic ketoacidosis at presentation Yes; about 25% Yes; 5–20% No No Treatment Insulin Lifestyle modification; metformin; insulin Sulfonylurea; no treatment for GCK mutations Insulin; Dipeptidyl peptidase (DPP) 4 inhibitors Type 1 Diabetes Mellitus (Option A) typically presents in children or adolescents and is associated with autoimmune destruction of insulin-producing beta cells. Type 2 Diabetes Mellitus (Option B) usually presents in adulthood and is associated with obesity, genetic predisposition, and metabolic syndrome features like hypertension and hyperlipidemia. Latent Autoimmune Diabetes of Adults (Option D) is a form of diabetes that occurs in adults and shares features with both Type 1 and Type 2 diabetes.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.3020-3022, 3029, 3042, 3048, 3049

Ghai Essential Pediatrics, 10th Edition, Pg.562- 570

Latent Autoimmune Diabetes - StatPearls - NCBI Bookshelf

↑ *Back to this question in Part A*

Q3: A 13-year-old female presents for a routine check-up. Physical examination reveals terminal pubic hair covering the entire pubic triangle and an elevated areola with a “double scoop” appearance. Which Tanner stage is most appropriate for this patient? (Q850250)

A. Stage 2

B. Stage 3

C. Stage 4

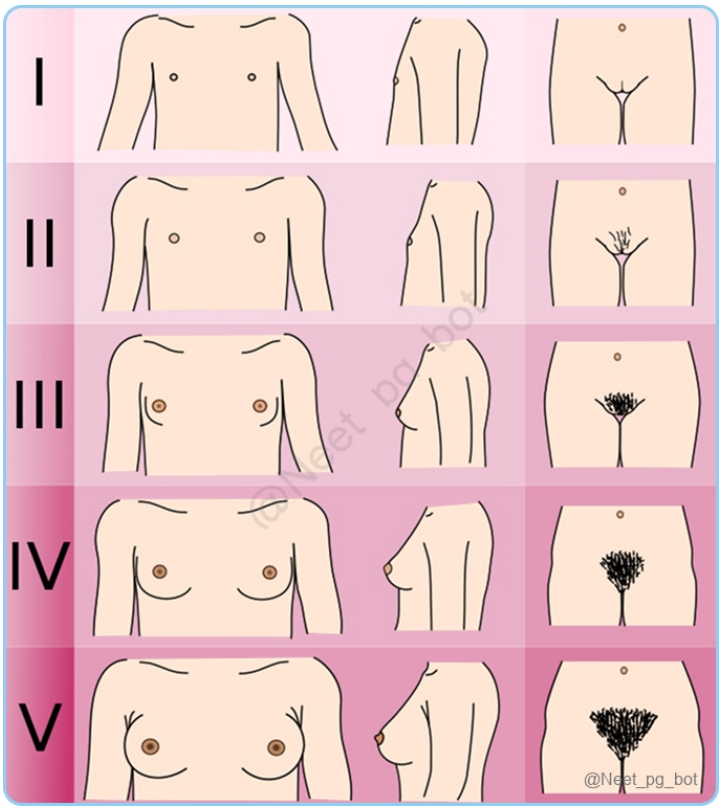
D. Stage 5

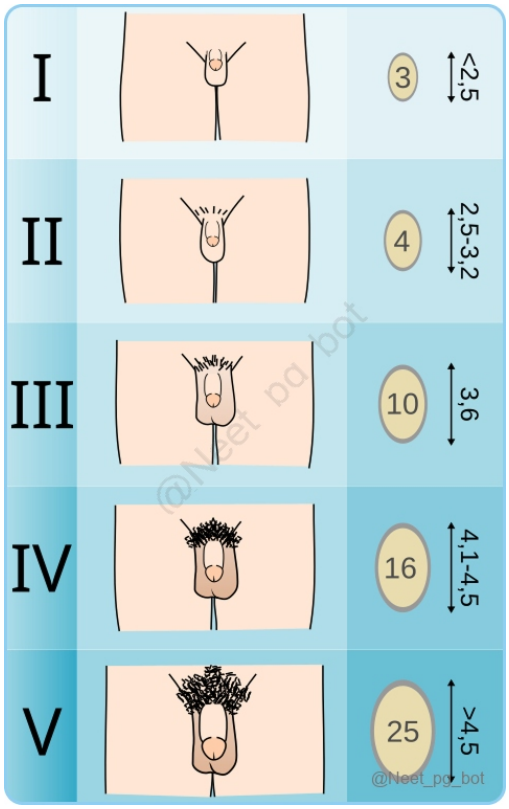
Correct Answer: C. Stage 4

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Stage 4 is characterized by terminal hair filling the entire triangular area over the pubic region and an elevated areola forming a “double scoop” appearance. The patient’s findings match this description. TANNER STAGING Stages Pubic Hair Scale (both male and female) Female Breast Development Scale Male External Genitalia Scale Stage 1 No hair No glandular breast tissue palpable Testicular volume < 4 ml or long axis < 2.5 cm Stage 2 (Option A ruled out) Downy hair Breast bud palpable under the areola (1st pubertal sign in females) 4 ml-8 ml (or 2.5 to 3.3 cm long), 1st pubertal sign in males Stage 3 (Option B ruled out) Scant terminal hair Breast tissue palpable outside areola; no areolar development 9 ml-12 ml (or 3.4 to 4.0 cm long) Stage 4 Terminal hair that fills the entire triangle overlying the pubic region Areola elevated above the contour of the breast, forming a “double scoop” appearance 15-20 ml (or 4.1 to 4.5 cm long) Stage 5 (Option D ruled out) Terminal hair that extends beyond the inguinal crease onto the thigh The areolar mound recedes into a single breast contour with areolar hyperpigmentation , papillae development, and nipple protrusion. > 20 ml (or > 4.5 cm long) Image





References:

Shaw's Textbook Of Gynaecology 17th edition. Pg. 80, 81

Tanner Stages - StatPearls - NCBI Bookshelf

↑ *Back to this question in Part A*

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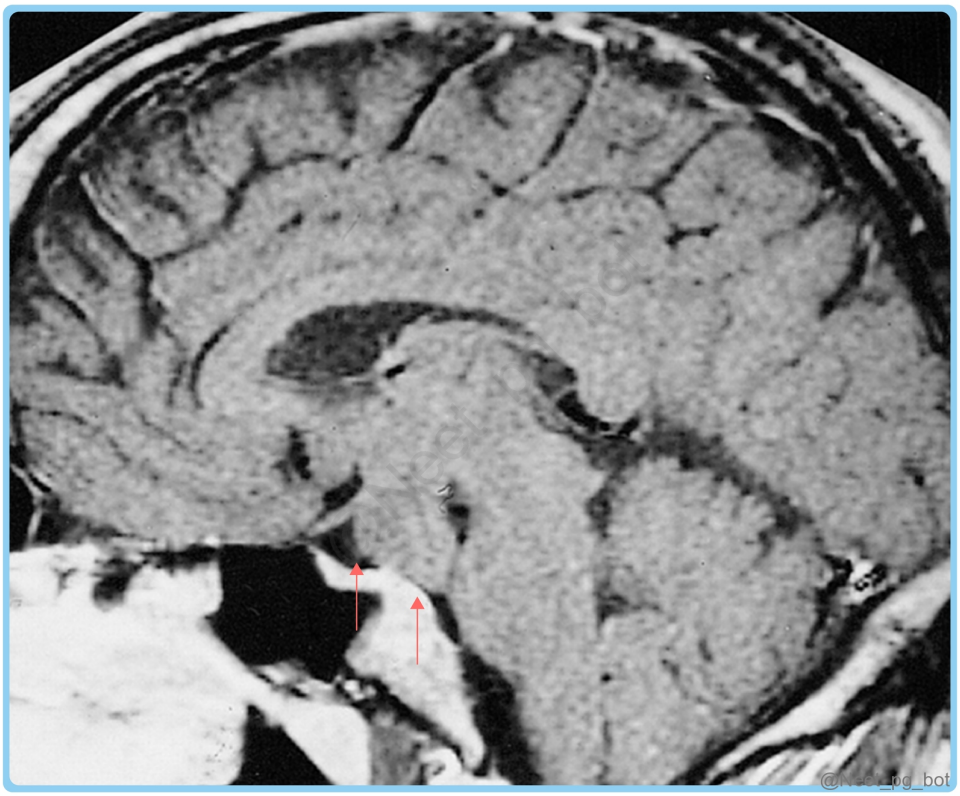
Q4: A 5 y/o girl presents with early-onset and rapid progression of puberty, frequent laughing spells, and seizures. An MRI is performed and the image is given below. What is the most likely diagnosis? (Q850249)

A. Craniopharyngioma

B. Hypothalamic hamartoma

C. Hydrocephalus

D. Head trauma

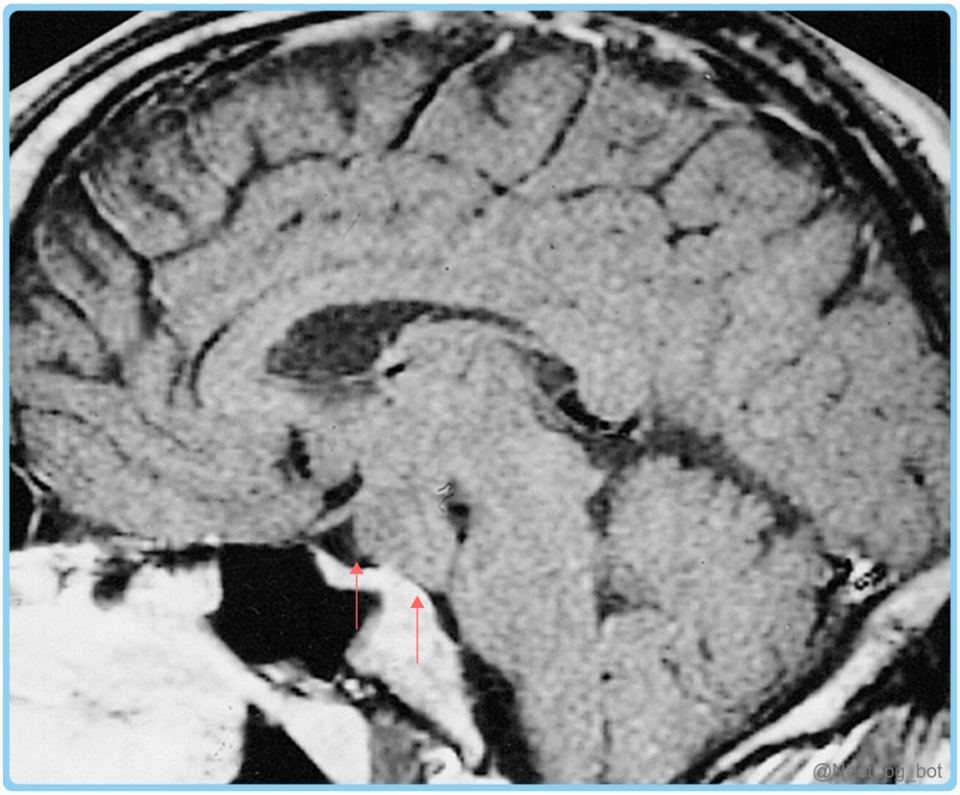


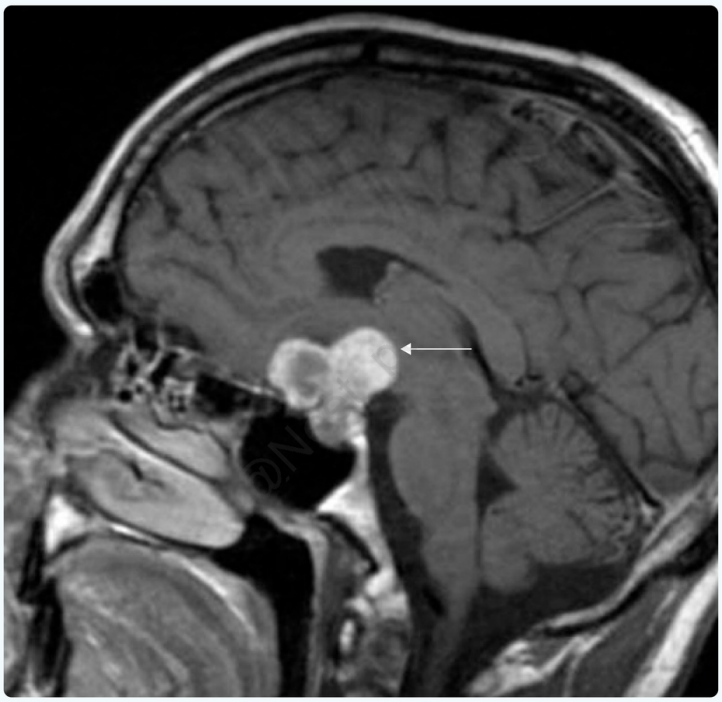
Correct Answer: B. Hypothalamic hamartoma

■ *Listen (English)*

■ *Listen (Hindi)*

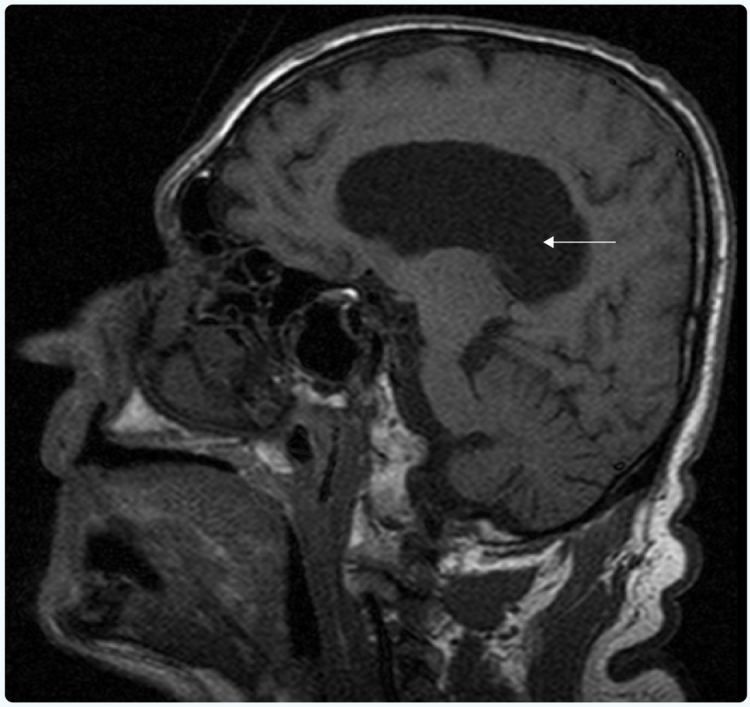
Explanation: Hypothalamic hamartoma is the most likely diagnosis due to its association with early-onset puberty, gelastic seizures (uncontrolled laughter), and a mass typically in the hypothalamic region. which aligns with the clinical presentation and MRI findings in this case. Hypothalamic Hamartoma: A benign, non-neoplastic tumour located in the hypothalamus. It is the most common cause of central precocious puberty due to its effect on the hypothalamic-pituitary-gonadal axis. Imaging : MRI typically shows a well-defined mass in the hypothalamus. This is the most consistent with the presentation and imaging described. Craniopharyngioma (Option A) is a benign tumour near the pituitary gland that can cause endocrine problems, vision issues, and headaches. CT imaging typically shows a cystic mass with calcifications in the suprasellar region. Hydrocephalus (Option C) is the buildup of cerebrospinal fluid in the brain's ventricles, causing increased intracranial pressure. MRI shows enlarged ventricles, not a hypothalamic mass. Head trauma (Option D) involves an injury to the head, leading to symptoms like confusion, headache, and possible seizures. MRI would typically reveal signs of trauma or bleeding, not a mass in the hypothalamus. An intraparenchymal bleed with an overlying skull fracture from abusive head trauma





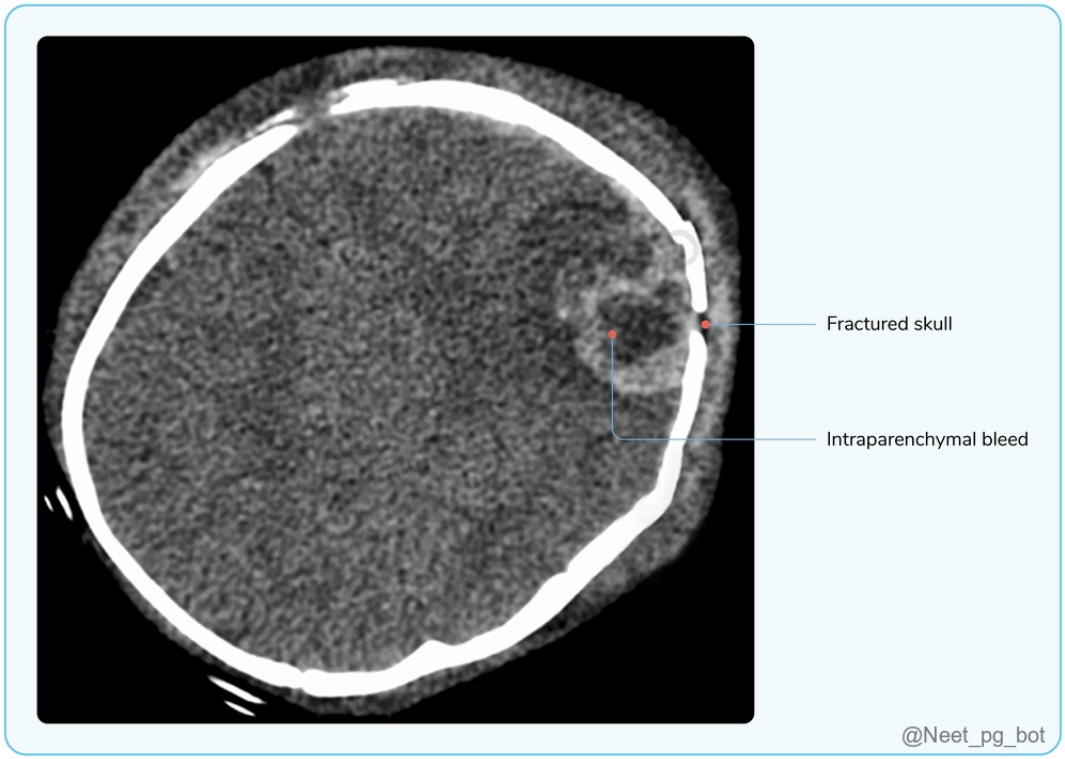
Craniopharyngioma

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Hydrocephalus

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References:

Ghai Essentials of Pediatrics, 10th Edition, Page 553

www.ninds.nih.gov/health-information/disorders/hydrocephalus#

www.ncbi.nlm.nih.gov/books/NBK459371/

↑ *Back to this question in Part A*

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Q5: A 10 y/o boy presents with a 2-year history of weight gain. His height is in the 90th percentile, weight is in the 95th percentile, and there are no developmental delays or dysmorphic features. Both parents are obese, and there is no history of neurological issues or chronic medication use. What is the most likely cause of his obesity? (Q850248)

A. Cushing syndrome

B. Hypothyroidism

C. Constitutional obesity

D. Prader-Willi syndrome

Correct Answer: C. Constitutional obesity

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child’s obesity is likely due to environmental factors, as he has normal growth for his age, no developmental delay, and no dysmorphic features. The family history of obesity also supports constitutional obesity , which is more common and accounts for 95% of cases. Feature Constitutional (Exogenous) Obesity Pathological (Endogenous) Obesity Cause Imbalance in energy intake and expenditure Endocrine, genetic, hypothalamic, or drug-related causes Aetiology Environmental factors (95% cases) Endocrine: Cushing syndrome, growth hormone deficiency, hypothyroidism, pseudohypoparathyroidism. Hypothalamic: Head injury, infection, brain tumour, radiation, chemotherapy, following neurosurgery, ROHHAD(NET). Drugs: Antiepileptic drugs, steroids, antidepressants, estrogen. Genetic syndromes: Prader-Willi, Bardet-BiedI, Laurence-Moon, Beckwith-Wiedemann, Carpenter syndromes. Monogenic disorders: Leptin deficiency, or resistance (leptin receptor defect), abnormalities of melanocortin-4 receptor and proconvertase. Psychological: Personal or parental stress, binge eating. Growth Normal or tall for age Decelerated linear growth, height below genetic potential Body Fat Distribution Generalized obesity Often central obesity (Cushing syndrome) Appetite Normal or slightly increased May show excessive appetite (e.g., hypothalamic lesions) Family History Often positive for a family history of obesity Family history may suggest genetic syndromes (e.g., Prader-Willi) Developmental Delay/Dysmorphism Absent specific dysmorphic or syndromic features May be present (e.g., genetic syndromes like Bardet-Biedl) Cushing syndrome (Option A) typically presents with central obesity, growth retardation, and features like hirsutism, purple striae, and a buffalo hump. Hypothyroidism (Option B) is associated with weight gain, growth retardation, coarse skin, and characteristic facial features. Prader-Willi syndrome (Option D) : Unlike Prader-Willi syndrome, this patient has normal development, no history of hypotonia or feeding difficulties in infancy, and no dysmorphic features, making it the less likely diagnosis.

References:

Ghai Essential Pediatrics, 10th Edition, Pages 548- 550

Nelson's Textbook of Pediatrics, 21st Edition, Page 349

↑ *Back to this question in Part A*

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Q6: A 7-year-old child with obesity is enrolled in a weight management program. The family is introduced to the Traffic Light Diet, and they struggle with understanding which foods should be prioritized for their child. Which of the following foods should be categorized as "Yellow" in the Traffic Light Diet? (Q850247)

A. Fried chicken

B. Carrot sticks

C. Whole grain bread

D. Candy

Correct Answer: C. Whole grain bread

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Whole-grain bread is a moderate-energy food that provides essential nutrients and should be categorized as "Yellow," meaning it should be eaten in moderation. Traffic Light Diet: Diet Recommendation Green Yellow Red Low-energy, high-nutrient foods Moderate energy foods High-energy, low-nutrient foods Includes fruits and vegetables Includes grains and pulses Includes sweets, sweetened beverages, and fried foods It can be eaten often It should be eaten in moderation It should be eaten sparingly

References:

Ghai Essential of Paediatrics, 10th Edition, Pages 551, 552

↑ *Back to this question in Part A*

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Q7: A 5 y/o child presents with obesity, feeding difficulties in infancy, developmental delays, and a history of behavioural issues like anxiety and obsessive-compulsive disorder. O/E, you note small hands and dysmorphic facial features. Which genetic syndrome best describes the child's condition? (Q850246)

A. Prader-Willi Syndrome

B. Laurence-Moon-Bardet-Biedl Syndrome

C. Down Syndrome

D. Turner Syndrome

Correct Answer: A. Prader-Willi Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child's symptoms, including obesity, feeding difficulties, developmental delays, and dysmorphic facial features, are classic features of Prader-Willi Syndrome. Prader-Willi Syndrome Laurence-Moon-Bardet-Biedl Syndrome(LMBBS) 70% cases- Due to errors in genomic imprinting due to a paternal deletion. 25% cases- Due to maternal uniparental disomy. Infantile Hypotonia: Poor sucking reflex Feeding difficulties Dysmorphic Facial Features: Narrow frontal diameter Almond-shaped palpebral fissures Slender nasal bridge Thin upper vermillion border with downturned mouth corners Small hands and feet (develop

later) Developmental Delays: Motor delay (milestones at half the usual pace) Intellectual and learning disabilities Behavioural Issues: Anxiety Obsessive-compulsive disorder Growth Hormone Deficiency (GHD) Hyperphagia and Obesity Hypogonadism Primary Features: Rod and cone dystrophy (night blindness) Polydactyly and polysyndactyly Central obesity Genital abnormalities (hypogonadism) Mental retardation (learning disabilities) Secondary Features: Developmental delay Diabetes mellitus (DM) Congenital heart disease Laurence-Moon-Bardet-Biedl Syndrome (Option B) : While this syndrome also presents with obesity and developmental delays, the absence of features like rod-cone dystrophy and polydactyly makes it less likely. Down Syndrome (Option C) typically presents with intellectual disability, characteristic facial features (e.g., flat facial profile, upward slanting eyes), and may have congenital heart defects. Obesity and behavioural issues like those described are less typical for Down Syndrome. Turner Syndrome (Option D) typically presents with short stature, webbed neck, and other distinct features, not consistent with this child's presentation.

References:

www.ncbi.nlm.nih.gov/books/NBK553161/

www.ncbi.nlm.nih.gov/pmc/articles/PMC7720918/

medlineplus.gov/genetics/condition/turner-syndrome/

www.cdc.gov/birth-defects/about/down-syndrome.html

↑ *Back to this question in Part A*

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Q8: A 6-year-old girl with a BMI in the 98th percentile presents with lethargy, frequent thirst, increased urination, and dark patches on her neck. What is the most likely diagnosis? (Q850245)

A. Type 2 Diabetes Mellitus (T2DM) with associated obesity.

B. Hypothyroidism with weight gain.

C. Cystic Fibrosis-related diabetes (CFRD).

D. Adrenal insufficiency.

Correct Answer: A. Type 2 Diabetes Mellitus (T2DM) with associated obesity.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child's BMI at the 98th percentile indicates obesity, a major risk factor for T2DM. The symptoms of lethargy, frequent thirst, and increased urination (polydipsia and polyuria) are classic signs of diabetes. Additionally, the dark patches on the neck, known as acanthosis nigricans , are often associated with insulin resistance, a hallmark of T2DM. Obesity Obesity Overweight Adult BMI ≥ 30 BMI between 25 and 30

Children BMI ≥ 95th percentile for age and sex BMI between 85th and 95th percentiles Aetiology: Constitutional causes: Imbalance between caloric intake and energy expenditure. Easy access to energy-dense foods, and large portion sizes. Sedentary lifestyle. High intake of sugary beverages, processed foods, and large portions. Genetic syndromes eg. Prader-Willi syndrome Endocrine causes: Cushing syndrome GH deficiency Hypothyroidism Chronic sleep deprivation can disrupt appetite-regulating hormones, leading to weight gain. Disruption of hormones like leptin and adiponectin. Hypothyroidism with weight gain (Option B): Hypothyroidism can cause weight gain and lethargy, but it is less likely to cause the symptoms of increased thirst and urination. Additionally, acanthosis nigricans is not commonly associated with hypothyroidism. Cystic Fibrosis-related diabetes (CFRD) (Option C) occurs in individuals with cystic fibrosis, which other symptoms, such as recurrent lung infections or gastrointestinal issues would typically accompany. There is no indication of cystic fibrosis in this child's history. Adrenal insufficiency (Option D) can cause symptoms like fatigue and weight loss rather than weight gain. It does not typically cause polyuria, polydipsia, or acanthosis nigricans.

References:

Nelson Textbook of Paediatrics, 21st Edition, Page 346

↑ *Back to this question in Part A*

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Q9: A 12 y/o girl is undergoing treatment for diabetic ketoacidosis (DKA). After an initial bolus of 0.9% saline, she is started on an insulin infusion at 0.1 U/kg/h after an hour. Several hours later, her blood glucose level decreased to 260 mg/dL. What should be the next step in her management? (Q850244)

A. Increase the insulin infusion rate

B. Stop insulin therapy

C. Add 5% dextrose to the IV fluids

D. Administer an additional bolus of 0.9% saline

Correct Answer: C. Add 5% dextrose to the IV fluids

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: As the blood glucose level approaches ≤ 300 mg/dL , adding 5% dextrose to the IV fluids is essential to prevent hypoglycemia while continuing insulin therapy to resolve the underlying ketoacidosis. This helps maintain glucose levels while the acidosis is treated. DKA Management in Children Immediate Management (First Hour): Rapid Assessment: Evaluate the child's vital signs (heart rate, respiratory rate, blood pressure) and weight. Assess GCS and check for signs of dehydration. Obtain blood samples for urgent measurement of blood glucose, blood beta-hydroxybutyrate (BHB) if available, venous pH, electrolytes (including bicarbonate), serum urea nitrogen, and creatinine. Serum BHB concentration : Most precise approach to measuring the severity of DKA

Establish IV Access: Place two large-bore peripheral IV lines. Central lines are generally avoided (risk of thrombosis) unless necessary. Initial Fluid Resuscitation Administer a bolus of 0.9% saline at a rate of 10-20 ml/kg over 20-30 minutes to restore circulatory volume and address dehydration. After First Hour Initiate Insulin Therapy Start an intravenous insulin infusion at 0.05-0.1 U/kg/h, typically one hour after initiating fluids. Continue Fluid Therapy After the initial bolus, continue fluid replacement with 0.45% to 0.9% saline, to replace the estimated fluid deficit over 24 to 48 hours. Adjust fluids based on clinical status and laboratory values. Monitoring and Replacing Electrolytes Begin potassium replacement once urine output is confirmed as insulin causes K+ entry into cells leading to hypokalemia. Monitor vital signs, GCS, fluid balance, and capillary blood glucose every hour. Reassess electrolytes, blood glucose, blood urea nitrogen, calcium, magnesium, phosphate, blood gases, and BOHB every two hours if available. Transition Phase (6-24 Hours): Gradual Reduction of IV Fluids and transition to subcutaneous Insulin As DKA resolves and the child can tolerate oral intake, gradually reduce IV fluids while maintaining hydration. Transition to subcutaneous insulin once pH > 7.30, bicarbonate > 18 mmol/L, and BOHB < 1 mmol/L. Administer the first subcutaneous insulin dose 15-30 minutes before discontinuing the IV insulin infusion. Increase the insulin infusion rate (Option A): It is not advisable when the blood glucose level drops, as this could lead to hypoglycemia. Stop insulin therapy (Option B): Discontinuing insulin therapy too early could result in a rebound worsening of ketoacidosis. Administer an additional bolus of 0.9% saline (Option D): This is generally unnecessary unless there are ongoing signs of significant dehydration or shock.

References:

cdn.ymaws.com/www.ispad.org/resource/resmgr/consensus_guidelines_2018_/guidelines2022/Ch.11._Pediatric_Diabetes_-_.pdfPages 840,844

www.ncbi.nlm.nih.gov/books/NBK470282/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A 7y/o girl presents with early breast development and rapid growth. Examination shows Tanner's stage 3 breasts and her height is above the 90th percentile. Blood tests reveal elevated LH levels. What is the most likely diagnosis? (Q850234)

A. Peripheral Precocious Puberty

B. Constitutional delayed puberty

C. Premature Thelarche

D. Central Precocious Puberty

Correct Answer: D. Central Precocious Puberty

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Precocious puberty in girls is the development of secondary sexual characteristics before reaching the age of 8. Central precocious puberty is characterized by the premature activation of the hypothalamic-pituitary-gonadal axis, leading to increased gonadotropin levels, such as LH. Central Precocious Puberty (CPP) Peripheral Precocious Puberty (PPP) Cause CPP is due to the early activation of the hypothalamic-pituitary-gonadal axis, leading to the release of gonadotropins (LH and FSH) that stimulate the ovaries to produce estrogen. PPP results from estrogen production independent of the hypothalamic-pituitary-gonadal axis. Common Causes The most frequent cause in girls is idiopathic, with no identifiable underlying condition. Central nervous system abnormalities (e.g., hypothalamic hamartoma, glioma, hydrocephalus) are less common. The most common cause in girls is estrogen-producing ovarian cysts, leading to fluctuating pubertal development and early vaginal bleeding. Symptoms Girls with CPP show advanced growth and bone age Girls with PPP may have symptoms related to the specific underlying condition, such as delayed bone age in hypothyroidism or skin pigmentation changes in McCune-Albright syndrome. Diagnostic Tests : Basal LH and FSH levels, a GnRH stimulation test, and imaging (ultrasound, MRI) help differentiate between CPP and PPP. Treatment GnRH analogues can reverse early-onset CPP and help with height if started before age 6. Stop GnRH analogs at age 11 or at bone age 12.5. MPA : Used to delay postpone menstruation in girls with intellectual disability, but doesn't improve height. Cyproterone : Another option for suppressing puberty. Hypothyroidism and Puberty : Thyroxine replacement can reverse puberty changes caused by hypothyroidism. McCune-Albright Syndrome Treatment : Aromatase Inhibitors : Anastrozole, Letrozole (to reduce estrogen production) Estrogen Receptor Antagonists : Tamoxifen, Fulvestrant (to block estrogen action) Ovarian Cysts : Treatment depends on the size and shape of the cysts. Peripheral Precocious Puberty (Option A): In PPP, LH levels are typically low or prepubertal because the central axis is not involved in the process. Constitutional delayed puberty (Option B): Girls with a constitutional delay of growth and puberty typically have low LH levels and delayed development of secondary sexual characteristics, the opposite of what is observed in this case. Premature Thelarche (Option C): In this condition, LH levels remain within the normal prepubertal range, unlike in central precocious puberty.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.2853,2899

Ghai Essential Pediatrics, 10th Edition, Pg.553,556

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: Which of the following insulin regimes is considered more flexible in terms of meal timing and carbohydrate intake? (Q850242)

A. Basal-Bolus Regimen

B. Three Daily Injection Regimen

C. Once-daily injection of long-acting insulin only

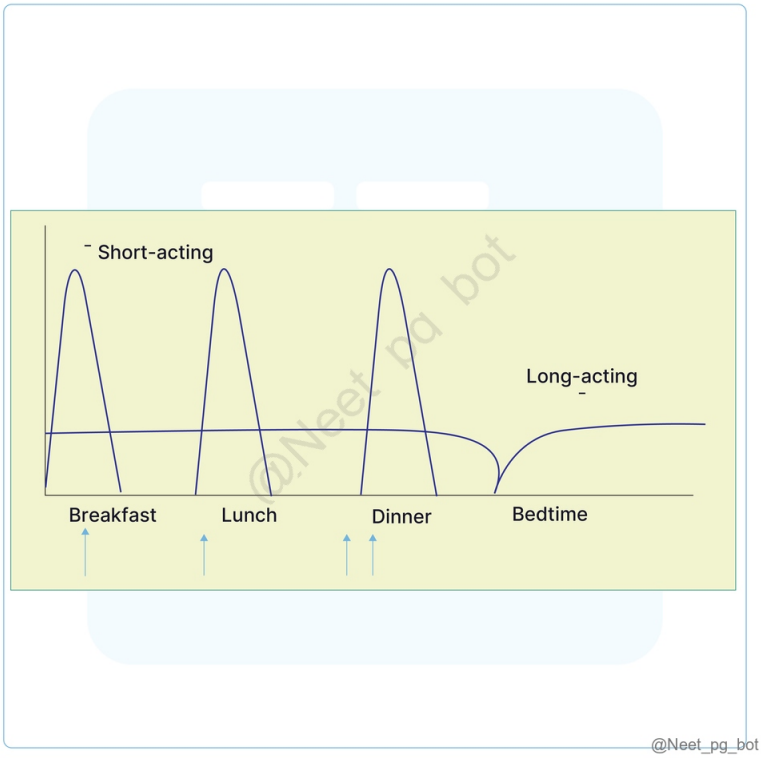
D. Twice-daily injection of short-acting insulin only

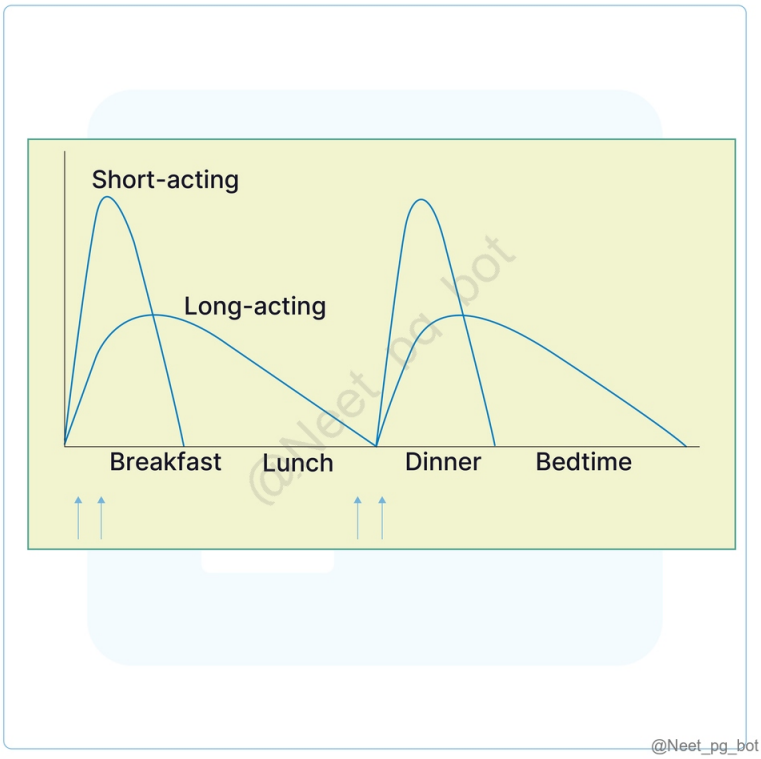
Correct Answer: A. Basal-Bolus Regimen

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This regimen provides the most flexibility in terms of meal timing and carbohydrate intake. It involves a long-acting insulin (basal) to cover the body's needs throughout the day and night, and a rapid-acting insulin (bolus) given at mealtimes to manage the rise in blood glucose levels after eating. This allows patients to adjust their insulin doses based on the amount of carbohydrates they consume, offering greater flexibility. Type 1 Diabetes Mellitus (T1DM) Management (Goal- HbA1c < 7.5%) 2 regimes used for insulin therapy: 1. Basal-Bolus Insulin Regimes: Require multiple daily injections. Basal : Slow-onset, long-duration insulin for between-meal control (once or twice daily) eg. glargine, detemir, degludec. Bolus : Rapid-onset insulin is given with meals for carbohydrate coverage and hyperglycemia correction eg. lispro, aspart, and glulisine insulin. 2. Mixed Split Insulin Regimes: Three daily injections regimen: 1st injection with breakfast : A short-acting insulin + Intermediate-acting insulin 2nd injection with dinne r: A short-acting insulin only. 3rd injection at bedtime : A long-acting insulin only. Twice-daily injection Regimen: 1st injection at breakfast: Pre-mixed injection (containing short-acting and intermediate-acting insulin) 2nd injection at dinner : same as 1st. Three Daily Injection Regimen (Option B): While it provides good glucose control, it offers less flexibility compared to the basal-bolus regimen because meal timing needs to align with the insulin action peaks. Once-daily injection of long-acting insulin only (Option C): This regimen is the least flexible because it does not account for meals, providing only basal coverage without bolus insulin. Twice-daily injection of short-acting insulin only (Option D): This regimen is also less flexible since it requires strict meal timing to avoid hypoglycemia, with less ability to adjust for variations in carbohydrate intake.





References:

Nelson Textbook of Paediatrics, Ed. 21, Pg. 3032, 3033, 3034

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: Which of the following criteria is NOT diagnostic of Type 1 Diabetes Mellitus? (Q850241)

A. A fasting plasma glucose level of ≥ 126 mg/dL.

B. A 2-hour plasma glucose level of ≥ 200 mg/dL on OGTT.

C. A random plasma glucose level of ≥ 180 mg/dL with symptoms of diabetes.

D. Haemoglobin A1c ≥ 6.5%

Correct Answer: C. A random plasma glucose level of ≥ 180 mg/dL with symptoms of diabetes.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A random plasma glucose level of ≥ 200 mg/dL (11.1 mmol/L) with symptoms of diabetes is diagnostic of T1DM. A glucose level of 180 mg/dL (10.0 mmol/L) does not meet the diagnostic criteria for T1DM. Diagnostic Criteria of Type 1 Diabetes (T1DM): Fasting Plasma Glucose: ≥ 126 mg/dL. (Option A ruled out) 2-Hour Plasma Glucose during OGTT: ≥ 200 mg/dL. (Option B ruled out) Random/Casual Plasma Glucose: ≥ 200 mg/dL plus symptoms (polyuria, polydipsia, unexplained weight loss) and glucosuria/ketonuria. Haemoglobin A1c ≥ 6.5% (48 mmol/mol). (Option D ruled out) Conditions Associated with T1DM: Autoimmune Diseases: Autoimmune Diseases Condition Description Chronic Lymphocytic Thyroiditis ~20% of T1DM patients have thyroid antibodies. Celiac Disease 7–15% of children with T1DM develop celiac disease within 6 years of diagnosis. Autoimmune Adrenal Insufficiency Indicated by decreased insulin needs, skin pigmentation, salt craving, weakness, asthenia, postural hypotension, or adrenal crisis. Atrophic Gastritis Correlated with antibodies to gastric parietal cells. Genetic Disorders IPEX syndrome Immune dysfunction, polyendocrinopathy, enteropathy, X-linked; FOXP3 gene mutation. Wolfram syndrome DIDMOD: diabetes insipidus, diabetes mellitus, optic atrophy, deafness; Autosomal recessive disease; WFS1 gene mutation. APS-1 Autoimmune polyendocrinopathy syndrome type 1; AIRE gene mutation.

References:

Nelson Textbook of Paediatrics, Ed. 21, Pg. 3021, 3023, 3051, 3052

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 16 y/o girl with normal breast development presents with primary amenorrhea. An ultrasound shows an absent uterus and undescended testes. Laboratory results reveal elevated androgen levels, normal estrogen levels, and a 46, XY karyotype. A mutation in the AR gene is confirmed. What is the most likely diagnosis? (Q850240)

A. Complete Androgen Insensitivity Syndrome

B. Partial Androgen Insensitivity Syndrome

C. Mild Androgen Insensitivity Syndrome

D. Klinefelter Syndrome

Correct Answer: A. Complete Androgen Insensitivity Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: AR gene mutation confirms androgen insensitivity, and in CAIS, there is complete resistance to androgen action, leading to female external genitalia despite a male genotype. Complete Androgen Insensitivity Syndrome (CAIS) Partial Androgen Insensitivity Syndrome (PAIS) Mild Androgen Insensitivity Syndrome (MAIS) Clinical Features Female external appearance with normal breast development. Short vagina Absent

uterus and fallopian tubes Undescended testes Primary amenorrhea Infertility. Variable genitalia ranging from predominantly female with clitoromegaly to predominantly male with micropenis. Gynecomastia Bifid scrotum Undescended testes Virilization. Male genitalia with micropenis Gynecomastia, Impaired fertility. Diagnosis Suspected in a phenotypically female individual with a 46, XY karyotype, inguinal hernia with testes, elevated testosterone and LH, normal estradiol, confirmed by AR gene mutation. Suspected of ambiguous genitalia or undervirilization, elevated testosterone, and LH, confirmed by AR gene mutation. Clinical features and AR gene mutation testing. Treatment Gonadectomy to prevent malignancy risk, estrogen replacement, vaginal dilation, and psychological support. Based on undervirilization, fertility potential, and preference, may include gonadectomy, hormone therapy, genital reconstructive surgery, and psychological support. Supportive care, psychological counselling, and fertility evaluation. Partial Androgen Insensitivity Syndrome (Option B): In PAIS, the body has partial responsiveness to androgens, leading to a wide range of phenotypes, from ambiguous genitalia to predominantly male or female external genitalia with varying degrees of virilization. Mild Androgen Insensitivity Syndrome (Option C): Patients with MAIS usually have normal male genitalia and only minor defects such as infertility or gynecomastia. Klinefelter Syndrome (Option D): This option is incorrect because Klinefelter Syndrome is characterized by a 47, XXY karyotype, not a 46, XY karyotype

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.3017, 3018

Androgen insensitivity syndrome: MedlinePlus Medical Encyclopedia

Androgen Insensitivity Syndrome - StatPearls - NCBI Bookshelf (nih.gov)

Klinefelter Syndrome - StatPearls - NCBI Bookshelf

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: Which of the following conditions is classified as a 46, XY DSD? (Q850239)

A. Placental aromatase deficiency

B. 17β-HSD deficiency

C. Klinefelter syndrome

D. 21-hydroxylase deficiency

Correct Answer: B. 17β-HSD deficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: 17β-HSD (Hydroxy steroid dehydrogenase) deficiency is classified as a 46, XY DSD because it disrupts androgen synthesis, affecting male sexual development. DSD is defined as a discrepancy in chromosomal/gonadal/genital sex. It can be classified as follows: Karyotype Category Condition 46, XX DSD

Androgen Excess Congenital adrenal hyperplasia (CAH) 21-hydroxylase deficiency (Option D) 11ß-hydroxylase deficiency 3β-HSD deficiency POR deficiency Placental aromatase deficiency (Option A) Maternal virilizing tumors Maternal ingestion of androgenic drugs Abnormal Gonadal Developments Ovotesticular DSDs 46, XX testicular DSD (SRY+, SOX9 duplication) 46, XY DSD Disorders of Androgen Synthesis or Actions Congenital adrenal hyperplasia (CAH) StAR deficiency 3β-HSD deficiency 17-hydroxylase/17,20-lyase deficiency POR deficiency 17β-HSD deficiency (Option B) 5α-reductase deficiency: Types I and II Androgen insensitivity syndrome: Complete or partial Smith-Lemli-Opitz syndrome Abnormal Gonadal Development Gonadal dysgenesis: Complete or partial Gonadal regression Sex Chromosomal DSD 45, X Turner syndrome and variants. 47, XXY Klinefelter syndrome and variants. (Option C) 45,X/46,XY Mixed gonadal dysgenesis. 46, XX/46, XY Chimeric, ovotesticular DSD.

References:

Ghai Essential Pediatrics, 10th Edition, Pg. 559

Nelson Textbook of Pediatrics, 21st edition, Pg. 3010

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A 24-week-old fetus is found to have ambiguous genitalia during a routine ultrasound. Karyotyping reveals a 46, XY chromosomal pattern. Ultrasound and examination indicate underdeveloped male internal genitalia and features more typical of female external genitalia. Which of the following is the most likely explanation for this presentation? (Q850238)

A. Deficient Expression of SRY

B. Excessive SOX9 Activity

C. Absent AMH Production

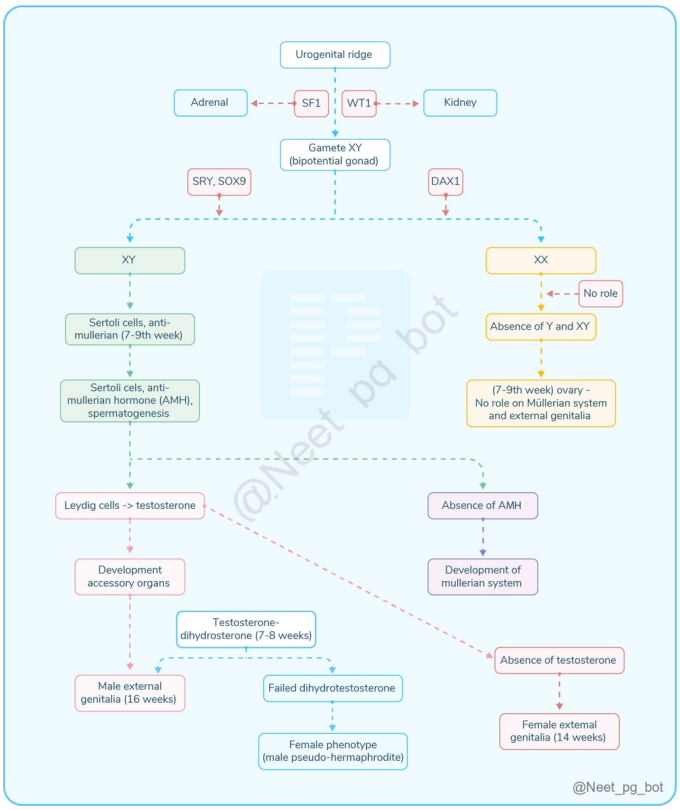
D. Decreased DAX1 Expression

Correct Answer: A. Deficient Expression of SRY

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The SRY (Sex-determining Region Y) gene is crucial for the initiation of testis development. If SRY is not expressed properly, testes may not develop, leading to ambiguous genitalia or underdeveloped male genitalia in a 46, XY fetus. This



References:

Ghai Essential Pediatrics, 10th Edition, Pg. 558, 559

Nelson Textbook of Pediatrics, 21st edition, Pg. 2988- 2991

A Clinical Approach to Diagnosis of Ambiguous Genitalia - PMC

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 14-year-old boy presents with delayed puberty and is significantly below the 3 rd percentile for height. His laboratory tests reveal low levels of luteinizing hormone (LH) and follicle-stimulating hormone (FSH). What is the most likely cause of his delayed puberty? (Q850237)

A. Constitutional Delay

B. Hypogonadotropic Hypogonadism

C. Hypergonadotropic Hypogonadism

D. Klinefelter Syndrome

Correct Answer: B. Hypogonadotropic Hypogonadism

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Hypogonadotropic hypogonadism is a condition where delayed puberty results from insufficient stimulation of the gonads due to low levels of gonadotropins . Factors contributing to this condition include stress, chronic illness, malnutrition, or congenital abnormalities affecting the hypothalamus. The boy's low LH and FSH levels align with this diagnosis. Causes of delayed puberty: DELAYED PUBERTY Hypergonadotropic Hypogonadism In Girls In Boys Gonadal dysgenesis: Turner syndrome, 46, XY with SRY deletion, trisomy 18, 13, 21. Steroidogenic defects: StAR, 17α-hydroxylase, 17β-hydroxysteroid dehydrogenase, or aromatase deficiency. Ovarian insults: Surgery, radiation, alkylating agents, infections. Autoimmune ovarian failure: Autoimmune polyendocrinopathy Gonadotropin resistance: LH and FSH receptor mutations. Chromosomal abnormalities: Klinefelter syndrome, gonadal dysgenesis Steroidogenic defects: StAR, 17α-hydroxylase, 17β-hydroxysteroid dehydrogenase deficiency, Smith-Lemli-Opitz syndrome Testicular insults: Radiotherapy, chemotherapy, trauma, torsion, infections Malformations: Vanishing testis syndrome, cryptorchidism Inefficient testosterone action: 5α-reductase deficiency. Resistance to testosterone action: Androgen insensitivity syndrome. Isolated Amenorrhea in Girls Structural malformations: Müllerian agenesis, vaginal septum, imperforate hymen. Inefficient androgen action: 46, XY with complete androgen insensitivity syndrome. DELAYED PUBERTY Hypogonadotropic Hypogonadism Transient Causes Permanent Causes Self-limited delayed puberty (constitutional delay): Most common in boys, less frequent in girls Systemic disorders: Renal failure, liver disease, celiac disease, renal tubular acidosis, cystic fibrosis Nutritional disorders: Malnutrition, anorexia nervosa Endocrine disorders: Hypothyroidism, hyperprolactinemia, type 1 diabetes Isolated hypogonadotropic hypogonadism Genetic mutations: KAL1, GnRH receptor, LH, FSH, CHD7, DAX1 gene. Dysmorphic syndromes: Prader-Willi, Laurence-Moon, Bardet-Biedl Multiple pituitary hormone deficiencies Malformations: Holoprosencephaly, septo-optic dysplasia, midline defects Genetic disorders: PROP1, LH gene deletions Brain tumours: Craniopharyngioma, germinoma, glioma Brain injury: Surgery, infection, radiation, trauma Infiltrative disorders: Histiocytosis, autoimmune disorders Constitutional Delay (Option A): This is characterized by a normal hormonal profile and is often a variation in the timing of puberty, with growth eventually catching up. Hypergonadotropic Hypogonadism (Option C): This condition involves high levels of LH and FSH resulting from the primary gonadal failure. Klinefelter Syndrome (Option D): This genetic disorder often leads to elevated LH and FSH levels due to testicular failure.

References:

Nelson Textbook of Pediatrics, 21st edition, Pg.2907,2908

Ghai Essential Pediatrics, 10th Edition, Pg.556,557

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: A 7 y/o boy is evaluated due to early signs of puberty, including the development of pubic hair, a noticeable growth spurt, increased testicular volume, and significantly

advanced bone age. Blood tests show elevated basal luteinizing hormone (LH) levels. What is the most probable cause of his early pubertal development? (Q850236)

A. Central precocious puberty

B. Peripheral precocious puberty due to congenital adrenal hyperplasia

C. Peripheral precocious puberty due to an hCG-secreting tumour

D. Peripheral precocious puberty due to an androgen-secreting testicular tumour

Correct Answer: A. Central precocious puberty

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Precocious puberty is when puberty begins before 9.5 years of age in boys. In this scenario, elevated LH levels and increased testicular volume strongly indicate central precocious puberty, where the body's normal pubertal mechanisms are activated prematurely. Organic neurological cases are more common in boys which include hypothalamic hamartoma, glioma, hydrocephalus, and tubercular meningitis. Peripheral precocious puberty due to congenital adrenal hyperplasia (Option B): It results from the autonomous production of sex hormones without the involvement of the central axis. CAH leads to the overproduction of androgens, presenting with signs of puberty and advanced bone age. However, elevated LH levels suggest a central rather than peripheral cause. Peripheral precocious puberty due to an hCG-secreting tumour (Option C): hCG-secreting tumours, such as those found in the liver or brain, can stimulate testicular production of testosterone without involving the hypothalamic-pituitary axis. These tumours do not have elevated LH. Peripheral precocious puberty due to an androgen-secreting testicular tumour (Option D): This condition involves a tumour within the testes that produces androgens independent of central hormonal control. It presents with signs of early puberty, such as unilateral testicular enlargement, and typically maintains prepubertal LH levels.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2900,2901

Ghai Essential of Paediatrics, 10th Edition, Pages 553, 555

↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: A 5 y/o girl is brought to the clinic with a history of irregular vaginal bleeding, early breast development and an advanced bone age. The examination findings of her skin are given below. What is the underlying cause of her symptoms? (Q850235)

A. McCune-Albright syndrome

B. Central precocious puberty

C. Hypothyroidism

D. Adrenal hyperplasia



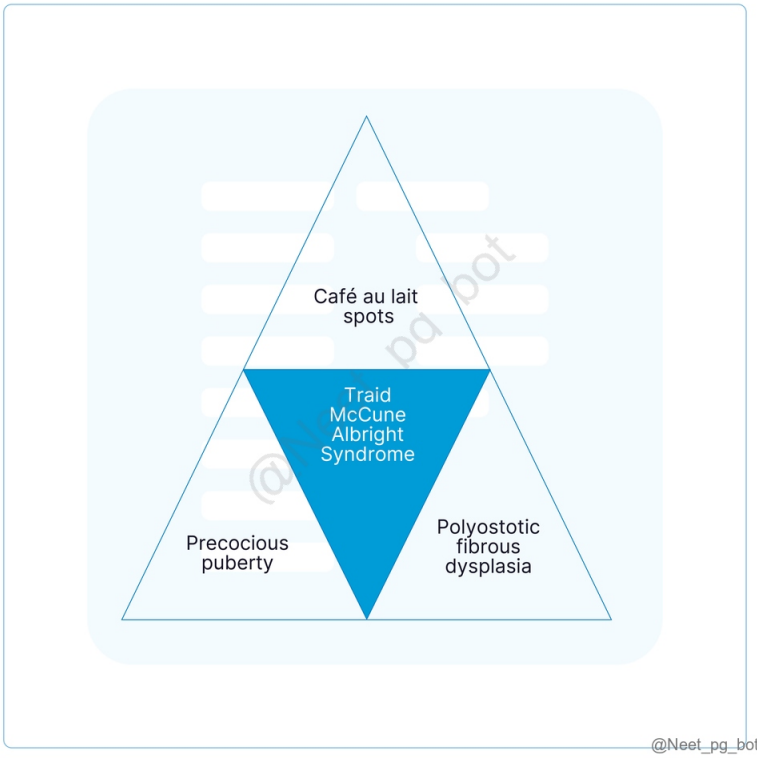
Correct Answer: A. McCune-Albright syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: McCune-Albright syndrome is caused by a somatic mutation in the GNAS1 gene (which codes for G-protein), leading to the autonomous production of sex hormones and symptoms such as irregular vaginal bleeding, early breast development, and characteristic café-au-lait spots . The condition also often presents with advanced bone age due to its rapid progression. Cafe-au-lait spots McCune-Albright syndrome triad Diseases associated with Cafe-au-lait macules Neurofibromatosis type 1 (NF1)/ von Recklinghausen's disease Neurofibromatosis type 2 (NF2) McCune Albright Syndrome Legius syndrome (NF1-like syndrome) Noonan syndrome with multiple lentigines (LEOPARD syndrome) Differential Diagnosis of Cafe-au-lait Macules Congenital melanocytic nevus Becker nevus Lentigo Urticaria pigmentosa Postinflammatory hyperpigmentation Plexiform neurofibroma Segmental pigmentation disorder Phytophotodermatitis Central precocious puberty (Option B): It is associated with early activation of the hypothalamic-pituitary-gonadal axis. Hypothyroidism (Option C): While hypothyroidism can cause delayed or even sometimes irregular pubertal development, it does not account for the rapid progression, advanced bone age, or café-au-lait spots Adrenal hyperplasia (Option D): Congenital adrenal hyperplasia usually presents with virilization or ambiguous genitalia due to excess androgen production, not the estrogen-dominated signs





References:

Nelson Textbook of Pediatrics, 21st edition, Pg.2900,2905

Ghai Essential Pediatrics, 10th Edition, Pg.553

Cafe Au Lait Macules - StatPearls - NCBI Bookshelf

↑ *Back to this question in Part A*

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• [15_Pediatric Endocrinology] 040 Previous Year Questions

« Back to Folder Directory

[15_Pediatric Endocrinology] 040 Previous Year Questions — Quick Jump

Q1 (p. 1459) *Q2 (p. 1459)* *Q3 (p. 1460)* *Q4 (p. 1462)* *Q5 (p. 1463)* *Q6 (p. 1464)*
Q7 (p. 1466) *Q8 (p. 1466)* *Q9 (p. 1467)* *Q10 (p. 1469)* *Q11 (p. 1470)*

Q1: A 15-year-old child presents with progressive enlargement of hands and feet, coarse facial features, prominent enlarged jaw, and frontal bossing. What is the most definitive test to confirm the diagnosis? (Q866401)

A. Increased IGF-1

B. Increased IGF-1 with oral glucose challenge test

C. Increased GH

D. Increased GH with oral glucose challenge test

Correct Answer: B. Increased IGF-1 with oral glucose challenge test

Explanation: Increased IGF-1 with oral glucose challenge test IGF-1 reflects average GH activity over time and is a reliable screening marker. OGTT is the gold standard for confirmation: normally, GH is suppressed after oral glucose; in GH excess, suppression fails. Combining high IGF-1 with no GH suppression after OGTT confirms acromegaly or gigantism. Acromegaly and gigantism result from prolonged GH excess, usually due to a pituitary adenoma. GH stimulates hepatic IGF-1 production, which mediates most growth effects. IGF-1 has minimal daily variation, making it the preferred screening test. OGTT exploits the physiological suppression of GH by hyperglycemia - failure of suppression is diagnostic. This combination ensures both chronic excess and abnormal regulation are documented. Increased IGF-1 only (Option A): Good for screening but lacks confirmatory testing. Increased GH (Option C): GH secretion is pulsatile; random measurement is unreliable. Increased GH with OGTT (Option D): Skips the IGF-1 step and doesn’t assess chronic exposure.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: When is a blood sample taken to diagnose neonatal hypothyroidism? (Q852495)

A. Immediately from the umbilical cord

B. 24 hours after delivery

C. 23-48 hours after delivery

D. 72 hours after delivery

Correct Answer: D. 72 hours after delivery

Explanation: The blood sample taken for diagnosing neonatal hypothyroidism is 48-72 hours after delivery . Diagnosis: Primary hypothyroidism: T4 level: low TSH usually>100mIU/L Central hypothyroidism: Low TSH, T3, and T4 levels X-ray findings in congenital hypothyroidism: Absence of distal femoral and proximal tibial epiphysis at birth Punctate epiphyseal dysgenesis Deformity or breaking of the 12th thoracic or 1st or 2nd lumbar vertebrae X-ray image of skull- large fontanelle and wide sutures Screening: Universal newborn screening for congenital hypothyroidism At birth, with umbilical cord blood (Option A) Diagnostic: Heel prick: dried blood spots, sample collected beyond 48 hrs or 48-72 hrs Should not be done in first 1-2 days, to avoid TSH surge (vs Option B and C) Most sensitive approach- check for T4 and TSH both ASH's first strategy: Initial TSH screening using dried blood spot If TSH>20mIU/L, recheck Obtain a venous blood sample to check T4 and TSH levels if TSH remains elevated. Treatment: Oral levothyroxine (early morning with empty stomach for older children and for newborns; it is to be given at a fixed time) The dose is higher in the earlier age group, and as the babies grow, the dose reduces. Newborn- 10-15mg/kg/day Children- 2-4mg/kg/day

References:

O.P. Ghai Essential Pediatrics, 10th Edition, Page 537-541, 676

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: What condition is likely in a newborn presenting with dry, rough skin, a big tongue and rough hair? (Q860248)

A. Congenital hypothyroidism

B. Prader-Willi syndrome

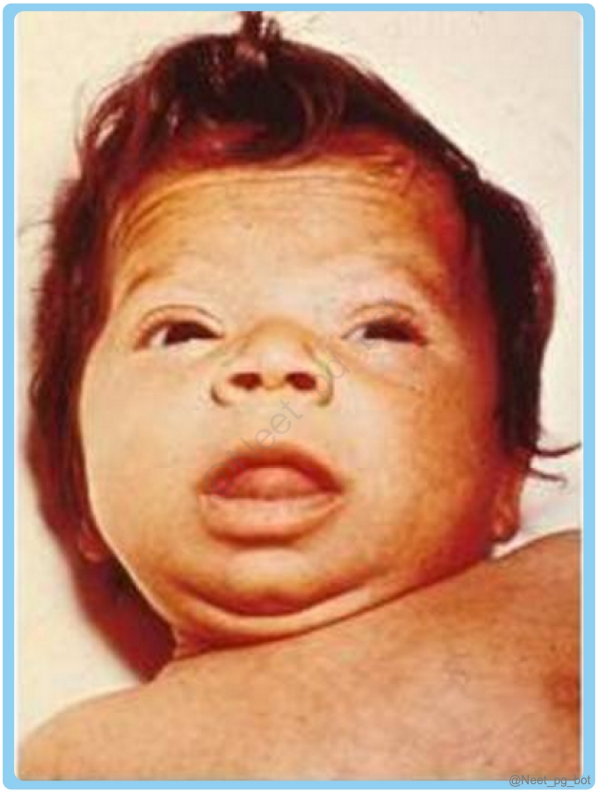
C. Edward syndrome

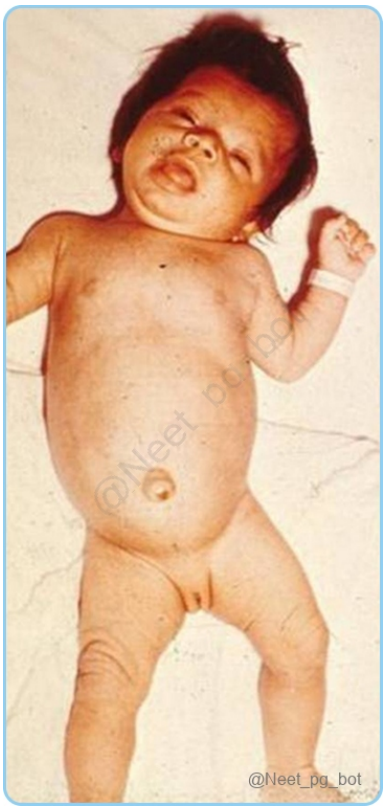
D. Galactosemia

Correct Answer: A. Congenital hypothyroidism

Explanation: Congenital hypothyroidism (also known as cretinism) presents with: Dry, rough skin Macroglossia (an enlarged, protruding tongue) Rough hair Congenital Hypothyroidism {{caption_text}} {{caption_text}} Clinical features Usually birth weight & length is normal Wide open anterior fontanelle Delayed closure of anterior fontanelle Prolonged physiological jaundice- Early sign (it is due to delayed maturation of glucuronide conjugation) Myxedematous facies: Large, protruded tongue (Macroglossia) Cold intolerance Hypotonia Rough

skin and Rough hair Constipation Abdominal distension Umbilical hernia In Untreated Cases: Delayed development Intellectual disability Delayed dentition Short stature Delayed puberty Delayed bone maturation X-ray findings in congenital hypothyroidism: Absence of distal femoral and proximal tibial epiphysis at birth Punctate epiphyseal dysgenesis Deformity or breaking of the 12th thoracic or 1st or 2nd lumbar vertebrae X-ray image of skull- large fontanelle and wide sutures Screening: Universal newborn screening for congenital hypothyroidism At birth, with umbilical cord blood Heel prick: dried blood spots, sample collected beyond 48 hrs or 48-72hrs Should not be done in first 1-2 days, to avoid TSH surge Most sensitive approach- check for T4 and TSH both ASH's first strategy: Initial TSH screening using dried blood spot If TSH>20mIU/L, recheck Obtain a venous blood sample to check T4 and TSH levels if TSH remains elevated. Treatment Oral levothyroxine (early morning with empty stomach for older children; and for newborns, it is to be given at a fixed time). The dose is higher in the earlier age group and as the babies grow the dose reduces. Newborn- 10-15mg/kg/day Children- 2-4mg/kg/day Incorrect Options: Prader-Willi syndrome (Option B): This genetic disorder presents with poor feeding and hypotonia in infancy, followed by excessive eating and obesity in early childhood. It is also associated with intellectual disability & hypogonadism. It does not typically present with the skin, tongue, and hair changes. Edward syndrome (Option C): This chromosomal disorder (trisomy 18) presents with distinctive features, including rocker-bottom feet, overlapping fingers, cardiac anomalies, kidney malformations and microcephaly. The described skin and tongue manifestations are not typical features. Galactosemia (Option D): Galactosemia is characterized by jaundice, hepatomegaly, diarrhea, and vomiting. It does not cause the characteristic skin, tongue, and hair changes.





References:

Ghai Essential Paediatrics 10th edition Page 537-541, 676

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A child with type 1 DM presents with acidosis, and blood sugar 400 mg/dl. What is the further management? (Q857400)

A. IV insulin stat

B. Normal saline with SC insulin stat

C. Normal saline followed by insulin infusion after 1 hour

D. Normal saline and insulin infusion immediately

Correct Answer: C. Normal saline followed by insulin infusion after 1 hour

Explanation: The most appropriate further management for a child presenting with Diabetic Ketoacidosis (DKA) (evidenced by Type 1 DM, acidosis, and hyperglycemia) is Normal saline followed by insulin infusion after 1 hour

. The initial priority in diabetic ketoacidosis (DKA) is fluid resuscitation to correct dehydration and improve perfusion. Normal saline (0.9% NaCl) is started for initial rehydration. Insulin infusion (regular insulin, IV) should be started after initial volume expansion, generally 1–2 hours after fluids are begun , not immediately. Early insulin before adequate fluids increases the risk of cerebral edema and hypokalemia. IV insulin stat (Option A): Immediate IV insulin before fluid resuscitation increases the risk of cerebral edema and cardiac complications. Normal saline with SC insulin stat (Option B): Subcutaneous (SC) insulin is too slow and unreliable for treating the critical state of DKA. Intravenous (IV) insulin infusion is mandatory for tight control and predictable action. Normal saline and insulin infusion immediately (Option D): Giving IV insulin at the same time as fluids can cause rapid osmotic shifts, increasing the risk of cerebral edema.

References:

ISPAD Pediatric Diabetes Guidelines 2022

https://cdn.ymaws.com/www.ispad.org/resource/resmgr/consensus_guidelines_2018_/guidelines2022/Ch.11.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 3-week-old neonate presents with ambiguous genitalia with Na+ - 127, K+ - 6 meq/L with a BP of 50/22 mm Hg. Along with IV fluids, what specific management is done? (Q856786)

A. Spironolactone

B. Potassium binding resins

C. Hydrocortisone

D. Broad spectrum antibiotics

Correct Answer: C. Hydrocortisone

Explanation: The clinical presentation of a neonate with ambiguous genitalia, hyponatremia, hyperkalemia, and hypotension is suggestive of congenital adrenal hyperplasia (CAH). Hydrocortisone is administered to manage the condition and address the cortisol deficiency. Congenital Adrenal Hyperplasia (CAH): Cause: Over 90% of CAH cases are caused by 21-hydroxylase deficiency. Hormone deficiency: Salt-wasting form: Deficiency in both aldosterone and cortisol. Simple virilizing form: Adequate aldosterone with excess adrenal androgens. Nonclassic form: Mildly elevated androgens, may be asymptomatic or show signs of androgen excess. Clinical Manifestations: Aldosterone and Cortisol Deficiency: Both hormones are deficient in the salt-wasting form (70% of cases). Symptoms: Weight loss, vomiting, dehydration, weakness, hypotension, hypoglycemia, hyponatremia, and hyperkalemia. Prenatal Androgen Excess: Excess androgens during gestation lead to virilization in genetic females (46,XX), resulting in female pseudohermaphroditism. Features in affected females: Clitoromegaly, labial fusion, and formation of a urogenital sinus. The internal genitalia are typically normal, as there is no antimüllerian hormone secretion. Male infants (46,XY) appear normal at birth, delaying diagnosis until adrenal insufficiency

develops. Postnatal Androgen Excess: Males: Enlarged penis with small prepubertal testes; potential for testicular adrenal rest tumors. Females: Progressive clitoromegaly and absence of menstruation or breast development unless treated. Adrenomedullary Dysfunction: Blunted epinephrine responses, hypoglycemia, and cardiovascular effects may exacerbate symptoms of cortisol deficiency in untreated cases. Laboratory Findings: Salt-Wasting Disease: Hyponatremia, hyperkalemia, metabolic acidosis, and hypoglycemia. Hormonal Findings: Elevated 17-hydroxyprogesterone, androstenedione, and testosterone (in females). ACTH Test: A marked increase in 17-hydroxyprogesterone after cosyntropin stimulation confirms the diagnosis. Treatment: Glucocorticoid Replacement Therapy : Replaces cortisol deficiency and suppresses excessive adrenal androgen production. Mineralocorticoid Replacement Therapy: Treats aldosterone deficiency in salt-wasting CAH. Additional Medical Approaches: Antiandrogens (e.g., flutamide): Block androgen effects. Aromatase inhibitors (e.g., anastrozole): Slow skeletal maturation by inhibiting androgen-to-estrogen conversion. Growth hormone therapy: May enhance adult height. Surgical Management: Clitoral reduction (if severe clitoromegaly). Vaginoplasty and urogenital sinus correction.

References:

Nelson Textbook of Paediatrics, 21st Edition, Page 2971-2977
https://pmc.ncbi.nlm.nih.gov/articles/PMC3242885/#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: The mother brought her 3-year-old daughter to seek medical attention due to the girl's enlarged clitoris. The results of the karyotype test showed a 46XX pattern. What is the probable underlying cause for this condition? (Q854975)

A. 21 hydroxylase deficiency

B. 11 hydroxylase deficiency

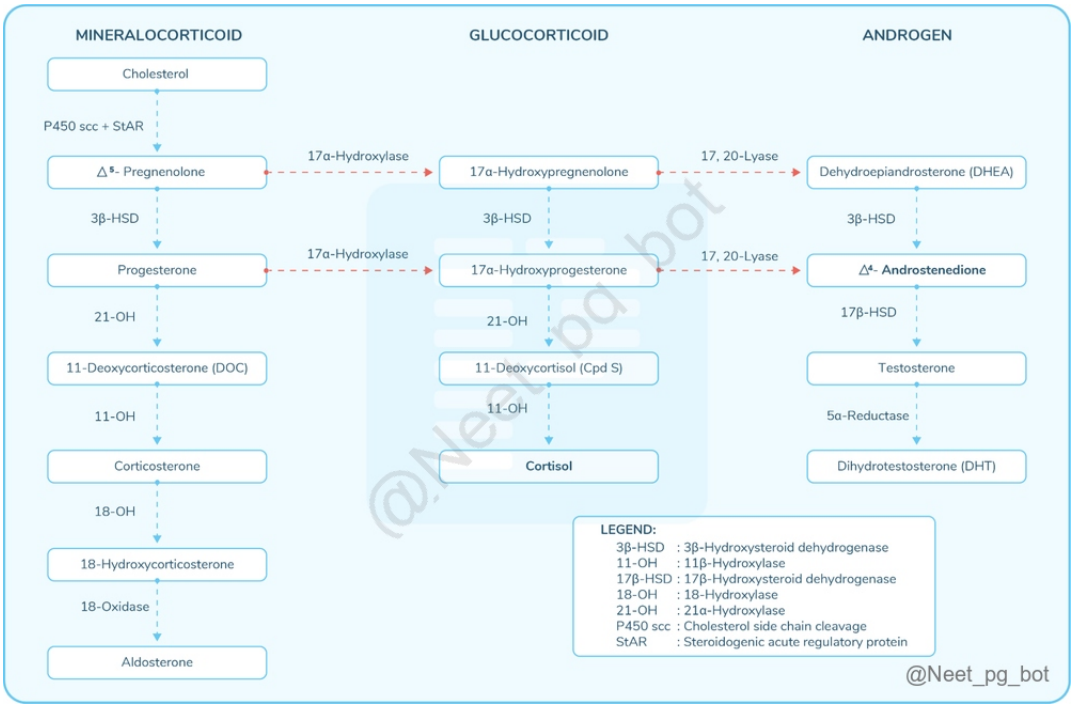
C. 3 beta dehydrogenase deficiency

D. 17α-OH deficiency

Correct Answer: A. 21 hydroxylase deficiency

Explanation: In individuals with XX chromosomes (typically female), the excess androgens due to 21 hydroxylase deficiency can cause virilization of the external genitalia, resulting in an enlarged clitoris. 21 hydroxylase deficiency characterized by impaired production of cortisol and aldosterone leads to an increase in adrenocorticotropic hormone (ACTH) secretion, which stimulates the adrenal glands to produce excess androgens (male sex hormones). 21-Hydroxylase Deficiency Most common form of congenital adrenal hyperplasia (CAH) (90%) Enzyme Affected: 21-hydroxylase Pathogenesis 21-hydroxylase deficiency impairs the synthesis of cortisol and aldosterone. Low cortisol levels lead to elevated ACTH levels. Elevated ACTH causes the accumulation of steroid precursors, including dehydroepiandrosterone (DHEA), androstenedione, and 17-hydroxyprogesterone (17-OHP). Clinical Manifestations Salt wasting form: Severe deficiency with nearly absent enzyme activity.

Presents in neonates with salt-wasting, virilization, ambiguous genitalia in girls, failure to thrive, polyuria, hyperpigmentation, critical electrolyte imbalances and shock. Diagnosis may be missed in boys. Simple virilizing form: Partial enzyme activity (25%) allows aldosterone production. Features include virilization in girls and peripheral precocious puberty in boys . Non-classic form: Mild enzyme deficiency with mild hyperandrogenism. Symptoms include hirsutism, acne, and menstrual irregularities in adolescents. Diagnosis Salt-Wasting Form: Extreme elevations of 17-OHP levels (10000-20000 ng/dL, normal <200 ng/dL) in the context of clinical signs of adrenal insufficiency. Simple Virilizing and Non Classic Forms: Elevated 17-OHP levels measured before and 60 minutes after an intramuscular ACTH injection (0.25 mg). Treatment Salt wasting and virilizing forms treated with Hydrocortisone (10-15 mg/m²/day) and Fludrocortisone (0.1 mg/day). Long-acting glucocorticoid preparations (dexamethasone or prednisolone) may be used after growth and puberty are complete. 11 hydroxylase deficiency (Option B) is another form of congenital adrenal hyperplasia (CAH), but it typically leads to hypertension and may cause ambiguous genitalia and hypokalemia. It is less commonly associated with an enlarged clitoris. 3 beta dehydrogenase deficiency (Option C) is a rare form of congenital adrenal hyperplasia (CAH) characterized by impaired conversion of pregnenolone to progesterone. It can lead to impaired production of cortisol and aldosterone, but it is not typically associated with virilization and an enlarged clitoris. 17α-OH deficiency (Option D) is generally present with complaints of delayed puberty, primary amenorrhea and a lack of secondary sexual characteristics in a female patient. The presentation in male patients is typically under masculinization and can range from phenotypic females to ambiguous or small male genitalia.



References:

Nelson Textbook of Pediatrics, 21st edition, Page 2971- 2976

Ghai Essentials of Pediatrics, 10th edition, Page 547

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: What could be a potential cause for a child with short stature who is brought to the pediatrician and has high growth hormone levels and low insulin-like growth factor (IGF-1) levels? (Q859510)

A. Turner syndrome

B. Pituitary dwarfism

C. Laron dwarfism

D. Maternal deprivation dwarfism

Correct Answer: C. Laron dwarfism

Explanation: The clinical manifestations indicate Laron dwarfism , also known as growth hormone insensitivity syndrome . This rare genetic disorder is characterized by the paradoxical combination of elevated growth hormone levels with low IGF-1 levels, resulting from mutations in the growth hormone receptor gene or post-receptor signaling pathway. Despite high circulating levels of growth hormone, the body's inability to respond to it leads to inadequate IGF-1 production, which is essential for normal growth and development. Incorrect Options: Turner syndrome (Option A): Growth hormone treatment is often used to help girls with Turner Syndrome achieve greater height. The underlying cause of short stature in Turner Syndrome is related to the SHOX gene, not growth hormone deficiency. Also, this condition is associated with other characteristic features, such as webbed neck and ovarian dysgenesis, which are not mentioned in this case. Pituitary dwarfism (Option B): This condition, also known as growth hormone deficiency, is characterized by low growth hormone levels and subsequent low IGF-1 levels. The presentation of high growth hormone levels, in this case, makes pituitary dwarfism an unlikely diagnosis. Maternal deprivation dwarfism (Option D): This psychosocial condition occurs in infants due to severe emotional deprivation or neglect. While it can cause growth failure and stunting, it does not present with the specific hormonal pattern of high growth hormone and low IGF-1 levels.

References:

O.P. Ghai Essential Pediatrics, 10th Edition,Page 535.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 22-year-old mother presented with her 2-week-old newborn who had a large tongue and an umbilical hernia. Which of the following investigations has to be done in view of congenital hypothyroidism? (Q859514)

A. A fresh blood sample and screen first for TSH levels

B. A fresh blood sample and screen first for T4 levels

C. A dried blood sample and screen first for TSH levels

D. A dried blood sample and screen first for T4 levels

Correct Answer: C. A dried blood sample and screen first for TSH levels

Explanation: The clinical manifestations indicate congenital hypothyroidism, as evidenced by the large tongue and umbilical hernia . The screening method for congenital hypothyroidism involves using dried blood spot samples and testing for TSH levels . TSH is a more sensitive and specific marker for detecting hypothyroidism in newborns Elevated TSH levels indicate hypothyroidism, while low or normal TSH levels suggest normal thyroid function Measuring T4 levels alone is not sufficient (Option B and C Ruled Out) for the initial screening of congenital hypothyroidism because T4 levels can be affected by various factors, including stress, illness, and medications Dried blood spot testing is a simple, minimally invasive method to collect a blood sample , allowing for large-scale newborn screening programs where a small amount of blood from a heel prick is readily accessible for analysis. (Option A Ruled Out) Congenital Hypothyroidism Definition Most common preventable cause of intellectual disability Prevalence of 1 in 2,000 newborns Results from defects in hypothalamic-pituitary axis or thyroid gland Can be congenital or acquired Etiology Thyroid dysgenesis (75% of cases) Spectrum ranging from agenesis to ectopic thyroid Biosynthetic defects affecting iodine transport, peroxidation, thyroglobulin synthesis Pendred syndrome (associated with decreased intracellular transport of iodine and deafness) Genetic defects associated with TSHR, PAX8, and TSHB genes Clinical Features Congenital Signs: Open posterior fontanel Umbilical hernia Delayed neurodevelopment Large tongue Common Features: Growth retardation Sallow edematous facies Delayed skeletal maturation Delayed dental eruption Delayed puberty Constipation Myopathy and pseudohypertrophy Hypothermia Screening Dried blood spot (DBS) sample at age 2-4 days Screen first for TSH levels TSH thresholds for treatment: >20 mU/L in first week >10 mU/L between 7-21 days >6 mU/L beyond 21 days Investigations I nitial Tests: Serum TSH and FT4 levels TSH > 20 mU/L in first week needs evaluation Further Evaluation: Radionuclide scan Ultrasound of thyroid Children with undetectable thyroid may need testing for: Defects in iodine transport TSH receptor abnormalities TSH blocking antibody Management Immediate thyroxine replacement after diagnosis Dosage: 10-15 µg/kg/day In central hypothyroidism, cortisol replacement should precede thyroid replacement Monitor FT4 and TSH levels every 2 months in first year Long-term follow-up required Most children require lifelong therapy

References:

OP Ghai Essential Paediatrics 10th Edition, Page 538-539

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: An 8-day-old newborn was found to have thyroid-stimulating hormone levels of more than 100 mIU/L. Which of the following will be the next best investigation? (Q856075)

A. Urine iodine excretion

B. Serum thyroid receptor antibody

C. Radiotracer uptake with technetium

D. Perchlorate secretion test

Correct Answer: C. Radiotracer uptake with technetium

Explanation: - Radiotracer uptake with technetium: Radiotracer uptake with technetium is the next best step to evaluate thyroid size, location, and function, helping differentiate between thyroid dysgenesis, dyshormonogenesis, or ectopic thyroid. Congenital hypothyroidism: Is the most common preventable cause of mental retardation, which results from a deficient production of thyroid hormone. More common among girls The most common cause of congenital hypothyroidism is thyroid dysgenesis. Etiology of congenital hypothyroidism: 1. Primary hypothyroidism: Thyroid dysgenesis Thyroid dyshormonogenesis Iodine deficiency (endemic goiter) Defect in thyroid hormone transporter- Mutation in MCT8 (monocarboxylate transporter 8) gene Maternal antibodies- TRBAb (thyrotropin receptor-blocking antibody) Maternal medications- Iodides, amiodarone, propylthiouracil, methimazole, radioiodine 2. Central (hypopituitary) hypothyroidism: TSH deficiency- mutation in TSH beta subunit gene TRH deficiency- mutation in the TRH gene TRH unresponsiveness- mutation in TRH receptor gene Multiple congenital pituitary hormone deficiencies Clinical features of congenital hypothyroidism: Prolongation of physiological jaundice - early sign (it is due to delayed maturation of glucuronide conjugation) Constipation - not responsive to treatment Wide open anterior and posterior fontanelles Developmental delay, delayed bone growth, delayed dentition A dull-looking face with macroglossia, feeding difficulties, choking spells Hypothermia, hypotonia, slow relaxation of deep tendon reflexes Macrocytic anemia refractory to treatment Diagnosis: Primary hypothyroidism: T4 level: low TSH usually>100mIU/L Central hypothyroidism: Low TSH, T3, and T4 levels Radionuclide scanning (technetium-99m or iodine-123) or ultrasonography helps assess thyroid size and location to differentiate thyroid dysgenesis, dyshormonogenesis, or transient abnormalities in congenital hypothyroidism. X-ray findings in congenital hypothyroidism: Absence of distal femoral and proximal tibial epiphysis at birth Punctate epiphyseal dysgenesis Deformity or breaking of the 12th thoracic or 1st or 2nd lumbar vertebrae X-ray image of skull- large fontanelle and wide sutures Screening: Universal newborn screening for congenital hypothyroidism At birth, with umbilical cord blood Heel prick: dried blood spots, sample collected beyond 48 hrs or 48-72hrs Should not be done in first 1-2 days, to avoid TSH surge Most sensitive approach- check for T4 and TSH both American Society of Hematology (ASH) first strategy: Initial TSH screening using dried blood spot If TSH >20mIU/L, recheck Obtain a venous blood sample to check T4 and TSH levels if TSH remains elevated. Treatment Oral levothyroxine (early morning with empty stomach for older children and for newborns it is to be given at a fixed time) The dose is higher in the earlier age group, and as the babies grow, the dose reduces. Newborn: 10-15 mg/kg/day Children: 2-4 mg/kg/day Urine iodine excretion (Option A) is primarily used for epidemiological studies and surveillance to classify iodine deficiency in populations, as recommended by the WHO. It measures iodine intake but is not specific for diagnosing congenital hypothyroidism in individual cases. Serum thyroid receptor antibody (Option B) is helpful in diagnosing transient congenital hypothyroidism caused by transplacental passage of TSH receptor-blocking antibodies, particularly in neonates of mothers with autoimmune hypothyroidism. The perchlorate secretion test (Option D) is used to diagnose thyroid peroxidase deficiency by assessing iodide organification defects. It is not the initial test of choice for congenital hypothyroidism.

References:

O.P GHAI Essential Pediatrics, 10th Edition, Page 537-541, 676

https://www.msdmanuals.com/professional/pediatrics/endocrine-disorders-in-children/hypothyroidism-in-infants-and-children#Diagnosis_v1093072

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A 10-year-old child presented with abdominal pain and vomiting. Lab values are given below. What is the next best step of management? Lab values: RBS - 450 mg/dL pH - 7.0 HCO3 - 4 Na - 145 K - 4.8 mEq/L (Q879246)

A. 10 mL/kg NS over 20 mins (10% deficit correction) followed by insulin infusion with 20 mmol/L KCL with bicarbonate

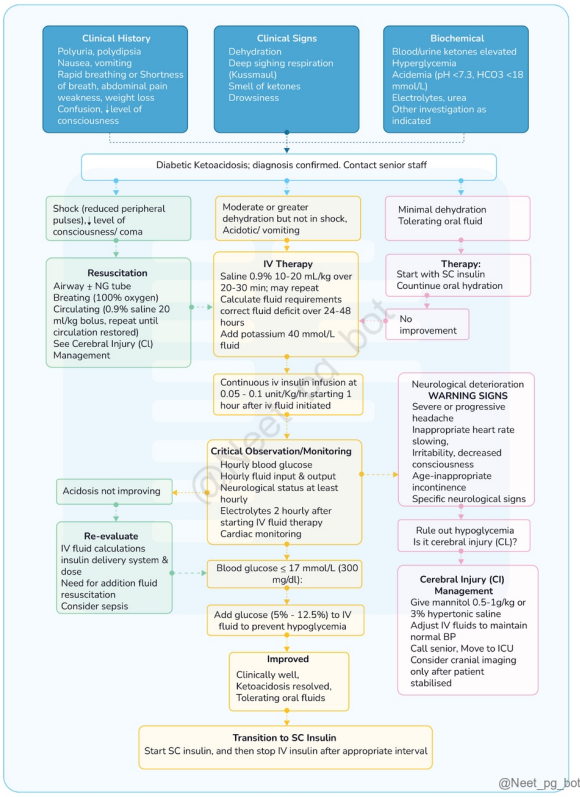
B. 20 mL/kg 1/2NS over 20 min (7% deficit correction) followed by insulin infusion and KCL 40 mEq/L

C. 20 mL/kg NS over 20 min (10% deficit correction) followed by insulin infusion and KCL 40 mEq/L

D. 20 mL/kg RL over 20 min (10% deficit correction) followed by insulin infusion and KCL 40 mEq/L

Correct Answer: C. 20 mL/kg NS over 20 min (10% deficit correction) followed by insulin infusion and KCL 40 mEq/L

Explanation: The child has hyperglycemia (RBS 450 mg/dL), severe metabolic acidosis (pH 7.0, HCO■■ 4 mEq/L), normal to high potassium (4.8 mEq/L) (typical in DKA before insulin) and symptoms such as abdominal pain, vomiting, pointing towards the diagnosis of severe Diabetic KetoAcidosis (DKA), which requires aggressive fluid resuscitation, insulin infusion and potassium correction. 1. Initial fluid resuscitation: Normal saline (0.9% NS) 10–20 mL/kg over 20–30 minutes This restores intravascular volume and treats shock/poor perfusion. RL is not preferred because: Contains lactate , which can complicate acid-base interpretation. Initial fluid must be NS . 2. Start insulin infusion: After the first fluid bolus and establishing urine output: Regular insulin infusion 0.05–0.1 U/kg/hr 3. Potassium replacement: Even if serum K■ is normal or high, total body K■ is always depleted in DKA. When insulin starts, K■ shifts into cells, which causes a sharp drop in serum K■ So add: 40 mEq/L KCl (standard), since the potassium is 4.8 (normal-high). 10 mL/kg NS over 20 mins (10% deficit correction) followed by insulin infusion with 20 mmol/L KCL with bicarbonate (Option A): Bicarbonate is added only when the pH < 6.9 or in cases of severe shock (pH = 7.0 in question). 20 mmol/L of KCL is insufficient for DKA (standard is 40). 20 mL/kg 1/2NS over 20 min (7% deficit correction) followed by insulin infusion and KCL 40 mEq/L (Option B): Initial fluid must be isotonic NS (0.9%), not hypotonic ½NS, which can cause cerebral oedema.



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3029 Pediatric Diabetic Ketoacidosis - StatPearls - NCBI Bookshelf

↑ *Back to this question in Part A*

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Q11: A 3-year-old child presents with cough, wheeze, and recurrent infections, for which he has been taking oral medications. He now presents with excessive weight gain, a round face, and hirsutism with hair growth on the forehead. Developmental milestones are normal. The child's BMI is > +2SD, but height for age is < –2SD. What is the next best step in management? (Q879454)

A. Check T3, T4, TSH for congenital hypothyroidism

B. Check for early morning serum cortisol levels and exogenous cortisol administration

C. Advise exercise and dietary changes

D. Evaluate for genetic causes of obesity

Correct Answer: B. Check for early morning serum cortisol levels and exogenous cortisol administration

Explanation: The child shows features of Cushingoid appearance (moon face, hirsutism, central obesity, growth retardation in height) while on oral medications , likely exogenous corticosteroids . The first step is to confirm cortisol excess and review steroid exposure . Incorrect Options: Thyroid tests (Option A): Not indicated; developmental milestones are normal, and hypothyroidism doesn't typically cause Cushingoid features. Advise exercise and dietary changes (Option C): Ineffective here, as the obesity is secondary to steroid-induced Cushing syndrome , not simple lifestyle factors. Evaluate for genetic causes of obesity (Option D): Not first-line; features suggest iatrogenic cause rather than a primary genetic syndrome.

References:

Nelson's Textbook of Pediatrics, 21st Edition, Pages 2982-2984.

↑ *Back to this question in Part A*

@Neet_pg_bot

• [16_Pediatric Neurology] 041 Cns Malformations Hydrocephalus And Seizures In Children

« Back to Folder Directory

[16_Pediatric Neurology] 041 Cns Malformations Hydrocephalus And Seizures In Children — Quick Jump

Q1 (p. 1472)	*Q2 (p. 1474)*	*Q3 (p. 1476)*	*Q4 (p. 1476)*	*Q5 (p. 1477)*	*Q6 (p. 1478)*
Q7 (p. 1479)	*Q8 (p. 1480)*	*Q9 (p. 1481)*	*Q10 (p. 1482)*	*Q11 (p. 1486)*	*Q12 (p. 1486)*
Q13 (p. 1487)	*Q14 (p. 1490)*	*Q15 (p. 1490)*	*Q16 (p. 1492)*	*Q17 (p. 1495)*	*Q18 (p. 1498)*

Q1: A 6-month-old infant presents with rapid head growth, a prominent occiput, and developmental delays. An MRI is ordered which shows the finding as shown in the image. What is the most likely diagnosis? (Q850385)

A. Arnold-Chiari malformation Type I

B. Arnold-Chiari malformation Type II

C. Dandy-Walker malformation

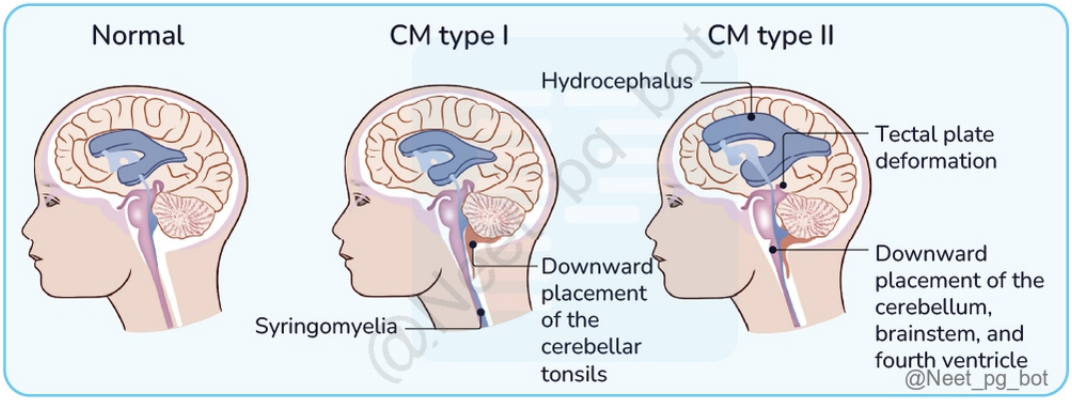
D. Hydranencephaly



Correct Answer: C. Dandy-Walker malformation

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Rapid head growth and a prominent occiput suggest increased intracranial pressure, often associated with conditions affecting CSF flow. Imaging showing the cystic expansion of the fourth ventricle and cerebellar hypoplasia indicates Dandy-Walker malformation. Dandy-Walker malformation: Developmental failure (atresia of foramina of Magendie) of the fourth ventricle's roof ➜ Cystic expansion of the fourth ventricle and midline cerebellar hypoplasia . Associated with Hydrocephalus in 90% of cases and additional anomalies such as agenesis of the cerebellar vermis and corpus callosum. Arnold Chiari Malformation: (Option A, B) Aspect Chiari Malformation Type I Chiari Malformation Type II Abnormality Displacement of cerebellar tonsils into the cervical canal. Elongation of the fourth ventricle with displacement of the hindbrain. Age Typically, adolescence or adulthood Often present at birth or in infancy Associated Anomaly Usually not associated with spinal defects Often associated with myelomeningocele (spinal cord defect) Symptoms Headaches, neck pain, urinary frequency, lower extremity spasticity Stridor, weak cry, apnea, gait abnormalities, spasticity Imaging Findings Tonsillar herniation into the cervical canal Enlarged fourth ventricle, herniation of hindbrain into the cervical canal. Treatment Surgical decompression if symptomatic; conservative for mild cases Surgical decompression, possibly with shunt placement for hydrocephalus. Hydranencephaly (Option D): A severe condition where the cerebral hemispheres are replaced by membranous sacs, with the midbrain and brainstem relatively intact due to bilateral occlusion of the internal carotid arteries early in fetal development.





References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 3077,3079

↑ *Back to this question in Part A*

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Q2: A 6-year-old child with status epilepticus has received two doses of intravenous lorazepam without seizure cessation after initial management. What is the most appropriate next step? (Q850393)

A. IV Fosphenytoin

B. IV Sodium Valproate

C. IV Levetiracetam

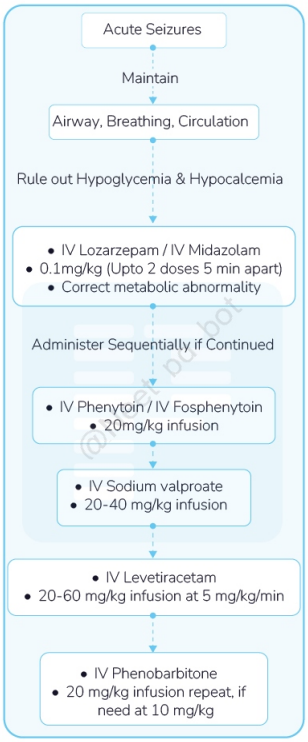
D. IV Phenobarbitone

Correct Answer: A. IV Fosphenytoin

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: After initial treatment with lorazepam, which is typically effective for managing status epilepticus, the next step involves using additional antiepileptic drugs if seizures persist. IV Fosphenytoin is commonly used as a second-line treatment for continued seizure activity. Management of Status Epilepticus: Refractory status epilepsy Refractory status epilepticus refers to status epilepticus that has not responded to treatment, typically despite the administration of at least two antiepileptic medications , such as a benzodiazepine and another agent.



References:

O.P. Ghai Essential Pediatrics, 9th Edition, Pg - 580

↑ *Back to this question in Part A*

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Q3: A 4-year-old child presents with recurrent, prolonged seizures and developmental delay. Genetic testing reveals a mutation in the SCN1A gene. Based on this genetic finding and the clinical presentation, which of the following is most likely associated? (Q850392)

A. West Syndrome

B. Dravet Syndrome

C. Lennox-Gastaut Syndrome

D. Rett Syndrome

Correct Answer: B. Dravet Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The SCN1A gene mutation is most commonly associated with Dravet Syndrome, a severe form of epilepsy characterised by frequent, prolonged seizures and developmental delays. Aspect Lennox-Gastaut Syndrome (Option C) West Syndrome (Option A) Dravet Syndrome Onset Age 2-10 years 2-12 months Infancy Clinical Features Developmental delay Multiple seizure types (atypical absences, myoclonic, atonic, tonic) EEG: 1-2 Hz spike and slow waves, polyspike bursts in sleep, slow background Infantile epileptic spasms Developmental regression Hypsarrhythmia on EEG Initial febrile and afebrile unilateral clonic seizures, occurring every 1-2 months Seizures are prolonged, frequent, focal, and often cluster Progression to seizures with lower fevers and eventually without fever Developmental delay Genetic Causes - ARX gene SCN1A Mutation First line Clobazam Valproate Lamotrigine ACTH Benzodiazepines (e.g., Clobazam) Valproate Alternative treatments Ketogenic diet Levetiracetam Acetazolamide Corticosteroids IVIG. Oral Prednisolone Vigabatrin (if associated with Tuberous sclerosis) Ketogenic diet Ketogenic diet Stiripentol Rett Syndrome (Option D) is characterised by mutations in the MECP2 gene, which leads to increased NMDA receptor activity and contributes to the symptoms, including neurodevelopmental regression, repetitive hand movements, motor abnormalities, seizures, and cognitive impairment. Trofinetide may be beneficial for treatment.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 3093,3098,3103

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 7-month-old infant presents with recurrent clusters of sudden jerking movements and has recently shown a loss of developmental milestones. An EEG

reveals high-voltage, chaotic background activity with multifocal spikes. Given these findings, what is the first-line treatment for the suspected condition? (Q850391)

A. ACTH

B. Vigabatrin

C. Gabapentin

D. Topiramate

Correct Answer: A. ACTH

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario with infantile seizures, developmental delays, and EEG abnormalities points towards West syndrome. ACTH is the first-line treatment for West Syndrome , as it is effective in managing infantile spasms and normalising EEG abnormalities. West Syndrome Age group Typically occurs between 2 and 12 months of age. Genetics ARX Gene Mutations : In males, linked to ambiguous genitalia and cortical migration abnormalities. Types Cryptogenic (Unknown Etiology) : Normal development before onset. Symptomatic : Associated with developmental delays due to perinatal issues, brain malformations, metabolic disorders, or other causes. Clinical Features Infantile Epileptic Spasms : Clusters of spasms occurring mainly during drowsiness or upon waking. Developmental Regression Hypsarrhythmia on EEG : A chaotic, high-voltage background with multifocal spikes. Management First-Line Treatment : Hormonal therapy, primarily ACTH (80 mg/mL) Dosage : 150 units/m^2 daily (75 units/m^2 twice daily) for 2 weeks, then taper gradually. Monitoring : EEGs at 1, 2, and 4 weeks to assess response. Early intervention is crucial, as a delay beyond 3 weeks can worsen the prognosis. Alternative Treatments Oral Prednisolone : Lower-cost alternative (Less effective) Vigabatrin (Option B) : Used as a first-line agent in West syndrome associated with tuberous sclerosis complex (TSC) or second-line if hormonal therapy fails. Side effects include retinal toxicity. Ketogenic Diet : Considered a third-line therapy.pyridoxine Other Medications : Valproate, benzodiazepines (nitrazepam, clonazepam), topiramate (Option D) , lamotrigine, zonisamide, pyridoxine, and IVIG. These drugs can help reduce seizure frequency and severity but are not uniformly effective and may be used alongside ACTH or vigabatrin in cases with incomplete response. Side Effects and Precautions Side Effects of Hormonal Therapy : Hypertension, electrolyte imbalance, infections, hyperglycemia, and gastric ulcers. Vaccination : Live vaccines are contraindicated, and other vaccines may be ineffective during and shortly after hormonal therapy.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 3098,3103

↑ *Back to this question in Part A*

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Q5: A 7-year-old girl presents with brief episodes of staring and unresponsiveness lasting a few seconds, occurring multiple times a day. Her teacher reports she often misses instructions. An EEG shows 3-Hz spike-and-slow-wave discharges precipitated by hyperventilation. What is the most likely diagnosis? (Q850390)

A. Myoclonic seizures

B. Typical absence seizures

C. Complex partial seizures

D. Atypical absence seizures

Correct Answer: B. Typical absence seizures

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's presentation aligns with typical absence seizures , characterised by brief, multiple daily staring spells with 3-Hz spike-and-slow-wave discharges on EEG, often triggered by hyperventilation. Types of Absent Seizures: Feature Typical Absence Seizures Atypical Absence Seizures Juvenile Absence Seizures Age of Onset 5-8 years Any age often associated with developmental delay Later onset, typically in adolescence Duration Lasts a few seconds Lasts longer than typical absences Lasts a few seconds to minutes Clinical Features Staring, unresponsiveness, eyelid flutter, upward eye rolling Staring, myoclonic components, tone changes Staring may include myoclonic jerks Frequency Multiple times per day Less frequent than typical absences Occurs less frequently than typical absences Precipitating Factors Hyperventilation Drowsiness Often occurs spontaneously and may be related to hyperventilation EEG Findings 3-Hz spike-and-slow-wave discharges 1-2 Hz spike-and-slow-wave discharges 4-6 Hz spike-and-slow-wave and polyspike-and-slow-wave discharges Postictal State None May have a brief postictal period None Variants Jeavons syndrome (eyelid myoclonia), Myoclonic absences (limb jerks) Myoclonic absence with irregular features Associated with juvenile myoclonic epilepsy Myoclonic seizures (Option A) are characterised by sudden, brief, shock-like jerks of muscles, typically without loss of consciousness, with polyspike-and-slow-wave discharges on EEG (faster than 3 Hz). Complex partial seizures (Option C) involve altered consciousness, longer duration (30 seconds to 2 minutes), often with an aura and postictal confusion. EEG shows focal spikes or sharp waves.

References:

Nelson Textbook of Pediatrics, 21st edition, pg 3097, 3098

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 2-year-old boy has experienced three febrile seizures in the past 6 months, each lasting about 2-3 minutes. He has no neurological deficits and develops normally. His

parents are anxious about future episodes and request preventive treatment. What is the most appropriate management approach for this child? (Q850389)

A. Start continuous daily phenobarbital

B. Prescribe intermittent oral clobazam during febrile illnesses

C. Recommend daily valproic acid

D. Advise only antipyretic use during febrile illnesses

Correct Answer: B. Prescribe intermittent oral clobazam during febrile illnesses

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Intermittent oral Clobazam is appropriate for children with frequent febrile seizures (≥3 in 6 months or ≥4 in one year). It balances seizure prevention with avoiding continuous medication. The dose is 0.8-1 mg/kg/day in 2 divided doses and should be started at the first sign of any fever and continued for the first 48 hours. For high-risk cases, start intermittent oral diazepam at the first sign of fever and continue for 3 days to manage seizure risk effectively without continuous medication. Prevention of Recurrent Febrile Seizures: Category Intermittent Prophylaxis Continuous Prophylaxis Usage Medications used during periods of fever to prevent seizures are not used continuously. Regular, ongoing use of antiepileptic drugs to prevent seizures regardless of fever. Indications Frequent recurrences (≥3 in 6 months or ≥4 in one year); High parental anxiety Complex febrile seizures (focal, prolonged) Recurrences despite intermittent prophylaxis Neurological or developmental issues Family history of epilepsy Medications Used Oral Diazepam Rectal Diazepam Oral Clobazam Antipyretics (acetaminophen, ibuprofen) Valproic Acid (Option C) Phenobarbital (Option A)

References:

Nelson Textbook of Pediatrics, 21st edition, pg 3094 O.P. Ghai Essential Pediatrics, 9th edition, pg 554

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 2.5-year-old girl presents to the emergency department with a fever of 39.5°C (103.1°F). She experienced a generalised tonic-clonic seizure lasting 5 minutes, which stopped spontaneously. The child has no history of seizures or neurological issues and appears well after the episode. What is the most appropriate immediate management for this child? (Q850388)

A. Administer high-dose steroids

B. Oral antipyretics and reassurance

C. Start intravenous antiepileptics

D. Perform a lumbar puncture to rule out infection

Correct Answer: B. Oral antipyretics and reassurance

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: For a child presenting with febrile seizures lasting <5 minutes and no neurological symptoms, the primary management is to administer oral antipyretics (e.g., acetaminophen or ibuprofen) and provide reassurance , as these seizures are typically self-limiting and not indicative of a serious underlying condition. Management of Febrile Seizures: Initial Assessment : Most febrile seizures resolve spontaneously. If the seizure has ended and the child is returning to baseline, active treatment with benzodiazepines is not needed. Use antipyretics to manage fever. Seizures lasting >5 Minutes: Administer intravenous benzodiazepines (diazepam 0.1 to 0.2 mg/kg or lorazepam 0.05 to 0.1 mg/kg) if the seizure persists, with additional doses as needed. Monitoring: Closely monitor respiratory and circulatory status. Prepare for advanced airway management if ventilation is compromised. Administer high-dose steroids (Option A): Not used for simple febrile seizures. Steroids are reserved for specific conditions like severe inflammatory or autoimmune disorders. Start intravenous antiepileptics (Option C): Reserved for seizures lasting for >5 minutes or if the seizure is prolonged and does not stop spontaneously. Perform a lumbar puncture to rule out infection (Option D): It is considered only if there are signs of meningitis or infection.

References:

Nelson Textbook of Pediatrics, 21st edition, pg 3093, 3094 O.P. Ghai Essential Pediatrics, 9th edition, pg 554

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 14-month-old boy presents to the emergency department with a fever of 39°C (102.2°F) and a generalised- tonic-clonic seizure lasting 5 minutes. The seizure self-resolved, and the child returned to baseline within 10 minutes. There's no history of prior seizures or neurological issues. What is the most likely diagnosis? (Q850387)

A. Meningitis

B. Simple febrile seizure

C. Complex febrile seizure

D. Febrile status epilepticus

Correct Answer: B. Simple febrile seizure

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario is consistent with simple febrile seizures characterised by a short duration (less than 15 minutes), a single generalised tonic-clonic episode, and normal neurological development. Criteria for Diagnosis of Simple Febrile Seizure: Age: 6-60 months (peak incidence at 12-18 months). Fever: Associated with a temperature ≥38°C (100.4°F). Seizure Characteristics: Generalized, usually tonic-clonic. Duration: Seizure lasts ≤15 minutes. Recurrence: No recurrence within 24 hours. Postictal State: Rapid return to baseline consciousness without neurological deficit. Exclusion of Other Causes: No signs of CNS infection, metabolic imbalance, or history of afebrile seizures. Simple Febrile Seizure (Option B) Complex Febrile Seizure (Option C) Febrile Status Epilepticus (Option D) Generalised tonic-clonic seizure. Lasts ≤15 minutes. No recurrence within 24 hours. Quick recovery to baseline without deficit. Lasts >15 minutes. It may be focal in nature. It may recur within 24 hours. Seizure lasts >30 minutes. Prolonged seizure with significant risk. Common between 6-60 months, benign, and does not require extensive workup. Higher risk of recurrence, and it requires further evaluation. Requires urgent medical management due to the risk of complications.

References:

Nelson Textbook of Pediatrics, 21st edition, pg 3092, 3093 O.P. Ghai Essential Pediatrics, 9th edition, pg 554

↑ *Back to this question in Part A*

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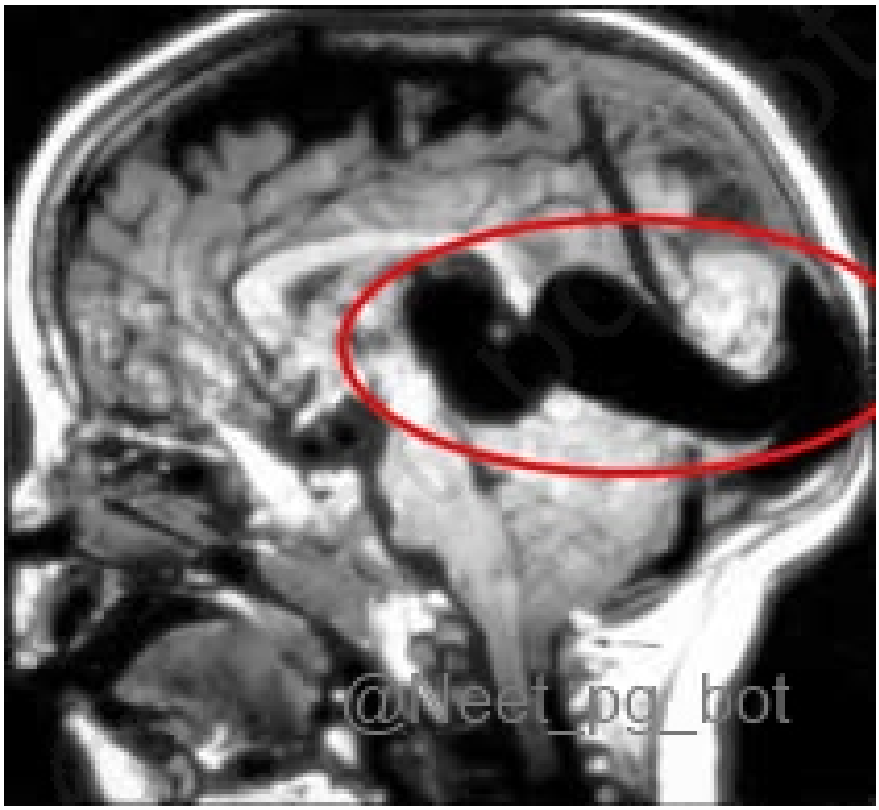
Q9: A 2-month-old infant presents with signs of heart failure, hydrocephalus, and an enlarging head. Neuroimaging reveals a finding shown in the image. The infant's condition is found to be due to an arteriovenous malformation. Which vessel is primarily involved in this malformation? (Q850386)

A. Internal Jugular Vein

B. Middle meningeal Artery

C. Basal Vein of Rosenthal

D. Median Prosencephalic Vein



Correct Answer: D. Median Prosencephalic Vein

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario points toward a vein of Galen malformation in which the Median prosencephalic vein is primarily involved, which is the forerunner of the vein of Galen. Vein of Galen Malformation: Congenital arteriovenous malformation (AVM) in the brain, in which the median prosencephalic vei n forms an abnormal connection with multiple feeding arteries, causing direct high-flow shunting of arterial blood into the venous system. This results in a significant dilation of the Vein of Galen, leading to hydrocephalus, cardiac failure, and other complications due to excessive volume and pressure overload.

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5296625/ Nelson Textbook of Pediatrics, 21st Edition, Pg - 3077,3215 Grainger & Allison Radiology, 7th Edition, Pg - 1352

↑ *Back to this question in Part A*

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Q10: A 2-day-old male neonate presents with a translucent sac-like swelling in the lumbosacral region. On examination, the infant exhibits normal motor function and bladder control, and the spinal cord remains within the spinal canal. What is the most

likely diagnosis? (Q850375)

A. Myelomeningocele

B. Meningocele

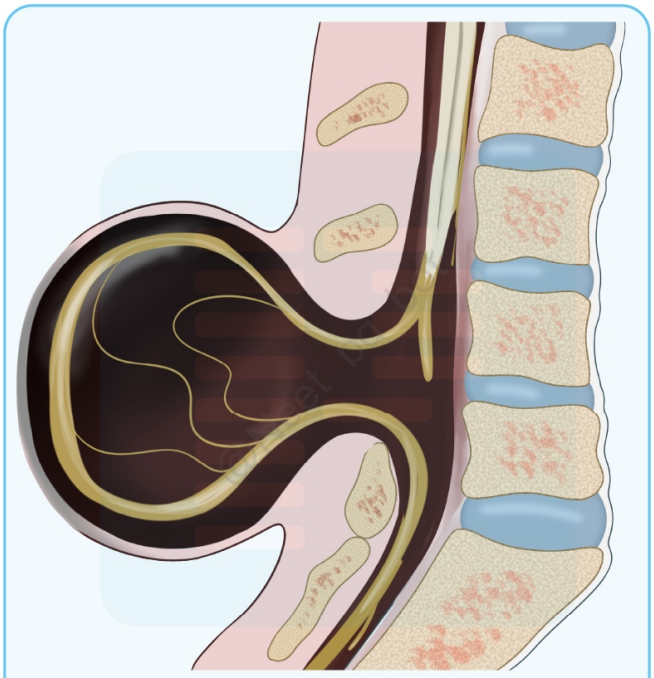
C. Spina Bifida Occulta

D. Tethered Cord Syndrome

Correct Answer: B. Meningocele

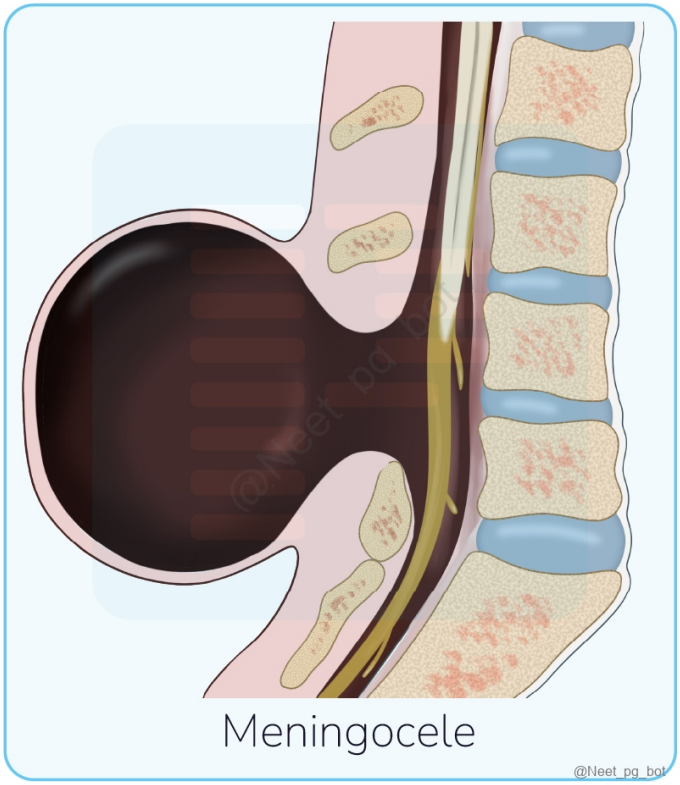
- *Listen (English)*
- *Listen (Hindi)*

Explanation: The given scenario is most likely a Meningocele , as the spinal cord remains in its normal position, typically preserving motor and bladder control. Caudal neural tube defects Defect Description Associations Myelomeningocele Protrusion of the spinal cord and its protective membranes through an opening in the spine (a form of spina bifida). Hydrocephalus, Chiari malformation Significant neurological impairments, bladder and bowel dysfunction. Meningocele Protrusion of spinal cord membranes through an opening in the spine, forming a sac filled with cerebrospinal fluid, while the spinal cord remains within the spinal canal. It may have minimal neurological symptoms compared to myelomeningocele Bladder and bowel function is usually preserved. Spina Bifida Occulta Defect in the vertebrae without protrusion of the spinal cord or meninges. Often discovered incidentally. The optimal method for investigation is an MRI of the lumbosacral spine. Often asymptomatic, occasionally associated with tethered cord syndrome or skin abnormalities (e.g., dimples, hair tufts). Tethered cord syndrome (Option D) is characterised by abnormal attachment of the spinal cord, causing progressive neurological symptoms over time, not a congenital sac-like swelling at birth.



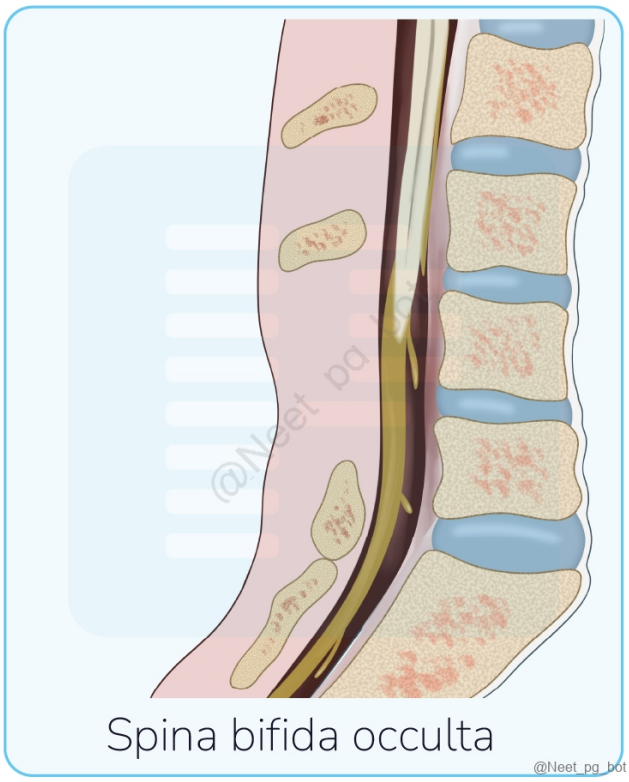
Myelomeningocele

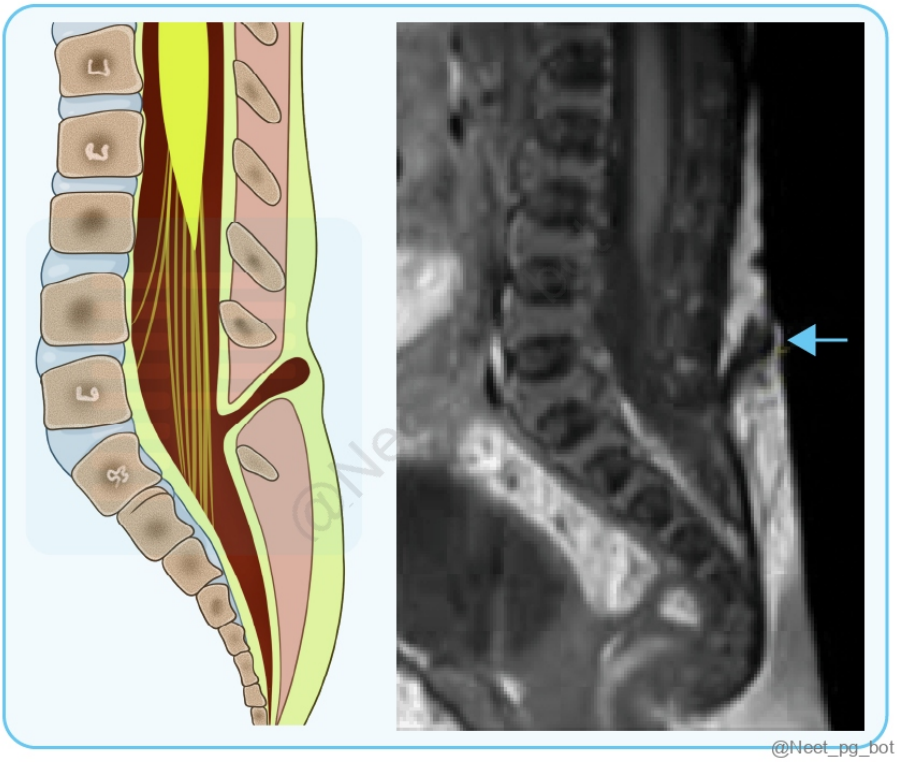
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Meningocele

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References:

Nelson Textbook of Pediatrics, 21st edition, pg-3064-3067

↑ *Back to this question in Part A*

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Q11: An infant presented with apnea, bradycardia, fever, poor feeding, and irritability for the past 2 days, and has a history of ventriculoperitoneal (VP) shunt placement for hydrocephalus. What is the most common organism responsible for infections related to VP shunt complications? (Q850384)

A. Staphylococcus aureus

B. Staphylococcus hominis

C. Staphylococcus haemolyticus

D. Staphylococcus epidermidis

Correct Answer: D. Staphylococcus epidermidis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presented scenario is indicative of Shunt-related Meningitis , which is most frequently caused by Staphylococcus epidermidis. Complications of CSF Shunt Shunt occlusion Manifesting as headache, papilledema, vomiting, and altered mental status. Bacterial infections, caused by coagulase-negative staphylococci (CoNS), most commonly caused by S. epidermidis. This may result in the following: Meningitis (fever, headache, irritability) Peritonitis (fever, abdominal tenderness, distention, pain) Wound infection: Erythema, swelling, discharge, or dehiscence along the shunt tract and most often occurs within days to weeks of the surgical procedure.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 1412, 1435, 3080.

↑ *Back to this question in Part A*

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Q12: A 6-month-old infant is diagnosed with hydrocephalus and exhibits a rapidly enlarging head circumference. The clinical team is considering treatment options to manage the condition. Which of the following treatment approaches is generally considered for long-term management of this condition? (Q850383)

A. Acetazolamide

B. Endoscopic third ventriculostomy (ETV)

C. Ventriculoperitoneal (VP) shunt

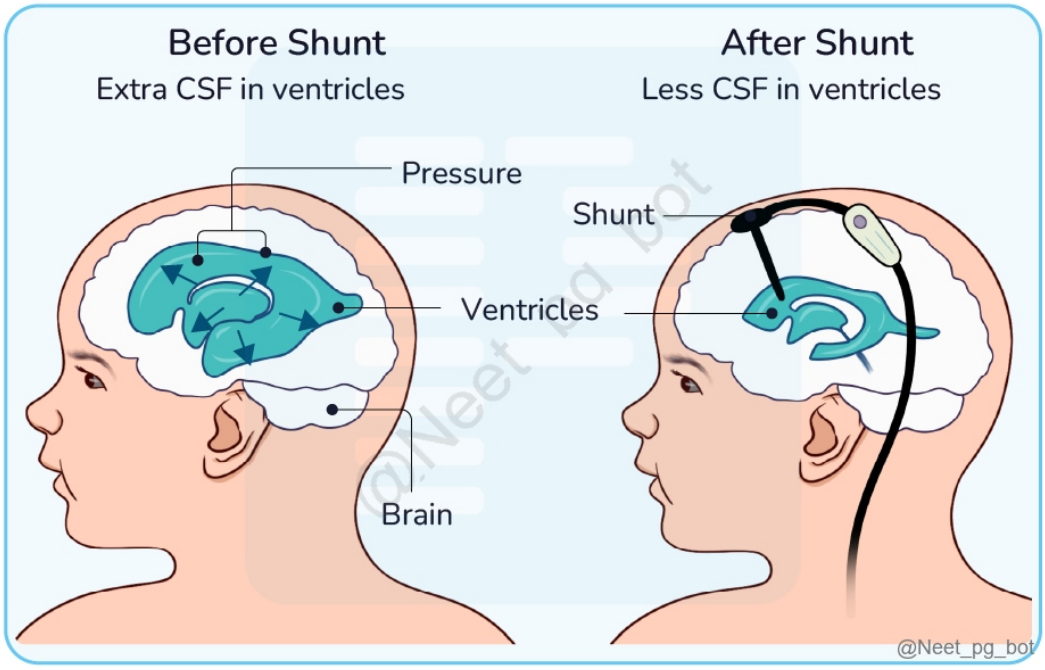
D. Furosemide

Correct Answer: C. Ventriculoperitoneal (VP) shunt

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A Ventriculoperitoneal (VP) shunt is generally considered for long-term management of hydrocephalus. Management of Hydrocephalus: Medical : Acetazolamide and furosemide can temporarily reduce CSF production but are not effective long-term. (Option A, D) Surgical: (CSF Diversion) Ventriculoperitoneal Shunt: Valved tubing from the ventricle to the peritoneal cavity. Endoscopic Third Ventriculostomy: It is a useful treatment for certain cases of hydrocephalus, especially when there is an obstructive pattern that can be bypassed surgically, andis not always suitable for all patients and is considered an alternative to shunt placement (Option B) Intrauterine Treatment : Results are generally poor except in cases associated with fetal meningomyelocele.



References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 3080

↑ *Back to this question in Part A*

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Q13: A month-old infant presents with an increasing head circumference and signs of raised intracranial pressure. Physical examination reveals an upward gaze palsy. Cranial ultrasound shows enlarged ventricles. Which of the following conditions is the most likely cause of this infant's condition? (Q850382)

A. Aqueductal stenosis

B. Dandy-Walker malformation

C. Posterior fossa tumor

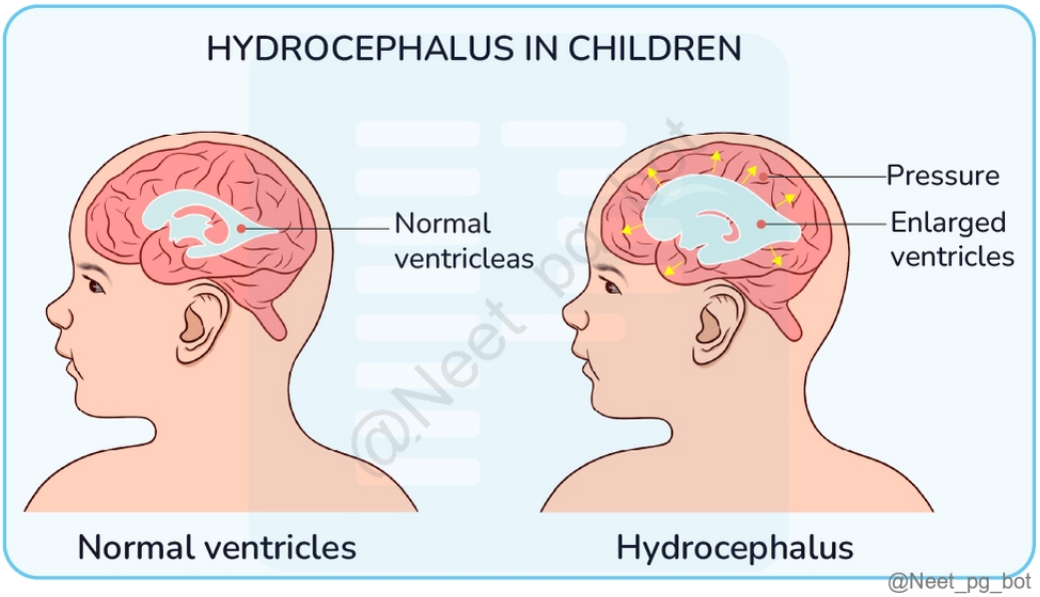
D. Intraventricular hemorrhage

Correct Answer: A. Aqueductal stenosis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Aqueductal stenosis is a common congenital cause of obstructive hydrocephalus in infants , leading to increased head circumference and elevated intracranial pressure. The upward gaze palsy, due to pressure on the quadrigeminal plate, and the finding of enlarged ventricles on ultrasound are indicative of this condition. Hydrocephalus: Hydrocephalus is the abnormal accumulation of cerebrospinal fluid (CSF) in the brain, leading to increased intracranial pressure and, in infants before sutural fusion, an enlarged head. In normal conditions, the cerebrospinal fluid (CSF) production rate is approximately 20 mL per hour, with a volume of about 50 mL in infants and 150 mL in adults. Types of Hydrocephalus: Obstructive / Non-Communicating Non-Obstructive / Communicating Blockage in the ventricular system. Excess production or defective absorption of CSF due to non-obstructive causes. (Choroid plexus papilloma, meningeal malignancies) Causes: Congenital Acquired Aqueductal stenosis (Most Common) Dandy-Walker malformation Arnold-Chiari II malformation Intrauterine infections (e.g., toxoplasmosis, rubella) Malformation of the vein of Galen Intraventricular hemorrhage Meningitis (bacterial, tuberculous, mumps) Tumours (especially in the posterior fossa) Posterior fossa subdural collection Clinical Features: Before Sutural Fusion: Increased head size, bulging anterior fontanel, dilated scalp veins, irritability, lethargy, and poor appetite. After Sutural Fusion: Symptoms of raised intracranial pressure Signs: MacEwen Sign: "Crackpot" sound on skull percussion indicates sutural separation. Setting Sun Sign : Upward gaze palsy due to pressure on the quadrigeminal plate.





References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 3076,3080 O.P. Ghai Essential Pediatrics, 9th Edition, Pg - 589,590

↑ *Back to this question in Part A*

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Q14: A 32-year-old woman with a history of delivering a child with a neural tube defect (NTD) is planning her next pregnancy. To optimise the prevention of NTDs in this upcoming pregnancy, what is the recommended folic acid supplementation regimen for her? (Q850381)

A. 0.4 mg daily, starting 1 month before conception

B. 1 mg daily, starting 1 week before conception

C. 2 mg daily, starting 1 week before conception

D. 4 mg daily, starting 1 month before conception

Correct Answer: D. 4 mg daily, starting 1 month before conception

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: For women with a previous child affected by an NTD , the recommended folic acid supplementation is 4 mg daily, beginning at least 1 month before conception . This higher dose is crucial for reducing the risk of recurrence in future pregnancies. Prevention: Ideal Range: Red blood cell folate levels of 900-1,000 nmol/L are associated with a reduced risk of NTDs. Category Dose General Recommendation (All women of reproductive age) 0.4 mg of folic acid daily, starting 1 month before conception. High-Risk Women (previous child affected by an NTD) 4 mg of folic acid daily, beginning 1 month before conception. Women on antiepileptics (valproate, carbamazepine) 1-5 mg of folic acid daily in the preconception period.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pg - 891, 3064,3067

↑ *Back to this question in Part A*

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Q15: A 25-year-old pregnant woman undergoes routine prenatal screening during her 16th week of pregnancy. The serum alpha-fetoprotein (AFP) level is found to be elevated. This finding suggests the presence of which of the following conditions? (Q850380)

A. Spina Bifida

B. Down Syndrome

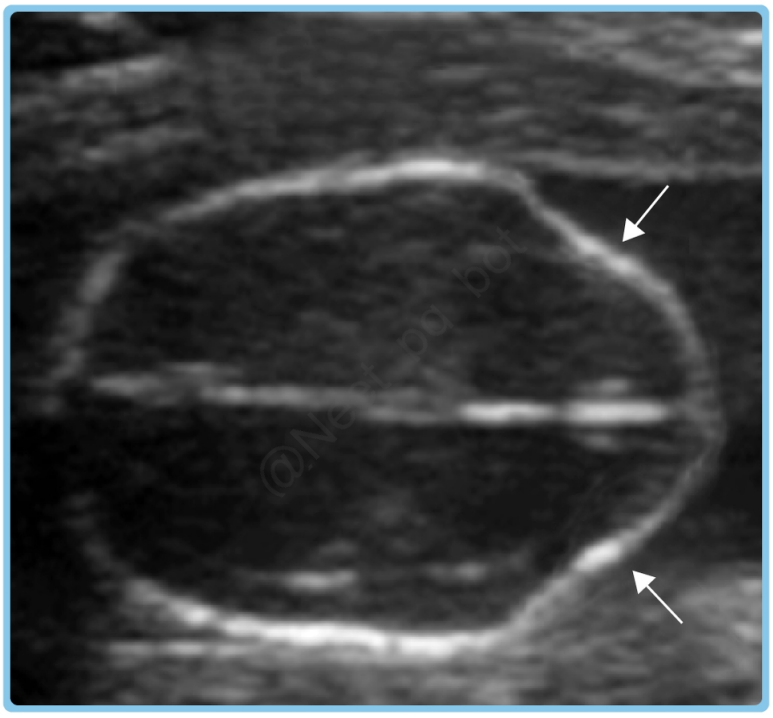
C. Trisomy 18

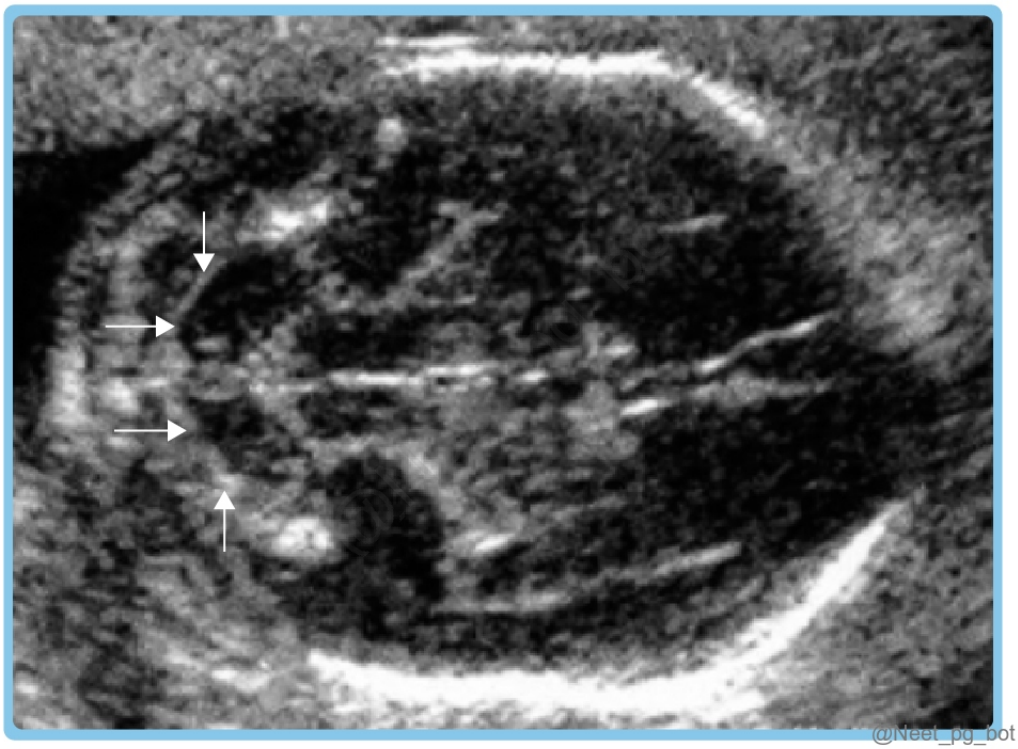
D. Cystic Fibrosis

Correct Answer: A. Spina Bifida

- *Listen (English)*
- *Listen (Hindi)*

Explanation: The elevation of AFP in maternal serum is a significant marker for neural tube defects such as spina bifida. In contrast, conditions like Down syndrome and trisomy 18 are associated with lower AFP levels, and cystic fibrosis is not typically detected through AFP levels. Markers of Neural tube defects Alpha-fetoprotein (AFP) Elevated levels in maternal serum and amniotic fluid can indicate the presence of an NTD, as fetal substances leak into the amniotic fluid due to neural tube openings. AFP is commonly measured during the 16th-18th weeks of pregnancy. Acetylcholinesterase Elevated levels in amniotic fluid can be a marker for NTDs, as it may be released into the amniotic fluid when there is a neural tube defect. Ultrasound Findings Directly visualises NTDs such as spina bifida, anencephaly, and encephalocele. Specific signs like the "lemon sign" and "banana sign" can suggest certain types of NTDs. A lemon sign indicates a flattened frontal bone often seen in spina bifida. Banana signs show a specific appearance (elongation and downward displacement) of the cerebellum, as seen in spina bifida.





References:

Nelson Textbook of Pediatrics, 21st edition, pg-3765

↑ *Back to this question in Part A*

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Q16: A 6-month-old female infant presents with developmental delays and frequent seizures. Neuroimaging reveals agenesis of the corpus callosum. The infant also has characteristic eye abnormalities, including distinctive chorioretinal lacunae. Based on these findings, which of the following syndromes is most commonly associated with this presentation? (Q850379)

A. Aicardi Syndrome

B. Tuberous Sclerosis Complex

C. Sturge Weber Syndrome

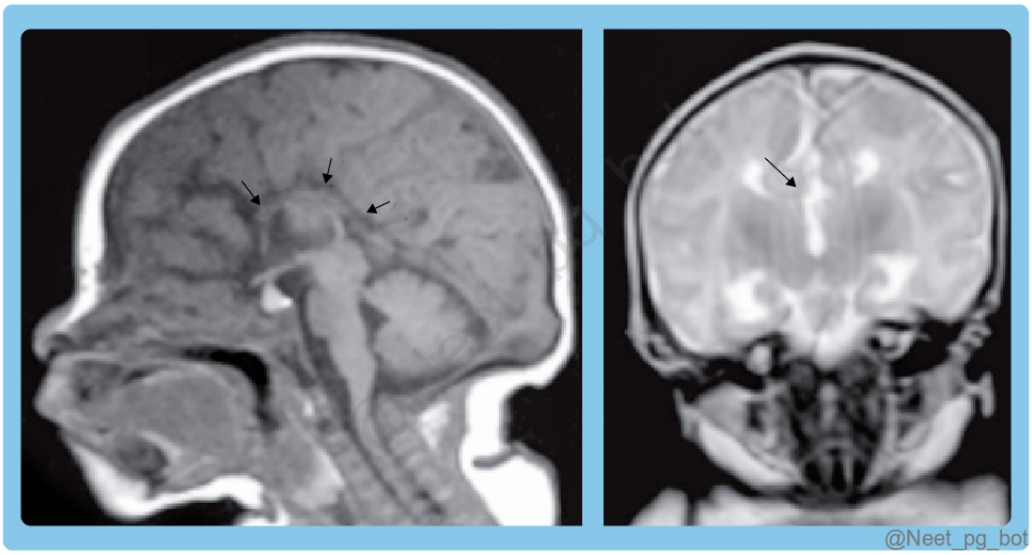
D. West Syndrome

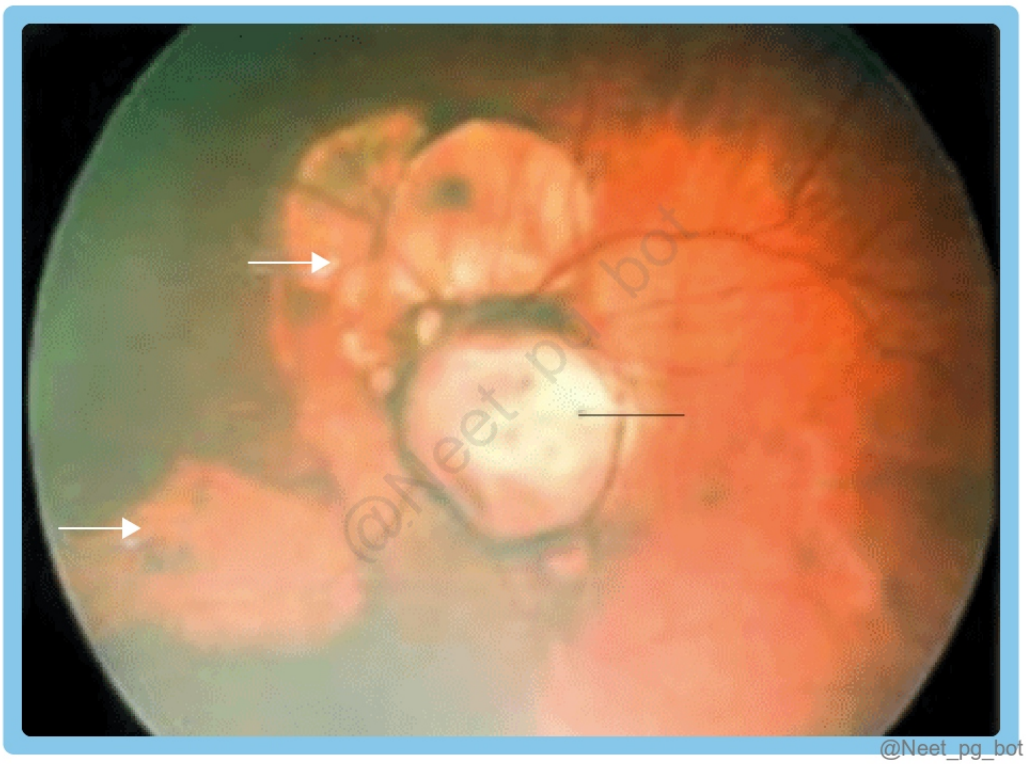
Correct Answer: A. Aicardi Syndrome

■ *Listen (English)*

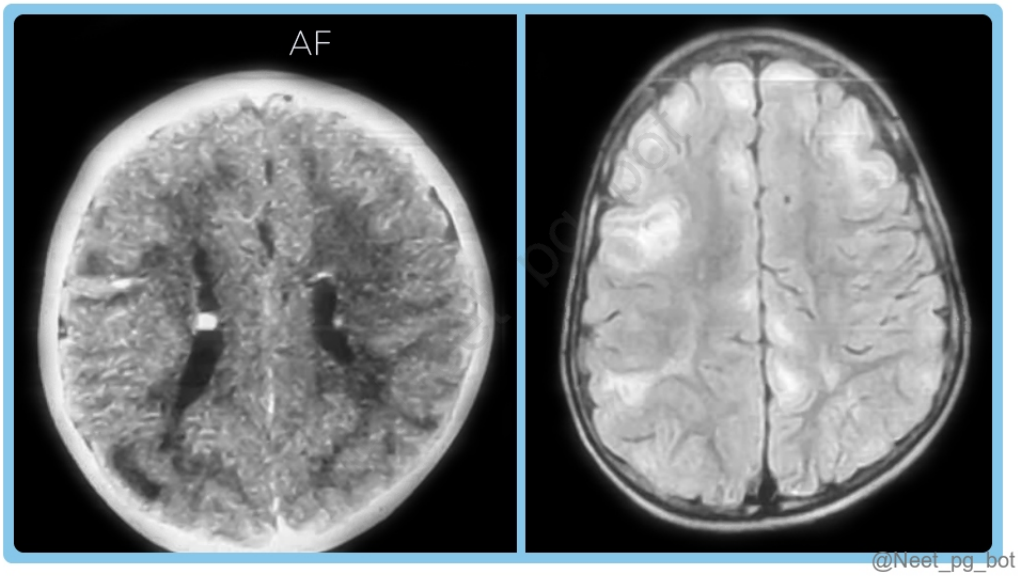
■ *Listen (Hindi)*

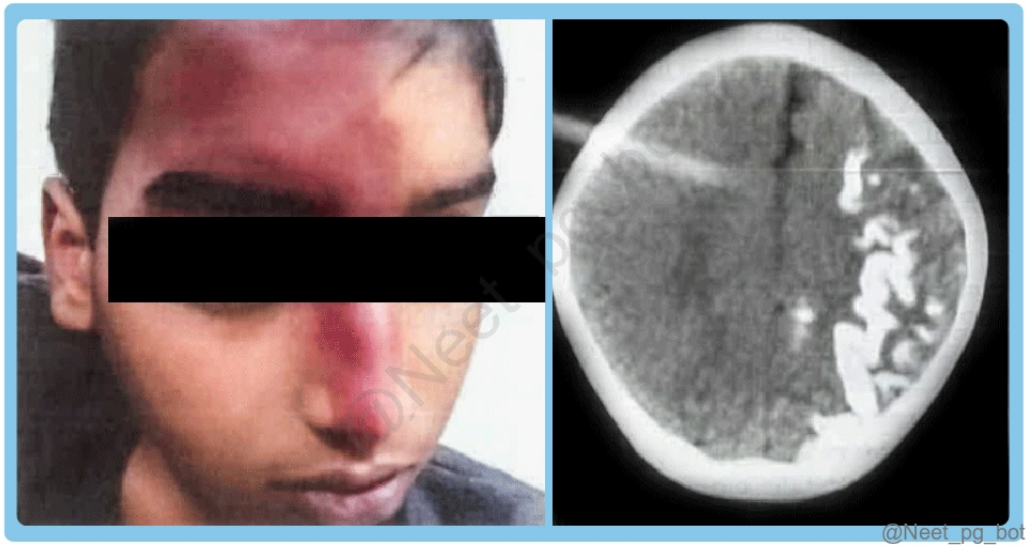
Explanation: The given scenario is more indicative of Aicardi syndrome, characterised by agenesis of the corpus callosum, distinctive retinal lesions (chorioretinal lacunae), and developmental issues, including infantile spasms. Aicardi Syndrome Definition A complex disorder affecting multiple body systems, often involving the brain, eyes, and other organs. Genetics It is an X-linked dominant condition predominantly seen in females since males with a mutation on their single X chromosome are typically non-viable during fetal life. Characteristic features Agenesis of the Corpus Callosum : Complete or partial absence of the corpus callosum, affecting communication between brain hemispheres. Distinctive Chorioretinal Lacunae : Well-defined white or yellowish spots on the retina. Infantile Spasms : Seizures beginning in infancy, characterised by sudden, brief muscle contractions. Clinical Presentation Seizures : Infantile spasms are common and often resistant to anticonvulsant medications. EEG Abnormalities : Independent activity in both hemispheres and a pattern called hemi-hypsarrhythmia. Severe Intellectual Disability : Significant cognitive and adaptive limitations. Vertebral Abnormalities : Issues such as fused or hemivertebrae. Retinal Abnormalities : Additional abnormalities such as coloboma of the optic disc. Tuberous Sclerosis Complex (Option B) is an autosomal dominant disorder characterized by a range of symptoms, including CNS manifestations like seizures (often epileptic spasms), and skin manifestations such a s ash leaf macules. Brain imaging may reveal subependymal nodules on CT and cortical tubers on MRI. Sturge Weber Syndrome (Option C) is characterized by a facial nevus or ' port wine stain ' in the distribution of the first branch of the trigeminal nerve, along with ipsilateral 'railroad pattern' intracranial calcifications and glaucoma. West Syndrome (Option D) is the most common epileptic encephalopathy in infancy, characterized by a triad of symptoms: infantile epileptic spasms (commonly occur in clusters), developmental regression, and a distinctive EEG pattern known as hypsarrhythmia (high voltage chaotic multifocal spike waves).




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References:

Nelson Textbook of Pediatric s, 21st edition, pg- 3071.

↑ *Back to this question in Part A*

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Q17: A neonate is found to have a brain imaging result showing a "smooth brain" and an hourglass appearance, with an absence of normal gyri and sulci formation. Which condition does this finding most likely indicate? (Q850377)

A. Lissencephaly

B. Schizencephaly

C. Holoprosencephaly

D. Polymicrogyria

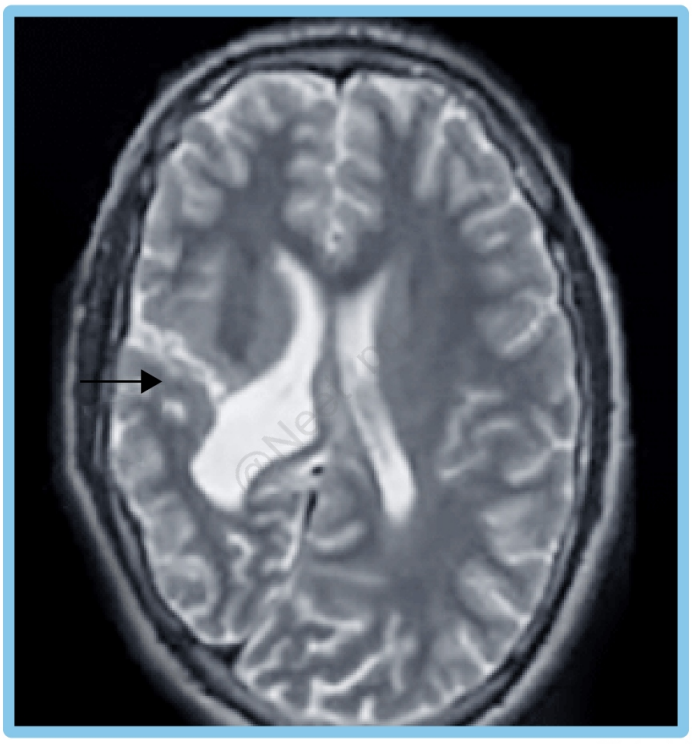
Correct Answer: A. Lissencephaly

■ *Listen (English)*

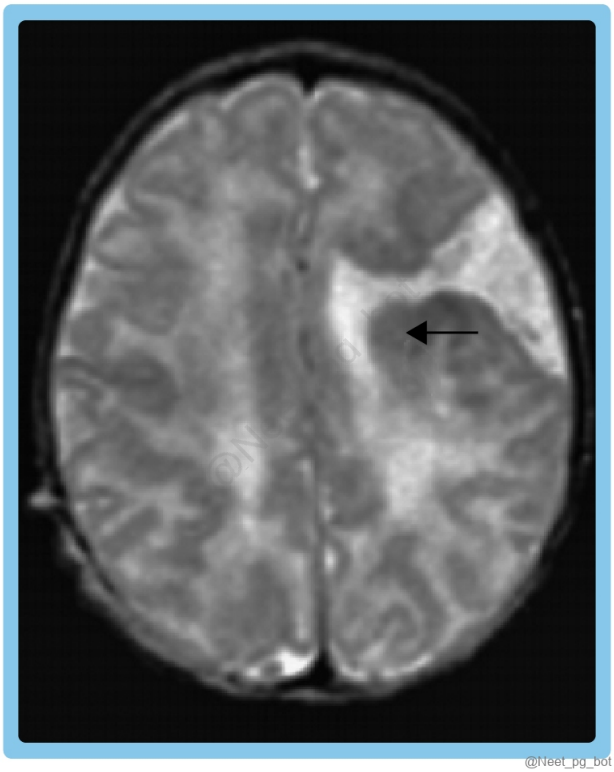
■ *Listen (Hindi)*

Explanation: Lissencephaly is characterised by a smooth brain surface caused by the absence of normal gyri and sulci, and hourglass appearance due to narrowing of sylvian fissur e, resulting from abnormal neuronal migration during brain development. Neuronal migration disorders Disorder Radiological features Clinical Features Lissencephaly Smooth brain surface due to the absence of normal folds (gyri) and grooves (sulci). Narrowed sylvian fissures leading to an hourglass or figure of 8 appearance . Severe developmental delays, intellectual disability, seizures, and motor impairments. Polymicrogyria (Option D) Excessive number of small, abnormally formed convolutions (gyri) on the brain surface. The brain surface appears lumpy or irregular rather than smooth. Developmental delays, seizures, motor problems, and cognitive impairments. Schizencephaly (Option B) Presence of clefts or slits within the brain, often connecting ventricles to the brain's surface. Developmental delays, seizures, motor abnormalities, and potential hydrocephalus. Heterotopia Abnormal presence of grey matter (normally on the brain's surface) in abnormal locations, such as within white matter Seizures, developmental delays, and motor impairments. Holoprosencephaly (Option C) is a condition where the forebrain fails to split into two hemispheres, leading to various brain malformations and facial abnormalities.





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References:

Nelson Textbook of Pediatrics, 21st edition, pg-3068-3070.

↑ *Back to this question in Part A*

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Q18: A 30-week pregnant woman undergoes an antenatal ultrasound examination. The ultrasound reveals an abnormal fetal posture where the fetus is noted to have a hyperextended neck and head, resembling an upward gaze. Based on this finding, which of the following conditions is most likely? (Q850376)

A. Anencephaly

B. Iniencephaly

C. Porencephaly

D. Encephalocele



Correct Answer: B. Iniencephaly

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Iniencephaly is a rare and severe neural tube defect characterised by hyperextension of the head ("Stargazer posture"), short and deformed spine, particularly the cervical vertebrae and occipital bone often incompatible with life. Prenatal diagnosis: Maternal Serum Screening: Elevated alpha-fetoprotein (AFP) levels Ultrasound: Craniovertebral junction anomalies, including a malformed or absent occipital bone and associated brain and spine abnormalities. Anencephaly (Option A) : Prenatal ultrasound shows the absence of the cranial vault, exposed brain tissue , and the "frog eye sign," c haracterised by a flattened head with prominent, bulging orbits. Porencephaly (Option C) appears on ultrasound as cystic or cavitary lesions within the cerebral hemispheres but does not affect fetal posture or cause neck hyperextension. Encephalocele (Option D) is a neural tube defect characterised by the protrusion of brain tissue and meninges through a skull defect, forming a sac-like mass on the fetal head.



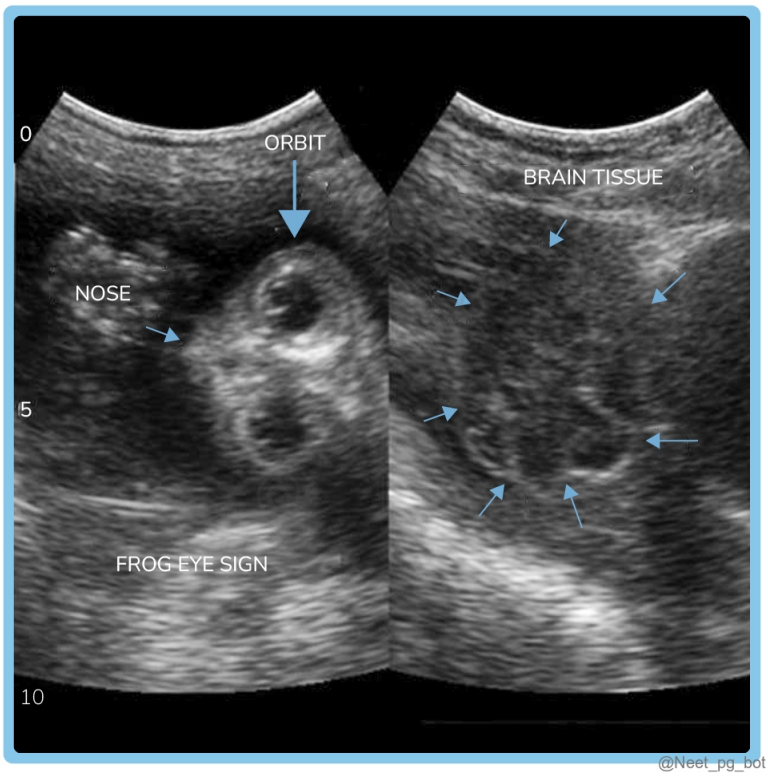
Stargaze posture with meningocele of expelled fetus

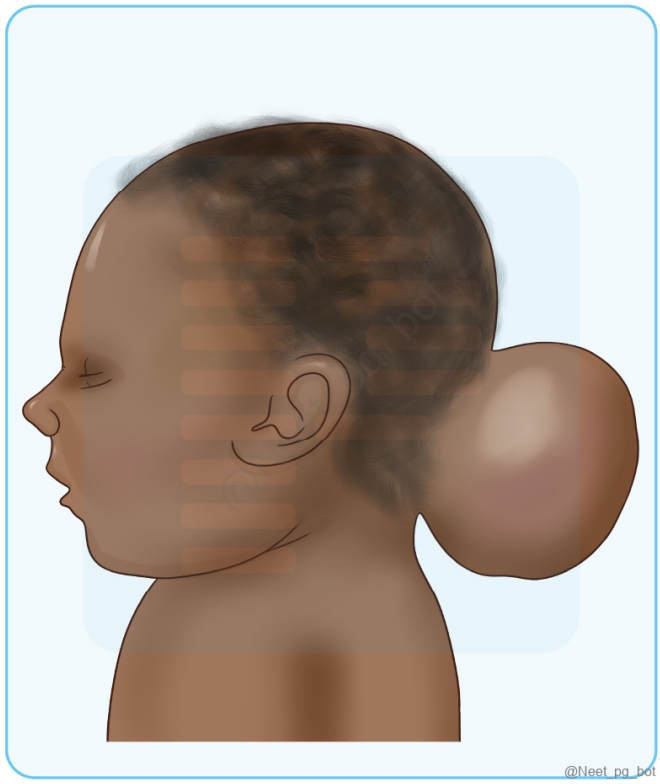
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Stargaze posture-abnormal hyperextension
of head over cervical spine

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ORBIT
BRAIN TISSUE
NOSE
5
FROG EYE SIGN
10
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References:

David Sutton textbook of radiology and imaging pg - 3624,3650. DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20214850

↑ *Back to this question in Part A*

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• [16_Pediatric Neurology] 042 Cns Disorders In Children

« Back to Folder Directory

[16_Pediatric Neurology] 042 Cns Disorders In Children — Quick Jump

Q1 (p. 1503) *Q2 (p. 1504)* *Q3 (p. 1504)* *Q4 (p. 1506)* *Q5 (p. 1507)* *Q6 (p. 1508)*
Q7 (p. 1509) *Q8 (p. 1510)* *Q9 (p. 1511)* *Q10 (p. 1512)* *Q11 (p. 1513)* *Q12 (p. 1514)*
Q13 (p. 1516) *Q14 (p. 1518)*

Q1: A 3-year-old child with a history of premature birth presents with spasticity predominantly in the lower limbs. Which of the following pathology is associated with this type of presentation? (Q850340)

A. Parasagittal infarction

B. Periventricular leukomalacia

C. Focal infarct

D. Demyelination

Correct Answer: B. Periventricular leukomalacia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Spasticity predominantly in the lower limbs, often associated with prematurity is suggestive of spastic diplegia, characterized by periventricular leukomalacia , which is a common finding in the MRI of these patients. Types of Cerebral Palsy (CP) Cerebral Palsy is classified based on motor abnormalities and affected extremities: Type Neuropathology Major Causes Spastic Diplegia Periventricular leukomalacia (Option B) Periventricular cysts/scars Enlarged ventricles Premature birth Ischemia Infection Endocrine/metabolic issues (e.g., thyroid) Spastic Quadriplegia Parasagittal Infarction (Option A) Multicystic encephalomalacia Ischemia Infection Endocrine/metabolic issues Genetic/developmental problems Hemiplegia) In utero/neonatal stroke Focal infarct (Option C) Cortical/subcortical damage Thrombophilic causes Infection Genetic/developmental issues Extrapyramidal (Athetoid, Dyskinetic) Asphyxia (symmetric scars in putamen/thalamus) Kernicterus (scars in globus pallidus/hippocampus) Mitochondrial scarring Asphyxia Kernicterus Mitochondrial pathology Genetic/metabolic problems Demyelination (Option D) is not the pathology involved in spastic diplegia.

References:

Nelson Textbook of Pediatrics, Ed.21 Pg 3168, 3169. Table recreated from Nelson Textbook of Pediatrics, Ed.21 Pg 3169.

↑ *Back to this question in Part A*

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Q2: A 6-year-old boy presents to the clinic with multiple café-au-lait spots and freckling in the groin area. His mother has a known history of Neurofibromatosis Type 1 (NF1) and similar skin findings. Which of the following additional findings would most strongly support the diagnosis of NF1 in this child? 6 or more café-au-lait spots Sphenoid dysplasia on imaging Optic glioma. 2 or more hamartomas in iris detected by slit lamp examination (Q850341)

A. 1,2

B. 2,3

C. 2,3,4

D. 1,2,3,4

Correct Answer: D. 1,2,3,4

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Neurofibromatosis Type 1 (NF1) Incidence: 1 in 3,000 live births. Inheritance: 50% of cases are inherited from a parent. 50% due to spontaneous mutations. Genetics: Autosomal dominant loss-of-function mutations in the NF1 gene on chromosome 17q11.2. The gene encodes neurofibromin, which inhibits the oncogene Ras. Diagnosis Criteria (Two or more required) Feature Description Café-au-lait macules (CALMs) >5 mm in prepubertal, >15 mm in postpubertal. 6 or more needed for diagnosis (Statement 1) Axillary/Inguinal Freckling Multiple hyperpigmented areas, 2-3 mm in diameter. Iris Lisch Nodules Hamartomas in the iris, best seen with a slit-lamp. 2 or more needed for diagnosis (Statement 4) Neurofibromas Two or more neurofibromas or one plexiform neurofibroma. Osseous Lesion Sphenoid dysplasia or cortical thinning of long bones. (Statement 2) Congenital pseudarthrosis of the tibia. Optic Gliomas CNS tumor affecting the optic nerve. (Statement 3) Family History First-degree relative with an NF1 diagnosis based on these criteria.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3140- 3134, 3142-3

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3543877/#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 15-year-old male child presents with bilateral hearing loss, tinnitus, and unsteadiness. His mother had a history of multiple meningiomas and unilateral vestibular schwannoma. Which of the following genetic mutations is most likely associated with his condition? (Q850342)

A. NF1 gene mutation

B. SPRED1 gene mutation

C. NF2 gene mutation

D. SMARCB1 gene mutation

Correct Answer: C. NF2 gene mutation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient's presentation along with a family history of similar features strongly suggests Neurofibromatosis Type 2 (NF2), which is caused by a mutation in the NF2 gene. Neurofibromatosis Type 2 (NF2) Less Common : NF2 is rarer than NF1. Inheritance : Autosomal dominant; affects Schwann cells, leading to tumors on nerve insulation. Incidence : 1 in 25,000 births. Genetic Location : NF2 gene on chromosome 22q1.11. Diagnosis Criteria (Manchester & Baser Criteria) NF2 is diagnosed with one of the following: (Mnemonic: MISME- Multiple inherited schwannomas meningioma and ependymoma) Bilateral Vestibular Schwannomas . Family History + either: Unilateral vestibular schwannoma Any two of the following: meningioma, schwannoma, glioma, neurofibroma, or posterior subcapsular lenticular opacities. Unilateral Vestibular Schwannoma + any two of the features above. Multiple Meningiomas (≥2) + either: Unilateral vestibular schwannoma Any two of the above-listed features. Clinical Manifestations Common Symptoms : Tinnitus Hearing loss Facial weakness Headache Unsteadiness Age of Onset : Symptoms usually emerge in childhood; cerebellopontine angle masses are common in 20s-30s. Other Signs : Childhood: Café-au-lait macules (CALMs), skin plexiform schwannomas Posterior subcapsular lens opacities in ~50% of cases. Genetics Mutation : NF2 gene mutation leads to loss of merlin/schwannomin protein. Management Approach : Conservative management focusing on hearing preservation and quality of life. Regular Monitoring : Ophthalmologic evaluations Brain and spinal MRI Audiology assessments Brainstem-evoked potentials Comparison Table: NF2 vs. Schwannomatosis vs. Legius Syndrome Feature NF2 Schwannomatosis Legius Syndrome Tumors Schwannomas (esp. vestibular) Multiple schwannomas, No vestibular schwannomas Multiple CALMs, no neurofibromas, Lisch nodules Genetic Mutation NF2 (22q1.11) (Option C) SMARCB1 (INI1) (Option D ruled out) SPRED1 (Option B ruled out) Diagnosis Based on criteria (bilateral schwannomas, family history) Multiple schwannomas, family history CALMs, macrocephaly Management Conservative, regular monitoring Yearly MRI, no established guidelines Symptomatic management NF1 (Option A): gene mutation is associated with Neurofibromatosis Type 1 (NF1), which primarily presents with neurofibromas, café-au-lait spots, and Lisch nodules, not vestibular schwannomas.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3143, 3144.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 5-year-old child presents with multiple hypopigmented macules on the trunk and extremities, facial angiofibromas, and a history of epilepsy. MRI reveals cortical tubers and subependymal nodules. Genetic testing confirms a mutation in the TSC2 gene. Which of the following is most likely true regarding this patient's condition? (Q850343)

A. The condition is inherited in an autosomal recessive pattern.

B. The patient is at increased risk for developing renal cell carcinoma.

C. The mutation in TSC2 gene suggests a more severe clinical presentation.

D. Subependymal giant cell astrocytomas (SEGA) rarely require monitoring.

Correct Answer: C. The mutation in TSC2 gene suggests a more severe clinical presentation.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Tuberous sclerosis complex (TSC) can be caused by mutations in either the TSC1 or TSC2 gene. Mutations in the TSC2 gene are often associated with more severe forms of TSC. Tuberous Sclerosis Complex (TSC) Incidence : Affects 1 in 6,000 to 10,000 newborns. Nature : Multisystem disorder characterized by benign tumors (hamartomas) in various organs. Genetics Inheritance : Autosomal dominant; 65% due to spontaneous mutations. (Option A ruled out) Causing Genes : TSC1 on chromosome 9q34 encodes hamartin . TSC2 on chromosome 16p13 encodes tuberin . Severity : TSC2 mutations often lead to more severe symptoms. (Option C) Pathophysiology Key Proteins : Hamartin, Tuberin, and TBC1D7 regulate cell growth via the mTOR pathway. Role of Genes : TSC1 and TSC2 function as tumor suppressor genes. Clinical Manifestations Neurologic Symptoms : Epilepsy Cognitive Impairment . Autism . TAND (Tuberous Sclerosis-Associated Neuropsychiatric Disorders) . Brain Lesions : Cortical Tubers Subependymal Nodules : Risk of SEGA transformation, causing hydrocephalus. Monitoring : Regular MRI (every 1-3 years). (Option D ruled out) Other Organ Systems : Retina : Hamartomas and white depigmented patches. Heart : Rhabdomyomas Kidneys Angiomyolipomas Renal Cysts (Option B ruled out) Lungs : Lymphangioleiomyomatosis Skin : Hypomelanotic Macules(Ash leaf macules) Facial Angiofibromas(Adenoma sebaceum) Shagreen Patches Forehead Fibrous Plaques Periungual Fibromas Management Close, continuous monitoring is essential.

References:

Nelson Textbook of Pediatrics, Ed.21 Pg 3144 to 3146

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 12-year-old child presents with multiple facial skin lesions as depicted below. The medical history includes developmental delay and intellectual disability. Based on the clinical presentation and history, which of the following statements is incorrect regarding the diagnosis? (Q850344)

A. Shagreen patches are seen in this condition.

B. Malignant cardiac rhabdomyomas are associated with this condition.

C. Facial angiofibromas may be seen.

D. Seizures and developmental delay are usually seen.



Correct Answer: B. Malignant cardiac rhabdomyomas are associated with this condition.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Based on the clinical presentation of multiple facial skin lesions, developmental delay, and intellectual disability, the condition in question is likely Tuberous Sclerosis Complex (TSC) . While Tuberous Sclerosis Complex is associated with cardiac rhabdomyomas, these tumors are typically benign. Features of Tuberous Sclerosis: Category Sign Description Brain Lesions Infantile Spasms Sudden, brief muscle contractions; common in infancy. Seizures Includes focal-onset and generalized myoclonic seizures. (Option D) Developmental Delay Delays in milestones like walking, talking. (Option D) Intellectual Disability Affects ~45% of individuals. Autism Spectrum Disorder Affects up to 50%. Behavioral Problems Includes aggression, anxiety, ADHD. Cortical Tubers Detected via MRI Subependymal Nodules Risk of SEGA transformation, causing hydrocephalus.

Monitoring: Regular MRI (every 1-3 years). Dermatologic Signs Hypomelanotic Macules Flat, light-colored patches; resemble ash leaves. Present at birth or early childhood. Facial Angiofibromas Small, reddish or skin-colored bumps on the face. (Option C) Shagreen Patches (Option A ruled out) Thickened, rough patches; texture like orange peel. Typically on lower back or buttocks. Forehead Fibrous Plaques Raised, yellowish-brown or flesh-colored plaques on the forehead. Periungual Fibromas Small, fleshy growths around the nails. Ophthalmologic Signs Retinal Hamartomas Benign retinal tumors; appear as white or yellowish patches. Cardiac Signs Cardiac Rhabdomyomas Benign heart muscle tumours; often detected prenatally. (Option B) Renal Signs Renal Angiomyolipomas Benign kidney tumours; can cause pain, bleeding, and high blood pressure.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3144 - 3146

Image: https://www.prepladder.com/neet-pg-study-material/radiology/tuberous-sclerosis-causes-symptoms-risk-factors-diagnosis-treatment-and-complications

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: Which of the following statements is true about Sturge-Weber syndrome? It is due to a mutation in the GNAQ gene Port-wine stain tends to be unilateral and contralateral to the brain involvement MRI with contrast is the investigation of choice Glaucoma may be seen in these individuals. (Q850355)

A. I and III only

B. I, II, and III only

C. I, III, and IV only

D. All the above

Correct Answer: C. I, III, and IV only

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The port-wine stain in Sturge-Weber syndrome is typically unilateral and ipsilateral (on the same side as the brain involvement). Other statements regarding Sturge Weber syndrome are true. Sturge-Weber Syndrome: Sturge-Weber syndrome (SWS) is a rare neurocutaneous disorder characterized by segmental vascular abnormalities affecting the Skin - Port-wine birthmarks Brain - Leptomeningeal angiomas, and Eyes - Glaucoma (Statement I) Etiology: somatic mutations in the GNAQ gene (Statement I) , only sporadic neurocutaneous disorder. Clinical Manifestations: Port-Wine Birthmark (PWB): Present at birth, typically unilateral and ipsilateral to brain involvement. (Statement II ruled out) Neurological Symptoms: Seizures, often beginning in infancy, hemiparesis, stroke-like episodes, headaches, and developmental delays. Ocular Symptoms: Glaucoma and

buphthalmos, particularly in the eye on the same side as the PWB. Diagnosis: MRI Brain with contrast - Investigation of choice (Statement III) CT - cerebral calcifications and atrophy (Tram-track calcifications) Management: Anticonvulsants for seizure control. Glaucoma Monitoring. Laser Therapy: for port wine birthmark.

References:

Nelson textbook of pediatrics, ed.21, page 3146, 3147, 3148. https://www.ncbi.nlm.nih.gov/books/NBK459163/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 7-year-old child with a known T-cell defect presents with fever, headache, and neck stiffness. The physician suspects meningitis. Given the child's immunodeficiency, which of the following organisms is the most likely cause of meningitis in this patient? (Q850356)

A. Streptococcus pneumoniae

B. Neisseria meningitidis

C. Haemophilus influenzae

D. Listeria monocytogenes

Correct Answer: D. Listeria monocytogenes

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: T-cell defects increase the risk of infections from intracellular pathogens, including Listeria monocytogenes, which is known to cause meningitis in children with T-cell deficiencies. Bacterial meningitis: Etiological agents: In India Overall Neonates Gram negative organisms (E.Coli > Acinetobacter > Klebsiella) Group B streptococci Infants and older children Streptococcus pneumoniae> Neisseria meningitidis > Haemophilus Influenzae. Streptococcus pneumoniae Children T-cell defect Listeria monocytogenes (Option D) Children with CSF shunts Staphylococci Children with Complement System Defects Meningococcal infections Children with Splenic Dysfunction or Asplenia Streptococcus pneumoniae, Neisseria Meningitidis Haemophilus Influenzae. (Encapsulated organisms) Risk Factors for Bacterial Meningitis Lack of preexisting immunity Close Contact with infected individuals Crowding Low Socioeconomic Factors Congenital or Acquired CSF Leak Cochlear Implant Category Clinical Manifestations Nonspecific Findings Fever, anorexia, poor feeding Headache, upper respiratory symptoms Myalgias, arthralgias Tachycardia, hypotension Cutaneous signs: petechiae, purpura, or erythematous macular rash Meningeal Irritation Nuchal rigidity Back pain Kernig sign : Pain with extension of the leg after hip flexion Brudzinski sign : Involuntary flexion of the knees and hips upon neck flexion Increased Intracranial Pressure (ICP) Signs Headache, emesis Bulging fontanel or diastasis of sutures Cranial nerve involvement: anisocoria, ptosis, abducens nerve paralysis Hypertension with bradycardia, apnea, or hyperventilation Decorticate or decerebrate posturing, stupor, coma, or herniation signs Papilledema Focal

Neurologic Signs Seizures Altered mental status Photophobia Tâche cérébrale: Raised red streak appearing 30-60 seconds after stroking the skin with a blunt object Streptococcus pneumoniae, Neisseria meningitidis, Haemophilus influenzae (Options A,Band C) are not the common agents among patients with T-Cell defects .

References:

Nelson textbook of pediatrics, ed.21, page 3224.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 6-month-old infant presents with a coma and focal neurologic signs and is diagnosed with acute bacterial meningitis. Despite appropriate antibiotic therapy, the child continues to experience seizures on the fifth day of treatment. The CSF analysis shows a leukocyte count of 200/mm³. Gram stain of CSF showed a field full of gram positive organisms . Given this clinical scenario, which of the following are poor prognostic indicators in this child? (Q850357)

A. Presence of coma and focal neurologic signs at presentation

B. Gram positive organisms seen in large quantities on CSF microscopy

C. Seizures occurring more than 4 days into therapy

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Presence of coma and focal neurologic signs at presentation, CSF leukocyte count < 250/mm³ and seizures occurring more than 4 days into therapy are suggestive of poor prognosis in a child with meningitis. Diagnosis of Acute bacterial meningitis: Lumbar puncture and CSF analysis : Gold standard. CSF shows Neutrophilic pleocytosis, increased proteins and decreased glucose. Treatment: Antibiotics: Third generation cephalosporins (Ceftriaxone) x 10 to 14 days Steroids: Inj. Dexamethasone started 1-2 hr before antibiotics and continued for 48 hrs - Prevents cytokine mediated CNS injury. Poor prognostic factors in Acute bacterial meningitis: Age less than 6 months High bacterial burden in CSF (Option B) Seizures occurring more than 4 days into therapy (Option C) Coma or focal neurologic signs on presentation (Option A) Absence of CSF pleocytosis Cerebrospinal fluid (CSF) findings in bacterial, fungal, and viral meningitis : Parameter Bacterial Meningitis Fungal Meningitis Viral Meningitis CSF Appearance Cloudy or purulent Clear or slightly cloudy Clear Opening Pressure Elevated Elevated Normal or slightly elevated WBC Count Elevated (1000-5000 cells/µL) Elevated (100-500 cells/µL) Elevated (50-500 cells/µL) Predominant Cells Neutrophils Lymphocytes Lymphocytes Protein Elevated (>100 mg/dL) Elevated (50-200 mg/dL) Mildly elevated (<100 mg/dL) Glucose Low (<40 mg/dL or

<40% of blood glucose) Low (<40 mg/dL) Normal (>40 mg/dL or >50% of blood glucose) CSF/Blood Glucose Ratio Decreased Decreased Normal Gram Stain Positive for bacteria Negative Negative India Ink (for Cryptococcus) Negative Positive (Cryptococcus) Negative PCR Usually not done Specific to fungi (if needed) Positive for viral DNA/RNA

References:

Nelson textbook of pediatrics, ed.21, page 3225.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: Which of the following investigations are indicated in a baby found to have TSH 70 mIU/L on newborn screening? (Q850358)

A. Reconfirmation by a serum sample only

B. Reconfirmation by a serum sample only followed by USG thyroid and thyroid nuclear scan if the baby is found to have congenital hypothyroidism

C. Reconfirmation by a serum sample only and USG thyroid gland

D. Further investigations not required; start the treatment

Correct Answer: B. Reconfirmation by a serum sample only followed by USG thyroid and thyroid nuclear scan if the baby is found to have congenital hypothyroidism

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: A TSH of 70 mIU/L on a newborn screen is significantly elevated (the cutoff for concern is typically > 20 mIU/L), strongly suggesting Congenital Hypothyroidism (CH) . However, the management follows a specific sequence: Step 1: Reconfirmation (Serum Sample): Screening tests (often done via heel prick/dried blood spot) are designed for high sensitivity, not definitive diagnosis. You must always confirm with a venous serum sample to measure both TSH and Free T4 before committing a child to long-term therapy. Step 2: Imaging (USG and Nuclear Scan): Once the serum sample confirms CH, imaging is indicated to determine the underlying etiology . Thyroid Ultrasound (USG): Used to check for the presence or absence of the gland (aplasia) or a small gland (hypoplasia). Thyroid Nuclear Scan (Tc-99m Pertechnetate): This is the "gold standard" to identify ectopy (the gland being in the wrong place, like the base of the tongue). Pointers in the management of congenital hypothyroidism: Reconfirmation is the first step, but it is not the only indicated investigation. Determining the cause (ectopy vs. dyshormonogenesis) helps predict the likelihood of permanent vs. transient hypothyroidism. (Option A) USG alone often misses ectopic thyroid tissue, which a nuclear scan would catch. (Option C) Lifelong hormone replacement therapy should never be started based solely on a screening test without serum confirmation, as a "false positive" or "transient surge" could lead to unnecessary treatment. (Option D) Summary of Management Protocol Step Action Purpose 1. Screening Heel prick TSH Identify high-risk infants. 2. Confirmation Venous Serum TSH + Free T4 Confirm diagnosis of Hypothyroidism. 3. Localization USG + Nuclear Scan Differentiate

between Aplasia, Ectopy, or Dyshormonogenesis. 4. Treatment Levothyroxine (L-T4) Prevent irreversible neurodevelopmental delay (Cretinism).

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1757

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A 12-year-old obese girl presents with persistent headaches, visual disturbances, and dizziness. She has bilateral sixth cranial nerve palsy, no papilledema, normal MRI, and elevated CSF opening pressure of 285 mm CSF. Which neuroimaging finding supports Idiopathic Intracranial Hypertension (IIH) in this patient? (Q850359)

A. Empty sella

B. Flattening of the posterior aspect of the globe

C. Distention of the perioptic subarachnoid space without a tortuous optic nerve

D. All of the above

Correct Answer: D. All of the above

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: In pediatric patients with suspected IIH without papilledema, the presence of specific neuroimaging features such as an empty sella, flattening of the posterior aspect of the globe, and distention of the perioptic subarachnoid space supports the diagnosis. Common causes of Idiopathic Intracranial Hypertension (IIH): T : Tetracyclines (e.g., minocycline, doxycycline) O : Obesity A : Vitamin A excess (e.g., hypervitaminosis A, isotretinoin use) D : Danazol (a medication used to treat endometriosis) Diagnostic Criteria for Idiopathic Intracranial Hypertension (IIH) : Diagnostic Criteria Details Diagnosis of IIH (with papilledema) Diagnosis is definite if criteria A–E are fulfilled A. Papilledema Present B. Normal Neurologic Examination Except for sixth cranial nerve abnormalities C. Neuroimaging Normal brain parenchyma (no hydrocephalus, mass, or structural lesion) No abnormal meningeal enhancement on MRI with/without gadolinium Magnetic resonance venography for non-typical patients Contrast-enhanced CT may be used if MRI is unavailable or contraindicated D. Normal CSF Composition CSF composition is normal E. Elevated Lumbar Puncture Opening Pressure ≥250 mm CSF in adults; ≥280 mm CSF in children or obese adults Diagnosis of IIH Without Papilledema Criteria B–E are satisfied Unilateral or bilateral abducens nerve palsy is present Diagnosis Suggestive of IIH Without Papilledema or 6th Nerve Palsy Criteria B–E are satisfied At least three of the following are present on neuroimaging: 1. Empty sella 2. Flattening of posterior aspect of the globe 3. Distention of perioptic subarachnoid space (with/without tortuous optic nerve) 4. Transverse venous sinus stenosis

References:

Nelson textbook of pediatrics, ed.21, page 3238.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: A 5-year-old child is brought to the emergency department after a severe head injury from a motor vehicle accident. Despite aggressive resuscitation efforts, the child remains unresponsive. Which of the following is not true for diagnosing brain death in this child? (Q850360)

A. Performing two separate clinical evaluations, separated by a 24-hour interval.

B. Ensuring the core temperature is above 32°C.

C. Administering ancillary tests.

D. Confirming the absence of all brainstem reflexes.

Correct Answer: A. Performing two separate clinical evaluations, separated by a 24-hour interval.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: For a child aged 1-18 years , two separate clinical evaluations are required, but they should be separated by a 12-hour interval , not 24 hours Clinical Criteria for Brain Death: Complete loss of consciousness Absence of vocalization Absence of voluntary activity Prerequisites: Clinical and/or neuroimaging evidence of acute CNS catastrophe severe enough to explain the condition Core temperature more than 32°C (Option B ruled out) No drug (sedatives, narcotics) or alcohol intoxication, poisoning, or neuromuscular blockade Normal blood pressure No severe electrolyte, acid-base, metabolic, or endocrine disturbances Evaluation Timing: <2 months old: Two evaluations separated by 48 hours 2-12 months old: Two evaluations separated by 24 hours 1-18 years old: Two evaluations separated by 12 hours (Option A) 18 years old: Two evaluations at any interval Evaluation of brain death: Category Criteria Absent Brainstem Reflexes (all absent). (Option D ruled out) Pupillary responses to light (pupils mid-position, 4-6 mm) Oculocephalic reflex Oculovestibular (caloric) responses Corneal reflex Jaw reflex Facial grimacing to deep pressure on supraorbital ridge or temporomandibular joint Pharyngeal gag reflex Coughing in response to tracheal suctioning Sucking and rooting reflexes Apnea Test Absence of respiratory drive at PaCO■ of 60 mm Hg or 20 mm Hg above baseline. Ancillary Tests (Option C ruled out) If <2 months old: Two tests required. If 2-12 months old: One test required. If >1 year old: Tests optional Types of tests include Cerebral angiography, Electroencephalography, Transcranial Doppler ultrasonography, and Cerebral scintigraphy.

References:

Ghai Textbook of Pediatrics, 10th Edition, Page 594

↑ *Back to this question in Part A*

Q12: Identify the Image? (Q850361)

A. Anencephaly

B. Inencephaly

C. Craniorachischisis

D. Lissencephaly



Correct Answer: A. Anencephaly

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given image is of Anencephaly Anencephaly is a brain malformation that occurs at birth. It occurs when a newborn's brain, skull, and scalp do not develop normally during pregnancy. Babies with this condition die within a few hours or days of birth. Taking the proper dose of folic acid before and throughout pregnancy may reduce the likelihood of having a newborn with anencephaly. Inencephaly (Option B): is a rare neural tube defect located in the inion, i.e., the nape of the neck Craniorachischisis (Option C): is the most severe of the NTDs and is characterized by an open defect extending from the skull to the spine and is usually associated

with anencephaly.The condition is uniformly fatal Lissencephaly (Option D): Lissencephaly, meaning "smooth brain," is a rare brain malformation caused by abnormal neuronal migration during embryonic development. The cortex in individuals with lissencephaly lacks the normal folds (gyri) and grooves (sulci), leading to a smooth brain surface. This condition is associated with developmental delays, intellectual disabilities, and seizures. Cause: Genetic mutations, often affecting genes like LIS1 and DCX







References:

A Case Report on Anencephaly Mikki1 , Jamal Fatima Hashmi
https://medical.advancedresearchpublications.com/index.php/CHCMJ/article/view/1189
https://www.sciencedirect.com/topics/medicine-and-dentistry/iniencephaly Craniorachischisis in a 33-week-old Female Fetus: A Case Report Clarisse Veronica L. Mirhan
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11151135/ Ghai 10e, pg, 574

↑ *Back to this question in Part A*

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Q13: Which type of neural tube defect is most likely depicted in the picture given below? (Q850362)

A. Spina Bifida Occulta

B. Meningocele

C. Myelomeningocele

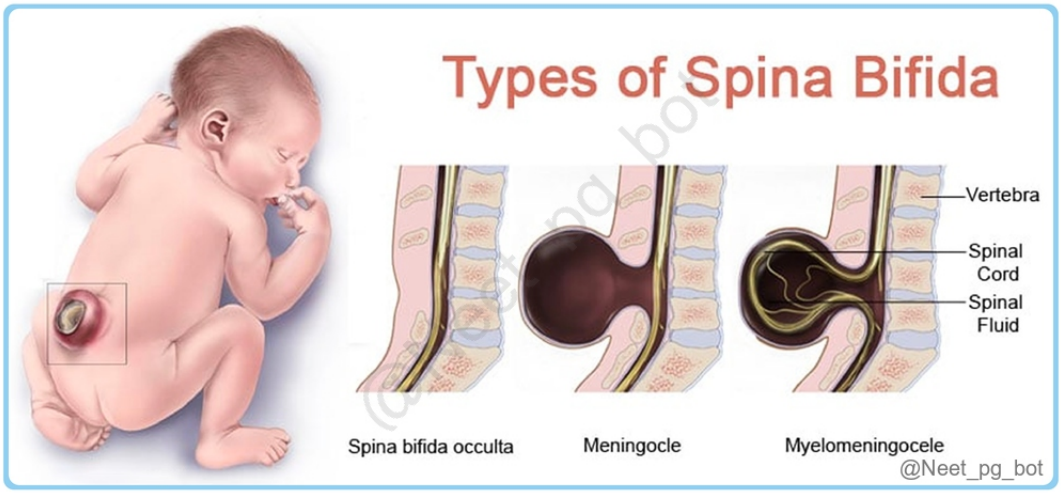
D. Encephalocele



Correct Answer: A. Spina Bifida Occulta

- *Listen (English)*
- *Listen (Hindi)*

Explanation: Based on the given picture, the most likely defect depicted in the image is Spina Bifida Occulta. Neural Tube Defects (NTDs) Basic Defect Improper closure of the neural tube Occurs between the 3rd and 4th week of intrauterine life Types of Neural Tube Defects (NTDs) and their characteristics: Type of Neural Tube Defect Description Spina Bifida Occulta Spine is abnormal, but the spinal cord is unaffected Overlying skin usually normal May have a small dimple, tuft of hair, or sinus over the skin indicating the defect Meningocele (Option B ruled out) Protrusion of a sac of meninges through the defect in the vertebrae Contains only clear fluid, no neural components Transillumination is positive Myelomeningocele (Option C ruled out) Sac protrudes through the defect and contains neural components herniating from the spinal cord Encephalocele (Option D ruled out) Swelling or protrusion of the meninges through a midline cranial defect May contain neural elements inside the sac





References:

Ghai 10e ,pg, 574 Nelson 21e,pg, 3065

↑ *Back to this question in Part A*

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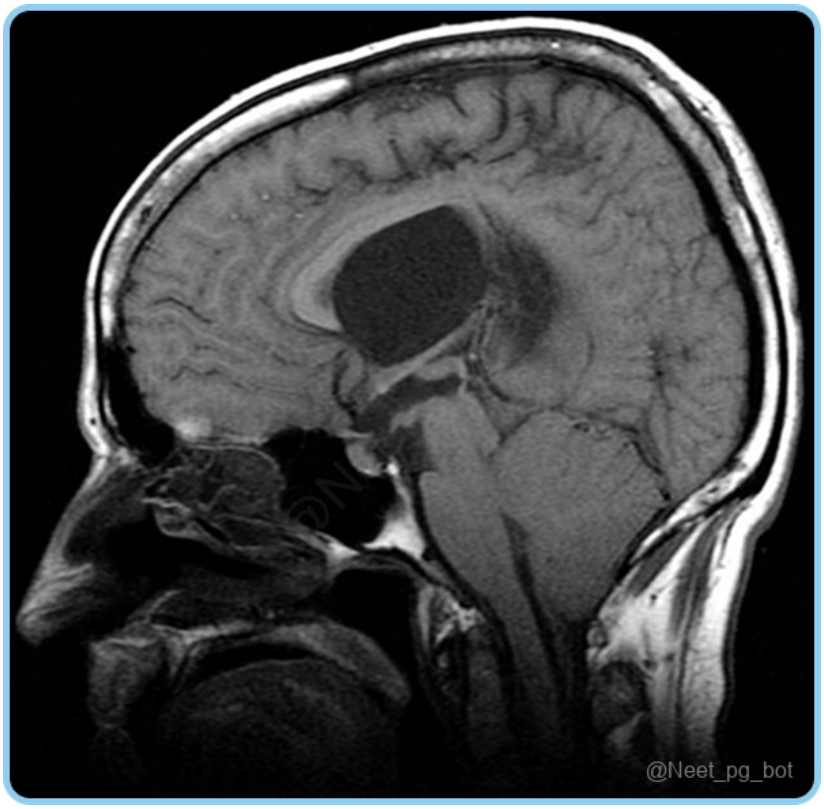
Q14: A 3-month-old infant is brought with a history of lethargy and poor feeding. The infant has also exhibited some developmental delays and hydrocephalus. On examination, the neurologist notes myelomeningocele. An MRI is shown below. Which of the following is the most likely diagnosis? (Q850363)

A. Arnold-Chiari Malformation Type 1

B. Arnold-Chiari Malformation Type 2

C. Dandy-Walker Malformation

D. Hydranencephaly



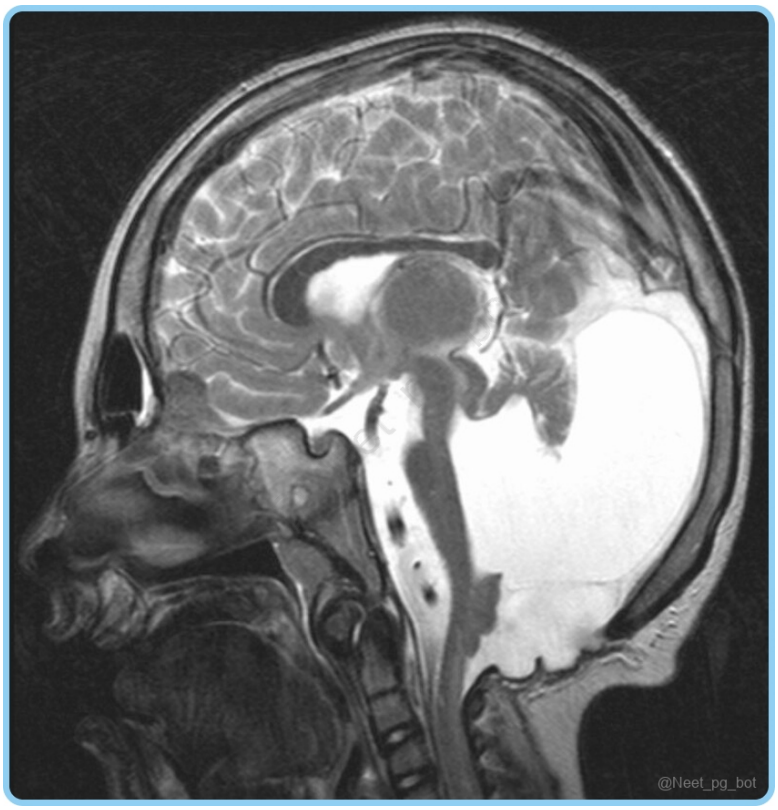
Correct Answer: B. Arnold-Chiari Malformation Type 2

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Arnold-Chiari Malformation Type 2 is the most likely diagnosis in this case. This condition is commonly associated with myelomeningocele and can lead to hydrocephalus. It involves the herniation of both the cerebellar tonsils and the brainstem through the foramen magnum and is often seen in conjunction with spina bifida. Arnold-Chiari Malformation Aspect Type 1 Type 2 Hydrocephalus No association (Option A ruled out) Associated with hydrocephalus and myelomeningocele Herniation Cerebellar tonsil into the cervical canal Cerebellar tonsil, vermis, and part of the pons and medulla into the cervical canal Usual Age of Presentation Adolescent Infancy Clinical Features Headache Neck pain Urinary problems Lower limb spasticity Infants:

Lethargy, poor feeding Older individuals: Gait problems, spasticity Infants : Lethargy, poor feeding Older individuals : Gait problems, spasticity Dandy-Walker Malformation (Option C): It involves cystic enlargement of the fourth ventricle and agenesis or hypoplasia of the cerebellar vermis, but not commonly associated with myelomeningocele. Hydranencephaly (Option D): It involves the replacement of brain tissue with cystic spaces and is not associated with myelomeningocele or the typical Chiari malformations.



References:

Ghai's Textbook of Pediatrics, 10th Edition, Page 575

↑ *Back to this question in Part A*

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• [16_Pediatric Neurology] 043 Previous Year Questions

« Back to Folder Directory

[16_Pediatric Neurology] 043 Previous Year Questions — Quick Jump

Q1 (p. 1521)	*Q2 (p. 1522)*	*Q3 (p. 1522)*	*Q4 (p. 1523)*	*Q5 (p. 1524)*	*Q6 (p. 1525)*
Q7 (p. 1526)	*Q8 (p. 1527)*	*Q9 (p. 1527)*	*Q10 (p. 1528)*	*Q11 (p. 1529)*	*Q12 (p. 1530)*
Q13 (p. 1531)	*Q14 (p. 1532)*	*Q15 (p. 1533)*	*Q16 (p. 1534)*	*Q17 (p. 1536)*	*Q18 (p. 1536)*
Q19 (p. 1538)	*Q20 (p. 1539)*	*Q21 (p. 1540)*			

Q1: Steroid-resistant nephrotic syndrome is defined as failure to achieve remission after ___ weeks when on a daily corticosteroid therapy regimen. (Q857201)

A. 6

B. 4

C. 12

D. 10

Correct Answer: B. 4

Explanation: 4 Steroid resistance in nephrotic syndrome is diagnosed when there is no remission despite 4 weeks of treatment with daily corticosteroids, specifically prednisolone at a dose of 2 mg/kg/day or 60 mg/m²/day. Management: The treatment focuses on inducing remission of proteinuria while minimising medication side effects. Common treatment regimens include: Immunosuppressive agents like cyclosporine or tacrolimus (calcineurin inhibitors) Tapering doses of prednisolone ACE inhibitors like enalapril (0.3-0.6 mg/kg/day) or ramipril (6 mg/m²/day) help reduce proteinuria and control hypertension Partial remission (1-2+ proteinuria) is acceptable, with complete remission being the goal Most patients respond within 3-6 months For patients who cannot use calcineurin inhibitors, a regimen of 6 pulses of IV cyclophosphamide combined with alternate-day prednisolone can be considered Angiotensin Receptor Blockers (ARBs) like losartan and valsartan can be used as alternatives if a patient experiences persistent dry cough with ACE inhibitors HMG-Coenzyme-A Reductase Inhibitors (Statins) may be considered in patients with persistently elevated LDL (low-density lipoprotein) levels to manage hyperlipidemia

References:

Ghai Essential Pediatrics, 10th Edition, Page: 505, 506.

↑ *Back to this question in Part A*

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Q2: A child presents to the outpatient department with periorbital and pedal edema. Which of the following laboratory findings are characteristic of nephrotic syndrome? Protein in urine (3.5 gm/day) Hyperlipidemia Elevated serum creatinine Hypoalbuminemia (Q879237)

A. a,c,d

B. a,b,c

C. a,b,d

D. a,b,c,d

Correct Answer: C. a,b,d

Explanation: Nephrotic syndrome is characterized by the classical triad of heavy proteinuria (>3.5 g/day), hypoalbuminemia (<3 g/dL), and hyperlipidemia, which together lead to generalized edema (periorbital and pedal). Serum creatinine → Usually normal unless there is coexisting renal failure. (Option c ruled out)

References:

Robbins and Cotran Pathologic Basis of Disease, 10th Edition, Pages 849–851.

↑ *Back to this question in Part A*

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Q3: A 10-month-old infant was brought with complaints of jerking movement of limbs towards the body. On examination, there is a regression in developmental milestones. Electroencephalogram shows hypsarrhythmia. Which of the following is the drug of choice in this condition? (Q856080)

A. Phenytoin

B. Adrenocorticotropic hormone (ACTH)

C. Levetiracetam

D. Phenobarbitone

Correct Answer: B. Adrenocorticotropic hormone (ACTH)

Explanation: RX Gene Mutations : In males, linked to ambiguous genitalia and cortical migration abnormalities. Types Cryptogenic (Unknown Etiology) : Normal development before onset. Symptomatic : Associated with developmental delays due to perinatal issues, brain malformations, metabolic disorders, or other causes. Clinical Features Infantile Epileptic Spasms : Clusters of spasms occurring mainly during drowsiness or upon waking. Developmental Regression Hypsarrhythmia on EEG : A chaotic, high-voltage background with multifocal spikes. Management First-Line Treatment : Hormonal therapy, primarily ACTH (80 mg/mL) Dosage : 150 units/m² daily (75 units/m² twice daily) for 2 weeks, then taper gradually. Monitoring : EEGs at 1, 2, and 4 weeks to assess response. Early intervention is crucial, as a delay beyond 3 weeks can worsen the prognosis. Alternative Treatments Oral Prednisolone : Lower-cost alternative (Less effective) Vigabatrin : Used as a first-line agent in West syndrome associated with tuberous sclerosis complex (TSC) or second-line if hormonal therapy fails. Side effects include retinal toxicity. Ketogenic Diet : Considered a third-line therapy. Other Medications : Valproate, benzodiazepines (nitrazepam, clonazepam), topiramate, lamotrigine, zonisamide, pyridoxine, and IVIG. These drugs can help reduce seizure frequency and severity but are not uniformly effective and may be used alongside ACTH or vigabatrin in cases with incomplete response. Side Effects and Precautions Side Effects of Hormonal Therapy : Hypertension, electrolyte imbalance, infections, hyperglycemia, and gastric ulcers. Vaccination : Live vaccines are contraindicated, and other vaccines may be ineffective during and shortly after hormonal therapy. Phenytoin (Option A) is primarily used for focal seizures and status epilepticus. Ineffective for infantile spasms or the underlying EEG abnormality (hypsarrhythmia) seen in West syndrome. Levetiracetam (Option C) is effective for focal seizures and status epilepticus, but not proven beneficial for infantile spasms. Phenobarbitone (Option D) is commonly used as an antiepileptic in neonatal seizures and as an enzyme inducer in Crigler-Najjar syndrome type II. Less effective than ACTH for managing infantile spasms.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3098,3103

↑ *Back to this question in Part A*

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Q4: A 7-year-old child from a socioeconomically disadvantaged background has presented with fever, convulsions, and unusual behavior over the past two months, and has now become unresponsive to their parents for the past two days. On examination, the child exhibits neck stiffness, and their cerebrospinal fluid (CSF) analysis reveals an elevated number of lymphocytes, glucose levels of 30 mg%, and protein levels of 300 mg%. What is the diagnosis? (Q859932)

A. Viral meningitis

B. Bacterial meningitis

C. Tubercular meningitis

D. Partially treated bacterial meningitis

Correct Answer: C. Tubercular meningitis

Explanation: The clinical manifestations indicate tubercular meningitis based on the subacute presentation over two months and characteristic CSF findings. The combination of prolonged symptoms (fever, convulsions, behavioral changes), socioeconomically disadvantaged background (increasing TB risk), and CSF profile showing lymphocytic pleocytosis, markedly low glucose (30 mg%), and significantly elevated protein (300 mg%) are classic for tubercular meningitis. This pattern reflects the chronic inflammatory process typical of tuberculosis infection. CSF Findings Comparison: Type Pressure Cells Sugar Protein Gross physical appearance of CSF Acute bacterial meningitis + >1000 PMN ↓ + Turbid Tubercular meningitis + >100-1000 lymphocytes ↓ ++ Straw-colored Viral meningitis + 50-500 lymphocytes Normal + Normal or turbid Viral meningitis (Option A) typically presents with an acute onset and self-limiting course. While it shows lymphocytic predominance in CSF, glucose levels remain normal, and protein elevation is mild. Bacterial meningitis (Option B) characteristically presents with an acute onset (hours to days), and CSF analysis typically shows neutrophilic predominance rather than lymphocytes Partially treated bacterial meningitis (Option D) might show some modification in CSF findings, but would still typically have a more acute presentation and some neutrophils in CSF. The prolonged symptom duration and clear lymphocytic predominance make this diagnosis unlikely.

References:

Ghai Essential Pediatrics, 10th Edition, Page 585-589

↑ *Back to this question in Part A*

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Q5: In a 1-year-old male child who arrives at the hospital with fever and neck stiffness, the suspected diagnosis is meningitis. Among the options provided, which pathogen is the leading cause of meningitis in this particular age group? (Q859484)

A. Klebsiella

B. Streptococcus pneumoniae

C. Staphylococcus aureus

D. Mycobacterium tuberculosis

Correct Answer: B. Streptococcus pneumoniae

Explanation: Streptococcus pneumoniae, also known as pneumococcus, is the most common cause of bacterial meningitis in children. Haemophilus influenzae is the second most common cause of bacterial meningitis in children.' Bacterial meningitis- Etiological agents In India Overall Neonates Gram negative organisms (E.Coli > Acinetobacter > Klebsiella) Group B streptococci Infants and older children Streptococcus pneumoniae > Neisseria meningitidis > Haemophilus Influenzae. Streptococcus pneumoniae Children with T-cell defect Listeria monocytogenes Children with CSF shunts Staphylococci Children with Complement System Defects Meningococcal infections Children with Splenic Dysfunction or Asplenia Streptococcus pneumoniae, Neisseria

Meningitidis Haemophilus Influenzae. (Encapsulated organisms) Incorrect Options: Klebsiella (Option A): While Klebsiella can cause meningitis, particularly in neonates and immunocompromised patients, it is not the leading cause of meningitis in children. Staphylococcus aureus (Option C): Although S. aureus can cause meningitis, especially following neurosurgical procedures or in cases of head trauma, it is not the primary causative organism in meningitis in children. Mycobacterium tuberculosis (Option D): While tuberculous meningitis is an important consideration, it is not the most common cause of meningitis in children.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3223-3224

↑ *Back to this question in Part A*

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Q6: A child presents with continuing seizures for the past 30 minutes. The relatives say that there had been no seizure-free intervals in the past 30 minutes. After stabilizing the vitals, what is the first drug that should be administered? (Q859483)

A. Diazepam

B. Phenytoin

C. Phenobarbital

D. Thiopentone sodium

Correct Answer: A. Diazepam

Explanation: The patient is experiencing Status epilepticus , which occurs when seizures continue for >30 minutes . The American Epilepsy Society SE Guidelines recommend using either intravenous lorazepam, rectal diazepam, or intravenous/intramuscular midazolam as a first-line agent. Management of Status Epilepticus: Status epilepticus is a medical emergency characterized by continuous seizure activity or recurrent seizures without recovery of consciousness between episodes. The definition has evolved to recognize the importance of early intervention: Traditional definition: seizures lasting >30 minutes Current definition: continuous seizures lasting ≥5 minutes, or two or more seizures without full recovery between them Early intervention is critical as neuronal damage can begin to occur after 5-30 minutes of continuous seizure activity. Initial Assessment and Stabilization (0-5 minutes) Stabilize airway, breathing, and circulation Position patient appropriately to maintain open airway Assess oxygenation and provide oxygen via nasal cannula/mask Monitor vital signs continuously Consider intubation if respiratory assistance is needed Initial assessment Perform quick neurological exam if possible Check blood glucose levels (treat if <60 mg/dl) Secure IV access Laboratory tests to obtain Electrolytes, hematology, toxicology screen Anticonvulsant drug levels (if on medication) First-Line Treatment (5-20 minutes) A benzodiazepine is the initial therapy of choice: Intravenous lorazepam : 0.1 mg/kg up to maximum of 4 mg, may repeat in 5-10 min Intravenous midazolam : 0.2 mg/kg up to 10 mg total dose, may repeat in 5-10 min Intramuscular midazolam : 0.2 mg/kg (if IV access not available) Rectal diazepam : 0.5 mg/kg (if IV access not available) Buccal midazolam : 0.5 mg/kg (if IV access not available) Second-Line Treatment (20-40 minutes) If

seizures continue after benzodiazepine administration, proceed to one of these options: Intravenous fosphenytoin : 20 mg PE/kg loading dose (maximum 1500 mg/dose) Intravenous valproate : 40 mg/kg loading dose (maximum 3000 mg/dose) Intravenous levetiracetam : 30-60 mg/kg loading dose (maximum 4500 mg/dose) Intravenous phenobarbital : 15-20 mg/kg loading dose (if not given initially) Third-Line Treatment (40-60 minutes) If seizures still continue (refractory status epilepticus): Consider repeating second-line therapy Consider anesthetic doses of: Thiopental Midazolam Pentobarbital Propofol (with caution in children due to propofol infusion syndrome risk) Continuous EEG monitoring is recommended at this stage. Incorrect Options: Phenytoin (Option B): Phenytoin (or its prodrug fosphenytoin) is considered as a second-line therapy to be used if seizures continue after benzodiazepine administration (20-40 minute during the second therapy phase Phenobarbital (Option C): While phenobarbital can be used in status epilepticus, it's typically considered a second-line agent according to the standard protocl . It is to be used only in cases if first line pharmacological agents have failed. Thiopentone sodium (Option D): Thiopental (thiopentone) is a third-line agent for refractory status epilepticus (40-60 minute during the third therapy phase. It is used only when first and second-line treatments have failed.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3115-3119

↑ *Back to this question in Part A*

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Q7: What is the significance of a child transferring an object from one hand to the other? (Q856765)

A. Visual-motor coordination

B. Ability to compare objects

C. Ability to handle small objects

D. Voluntary release

Correct Answer: B. Ability to compare objects

Explanation: When a child transfers an object from one hand to another, it signifies their ability to compare objects that appear at 7 months. Major Fine Motor Milestones: Hand regard: 3 months Reaches out for objects: 4 months Bidextrous grasp: 5 months Unidextrous/ Palmar grasp: 6 months Transfers objects: 7 months - compare objects Pincer grasp: Immature: 9 months Mature: 12 months Casting (drops everything down): 13 months Visual motor coordination (Option A) refers to using visual input to direct hand movements, such as reaching for objects, which typically develops around 4 months. For handling small objects (Option C), thumb finger grasp should have been developed, which develops at 8 months of age. Voluntary release (Option D) typically refers to a disappearance of palmar grasp, which occurs at 4 months of age.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 132

Ghai Essential Pediatrics, 10th edition, Pages 29, 32, 35

↑ *Back to this question in Part A*

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Q8: A young child with congenital hydrocephalus was treated with a successful ventriculoperitoneal (VP) shunt. Four months post-surgical repair, the child presented with fever, nuchal rigidity, and irritability. Suspecting meningitis, which of the following is the next best step of management? (Q856173)

A. Wait and watch

B. Check shunt patency by nuclear study

C. Blood culture and take CSF sample from shunt tap

D. Blood culture and take CSF sample by lumbar puncture

Correct Answer: C. Blood culture and take CSF sample from shunt tap

Explanation: dditionally, blood cultures should also be obtained to identify any potential bloodstream infection. Shunt-related meningitis: Most common complication of the CSF shunts. Most frequently caused by Staphylococcus epidermidis. Diagnosed by “Shunt tapping” (direct aspiration of the shunt). Management: Antibiotic therapy and shunt removal. Complications of CSF Shunt: Shunt occlusion Manifesting as headache, papilledema, vomiting, altered mental status. Bacterial infections, caused by coagulase-negative staphylococci (CoNS), most commonly by S. epidermidis. This may result in the following: Meningitis (fever, headache, irritability) Peritonitis (fever, abdominal tenderness, distention, pain) Wound infection (erythema, swelling, discharge, or dehiscence along the shunt tract and most often occurs within days to weeks of the surgical procedure) Wait and watch (Option A) is not appropriate in this case, as prompt evaluation and treatment are necessary for suspected meningitis as it is life threatening. Check shunt patency by nuclear study (Option B): While shunt malfunction is a possibility in a child with a VP shunt, the symptoms described are more suggestive of an infection. Checking shunt patency may be a consideration, but it is not the most urgent next step. Blood culture and taking a CSF sample by lumbar puncture (Option D) is not the preferred choice because obtaining CSF from the shunt tap provides a more direct and specific assessment of the shunt system.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 1412, 1435, 3076- 3080

↑ *Back to this question in Part A*

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Q9: What is the probable diagnosis for a child who exhibits generalized swelling and is diagnosed with high cholesterol levels, as well as protein 3+ and fat bodies observed in urine analysis? (Q856165)

A. Nephrotic syndrome

B. Nephritic syndrome

C. Goodpasture's disease

D. lgA nephropathy

Correct Answer: A. Nephrotic syndrome

Explanation: - Nephrotic Syndrome: The patient’s presentation with generalized swelling and high cholesterol levels, protein 3+ and fat bodies observed in urine analysis (lipiduria) is suggestive of nephrotic syndrome . Nephrotic syndrome is a condition characterized by the presence of significant proteinuria, hypoalbuminemia, edema, lipiduria and hyperlipidemia. Nephrotic syndrome Nephritic syndrome (Option B) Clinical Presentation Edema, heavy proteinuria Hematuria, oliguria, edema, hypertension Proteinuria Heavy (3+ to 4+) on dipstick (>3.5gm/24 hour) (1+ to 2+) levels of proteinuria (<1gm/ 24-hour) Hematuria Rare, microscopic hematuria may occur Common, with cola-colored urine due to gross hematuria Urinary Casts Hyaline and granular casts Red blood cell casts (indicating glomerular inflammation) Serum Albumin Low (<1 g/dL) Usually normal unless severe renal impairment Blood Urea and Creatinine Normal unless hypovolemia or acute kidney injury Elevated due to impaired renal function Serum Complement C3 Normal Low in 90% of cases, returns to normal in 8-12 weeks Cholesterol Hypercholesterolemia (may cause milky plasma) No significant hypercholesterolemia ASO/Anti-DNase B Titers Not elevated Elevated ASO titers (pharyngitis) or anti-DNase B (skin infection) Goodpasture's disease (Option C) is a rare autoimmune disorder that primarily affects the kidneys and lungs. It is characterized by the presence of anti-glomerular basement membrane (Anti GBM) antibodies, leading to glomerulonephritis and pulmonary hemorrhage. IgA nephropathy (Option D) also known as Berger's disease , is a common form of glomerulonephritis characterized by the deposition of IgA in the glomeruli of the kidneys. It often presents with recurrent episodes of hematuria, particularly following respiratory or gastrointestinal infections.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 2718, 2720, 2721, 2732, 2752- 2758 Ghai's textbook of pediatrics, 9th edition, Page 472- 474

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: In a child presenting with febrile seizures, which is the first-line drug used to control the seizures? (Q857599)

A. Sodium valproate

B. Phenytoin

C. Midazolam

D. Phenobarbitone

Correct Answer: C. Midazolam

Explanation: efinition : Seizures occurring in children (6 months to 5 years) with fever (>38°C), without underlying neurological issues or prior unprovoked seizures. Causes : Can be triggered by upper respiratory infections, gastroenteritis, viral exanthem, bacterial infections, malaria, or immunization. This must be distinguished from seizures caused by intracranial infection or those triggered by fever in children with epilepsy. Types of Febrile Seizures: Simple Febrile Seizure: Generalized seizure lasting <15 minutes. Occurs once within 24 hours during a fever in a neurologically normal child. Complex Febrile Seizure: Accounts for 15-20% of cases. Characterized by focal signs, seizure duration >15 minutes, or multiple seizures during the same febrile illness. Febrile Status Epilepticus: Seizure lasts >30 minutes. Prolonged seizure with significant risk. Risk Factors for Recurrence: Age <18 months Family history of febrile seizures Multiple seizures in the first episode Seizure at a low temperature (<40°C) Management of Febrile Seizures: Acute Management at Home: Use nasal midazolam or rectal diazepam to stop the seizure. Hospital Management (Status Epilepticus): Follow standard protocols for status epilepticus. Maintain airway, breathing and circulation. IV Lorazepam (0.1 mg/kg) or midazolam (0.1 mg/kg) is administered If seizures persist, IV phenytoin (Option B) or Fosphenytoin is given Later drugs like IV sodium valproate (Option A) , levetiracetam, phenobarbitone (Option D) , and midazolam infusions are used for persistent seizures. In non-responsive cases, IV ketamine and oral topiramate are considered. Lumbar Puncture: Indicated in cases where meningitis is suspected (especially in younger children or those who have already received antibiotics or unvaccinated children). Prophylaxis for Recurrence: Indications for Prophylaxis: Children with risk factors for recurrence Frequent recurrences (2 in 6 months or 4 in 1 year). Medications: Oral benzodiazepines (e.g., diazepam 0.6-0.8 mg/kg/day or clobazam 0.8-1 mg/kg/day). Start at the first sign of fever and continue for the first 48 hours to reduce recurrence by 80%.

References:

Ghai Essential Pediatrics, 10th Edition, Page: 580.

↑ *Back to this question in Part A*

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Q11: A newborn infant is brought to the pediatric clinic due to the presence of a sac-like protrusion on the lower back. The protrusion is covered by a thin membrane and contains spinal cord tissue and nerves. The infant's lower limbs exhibit weakness and impaired sensation. The mother reports inadequate prenatal folic acid intake during pregnancy. Which of the following conditions is the most likely diagnosis? (Q857222)

A. Cleft lip and palate

B. Down syndrome

C. Gastroschisis

D. Spina bifida

Correct Answer: D. Spina bifida

Explanation: ategory Details Definition Failure of proper closure of neural tube & covering mesoderm/ectoderm; most common congenital CNS anomaly. Inheritance Primary NTDs have multifactorial inheritance. Maternal risk factors Alcohol, radiation exposure, IDDM, valproate, carbamazepine, zinc and folate deficiency. Types of NTDs Spina bifida occulta, meningocele, encephalocele, myelomeningocele, anencephaly, caudal regression syndrome, dermal sinus, tethered cord, syringomyelia, diastematomyelia, lipoma, iniencephaly. Spina bifida occulta Midline defect of vertebral bodies without protrusion of spinal cord or meninges ; usually asymptomatic and not of consequence. Craniorachischisis Rare malformation with skull and spinal bone defects ; brain and nerves exposed ; may have other defects like imperforate anus. Meningocele Meninges herniate through vertebral arches or sacrum; spinal cord norma l. Fluctuant midline mass that may transilluminate. Surgery may be delayed in asymptomatic cases with normal neuro findings and skin covering. Myelomeningocele Most common in lumbosacral region ; sac-like cystic structure with neural tissue; 80% develop hydrocephalus with type II Chiari malformation. Anencephaly Large defect of calvarium, meninges, and scalp; associated with rudimentary brain due to failure of closure of rostral neuropore. Iniencephaly Retroflexion of head with occipital and upper spine defects, nearly absent neck; defect can range from acrania to minimal defect. Prenatal diagnosis Detailed ultrasound, MSAFP (maternal serum α-fetoprotein), amniotic fluid acetylcholinesterase (AChE). Prevention 0.4 mg folic acid daily for all women of childbearing age ; 4 mg daily for high-risk women (prior affected child). Risk of recurrence 3-4% after 1 affected child; 10% after 2 affected children. Treatment Surgery for defect; VP shunt if hydrocephalus present. Open lesions should be closed within 24 hours. Antibiotics if infection is present. Cleft Lip and Palate (Option A): Caused by failure of fusion of the maxillary and medial nasal processes. Presents as facial deformities, not a spinal defect. Down Syndrome (Option B): Due to trisomy 21, characterized by: Facial dysmorphism (flat facial profile, upslanting palpebral fissures). Congenital heart defects (e.g., AV septal defect). Intellectual disability. No neural tube defects or spinal abnormalities. Gastroschisis (Option C): Congenital abdominal wall defect → intestines protrude without a membrane. No neural involvement.

References:

Ghai Essential Paediatrics, 10th Edition, Page 575

↑ *Back to this question in Part A*

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Q12: A four-year-old child presents with difficulty in walking, a broad-based gait, and inability to perform heel-to-toe walking. The child was clingy towards his mother. On examination, the child is hyperreflexic and Babinski sign is positive. What could be the

probable diagnosis ? (Q865445)

A. Guillain-Barre syndrome

B. Cerebral Palsy

C. ADEM

D. Spinal cord lesion

Correct Answer: B. Cerebral Palsy

Explanation: The child's chronic spasticity, hyperreflexia, and gait abnormalities align with Cerebral Palsy, a static motor disorder due to early brain injury. The absence of acute-onset or sensory deficits rules out GBS, ADEM, or spinal cord lesions. Motor Symptoms: Difficulty walking, broad-based gait, and inability to perform heel-to-toe walking are classic signs of spastic diplegia, a common form of CP. Spastic diplegia primarily affects the lower limbs, leading to gait disturbances. Hyperreflexia and a positive Babinski sign indicate upper motor neuron (UMN) involvement, which is characteristic of CP. Age and Development: CP is a non-progressive disorder caused by early brain injury (prenatal, perinatal, or postnatal). Symptoms typically manifest in early childhood, as seen in this 4-year-old. Behavioral Observation: The child being clingy may reflect associated behavioral or cognitive impairments, which are common in CP. Guillain-Barré syndrome (GBS) (Option A) GBS presents with areflexia and ascending paralysis, not hyperreflexia or spasticity. It is also acute-onset, unlike CP. ADEM (Option C) ADEM is a post-infectious demyelinating disorder with acute-onset encephalopathy (e.g., seizures, mental status changes), not a chronic gait disorder. Spinal cord lesion (Option D) While spinal cord lesions can cause UMN signs, they are typically acquired (e.g., trauma, tumor) and would not explain the chronic, non-progressive nature of CP.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3156-3163

↑ *Back to this question in Part A*

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Q13: Which of the following increase the risk of recurrence of febrile seizures? Age <1 year Temperature of 38-39°C Duration of fever <24 h Duration of fever >48 h (Q855053)

A. 1, 2, 4

B. 1, 4

C. 1, 2, 3

D. 1, 3, 4

Correct Answer: C. 1, 2, 3

Explanation: The risk of recurrence of febrile seizures is increased in children aged <1 year, with a temperature of 38-39°C , and a fever duration of less than 24 hours . Criteria for Diagnosis of Simple Febrile Seizure: Age: 6-60 months (peak incidence at 12-18 months). Fever: Associated with a temperature ≥38°C (100.4°F). Seizure Characteristics: Generalized, usually tonic-clonic. Duration: Seizure lasts ≤15 minutes. Recurrence: No recurrence within 24 hours. Postictal State: Rapid return to baseline consciousness without neurological deficit. Exclusion of Other Causes: No signs of CNS infection, metabolic imbalance, or history of afebrile seizures. Risk Factors for Recurrence of Febrile Seizure: Major Risk Factors Age <1 yr (1) Duration of fever < 24 hr (3) Fever 38-39°C (100.4-102.2°F) (2) Minor Risk Factors Family history of febrile seizures Family history of epilepsy Complex febrile seizure Daycare Male gender Lower serum sodium at time of presentation Types of Febrile Seizures: Simple Febrile Seizure Complex Febrile Seizure Generalised tonic-clonic seizure. Lasts ≤15 minutes. No recurrence within 24 hours. Quick recovery to baseline without deficit. Lasts >15 minutes. It may be focal in nature. It may recur within 24 hours. Common between 6-60 months, benign, and does not require extensive workup. Higher risk of recurrence, and it requires further evaluation.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3092, 3093 O.P. Ghai Essential Pediatrics, 9th Edition, Page 554 https://www.aafp.org/pubs/afp/issues/2019/0401/p445.html#

↑ *Back to this question in Part A*

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Q14: How would you manage a child with status epilepticus? Airway and breathing IV Lorazepam Midazolam, Propofol, Thiopentone IV Fosphenytoin (Q855736)

A. 1, 2, 3, 4

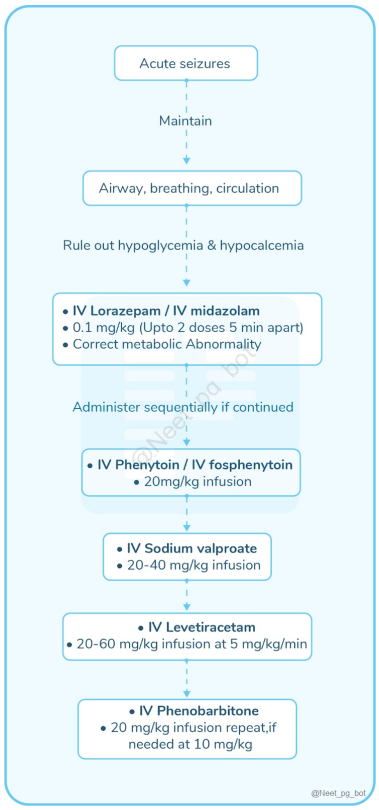
B. 2, 1, 4, 3

C. 1, 3, 4, 2

D. 1, 2, 4, 3

Correct Answer: D. 1, 2, 4, 3

Explanation: Management of status epilepticus includes securing airway and breathing, administering IV Lorazepam, followed by IV Fosphenytoin , and using Midazolam, Propofol, or Thiopentone for refractory cases. Management of Status Epilepticus Refractory status epilepsy Refractory status epilepticus refers to status epilepticus that has not responded to treatment, typically despite the administration of at least two antiepileptic medications , such as a benzodiazepine and another agent.



References:

O.P. Ghai Essential Pediatrics, 9th Edition, Page 580

↑ *Back to this question in Part A*

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Q15: Adrenocorticotropic hormone is the drug of choice in which of the following conditions? (Q855722)

A. Juvenile myoclonic epilepsy

B. Rolandic epilepsy

C. West syndrome

D. Lennox Gastaut syndrome

Correct Answer: C. West syndrome

Explanation: Adrenocorticotropic hormone is the drug of choice in West syndrome. West Syndrome Age group Typically occurs between 2 and 12 months of age. Genetics ARX Gene Mutations : In males, linked to ambiguous

genitalia and cortical migration abnormalities. Types Cryptogenic (Unknown Etiology) : Normal development before onset. Symptomatic : Associated with developmental delays due to perinatal issues, brain malformations, metabolic disorders, or other causes. Clinical Features Infantile Epileptic Spasms : Clusters of spasms occurring mainly during drowsiness or upon waking. Developmental Regression Hypsarrhythmia on EEG : A chaotic, high-voltage background with multifocal spikes. Management First-Line Treatment: Hormonal therapy, primarily ACTH (80 mg/mL) Dosage : 150 units/m^2 daily (75 units/m^2 twice daily) for 2 weeks, then taper gradually. Monitoring : EEGs at 1, 2, and 4 weeks to assess response. Early intervention is crucial, as a delay beyond 3 weeks can worsen the prognosis. Alternative Treatments Oral Prednisolone : Lower-cost alternative (Less effective) Vigabatrin : Used as a first-line agent in West syndrome associated with tuberous sclerosis complex (TSC) or second-line if hormonal therapy fails. Side effects include retinal toxicity. Ketogenic Diet : Considered a third-line therapy. Other Medications : Valproate, benzodiazepines (nitrazepam, clonazepam), topiramate, lamotrigine, zonisamide, pyridoxine, and IVIG. These drugs can help reduce seizure frequency and severity but are not uniformly effective and may be used alongside ACTH or vigabatrin in cases with incomplete response. Side Effects and Precautions Side Effects of Hormonal Therapy : Hypertension, electrolyte imbalance, infections, hyperglycemia, and gastric ulcers. Vaccination : Live vaccines are contraindicated, and other vaccines may be ineffective during and shortly after hormonal therapy. Juvenile myoclonic epilepsy (Option A) typically begins during adolescence and is characterized by morning myoclonic jerks, along with generalized tonic-clonic seizures and occasionally absence seizures. EEG findings include generalized 4-6 Hz spike-and-wave activity, often seen after waking. The most effective treatment is valproate , with alternatives such as levetiracetam, lamotrigine, or topiramate. Rolandic epilepsy (Option B) is a common and self-limiting childhood epilepsy. Seizures occur during sleep or upon waking and involve facial twitching, drooling, or temporary difficulty speaking, without loss of consciousness. Symptoms resolve naturally by adolescence. Treatment options include carbamazepine or oxcarbazepine. Lennox-Gastaut syndrome (Option D) typically affects children aged 2-10 years and includes developmental delay, a variety of seizure types (e.g., tonic, atonic, atypical absence), and an EEG pattern showing slow spike-and-wave discharges. Treatment often involves a combination of drugs such as valproate, lamotrigine, clobazam, or topiramate.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3098,3103

↑ *Back to this question in Part A*

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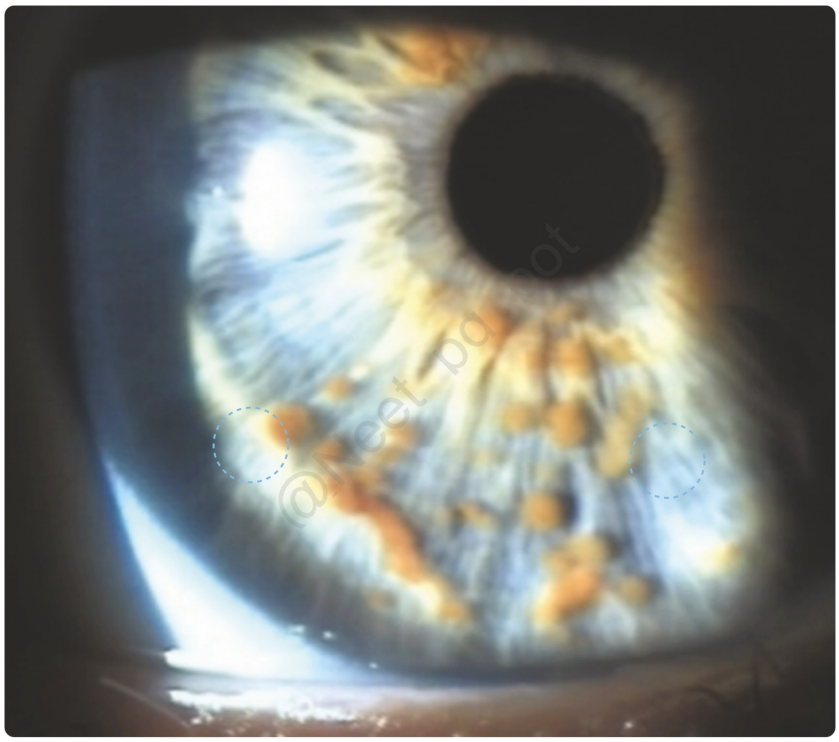
Q16: Which of the following is false regarding the given image? (Q855512)

A. It represents melanocytic hamartoma

B. It causes no visual disturbance

C. It is associated with facial angiofibroma

D. They are diagnostic of a neurocutaneous syndrome



Correct Answer: C. It is associated with facial angiofibroma

Explanation: The given image shows discrete tan nodules on the iris, called Lisch nodules , which are a hallmark of Neurofibromatosis Type 1 (NF1) and are melanocytic hamartomas of the iris. Facial angiofibromas are a characteristic feature of Tuberous Sclerosis Complex (TSC), not NF1. Neurofibromatosis Type 1 (NF1): Incidence: 1 in 3,000 live births. Inheritance: 50% of cases are inherited from a parent. 50% due to spontaneous mutations. Genetics: Autosomal dominant loss-of-function mutations in the NF1 gene on chromosome 17q11.2. The gene encodes neurofibromin, which inhibits the oncogene Ras. Diagnosis Criteria (Two or more required): Feature Description Café-au-lait macules (CALMs) >5 mm in prepubertal, >15 mm in postpubertal. 6 or more needed for diagnosis Axillary/Inguinal Freckling Multiple hyperpigmented areas, 2-3 mm in diameter. Iris Lisch Nodules (Option D) Hamartomas in the iris (Option A) , best seen with a slit-lamp. 2 or more needed for diagnosis and doesn't cause any visual disturbances. (Option B) Neurofibromas Two or more neurofibromas or one plexiform neurofibroma. Osseous Lesion Sphenoid dysplasia (which may cause pulsating exophthalmos) or cortical thinning of long bones with or without pseudoarthrosis (most often the tibia). Optic Gliomas CNS tumor affecting the optic nerve. Family History First-degree relative with an NF1 diagnosis based on these criteria. Management: Regular Monitoring Treatment Considerations: Avoid routine brain/optic tract imaging unless symptomatic. Selumetinib: Effective in children with inoperable plexiform neurofibromas . Neuropsychological and Educational Support. Genetic Counseling Inheritance: Autosomal dominant; over 50% of cases are de novo mutations. Molecular Testing: Useful in cases with unclear clinical diagnosis or severe disease. Prenatal/preimplantation diagnosis may be considered.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 3140- 3134, 3142-3146

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3543877/#

↑ *Back to this question in Part A*

@Neet_pg_bot

Q17: Which of the following MRI findings will be seen in a child with spastic quadriplegia? (Q840120)

A. Basal ganglia calcifications

B. Periventricular leukomalacia

C. Cerebellar degeneration

D. Multicystic encephalomalacia

Correct Answer: D. Multicystic encephalomalacia

Explanation: Correct Option D - Multicystic Encephalomalacia: Multicystic encephalomalacia is a condition characterized by the presence of multiple cysts within the brain tissue. It is a result of severe hypoxic-ischemic injury leading to the extensive necrosis of brain tissue, which is replaced by cystic cavities. This condition is often seen in children with severe forms of cerebral palsy, such as spastic quadriplegia, where extensive brain damage has occurred. Incorrect Options: Option A - Basal Ganglia Calcifications: Basal ganglia calcifications are typically associated with metabolic and genetic disorders, such as Fahr's disease, rather than with cerebral palsy or spastic quadriplegia. Option B - Periventricular Leukomalacia (PVL): PVL is associated with spastic diplegia, not quadriplegia. It involves damage to the white matter around the ventricles, commonly seen in premature infants, leading to motor control issues predominantly in the legs rather than all four limbs. Option C - Cerebellar Degeneration: Cerebellar degeneration usually presents with ataxia and balance issues rather than spastic quadriplegia. This condition involves the loss of neurons in the cerebellum, which is responsible for coordinating movement.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q18: Anencephaly occurs due to the inability of the neural tube to close at which week of intrauterine life? (Q860528)

A. 3rd week

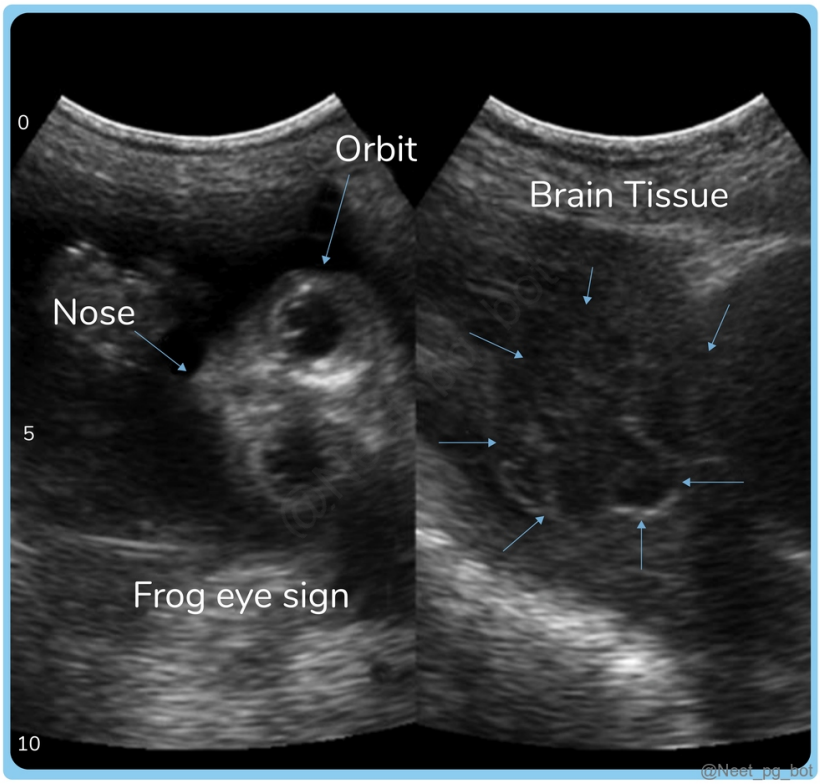
B. 4th week

C. 5th week

D. 2nd week

Correct Answer: B. 4th week

Explanation: Anencephaly is a severe neural tube defect that occurs at the 4th week of gestation due to failure of closure of the rostral neuropore Results in absence of: Scalp Cranial bones Meninges Rudimentary brain tissue is exposed to the external environment which is incompatible with life. Anencephaly is a severe neural tube defect characterized by the partial or complete absence of the brain and cranial vault, resulting from the failure of neural tube closure during early fetal development. During labor, it may present with face presentation or shoulder dystocia. Prenatal ultrasound shows the absence of the cranial vault, exposed brain tissue , and the "frog eye sign," characterised by a flattened head with prominent, bulging orbits. {{caption_text}} {{caption_text}} 3rd week (Option A) : At this stage, neurulation has just begun, and the neural tube formation is still in its early phases. The critical closure of the rostral neuropore has not yet started at this point in development. 5th week (Option C) : By this time, neural tube closure should have already been completed. 2nd week (Option D) : This is too early in development as neurulation has not yet begun. The embryo is still in the process of gastrulation during this period.





References:

Nelson Textbook of Pediatrics, 21st edition, Page 3068

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: A child presents to the OPD with intracranial diffuse calcifications, chorioretinitis, and hydrocephalus. Which of the following is the most likely diagnosis? (Q844225)

A. Congenital Toxoplasmosis

B. Dandy-Walker Malformation

C. Budd-Chiari Syndrome

D. Congenital Hydrocephalus

Correct Answer: A. Congenital Toxoplasmosis

Explanation: Correct Option A - Congenital Toxoplasmosis: Congenital toxoplasmosis is a result of vertical transmission of Toxoplasma gondii from mother to fetus. The classic triad of symptoms includes intracranial calcifications (diffuse), chorioretinitis, and hydrocephalus. This combination strongly suggests congenital toxoplasmosis. Incorrect Options: Option B - Dandy-Walker Malformation: Dandy-Walker malformation is a congenital brain malformation involving the cerebellum and the fluid-filled spaces around it. It typically presents with hydrocephalus, posterior fossa cyst, and cerebellar hypoplasia, but it does not typically involve intracranial diffuse calcifications or chorioretinitis. Option C - Budd-Chiari Syndrome: Budd-Chiari syndrome involves hepatic venous outflow obstruction, leading to liver-related symptoms like ascites, hepatomegaly, and abdominal pain. It is unrelated to intracranial calcifications, chorioretinitis, or hydrocephalus, making it an unlikely diagnosis in this scenario. Option D - Congenital Hydrocephalus: Congenital hydrocephalus refers to an abnormal buildup of cerebrospinal fluid in the brain's ventricles, leading to increased intracranial pressure. While hydrocephalus is a feature here, the presence of diffuse intracranial calcifications and chorioretinitis is not typical of congenital hydrocephalus alone, making it less likely as the correct diagnosis.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: A 3-year-old child is brought to the emergency room with a generalized seizure following a high-grade fever. What is the first-line drug of choice for seizure control in this acute febrile setting? (Q866398)

A. Diazepam

B. Valproate

C. Fosphenytoin

D. Doxycycline / Amoxicillin

Correct Answer: A. Diazepam

Explanation: Diazepam The above clinical case is suggestive of febrile seizures , occurring in a child aged 6 months to 5 years, associated with fever but without intracranial infection or metabolic disturbance. First-line drug for acute seizure control in this setting: IV or rectal Diazepam (benzodiazepines) Alternatives if IV access not available: Intranasal or buccal midazolam Diazepam acts rapidly by enhancing GABA-mediated inhibition in the CNS. It has short onset → quick termination of seizure. Valproate (Option B): Used for maintenance in epilepsy, not for immediate seizure termination. Fosphenytoin (Option C): Used if seizure is not controlled by benzodiazepines (second-line in status epilepticus). Doxycycline / Amoxicillin (Option D): Antibiotics have no role in acute seizure control.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q21: What is the most common cause of seizures in a 2-year-old child ? (Q793790)

A. Trauma to the head

B. Malnutrition

C. Febrile seizures

D. Neurological deficit

Correct Answer: C. Febrile seizures

Explanation: Correct Option C - Febrile seizures: Febrile seizures are the most common cause of seizures in children aged 6 months to 5 years. Febrile seizures are seizures with significant fever (≥100. 4°F) without any evidence of CNS infection in the age group of 6 months - 5 years Incorrect Options: Option A, B, and D can also cause seizures in children but are less common than febrile seizures.

References:

Prepladder Notes

↑ *Back to this question in Part A*

@Neet_pg_bot

• [17_Musculoskeletal Disorders in Children] 044 Musculoskeletal Disorders In Children

« Back to Folder Directory

[17_Musculoskeletal Disorders in Children] 044 Musculoskeletal Disorders In Children — Quick Jump

Q1 (p. 1541)	*Q2 (p. 1543)*	*Q3 (p. 1545)*	*Q4 (p. 1546)*	*Q5 (p. 1547)*	*Q6 (p. 1548)*
Q7 (p. 1549)	*Q8 (p. 1550)*	*Q9 (p. 1554)*	*Q10 (p. 1557)*	*Q11 (p. 1558)*	*Q12 (p. 1561)*
Q13 (p. 1562)	*Q14 (p. 1563)*	*Q15 (p. 1564)*	*Q16 (p. 1566)*	*Q17 (p. 1566)*	*Q18 (p. 1570)*
Q19 (p. 1571)	*Q20 (p. 1572)*	*Q21 (p. 1574)*	*Q22 (p. 1575)*	*Q23 (p. 1576)*	*Q24 (p. 1577)*
Q25 (p. 1578)	*Q26 (p. 1579)*	*Q27 (p. 1579)*	*Q28 (p. 1581)*	*Q29 (p. 1583)*	*Q30 (p. 1584)*

Q1: A 10-year-old child has swelling and pain around the wrist joints and fingers. Classic rheumatoid nodules were seen over the spine and bony prominences of the hands. Which of the following about the management of juvenile idiopathic arthritis is false? (Q850368)

A. Methotrexate is used as it acts within a few days of intake

B. Abatacept and tocilizumab target specific immune system components

C. Anakinra is effective for systemic JIA

D. Corticosteroids are used for the control of uveitis

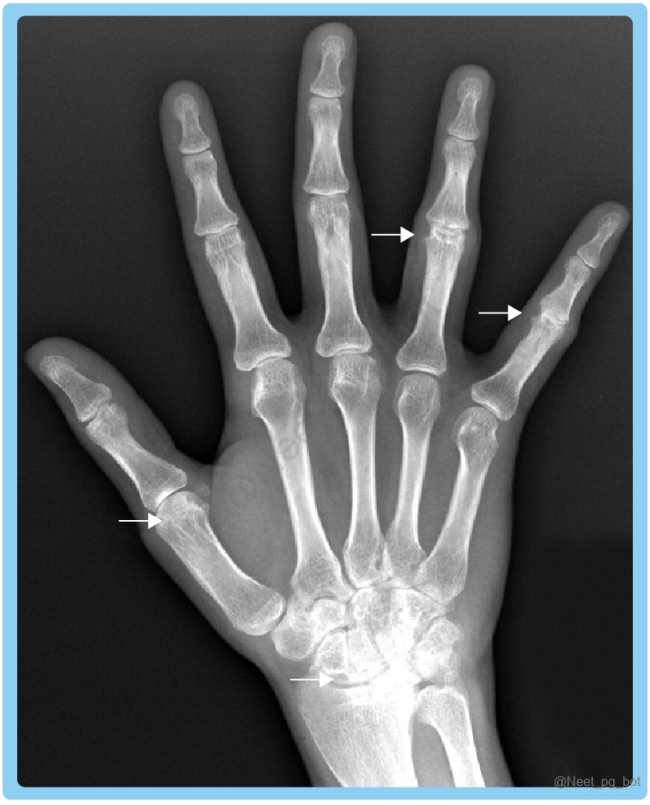
Correct Answer: A. Methotrexate is used as it acts within a few days of intake

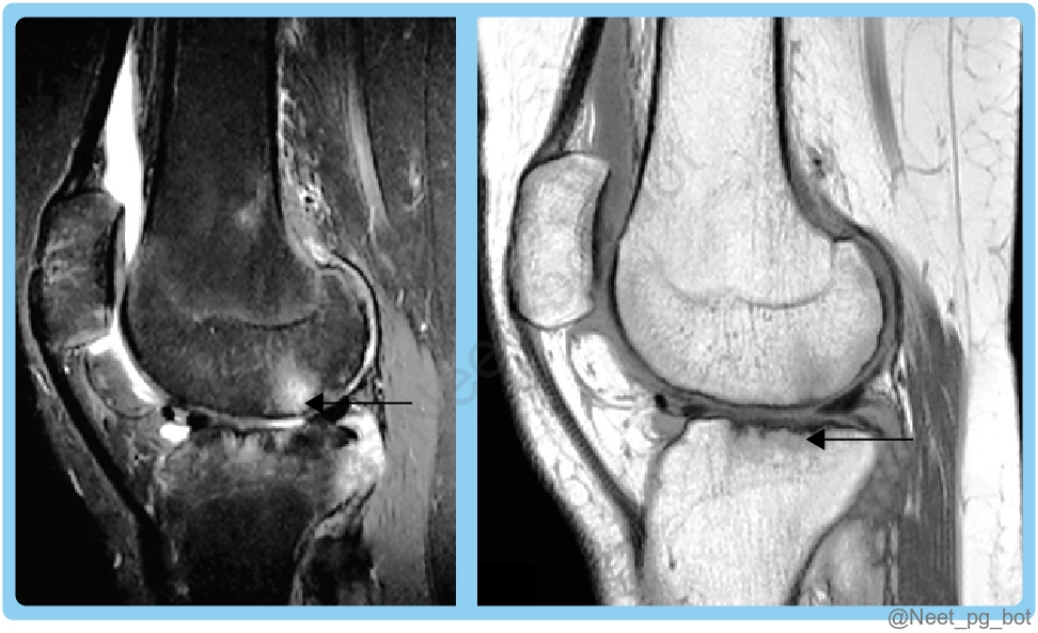
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Methotrexate is a disease-modifying anti-rheumatic agen t used to treat JIA, but it takes 6-12 weeks to work . Diagnosis: The steps in diagnosing JIA start with the clinical evaluation of the child. The symptoms, medical history, physical examinations, and exclusion of other conditions give a good grasp of the possible diagnosis. Investigations are the next step in diagnosis: Investigations Observations Laboratory tests CBC: Microcytic anemia Elevated platelets WBC Low platelets may indicate a macrophage activation system (MAS). ESR & CRP: Indicate inflammation Raised but could also be normal in children Falling ESR in systemic JIA can signal MAS ANA: Elevated in oligoarticular/polyarticular JIA Increases uveitis risk RF: Positive in 5-15% of polyarticular JIA cases Indicates a more severe disease. Anti-Cyclic Citrullinated Peptide Antibody: indicates a higher chance of severe disease. Ferritin: High in systemic JIA Dramatically elevated in MAS. Radiological findings X-rays: Soft tissue swelling Periarticular osteopenia Periosteal new-bone formation Sub-chondral erosions Loss of cartilage MRI: More sensitive for early joint damage, shows inflammation. Treatment of JIA:

Treatment goals Achieve remission: minimal or no symptoms Prevent joint damage: early, aggressive treatment to minimize long-term damage Support growth: ensure normal bone growth and development Treatment NSAIDs: Reduce pain and inflammation Side effects include gastritis and toxicity Disease-modifying anti-rheumatic drugs (DMARDs): Methotrexate is effective but may take 6-12 weeks (Option A) Side effects include nausea and liver toxicity Sulfasalazine & Leflunomide are alternatives for polyarticular JIA Biologics: Target-specific immune system components Includes TNF inhibitors(abatacept & tocilizumab) (Option B ruled out) Side effects are immunosuppression and injection site reactions IL-1 Inhibitors: Effective for systemic JIA Includes anakinra (Option C ruled out) and canakinumab Side effects are immunosuppression and gastrointestinal upset Corticosteroids: Powerful anti-inflammatory Only for severe systemic illness and control of uveitis (Option D ruled out) Used sparingly due to severe toxicities like growth retardation, Cushing syndrome





References:

Nelson textbook of pediatrics, 21st edition, Pages 1264-1267.

↑ *Back to this question in Part A*

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Q2: A 3-year-old child presents with bowing of the legs, delayed growth, and poor weight gain. Lab tests show normal serum calcium, low serum phosphate, high serum alkaline phosphatase, normal parathyroid hormone (PTH), and normal 25-hydroxyvitamin D levels. Which of the following is the most likely diagnosis? (Q850350)

A. Hypophosphatemic rickets

B. Vitamin D deficiency

C. Vitamin D-dependent rickets type 1

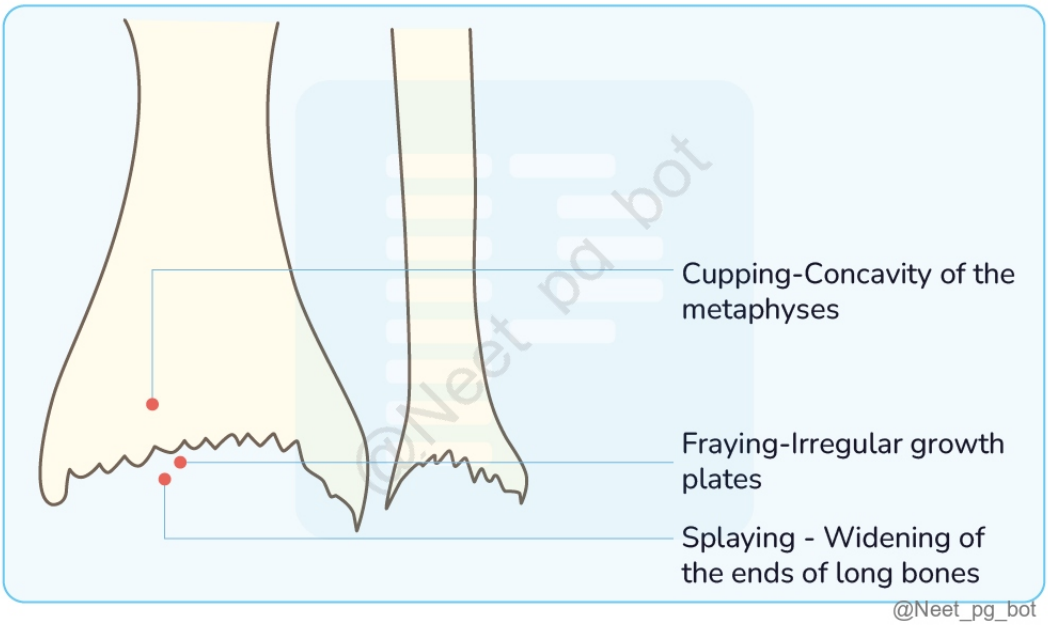
D. Vitamin D-dependent rickets type 2

Correct Answer: A. Hypophosphatemic rickets

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child’s symptoms and lab results of normal serum calcium, low serum phosphate, high alkaline phosphatase, and normal 25-hydroxyvitamin D point towards the diagnosis of Hypophosphatemic Rickets. Laboratory Diagnosis: Disorder Calcium Pi PTH 25-(OH)D 1,25-(OH)2D ALP Urine Calcium Urine Pi Vitamin D deficiency (Option B) N, ■ ■ ■ ■ ■, N, ■ ■ ■ ■ Vitamin D-dependent rickets Type 1 (Option C) N, ■ ■ ■ N, ■ N, ■ ■ ■ ■ Vitamin D-dependent rickets Type 2 (Option D) N, ■ ■ ■ N ■■ ■ ■ ■ Chronic kidney disease N, ■ ■ ■ N ■ ■ N, ■ ■ X- linked hypophosphatemic rickets N ■ N, ■ N ■ ■ ■ ■ Autosomal dominant hypophosphatemic rickets (Option A) N ■ N N ■ ■ ■ ■ Hereditary hypophosphatemic rickets with hypercalciuria N ■ N, ■ N ■ ■ ■ ■ Autosomal recessive hypophosphatemic rickets N ■ N N ■ ■ ■ ■ Tumor-induced rickets N ■ N N ■ ■ ■ ■ Fanconi syndrome N ■ N N ■ or ■ ■ ■ or ■ ■ Dent’s disease N ■ N N N ■ ■ ■ Dietary calcium deficiency N, ■ ■ ■ N ■ ■ ■ ■ Radiological Changes: Decreased Calcification: Leads to the thickening of the growth plate. Fraying, Cupping, and Splaying Generalized reduction in bone density: Osteopenia Widening of the Metaphysis





References:

Nelson textbook of pediatrics, 21st Edition, Page 376, 377, 378

Ghai Essential Pediatrics, 10th Edition, Page 105

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 10-year-old girl presents with ptosis, difficulty swallowing, and generalized muscle weakness for the past 2 weeks. The symptoms worsen with activity and improve after rest. On examination, ptosis and mild proximal muscle weakness in the upper limbs are noted. Reflexes and sensation are normal. What is the most likely diagnosis? (Q850373)

A. Juvenile Myasthenia Gravis

B. Guillain-Barré Syndrome

C. Muscular Dystrophy

D. Duchenne Muscular Dystrophy

Correct Answer: A. Juvenile Myasthenia Gravis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Myasthenia Gravis is a chronic autoimmune disease of the neuromuscular junction (postsynaptic endplate) that leads to abnormal neuromuscular transmission or blockade. In children it is called Juvenile Myasthenia Gravis. Clinical features: Symptoms can show from the age of 11 months to 17 years Characteristic feature: rapid fatigue of muscles. Ocular symptoms: Asymmetric ptosis Progressive extraocular muscle weakness Diplopia Bulbar symptoms: Dysphagia Disarthria Facial weakness Limb weakness: Neckflexor weakness: difficulty holding the head up and poor head control. Arm weakness: weakness of limb girdle muscle and distal muscles of hands cause difficulty raising arms or performing tasks requiring strength. Other characteristics: Fluctuating weakness Normal reflexes Absence of sensory symptoms

References:

Nelson textbook of pediatrics, 21st edition, Pages 3304, 3305

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A newborn presents with limbs that resemble the flippers of a seal without intermediate segments. The mother reports taking medication for anxiety during early pregnancy. What is the most likely cause of this condition? (Q850372)

A. Thalidomide exposure

B. Vitamin D deficiency

C. Genetic mutation

D. Impaired blood flow to the limbs

Correct Answer: A. Thalidomide exposure

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Phocomelia is a congenital defect in which the limbs lack intermediate segments. Thalidomide , a drug historically used to treat anxiety and morning sickness , is known for its teratogenic effects that lead to this condition, particularly when taken during pregnancy. Vitamin D deficiency (Option B) leads to conditions like rickets , characterized by bone softening and deformities , but it does not result in the specific limb malformations seen in phocomelia. While genetic mutations (Option C) can cause various congenital anomalies, the distinct history of taking medication for anxiety (thalidomide use) is a key factor pointing specifically to phocomelia. Impaired blood flow to the developing limbs (Option D) can cause limb defects, but the unique presentation of

phocomelia, along with the maternal history of thalidomide use, makes this less likely than thalidomide exposure.



References:

https://www.ncbi.nlm.nih.gov/books/NBK559212/

↑ *Back to this question in Part A*

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Q5: A 5-year-old child presents with multiple fractures following minimal trauma, blue sclerae, and mild hearing loss. Physical examination reveals joint hypermobility, and radiographs show osteopenia with evidence of previous fractures. What is the most likely underlying pathophysiology? (Q850371)

A. Defective type I collagen synthesis

B. Deficiency of vitamin D

C. Impaired osteoclast function

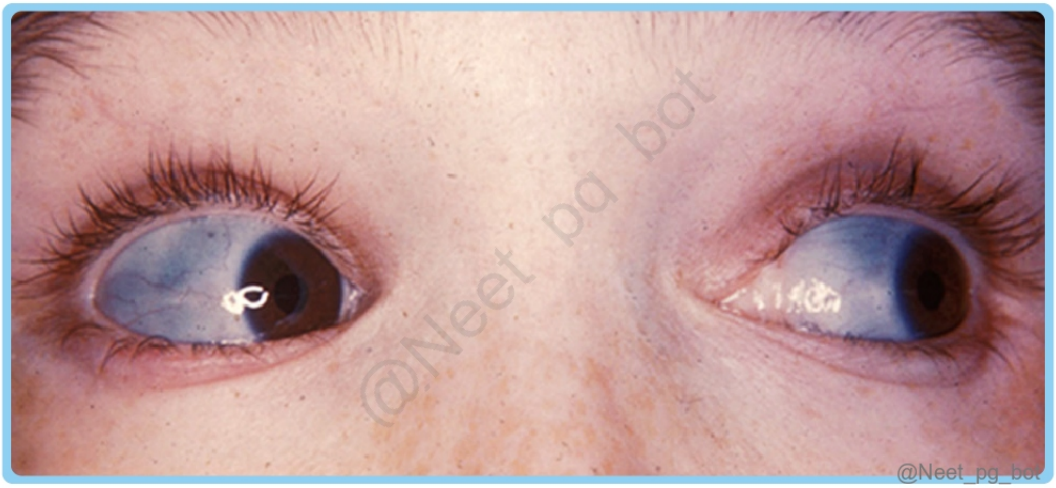
D. Abnormal calcium metabolism

Correct Answer: A. Defective type I collagen synthesis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Osteogenesis Imperfecta (OI) is caused by mutations in the genes responsible for producing type I collagen , which is the primary component of the bone matrix. This defective collagen synthesis leads to brittle bones, resulting in frequent fractures from minimal trauma. Features of Osteogenesis Imperfecta Pathophysiology Defective type I collagen synthesis Genetic Mutations Type I-IV: COL1A1, COL1A2 Type V: IFITM5 Type VI: SERPINF1 Key Clinical Features Recurrent fractures from minimal trauma, blue sclerae, hearing loss, joint hypermobility, osteopenia Complications Cardiopulmonary issues (pneumonia, cor pulmonale), neurological complications (basilar invagination, brainstem compression) Differential Diagnosis Rickets, osteopetrosis, and disorders related to abnormal calcium metabolism Treatment Physical rehabilitation, Bisphosphonates, growth hormone, orthopedic management (fracture care, surgery) Deficiency of vitamin D (Option B) typically leads to conditions like rickets or osteomalacia , characterized by bone pain, muscle weakness, and deformities like bowing of the legs. Impaired osteoclast function (Option C) is seen in osteopetrosis , a condition characterized by overly dense but brittle bones that lead to fractures. Abnormal calcium metabolism (Option D) can result in conditions like hypercalcemia or hypocalcemia , which can affect muscle function and potentially lead to bone density changes.



References:

Nelson textbook of pediatrics, 21st edition, Pages 3736, 3737.

↑ *Back to this question in Part A*

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Q6: A 4-month-old infant presents with macrocephaly, hepatosplenomegaly, and recurrent fractures. The radiograph shows diffuse bone sclerosis and a “bone within bone” appearance. Which of the following is the most appropriate treatment to

prevent the progression of this condition? (Q850370)

A. Vitamin D supplementation

B. Hematopoietic stem cell transplantation (HSCT)

C. Bisphosphonate therapy

D. Physical therapy and fracture management

Correct Answer: B. Hematopoietic stem cell transplantation (HSCT)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: This infant’s features of macrocephaly, hepatosplenomegaly, and recurrent fractures , with a radiograph showing diffuse bone sclerosis and a “bone within bone” appearance, are consistent with autosomal recessive osteopetrosis aka marble bone disease . Autosomal Dominant Osteopetrosis, also known as Albers-Schönberg disease or Marble bone disease, is more common and less severe. Hematopoietic stem cell transplantation (HSCT) is the most effective treatment for this severe disease. Features of Osteopetrosis Aspect Severe Autosomal Recessive Osteopetrosis Mild Autosomal Dominant Osteopetrosis Incidence ~1/250,000 births ~1/20,000 births Genetic Mutations TCIRG1, CLCN7, OSTM1, SNX10, TNFSFR11A, TNFSF11, PLEKHM1 CLCN7 Onset Infancy Childhood or adolescence Clinical Features Macrocephaly, hepatosplenomegaly, vision/hearing loss, severe anemia, fractures Fractures, mild anemia, possible cranial nerve dysfunction, dental issues, osteomyelitis Radiographic Findings Diffuse bone sclerosis, "bone within bone" appearance Increased bone density, clubbed metaphyses, "sandwich" vertebrae Prognosis Often fatal in infancy, survivors may live into the 2nd decade with disabilities Generally good, may be asymptomatic or have mild symptoms Treatment HSCT (replaces the defective bone marrow with healthy donor cells & prevents or reverses bone abnormalities), RANKL replacement, calcitriol, interferon-γ, supportive care Symptomatic management Vitamin D supplementation (Option A): While Vitamin D can help manage calcium levels, it does not address the genetic cause of the disease. Bisphosphonates (Option C) inhibit bone resorption and would further worsen: This treatment is not appropriate for a condition where the problem is already excessive bone density. Physical therapy and fracture management (Option D) are important for supportive care. The root cause, osteoclast dysfunction, must be addressed with HSCT.

References:

Nelson textbook of pediatrics, 21st edition, Page 3731

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4636194/

https://www.ncbi.nlm.nih.gov/books/NBK557529/

↑ *Back to this question in Part A*

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Q7: A 5-year-old boy presents with asymmetric arthritis of the lower extremities, dactylitis, and erythematous plaques on his soles 4 weeks after an episode of dysentery. Which of the following is true regarding the diagnosis? (Q850369)

A. HLA-B27 decreases the likelihood of gastrointestinal inflammation

B. Arthritis is symmetric and commonly affects small joints

C. Typically follows a Gastrointestinal or genitourinary infection

D. Broad-spectrum antibiotics are essential for treatment

Correct Answer: C. Typically follows a Gastrointestinal or genitourinary infection

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Reactive arthritis often follows a gastrointestinal or genitourinary infection , commonly occurring within 3 days to 6 weeks after the initial infection. The presentation of asymmetric arthritis of the lower extremities, dactylitis, and erythematous plaques 4 weeks after an episode of dysentery strongly suggests this diagnosis. The classic triad of arthritis, urethritis, and conjunctivitis is not commonly seen in children. Features of Reactive Arthritis Feature Details Typical Trigger Recent gastrointestinal (e.g., Salmonella, Shigella, Yersinia, Campylobacter) or genitourinary (e.g., Chlamydia) infection (Option C) Onset 3 days to 6 weeks post-infection Joint Involvement Asymmetric oligoarthritis (Option B) , predominantly in the lower extremities Extra-Articular Manifestations Dactylitis, enthesitis, erythematous plaques (keratoderma blennorrhagica) HLA-B27 Association Increases risk of chronic spondyloarthritis and persistent GI inflammation (Option A) Systemic Manifestations Fever, malaise, fatigue; Less common: conjunctivitis, optic neuritis, aortic valve involvement Lab values Elevated ESR, CRP, and platelets in early disease Primary Treatment NSAIDs; Corticosteroids for severe cases; Antibiotics only if ongoing infection (Option D) Complications Chronic spondyloarthritis, IBD, uveitis, carditis

References:

Nelson textbook of pediatrics, 21st edition, Pages 1272, 1273.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: An 8-year-old child is brought to the pediatrics department with a low-grade fever and swelling around both the knees, elbows, and shoulders for 5 months. There is pain and swelling around the wrists as well. Numerous nodules are noted on the hands and over the spine, as shown. Which of the following findings is associated with this disease? (Q850367)

A. Asymmetric joint involvement

B. Uveitis

C. Involvement of smaller joints

D. Positive rheumatoid factor



Correct Answer: D. Positive rheumatoid factor

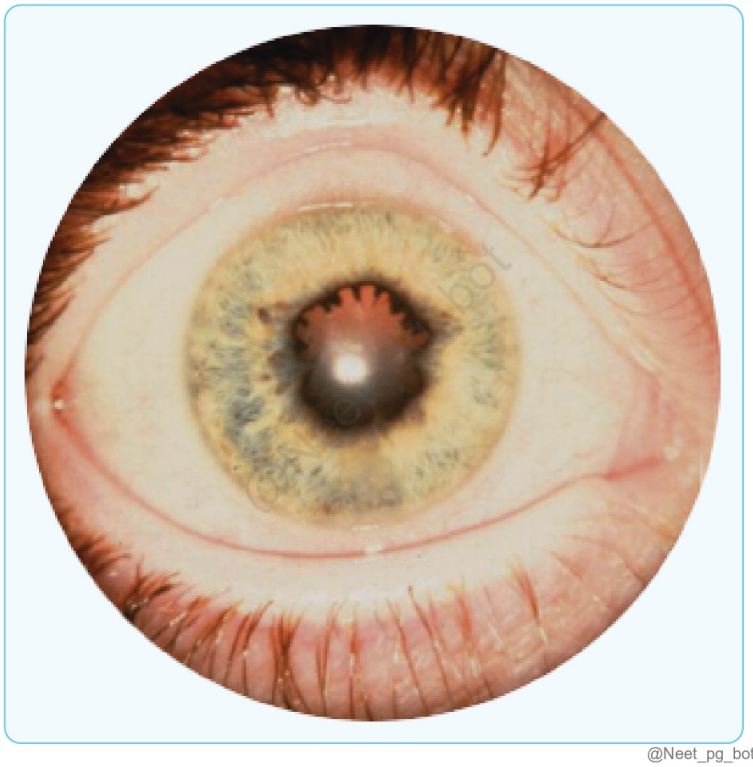
■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presence of symmetrical (≥5 large) joint involvement and nodules point to the diagnosis of rheumatoid factor-positive polyarticular juvenile idiopathic arthritis/ RF-positive polyarthritis . Polyarthritis : Feature Rheumatoid Factor (RF)-Negative Rheumatoid Factor (RF)-Positive Prevalence More common (20-35% of all JIA cases) Less common (<10%) Joint pattern Symmetric or asymmetric (Option A) Small (Option C) and large joints The cervical spine and temporomandibular joints are involved. Aggressive symmetric polyarthritis Similar to adult rheumatoid arthritis Clinical features Uveitis (10%) (Option B) Slit lamp shows “flare” in the fluid appearance of the anterior chamber. Rheumatoid nodules (10%) Low-grade fever Diagnosis ANA positive in 40% RF negative ESR is slightly or very high CRP is raised or normal Mild anemia RF positive ESR is very high CRP is raised or normal Mild anemia Prognosis Variable Standard therapy with methotrexate (MTX) and NSAIDs Biologics are considered if unresponsive to MTX and NSAIDs, such as anti-TNF agents and abatacept Poorer prognosis Early aggressive therapy is needed Long-term remission unlikely Predictors of severe disease include Young age at onset RF seropositivity Rheumatoid nodules Many affected joints


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References:

Nelson textbook of pediatrics, 21st edition, Page 1260.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 4-year-old male child is brought to the hospital with swelling around knee joints and both ankles for three months. The mother of the child noticed this after an episode of bacterial pneumonia, which is now cured, and explains that the swelling has stayed in these joints since the beginning. What is the diagnosis here? (Q850366)

A. Rheumatoid factor-negative polyarthritis

B. Systemic Juvenile idiopathic arthritis

C. Persistent oligoarthritis

D. Rheumatoid factor-positive polyarthritis



Correct Answer: C. Persistent oligoarthritis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The involvement of four or fewer joints in the first six months of the onset of the disease and the involvement of the same 4 joints throughout this time indicates the diagnosis of persistent type oligoarthritis. Juvenile idiopathic arthritis (JIA) is the most common rheumatic disease in children. Any subtype of JIA can be diagnosed only if there is arthritis for 6 or more weeks. Systemic JIA (sJIA) (Option B) Oligoarthritis Polyarthritis Affects 5-15% of JIA cases. Most common subtype (40-50% of cases). Affects five or more joints within the first six months. (Option A and D) Characteristics: Arthritis involving multiple joints. High fevers (daily spikes above 39°C/102.2°F) with normal or below-normal temperatures between spikes. Evanescent rash (salmon-colored, macular rash that appears and disappears quickly). Other features: Pericarditis, hepatosplenomegaly, lymphadenopathy, serositis. Complication: Macrophage Activation Syndrome (MAS) - severe with fever, cytopenias, and liver dysfunction. Characteristics: Affects four or fewer joints in the first six months. Typically involves large joints (knees, ankles). Uveitis Risk: Increased risk, especially in ANA-positive girls with early onset. Subtypes: Persistent Oligoarthritis: Four or fewer joints throughout. Extended Oligoarthritis: Involves more than four joints after six months. RF-Negative Polyarthritis: (Option A): Affects 20-35% of cases. Can be symmetric or asymmetric, involving small and large joints, including the cervical spine and temporomandibular joint. Uveitis risk is present but lower (~10%). RF-Positive Polyarthritis (Option D): Less common (<10% of cases). Resembles adult rheumatoid arthritis with symmetrical joint involvement. Rheumatoid nodules may be present and indicate a more aggressive course. Associated with a poorer prognosis and often requires aggressive treatment.







References:

Nelson textbook of pediatrics, 21st edition, Pages 1258, 1261, 1262.

↑ *Back to this question in Part A*

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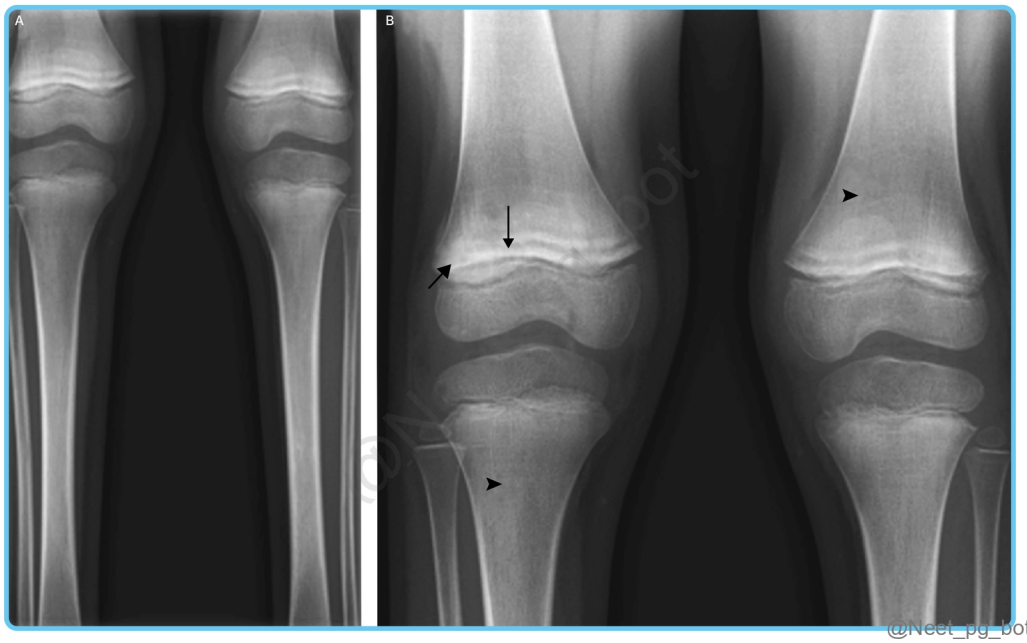
Q10: A 12-year-old child was brought to the pediatric department with complaints of reduced appetite, irritability, and leg swelling. On examination, he has a low-grade fever and tenderness in the legs. The following X■ray was taken. Which of the following radiographic findings is depicted in this child's knee X■ray? (Q850365)

A. Ground glass appearance

B. Trummerfeld zone

C. Pelkan spur

D. Wimberger sign



Correct Answer: D. Wimberger sign

Explanation: The X-ray and clinical symptoms point to the diagnosis of vitamin C deficiency, where the x-ray shows sclerotic rings or Wimberger signs. Vitamin C deficiency/ Scurvy is diagnosed based on characteristic clinical findings and detailed history, especially nutritional history. The laboratory and radiological examinations help confirm the diagnosis and identify its severity and associated deformities. They are as follows: Laboratory findings Radiological findings Plasma ascorbate levels below 0.2 mg/dL indicate deficiency but are not reliable. Leukocyte vitamin C concentration is a better indicator but more challenging to measure. X-ray White line of Frankel Subperiosteal hemorrhages are seen as calcified areas during healing Sclerotic rings/Wimberger sign

Characteristic changes at long bone ends giving a “ ground glass ” appearance (Option A) Thin and dense cortex Specific signs: zone of rarefaction/ Trummerfeld zone (lucent band) (Option B) , Pelkan spur (Option C) Epiphyseal separation MRI: Detects acute and healing subperiosteal hematomas Periostitis Bone marrow changes Metaphyseal changes Heterogeneous bone marrow signal before plain radiographs show changes Management of scurvy: Vitamin C supplementation: Dosage: 100-200 mg per day, orally or parenterally. Duration: Typically continue for up to 3 months to ensure complete recovery. Treat underlying causes: Dietary Modification: Ensure infants receive vitamin C through breast milk, fortified formula, or complementary foods and incorporate vitamin C-rich foods into the diet of older children and adults. Food selectivity: Work with dietitians or behavioral therapists to expand food choices in restrictive eating habits Monitoring and Follow-up: Regular follow-up to monitor treatment response and ensure adequate long-term vitamin C intake.

References:

Nelson textbook of pediatrics, 21st edition, Pages 374, 375.

↑ *Back to this question in Part A*

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Q11: A 14-year-old child presents with swelling of gums and associated bleeding especially while brushing teeth. On examination, perifollicular hemorrhages are noted. Which of the following micronutrients is usually found deficient in association with this condition? (Q850364)

A. Zinc

B. Magnesium

C. Copper

D. Iron

Correct Answer: D. Iron

■ *Listen (English)*

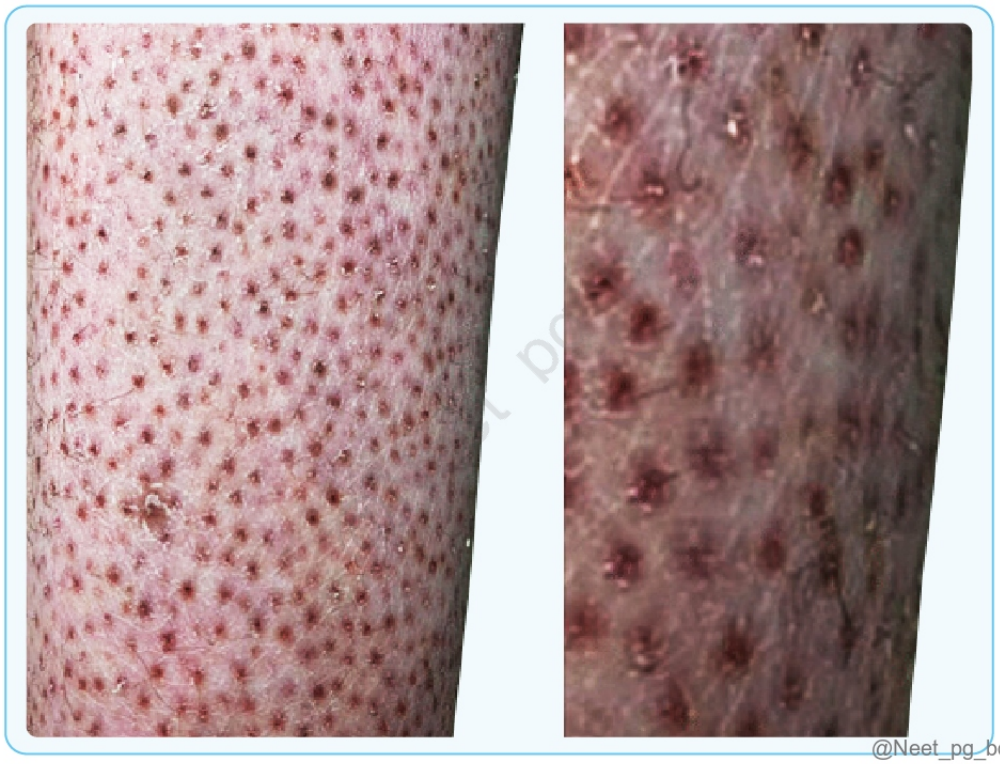
■ *Listen (Hindi)*

Explanation: The scenario suggests a diagnosis of scurvy due to vitamin C deficiency. Since vitamin C enhances iron absorption, a lack of it can result in iron deficiency. Role of vitamin C Collagen synthesis: Vital for forming skin, cartilage, bones, and blood vessels Facilitates the hydroxylation of lysine and proline in procollagen Neurotransmitter metabolism Synthesizes norepinephrine and serotonin by the conversion of dopamine and tryptophan Cholesterol metabolism Conversion of cholesterol to steroid hormones and bile acids Carnitine biosynthesis Fatty acid transport Energy production Metalloenzyme function Maintains iron and copper (Option C) in their reduced and active state Antioxidant activity Neutralizes free radicals in an aqueous environment Iron absorption Enhances non-heme iron absorption Aids in iron transfer from transferrin to ferritin Promotes tetrahydrofolic acid formation Risk groups for deficiency Infants fed heat-treated milk Infants fed unfortified

formula Individuals on restrictive diets Individuals with limited dietary choices Infants with delayed feeding Infants consuming boiled animal milk Preterm infants Clinical features Musculoskeletal Symptoms: Leg swelling Pseudoparalysis Fracture prone Subperiosteal hemorrhages Scorbutic rosary Sternal depression Oral Manifestations: Bluish-purple Spongy gum Swelling around the upper incisors Hemorrhagic Manifestations: Anemia Purpura Epistaxis Gum bleeding Perifollicular hemorrhages Other Manifestations: Poor wound and fracture healing Hyperkeratosis of hair follicles Arthralgia Muscle weakness Zinc (Option A): Vitamin C and zinc both help enhance immunity and maintain health. However, there is no conclusive evidence that interlinks their absorption. Magnesium (Option B): Magnesium is a cofactor in more than 300 enzyme systems that regulate diverse biochemical reactions in the body; however, there is no evidence that the absorption of magnesium is affected by vitamin C.







References:

https://pubmed.ncbi.nlm.nih.gov/22429343/

Nelson textbook of pediatrics, 21st edition, Pages 373,374, 375.

https://radiopaedia.org/articles/rachitic-rosary

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7607440/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: A 5-year-old girl presents with short stature, leg bowing and a waddling gait. Her lab results show low serum phosphate, elevated alkaline phosphatase and increased urinary phosphate excretion. A genetic test reveals a mutation on the X chromosome. Which gene is most likely mutated in this patient? (Q850354)

A. SLC34A3

B. FGF23

C. PHEX

D. DMP1

Correct Answer: C. PHEX

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Clinical features like short stature and leg bowing, with lab results of low serum phosphate, elevated alkaline phosphatase, increased urinary phosphate, and genetic testing showing a mutation on the X chromosome, point towards a diagnosis of X-linked hypophosphatemic rickets. X-Linked Hypophosphatemic (XLH) Rickets Most common among genetic disorders causing rickets Prevalence 1 in 20,000 Inheritance X-linked dominant Gene Mutated PHEX (phosphate-regulating gene with homology to endopeptidases on X chromosome) Normally, the product of this gene appears to have an indirect role in inactivating FGF-23 Clinical Manifestations Lower limb deformities: Coxa vara Genu valgum Genu varum Poor growth Maxillofacial abnormalities Skull deformities: Due to premature fusion of cranial sutures Delayed dentition Short stature Laboratory Findings High renal phosphate excretion Hypophosphatemia Elevated alkaline phosphatase (ALP) Normal PTH and serum calcium Low or inappropriately normal levels of 1,25-D Treatment Phosphorus Supplementation: 1-3 g elemental phosphorus daily, divided into 4-5 doses Can be given in the form of a Joulie solution (30.4 mg phosphate/mL) or as neutral phosphate effervescent tablets Frequent dosing helps to prevent prolonged decrements in serum phosphorus because there is a rapid decline after each dose Calcitriol: 30-70 ng/kg/day in 2 doses Burosumab-twza: Monoclonal antibody targeting FGF-23, an alternative for children >1 year Prognosis Generally good response to therapy, though frequent dosing can affect compliance SLC34A3 (Option A) (Sodium-phosphate cotransporter gene) mutations are associated with hereditary hypophosphatemic ricket s, not with hypercalciuria, nor with X-linked hypophosphatemic rickets. FGF23 (Option B): While FGF23 (Fibroblast growth factor-23) levels are elevated in X-linked hypophosphatemic rickets (XLH), the gene responsible for XLH is PHEX, not FGF23 itself. DMP1 (Option C) (Dentin matrix protein 1) mutation causes autosomal recessive hypophosphatemic rickets, not X-linked hypophosphatemia.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 382

Ghai Essential Pediatrics, 10th Edition, Page 108

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7860650/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 2-year-old girl presents with delayed walking, bowed legs and frontal bossing. Her lab results show low calcium, low phosphorus, normal 25-hydroxyvitamin D (25-D), low 1,25-dihydroxyvitamin D (1,25-D), and elevated parathyroid hormone (PTH). What is the most likely diagnosis? (Q850353)

A. Vitamin D-Dependent Rickets Type 1A

B. Vitamin D-Dependent Rickets Type 1B

C. Vitamin D-Dependent Rickets Type 2A

D. Vitamin D-Dependent Rickets Type 2B

Correct Answer: A. Vitamin D-Dependent Rickets Type 1A

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Child presents with classic rickets symptoms like bowed legs and frontal bossing and lab results showing low calcium, low phosphorus, normal 25-D, low 1,25-D, and elevated PTH point towards diagnosis of Vitamin D-Dependent Rickets Type 1A. Feature Vitamin D Dependent Rickets (VDDR) Type 1 Vitamin D Dependent Rickets (VDDR) Type 2 Inheritance Autosomal Recessive Autosomal Recessive Subtypes VDDR type 1A (Option A) VDDR type 1B (Option B) VDDR type 2A (Option C) VDDR type 2B (Option D) Genetic Mutation Mutation in renal 1α-hydroxylase gene Mutation in 25-hydroxylase gene Mutation in the vitamin D receptor (VDR) gene Overexpression of a hormone response element-binding protein Pathophysiology Impaired conversion of 25-D to 1,25-D due to defective 1α-hydroxylase Impaired production of 25-D Defective vitamin D receptor prevents normal response to 1,25-D Interference with 1,25-D action due to binding protein 25-Hydroxy vitamin D (25-D) Normal Low Normal Normal 1,25-Dihydroxy vitamin D (1,25-D) Low or lower limit of normal Normal Extremely elevated Extremely elevated Parathyroid Hormone (PTH) Elevated Elevated Serum Phosphorus Low Low Clinical Features Presents in the first 2 years of life Alopecia absent Presents like vitamin D deficiency rickets Hypotonia Growth failure Motor retardation (poor head control, delayed standing and walking) Convulsions due to hypocalcemia Presents during infancy or childhood 50-70% have alopecia (ranging from alopecia areata to alopecia totalis) Hypocalcemia Secondary hyperparathyroidism Absence of response to vitamin D or its analogs Ectodermal defects: Oligodontia Milia Epidermal cysts Treatment VDDR1A: Long-term 1,25-D (calcitriol) Initially 0.25-2 µg/day and lower doses used once rickets has healed Adequate calcium (30-50 mg/kg) Calcitriol Radiologically healing occurs within 6 to 8 weeks. Thereafter supplementation with physiological doses

of 1α-hydroxy D3 or 1,25-D is continued lifelong. VDDR1B: Pharmacologic doses of vitamin D■ (3,000 IU/day) Extremely high doses of vitamin D (25-D or 1,25-D) and oral calcium (1,000-3,000 mg/day) All patients should be given a 3-6 months trial of high doses of vitamin D and oral calcium Non-responders may need long-term IV calcium Response to treatment is not satisfactory Clinical, biochemical improvement and radiological healing following long-term administration of large amounts of intravenous or oral calcium

References:

Nelson textbook of pediatrics, 21st edition, Pages 378, 381

Ghai Essential Pediatrics, 10th Edition, Page 107

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A 4-year-old boy presents with poor growth, bowed legs, muscle weakness, low serum phosphate, low bicarbonate, normal calcium, serum pH of 6.5 and normal creatinine. The child has no response to vitamin D therapy. What is the most likely diagnosis? (Q850352)

A. Renal tubular acidosis associated rickets

B. Vitamin D-dependent rickets

C. Hypophosphatemic rickets

D. Chronic kidney disease associated rickets

Correct Answer: A. Renal tubular acidosis associated rickets

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child's lab results of low serum phosphate, low bicarbonate, normal calcium, serum pH of 6.5 and normal creatinine suggest renal tubular acidosis-associated rickets. This condition is a common cause of refractory rickets in children. Refractory Rickets Rickets that do not respond to standard vitamin D therapy, characterized by a lack of radiological healing despite treatment. Diagnosed when there is no improvement on X-ray after appropriate vitamin D therapy. Clinical Features History of polyuria; polydipsia; preference for savoury foods Marked stunting: undernutrition Onset in early infancy Alopecia, epidermal cyst, milia History of tetany, seizures Family history of rickets Non-response to standard treatment of rickets Normal levels of 25-hydroxycholecalciferol (25-OHD) Categories Calcipenic Refractory Rickets: Due to defects in vitamin D metabolism. Phosphopenic Refractory Rickets: Due to disorders causing low phosphate levels. Calcipenic Refractory Rickets Vitamin D-dependent rickets (VDDR) type 1 Vitamin D-dependent rickets (VDDR) type 2 Phosphopenic Refractory Rickets Familial hypophosphatemic rickets Hereditary hypophosphatemic rickets with hypercalciuria (HHRH) Fanconi syndrome Tumor-induced osteomalacia (oncogenous rickets) Other causes Renal

tubular acidosis-associated rickets Chronic kidney disease-associated rickets Vitamin D-dependent rickets (Option A) usually presents with low serum calcium and elevated alkaline phosphatase, but not metabolic acidosis or low serum pH. Hypophosphatemic rickets (Option B) usually presents with low serum phosphate but would not typically present with low bicarbonate and normal serum pH. Chronic kidney disease-associated rickets (Option C) usually presents with elevated serum phosphorus and creatinine levels, which are normal in this case.

References:

Ghai Essential Pediatrics, 10th Edition, Pages 107, 108

↑ *Back to this question in Part A*

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Q15: A 2-year-old child presents with delayed growth and bowed legs. The child has a history of inadequate sun exposure and a diet low in vitamin D. An x-ray image of the forearm is shown below. What is the most appropriate treatment? (Q850351)

A. Daily low-dose vitamin D (2000 IU) for 90 days with oral calcium

B. Weekly low-dose vitamin D (2000 IU) for 12 weeks with oral calcium

C. Single high-dose vitamin D (600,000 IU) with oral calcium

D. Daily low-dose vitamin D (3000 IU) for 90 dayswith oral calcium



Correct Answer: D. Daily low-dose vitamin D (3000 IU) for 90 dayswith oral calcium

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario, combined with X-ray findings of metaphyseal cupping and fraying, points towards a diagnosis of nutritional rickets. The recommended treatment for a 2-year-old with nutritional rickets involves daily high-dose vitamin D (3000 IU) for 90 days, along with oral calcium supplementation. Treatment of Nutritional Rickets: 1. Vitamin D Supplementation: Stoss Therapy: Administer 300,000-600,000 IU of vitamin D orally or intramuscularly over 1 day (2-4 doses). Vitamin D■ is preferred due to its longer half-life. Ideal for patients with questionable adherence. Alternative Strategy: Daily Vitamin D minimum dose of 3,000 IU/day for at least 3 months. Follow-Up: Both strategies should follow up with 400 IU/day (<1 year old) or 600 IU/day (>1 year old). 2. Calcium & Phosphorus Supplementation 3. Monitoring: Radiological improvement (white line of healing in the metaphyses) should be visible within 4 weeks. Age Daily dose of vitamin D3 for 12 weeks Alternative intermittent dose regimen Daily calcium supplementation Daily maintenance dose (follow up) <6 months 2000 IU Not recommended 30-75 mg/kg/day 400 IU 6-12 months 2000 IU Equivalent of 2000 IU/ day may be given on a weekly or monthly basis 30-75 mg/kg/day 400 IU >12 months 3000IU 60,000 IU every 2 weeks for 5 doses 30-75 mg/kg/day (up to 500 mg) 600 IU

References:

Nelson textbook of pediatrics, 21st edition, Page 380

Ghai Essential Pediatrics, 10th Edition, Page 106

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 10-year-old boy presents with progressive proximal muscle weakness and calf hypertrophy. Genetic testing reveals a mutation in the dystrophin gene. Which of the following statements about the diagnosis is true? (Q850224)

A. Most cases are autosomal dominant

B. It is caused by the complete loss of dystrophin

C. It is due to frameshift mutations causing a truncated protein

D. It is milder with slow progression

Correct Answer: D. It is milder with slow progression

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presentation of progressive proximal muscle weakness and calf hypertrophy in a 10-year-old, with Genetic testing revealing a mutation in the dystrophin gene, is consistent with Becker Muscular Dystrophy (BMD). Becker Muscular Dystrophy (BMD) has a late onset and shows slow progression. DMD vs BMD Aspect Duchenne Muscular Dystrophy (DMD) Becker Muscular Dystrophy (BMD) Type of Mutation Frameshift mutations leading to a disrupted reading frame (Option C) In- frame mutations that preserve the reading frame Dystrophin Protein Dystrophin deficient Truncated and unstable (< 3% of normal) (Option C) Abnormal dystrophin (Option B) Partially functional (20–90% of normal) Clinical Severity Severe, early onset, rapid progression Milder, later onset, slower progression (Option D) Inheritance Pattern X-linked recessive X-linked recessive (Option A) Age of onset Early childhood (Before 5 years) Later childhood (After 5-7 years)

References:

Nelson Textbook of Pediatrics, 21st edition, Page 3283

Ghai Essential Pediatrics, 10th Edition, Page 614

↑ *Back to this question in Part A*

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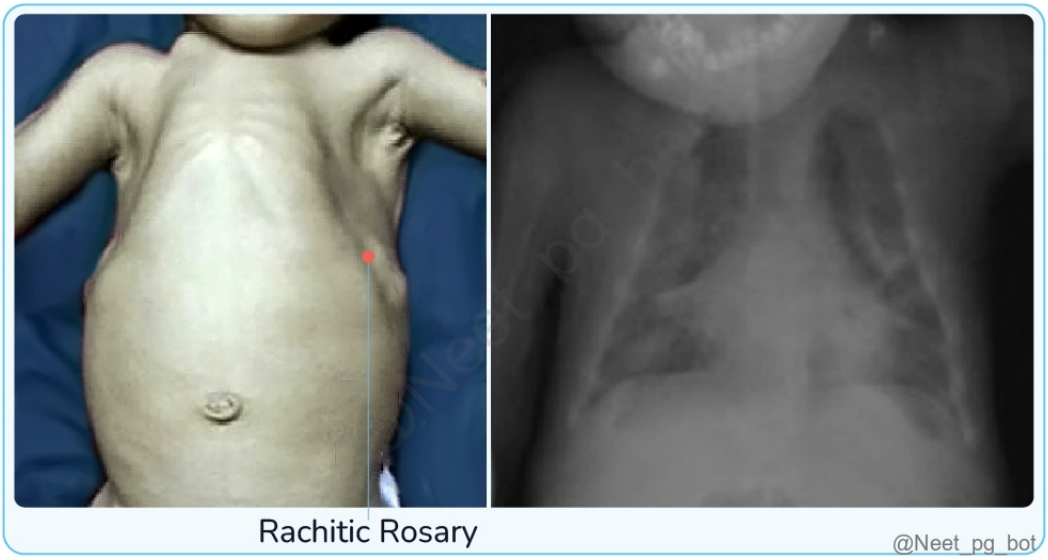
Q17: A 7-year-old child presents with delayed dentition and prominent frontal bossing. During the physical examination, non-tender, round deformity over the chest is noted as shown in the image given below. What is the most likely diagnosis in this case? (Q850349)

A. Acromegaly

B. Scurvy

C. Rickets

D. Osteomalacia



Correct Answer: C. Rickets

■ *Listen (English)*

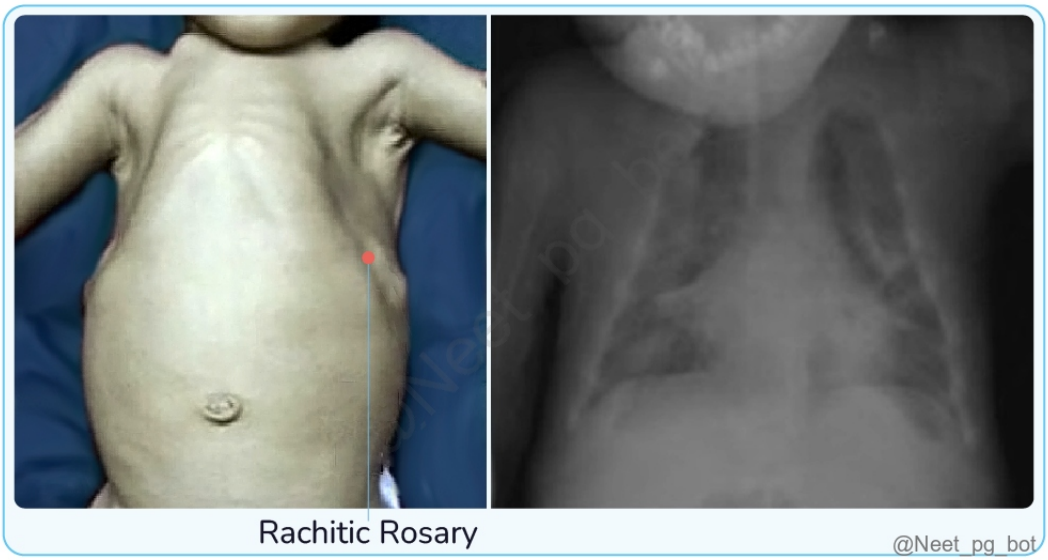
■ *Listen (Hindi)*

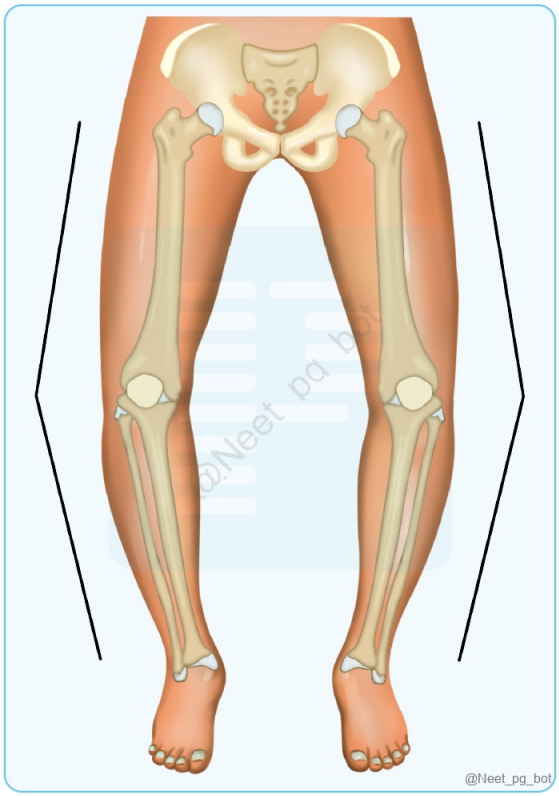
Explanation: The given image shows a rachitic rosary, which is a characteristic finding of rickets. Widening of the costochondral junction results in a rachitic rosary, which feels like a rosary bead as the examiner's finger moves along the costochondral junctions from rib to rib. Clinical Features of Rickets: General: Failure to thrive (malnutrition) Listlessness Protruding abdomen Muscle weakness (especially proximal) Hypocalcemic dilated cardiomyopathy Fractures (pathologic, minimal trauma) Increased intracranial pressure Head: Craniotabes: Softening of cranial bones Frontal bossing Delayed fontanel closure (usually closed by 2 years) Delayed dentition Craniosynostosis Hypocalcemic Symptoms: Tetany Seizures Stridor caused by laryngeal spasm Chest: Rachitic rosary: Due to the widening of the costochondral junction Harrison groove: Horizontal depression along the lower anterior chest due to pulling of softened ribs by the diaphragm during inspiration Respiratory infections and atelectasis Back: Scoliosis Kyphosis Lordosis Extremities: Enlargement of wrists and ankles: Due to growth plate widening Valgus or varus deformities Windswept deformity (valgus deformity of one leg with varus deformity of the other leg) Anterior bowing of the tibia and femur Coxa vara Aspect Scorbutic Rosary (Option B) Rachitic Rosary (Option C) Underlying Deficiency Vitamin C deficiency (scurvy) leads to impaired collagen synthesis. Vitamin D deficiency (rickets) is caused by an unmineralized matrix at the growth plate in children only before the fusion of the epiphysis. Features Beads at the costochondral junctions have sharper angulation. Scorbutic rosary is tender. Beads have a more rounded appearance Rachitic rosary is non-tender Additional Clinical Features Scurvy : Irritability, anorexia, musculoskeletal pain, leg swelling, pseudoparalysis, hemorrhagic manifestations (petechiae, purpura, gum bleeding), and specific radiographic findings in long bones. Rickets : Delayed closure of fontanelles,

craniotabes (soft skull bones), Harrison's groove (indentation along lower ribs), skeletal deformities (bowlegs, knock-knees), and muscle weakness. Acromegaly (Option A), caused by excess growth hormone, leads to a large lower jaw, prominent forehead, and enlarged hands and feet in adults and occurs after growth plate fusion. Osteomalacia (Option C) is a condition of bone softening due to prolonged vitamin D deficiency in adults.









References:

Nelson textbook of pediatrics, 21st edition, Pages 375,376, 376

https://www.ncbi.nlm.nih.gov/books/NBK431086/

https://www.niams.nih.gov/health-topics/pagets-disease-bone

https://www.ncbi.nlm.nih.gov/books/NBK551616/

https://indianpediatrics.net/aug2017/aug-699.htm

↑ *Back to this question in Part A*

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Q18: A 5-year-old child presents with bone pain and noticeable deformities, including bowed legs. The child has a diet predominantly consisting of processed foods with minimal dairy products and very limited outdoor activity. What is the most common cause of the child's condition? (Q850348)

A. Vitamin D deficiency

B. Calcium deficiency

C. Phosphate deficiency

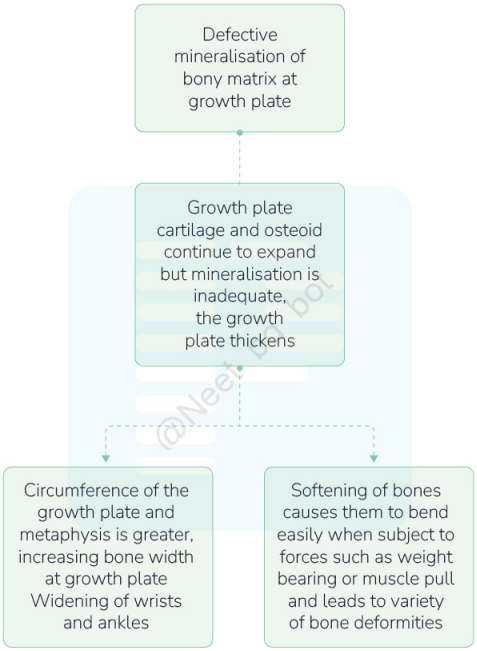
D. Fanconi syndrome

Correct Answer: A. Vitamin D deficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Child with bone pain and noticeable deformities like bowed legs are suggestive of Rickets. Vitamin D deficiency is the most common cause of rickets, especially in children with inadequate sun exposure and a diet lacking in vitamin D-rich foods. Rickets: Disease of growing bone caused by unmineralized matrix at the growth plates in children only before fusion of the epiphysis. Pathophysiology of Rickets: Etiology of Rickets: Vitamin D Disorders: Nutritional vitamin D deficiency (Most common cause) (Option A) Congenital vitamin D deficiency Secondary vitamin D deficiency Malabsorption Increased degradation Decreased liver 25-hydroxylase Vitamin D-dependent rickets types 1A and 1B Vitamin D-dependent rickets types 2A and 2B Chronic kidney disease Calcium Deficiency: (Option B) Low intake Diet Premature infants (rickets of prematurity) Malabsorption Primary disease Dietary inhibitors of calcium absorption Phosphorus Deficiency: (Option C) Inadequate intake Premature infants (rickets of prematurity) Aluminum-containing antacids Renal Losses: X-linked hypophosphatemic rickets Autosomal dominant hypophosphatemic rickets Autosomal recessive hypophosphatemic rickets types 1 and 2 Hereditary hypophosphatemic rickets with hypercalciuria Overproduction Or fibroblast growth factor-23 Tumor-induced rickets McCune-Albright syndrome Epidermal nevus syndrome Neurofibromatosis Fanconi syndrome (Option D) Dent disease Distal renal tubular acidosis



References:

Nelson textbook of pediatrics, 21st edition, Pages 375,376

Ghai Essential Pediatrics, 10th Edition, Page 104

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: Which of the following statements about the management of spinal muscular atrophy is true? (Q850347)

A. Nusinersen is administered intravenously for increasing SMN protein production.

B. Gene therapy focuses on delivering a functional SMN2 gene intrathecally.

C. AVXS-101 is used for spinal muscular atrophy Type I.

D. Olesoxime is an oral medication that increases SMN protein production.

Correct Answer: C. AVXS-101 is used for spinal muscular atrophy Type I.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: AVXS-101 is used in gene therapy to deliver a functional SMN1 gene intravenously for SMA Type I. Disease-Modifying Therapies for SMA: Nusinersen (Spinraza), an SMN antisense oligonucleotide (Option A) , increases SMN protein production from the SMN2 gene through intrathecal administration. Onasemnogene AVXS-101 (Zolgensma) : Gene therapy (Option B) delivering a functional SMN1 gene intravenously for SMA Type I . Risdiplam (Evrysdi): Oral medication increasing SMN protein production Neuroprotective agents (Olesoxime) (Option D) to protect motor neurons.

References:

Nelson Textbook of pediatrics, 21st Edition, Pages 3315, 3316

↑ *Back to this question in Part A*

@Neet_pg_bot

Q20: A 4-month-old baby with severe hypotonia is brought to the hospital and has a weak cough and lie, as shown in the image. Which type of SMA is the child suffering from? (Q850346)

A. Type 0

B. Type II

C. Type I

D. Type IV



Correct Answer: C. Type I

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above image shows the classical “frog-leg posture” due to severe hypotonia, which is seen in Type I SMA, where the hypotonia causes a “floppy appearance.” Clinical features of Type 1 or the classical type of Spinal Muscular Atrophy (SMA): Onset : Symptoms typically appear before six months of age, but some cases may present at birth. Early motor delays: lack of head control Characteristic muscle weakness and hypotonia Severe generalized weakness affecting both limbs and trunk Proximal predominance is greater weakness in proximal muscles (legs > arms) “ Floppy appearance ” due to hypotonia Frog-leg posture Absent or diminished reflexes (areflexia/hyporeflexia) Tongue fasciculations Respiratory distress due to weakness in intercostal muscles leads to paradoxical breathing, a bell-shaped chest, a weak cough, and frequent respiratory infections. Feeding difficulties due to challenges in sucking and swallowing carry the risk of aspiration. Cognitive functions are preserved as the upper motor neurons are spared. Lack of eye muscle/ facial movements: Motor neurons of cranial nerves III, IV, and VI to the extraocular muscles and of the sacral spinal cord to the striated muscle of the urethral and anal sphincters are preserved, but progressive disease might lead to facial weakness later on. SMA Type 0 (Option A) presents with severe hypotonia, facial diplegia, joint contractures, and cardiac abnormalities, but frog leg posture is not seen. SMA Type II (Option B) has a proximal weakness, scoliosis, hand tremors, and difficulty in walking/standing. SMA Type IV (Option D) is a mild disease that has slow-progressing muscle weakness and scoliosis and a near-normal lifespan

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3310, 3312

↑ *Back to this question in Part A*

Q21: A baby at birth has profound weakness of the limbs and trunk and severe hypotonia. On examination, there are facial diplegia and joint contractures. The neonate is in respiratory distress. Which type of disease in this scenario is this baby affected by? (Q850345)

A. Werdnig-Hoffmann: Type I

B. Intermediate: Type II

C. Kugelberg-Wulander: Type III

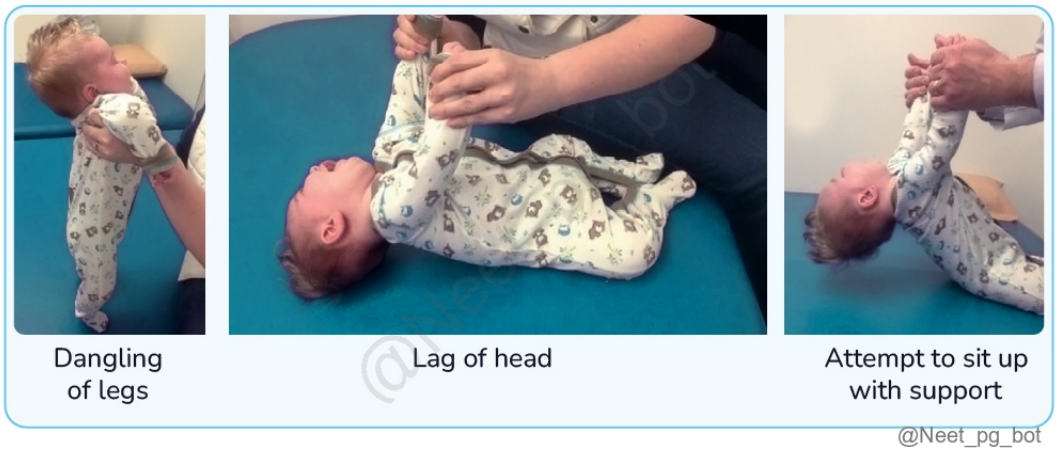
D. Very severe: Type 0

Correct Answer: D. Very severe: Type 0

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical scenario points to the diagnosis of Type 0 spinal muscular atrophy, which shows profound weakness of the limbs and trunk and severe hypotonia. Spinal muscular atrophy: Spinal muscular atrophy is divided into the following types: Type Features Onset Clinical features Prognosis Genetics Type 0 (very severe) Prenatal onset: decreased intrauterine movements Severe hypotonia Respiratory distress, Feeding difficulties Cranial nerve, cardiac system involvement Congenital contractures Arthrogryposis Autonomic dysfunction Prenatal or at birth Profound weakness Severe hypotonia Facial diplegia Joint contractures Cardiac abnormalities Extremely poor; survival typically <1 year Associated with a single copy of the SMN2 gene Type I (severe Werdnig-Hoffman) (Option A) Severe hypotonia Frog-leg posture Absent/ decreased reflexes Tongue fasciculations Respiratory issues Feeding difficulties Preserved cognitive function Lack of head control Before 6 months Profound weakness Frog leg posture Paradoxical breathing Weak cough Normal intelligence Historically, less than 2 year,s but improved with advancements in care 1-2 copies of SMN2 Type II (Intermediate) (Option B) Normal early development, followed by plateau/regression Ability to sit independently Proximal muscle weakness Scoliosis 6-18 months Proximal weakness Difficulty standing/walking Hand tremors Scoliosis Survival into adulthood is possible with proper management 1-2 copies Type III (Mild, Intermediate SMA and Kugelberg-Welander) (Option C) Later onset Progressive proximal muscle weakness Ability to stand/walk independently Possible muscle hypertrophy Tongue fasciculations Hand tremors After 18 months and some in adulthood Progressive weakness Muscle hypertrophy Ability to walk independently initially Generally good near-normal lifespan with possible progression requiring a mobility aid 3 copies (intermediate) 3-4 copies(Kugelberg-Welander type) Type IV (adult-onset) Adult onset Slowly progressive muscle weakness Mild clinical presentation After 2 nd or 3 rd decade Mild weakness Near-normal life span and quality of life Progressive scoliosis High risk of fracturing long bones and the pelvis Favorable with a good quality of life ≥4 copies



References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 3310, 3312, 3313

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3860273/

↑ *Back to this question in Part A*

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Q22: A 2-day-old newborn baby developed respiratory insufficiency, difficulty in sucking and swallowing, and generalized hypotonia. There is little spontaneous motor activity and no respiratory infection. The mother has a history of myasthenia gravis. What would be the cause of this disease in the infant? (Q850233)

A. Choline acetyltransferase deficiency

B. Endplate AChE deficiency

C. MuSK deficiency

D. Placental transfer of anti-AChR antibodies

Correct Answer: D. Placental transfer of anti-AChR antibodies

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The beginning of symptoms within 1-3 days of life and the symptoms all point to the diagnosis of transient neonatal myasthenia gravi s, which is caused by the placental transfer of maternal anti-AChR antibodies . Congenital Myasthenia Gravis (CMS) Transient Neonatal Myasthenia Gravis (TNMG) A heterogeneous group of genetic diseases of neuromuscular transmission is collectively called congenital myasthenia gravis syndromes.

Transient symptoms of myasthenia gravis(MG) are caused due to maternal antibodies. Caused by genetic mutations affecting the neuromuscular junction Examples: Presynaptic: Choline acetyltransferase deficiency (Option A) Synaptic basal lamina-associated Endplate AChE deficiency (Option B) Postsynaptic Primary AChR deficiency=/- minor kinetic abnormality Defects in EP development and maintenance MuSK deficiency (Option C) Rapsyn deficiency Congenital defect of glycosylation Other myasthenic syndromes Caused by maternal anti-AChR antibodies crossing the placenta Permanent /lifelong condition inherited in a recessive/autosomal dominant pattern Due to the passive transfer of antibodies via the placenta The onset of symptoms at birth or early infancy Symptoms typically appear within the first 1 - 3 days of life Symptoms : Hypotonia External ophthalmoplegia, Ptosis, Facial weakness Dysphagia Weak cry Easy muscle fatigue Respiratory insufficiency or failure (often triggered by a minor respiratory infection) Symptoms : Respiratory insufficiency Difficulty in sucking or swallowing Generalized hypotonia & Generalized weakness Little spontaneous motor activity Diagnosis is made by Clinical features Electromyography (EMG) Genetic testing for CMS-associated genes Anti-AChR antibody levels are rarely elevated Diagnosis is made by Clinical features Detection of anti-AChR antibodies in the infant's blood (may not always be present) Treatment: Varies by specific mutations Cholinesterase inhibitors may be helpful or worsen symptoms Treatment: Supportive care (ventilatory support, gavage feeding) Pyridostigmine for transient management Prognosis: Static disorder Lifelong symptoms with varying severity Myasthenic crises are rare Prognosis: Transient: symptoms usually resolve within 2 months as maternal antibodies disappear. Affected infants generally do not develop MG later A small minority may develop arthrogryposis due to fetal akinesia

References:

Nelson textbook of pediatrics, 21st edition, Pages 3305, 3306, 3307.

↑ *Back to this question in Part A*

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Q23: A child is being treated for juvenile myasthenia gravis and suddenly develops symptoms like diarrhea, cramping, excessive sweating, excessive urination, and salivary secretion. Which of the following drugs used for the treatment of myasthenia gravis caused this? (Q850232)

A. Prednisone

B. Atropine

C. Rituximab

D. Pyridostigmine

Correct Answer: D. Pyridostigmine

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Pyridostigmine is an acetylcholinesterase inhibitor and is the first-line symptomatic treatment for myasthenia gravis (including juvenile MG). It increases acetylcholine levels at the neuromuscular junction. Overdose or excessive effect leads to a cholinergic crisis due to excess acetylcholine at muscarinic receptors , r esulting in muscarinic symptoms: Diarrhea Abdominal cramping Excessive salivation Sweating Increased urination These features together form the classic cholinergic toxidrome (DUMBBELSS) . Hence, pyridostigmine is the drug most likely responsible. Incorrect Options A. Prednisone Prednisone is a corticosteroid used as immunosuppressive therapy in myasthenia gravis. Adverse effects include: Weight gain Hypertension Hyperglycemia Cushingoid features It does not cause cholinergic symptoms like diarrhea, sweating, or salivation. B. Atropine Atropine is an antimuscarinic (parasympatholytic) drug . It is actually used to treat cholinergic crisis by blocking muscarinic effects. Atropine toxicity causes the opposite symptoms : Dry mouth Urinary retention Tachycardia Decreased sweating C. Rituximab Rituximab is a monoclonal antibody against CD20 . Used in refractory myasthenia gravis , especially MuSK-antibody positive cases . Side effects include: Infusion reactions Immunosuppression It has no cholinergic or autonomic effects .

References:

Nelson textbook of pediatrics, 21st edition, Page 3309

↑ *Back to this question in Part A*

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Q24: A worried pair of parents came to the pediatrician as their child was showing weakness, difficulty in swallowing, and inability to coordinate her eye movements. The child is unable to raise her hands higher, especially towards the end of the day. Her serological evaluation for acetylcholine receptor antibodies came back negative. What would be the next best investigation to confirm the diagnosis? (Q850231)

A. Antinuclear antibody detection

B. Repetitive nerve stimulation (RNS)

C. Electromyography

D. Muscle-specific tyrosine Kinase (MuSK) Antibody detection

Correct Answer: D. Muscle-specific tyrosine Kinase (MuSK) Antibody detection

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The diagnosis here, according to the clinical features, is Myasthenia Gravis , and in case of a negative AChR antibody report, the next step is to evaluate the Muscle-specific tyrosine Kinase (MuSK) antibodies in the serum. Investigations for Juvenile Myasthenia Gravis: Electrodiagnostic Tests: Assess neuromuscular transmission defects Repetitive Nerve Stimulation (RNS) (Option B) - Decremental response Electromyography (EMG) (Option C) Serologic Tests: Identify autoantibodies Acetylcholine Receptor (AChR) Antibodies - Confirm

autoimmune MG Muscle-Specific Tyrosine Kinase (MuSK) Antibodies (Option C) - Diagnose MG in AChR-negative cases Other Autoimmune Markers - Rule out coexisting autoimmune conditions Chest Radiograph/CT/ MRI Genetic Testing to differentiate congenital myasthenic syndromes (CMS) from autoimmune MG Antinuclear antibody detection (Option A): Antinuclear antibody detection is used to diagnose autoimmune diseases like lupus and is not diagnostic for MG.

References:

Nelson textbook of pediatrics, 21st edition, Page 3308.

https://www.ncbi.nlm.nih.gov/books/NBK559331/

↑ *Back to this question in Part A*

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Q25: A 7-year-old unimmunized child presents with sudden onset of asymmetric leg weakness and reduced reflexes. Sensation remains intact. Lumbar puncture reveals lymphocytic pleocytosis with normal or slightly increased protein levels. What is the most likely diagnosis? (Q850230)

A. Guillain-Barré Syndrome

B. Transverse Myelitis

C. Poliomyelitis

D. Traumatic Neuritis

Correct Answer: C. Poliomyelitis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Poliomyelitis typically presents with asymmetric muscle weakness, often affecting different limbs or muscle groups on opposite sides of the body. Sensation remains intact and CSF shows lymphocytic pleocytosis with normal or increased protein levels. Feature Poliomyelitis Guillain-Barré Syndrome Transverse Myelitis Traumatic Neuritis Fever Present; may be biphasic May have a prodromal illness May have a prodromal illness Absent Symmetry Asymmetric (Option C) Symmetrical (Option A ruled out) Symmetrical (Option B ruled out) Asymmetric Sensations Intact; may have diffuse myalgias Variable Impaired below the level of the lesion Impaired in the distribution of the affected nerve Respiratory Insufficiency May be present May be present May be present Absent Cranial Nerves Affected in the bulbar and bulbospinal forms Usually affected Absent Absent Cerebrospinal Fluid (CSF) Lymphocytic pleocytosis; normal/increased protein Albumino-cytologic dissociation Variable Normal

References:

Ghai Essential Pediatrics, 10th Edition, Pages 586-587

↑ *Back to this question in Part A*

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Q26: A pediatrician is evaluating an infant with generalized muscle weakness and hypotonia with a history of feeding difficulties and delayed motor response. He suspects a congenital myopathy and orders genetic testing along with a muscle biopsy. Which of the following conditions is not classified as a type of congenital myopathy? (Q850229)

A. Nemaline Myopathy

B. Duchenne Muscular Dystrophy

C. Centronuclear Myopathy

D. Core Myopathy

Correct Answer: B. Duchenne Muscular Dystrophy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Duchenne Muscular Dystrophy (DMD) is a genetic disorder caused by mutations in the dystrophin gene characterized by progressive muscle degeneration and weakness. It is classified as muscular dystrophy, not congenital myopathy. Clinical features of Congenital Myopathies: The majority present as 'floppy infant' syndrome with hypotonia, static or non-progressive muscle weakness, and normal or decreased deep tendon reflexes. Respiratory insufficiency, feeding difficulties, contractures, and skeletal deformities. Subtypes: Condition Genetics Key Features Core Myopathies (Option D ruled out) AD, AR Poorly defined fibers, risk of malignant hyperthermia Nemaline Myopathy (Option A ruled out) AD, AR, sporadic Nemaline bodies on muscle biopsy, facial, ocular, and neck muscles affected Chest and skeletal deformities (scoliosis) Centronuclear Myopathies (Option C ruled out) AD, sporadic, X-linked Central nuclei in all muscle fibers, facial weakness, external ophthalmoplegia, weakness of neck flexors, and ptosis Congenital Fiber Type Disproportion AD, AR, X-linked Predominant type 1 fibers, small type 2 fibers

References:

Ghai Essential Pediatrics, 10th Edition, Pages 589,590

↑ *Back to this question in Part A*

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Q27: A mother brings her 7-year-old son to the clinic because he has difficulty buttoning his shirt. She notes that his eyes remain partially open during sleep. Upon examination, the child exhibits asymmetric wrist and finger weakness, a puckered and rounded mouth, and winging of scapula. What is the most likely diagnosis? (Q850228)

A. Emery-Dreifuss muscular dystrophy

B. Facioscapulohumeral muscular dystrophy

C. Congenital muscular dystrophies

D. Limb-girdle muscular dystrophy

Correct Answer: B. Facioscapulohumeral muscular dystrophy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Based on the given scenario, the likely diagnosis is Facioscapulohumeral muscular dystrophy. Facioscapulohumeral muscular dystrophy: Associated complications: Hearing loss, retinal vasculopathy, lumbar lordosis, and kyphoscoliosis Table: Feature Emery-Dreifuss MD (EDMD) (Option A) Limb-Girdle MD (LGMD) (Option D) Facioscapulohumeral MD (FSHD) (Option B) Congenital MD (CMD) (Option C) Inheritance XLR (EMD gene) or AD/AR (LMNA gene) AD (LGMD type1)/ AR (LGMD type 1) AD with Genetic anticipation AR Genetic Mutations EMD gene (emerin), LMNA gene (lamin A/C) Over 30 genetic forms D4Z4 repeat (FSHD1), SMCHD1 mutations (FSHD2) Multiple genes, associated with brain malformations and severe epilepsy Onset Childhood (5-15 yrs) Variable: childhood (4-5 years) to adulthood Childhood to adult life Prenatal, neonatal, or early childhood Muscle Involvement Contractures of the elbows, ankles, and neck extensor muscles Scapulohumeroperoneal wasting, no facial weakness Low back pain, Hip and shoulder girdles affected, later distal muscles, weakness of neck flexors and extensors Upper Facial (inability to close the eye completely in sleep) and shoulder girdle (scapular winging), asymmetric weakness, puckered and rounded mouth, Flattening or concavity of deltoid contour seen with wasted biceps and triceps. Muscles of the hip and thighs also eventually atrophy, and Gower’s sign is seen . Diffuse hypotonia, poor head control, contractures, mild facial involvement, dysphagia Cardiac Involvement Dilated cardiomyopathy, ventricular fibrillation Some subtypes have cardiac involvement Rare No specific cardiac involvement Respiratory Involvement Early respiratory insufficiency in severe forms Respiratory compromise in later stages Rare, some may need respiratory support Respiratory complications common Diagnostics Muscle biopsy, genetic testing, cardiac evaluation Muscle biopsy, genetic testing, elevated serum CK Genetic testing, muscle biopsy, EMG Muscle biopsy, genetic testing, brain imaging Treatment Supportive care, cardiac management with ICD, orthopedic management Supportive care, orthopedic management Supportive care, light aerobic exercise Supportive care, physical therapy, feeding support Prognosis Slow progression, many survive to late adult life Variable; Loss of ambulation in early adulthood Variable; 20% lose independent ambulation Often benign course despite early onset



References:

Nelson Textbook of Pediatrics, 21st edition, Pages 3285, 3289, 3292, 3293.

↑ *Back to this question in Part A*

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Q28: A 6-year-old girl presents with decreased muscle tone. Physical examination reveals a high-arched palate, an inverted V-shaped upper lip, and prominent facial muscle wasting. During physical examination, the patient was asked to make tight fists and then quickly open her hands, but a delay in the relaxation of the muscles was noted. What is the most likely diagnosis? (Q850227)

A. Duchenne muscular dystrophy

B. Becker muscular dystrophy

C. Emery-Dreifuss muscular dystrophy

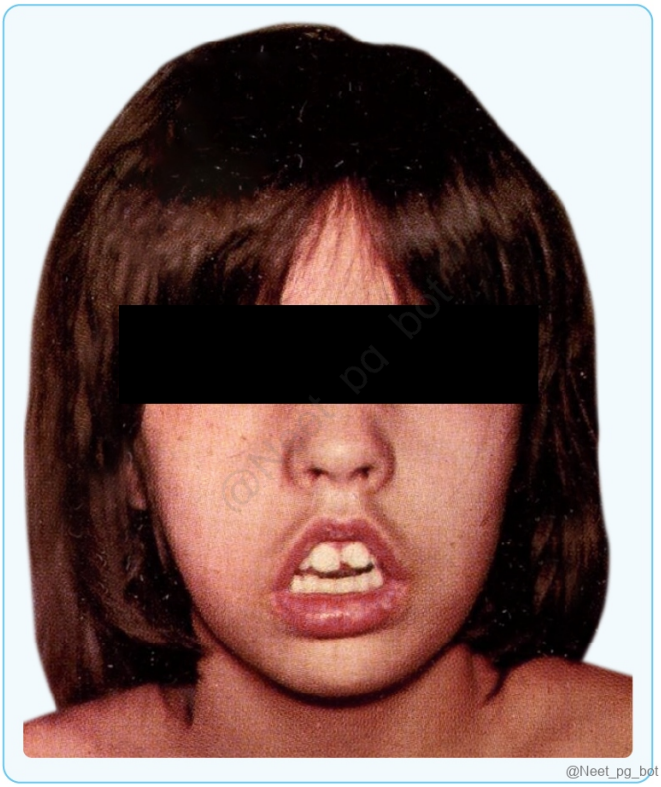
D. Myotonic dystrophy

Correct Answer: D. Myotonic dystrophy

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The patient’s clinical features of a high-arched palate, an inverted V-shaped upper lip, and prominent facial muscle wasting, along with myotonia, indicate Myotonic dystrophy. Features and Management of Myotonic Dystrophy Types Classic Type 1 (DM1): CTG expansion in the DMPK gene on chromosome 19q13.3 Type 2 (DM2): CCTG expansion in zinc finger protein 9 (ZNF9) gene on chromosome 3q21 Late form (DM3): Linked to locus 15q21-q24 Inheritance Autosomal dominant Systemic Involvement Multisystem disease affecting muscles, cardiac function, endocrine system, GI tract, CNS, and immune system Clinical Features Facial Features: Inverted-V upper lip, thin cheeks, scalloped temporalis, high-arched palate Muscle Wasting: Distal > proximal muscles; myotonia present after age 5 Cardiac: Heart block, arrhythmias, sudden death Endocrine: Hypothyroidism, adrenal insufficiency, diabetes, delayed puberty, testicular atrophy Ocular: Cataracts, abnormal visual evoked potentials Intellectual Impairment: Mild to moderate, with increased autism risk Congenital Form: Severe hypotonia, respiratory difficulties, high infant mortality if prolonged ventilation needed Laboratory Findings Serum CK: Normal or mildly elevated EMG: Myotonic pattern evident from school age Cardiac Evaluation: Annual ECG; ECHO every 2 years Endocrine and Immune: Regular monitoring of thyroid, adrenal function, glucose tolerance, and immunoglobulins Diagnosis Primary: DNA analysis for CTG/CTG repeat expansions Muscle Biopsy: Shows central nuclei, type I fiber atrophy; usually not required for diagnosis Treatment Physiotherapy/ Orthopedic: For contractures and to maintain function Myotonia Management: Drugs like mexiletine, phenytoin, carbamazepine Cardiac Care: Annual ECG, consider pacemaker or antiarrhythmics for arrhythmias Respiratory Care: BiPAP, cough assist device, incentive spirometry Anesthesia Precautions: Avoid succinylcholine, use modified induction and extubation Duchenne muscular dystrophy (Option A): It presents with a positive Gowers' sign and hypertrophy of the calf muscles , progresses rapidly, and leads to loss of ambulation in the early teenage years. Becker muscular dystrophy (Option B) : It presents similarly to Duchenne muscular dystrophy but has a later onset (>5 years), slower progression , and allows for ambulation into adulthood. Emery-Dreifuss muscular dystrophy (Option C) : Presents with predominant involvement of scapular and numeral muscles.



References:

Nelson Textbook of Pediatrics, 21st edition, Pages 3285, 3286, 3287.

↑ *Back to this question in Part A*

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Q29: A 6-year-old boy with a history of progressive muscle weakness and elevated serum CK levels is being evaluated for Duchenne Muscular Dystrophy (DMD). Genetic testing did not reveal any deletions or duplications in the dystrophin gene. What would be the next best step in confirming the diagnosis? (Q850226)

A. Initiation of glucocorticoid therapy without further testing

B. Performing a muscle biopsy with dystrophin immunohistochemistry

C. Starting exon-skipping therapy with Eteplirsen based on clinical suspicion

D. Conducting an electromyography (EMG) to assess for myopathic changes

Correct Answer: B. Performing a muscle biopsy with dystrophin immunohistochemistry

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: When genetic testing for deletions or duplications in the dystrophin gene is negative and clinical suspicion remains high (e.g., based on elevated serum CK levels and clinical features), the next best step is to perform a muscle biopsy with dystrophin immunohistochemistry. Diagnostic and Therapeutic Approach to Duchenne Muscular Dystrophy (DMD) Initial Genetic Evaluation Primary Testing: Deletion/duplication analysis of the dystrophin gene using dosage analysis. Next-generation sequencing (NGS) if initial testing is negative. Muscle Biopsy Indications: Used when genetic tests are inconclusive, especially if serum CK levels are elevated. Findings: Endomysial connective tissue proliferation, degenerating/regenerating myofibers, hypercontracted fibers, dystrophin abnormalities. Steroid Therapy Purpose: Slows muscle strength decline, prolongs ambulation, and may benefit scoliosis progression. Dosing: Prednisone (0.75 mg/kg/day) or deflazacort (0.9 mg/kg/day); various dosing protocols available. Advanced Therapeutic Options Exon Skipping Therapy: Eteplirsen for patients with mutations amenable to exon 51 skipping (~13% of DMD cases). Nonsense Mutation Therapy: Ataluren for patients with nonsense mutations (~10-15% of DMD cases). Cardiac Management First-line Agents: ACE inhibitors, ARBs, beta-blockers, aldosterone antagonists. Timing of Intervention: Initiated based on echocardiogram findings (LVEF < 55%) or earlier based on MRI changes. Pulmonary Management Infection Prevention: Prompt treatment of pulmonary infections, avoidance of contagious illnesses, routine vaccinations. Sleep-Disordered Breathing: Sleep studies, BiPAP therapy, use of cough assist devices, airway clearance support. Nutritional Management Adequate calcium and vitamin D intake, weight management to prevent obesity. Physiotherapy & Contracture Management Delays but may not prevent contractures; stretching, bracing, and cautious surgical interventions. Glucocorticoids (Option A) are essential in managing DMD, but initiating therapy without confirming the diagnosis through further testing (such as a muscle biopsy) is not recommended. Exon skipping therapy, such as Eteplirsen (Option C) , is specific to patients with certain dystrophin gene mutations (e.g., those amenable to exon 51 skipping). E lectromyography (Option D) can show myopathic changes, it is not specific to DMD.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 3292.

↑ *Back to this question in Part A*

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Q30: A 4-year-old boy presents with a history of delayed motor milestones. He began walking at 18 months and has recently started exhibiting a waddling gait and difficulty climbing stairs. On examination, the boy displays a positive Gowers sign and hypertrophy of the calf muscles. His serum creatine kinase levels are markedly elevated. What is the most probable diagnosis? (Q850225)

A. Duchenne muscular dystrophy

B. Becker muscular dystrophy

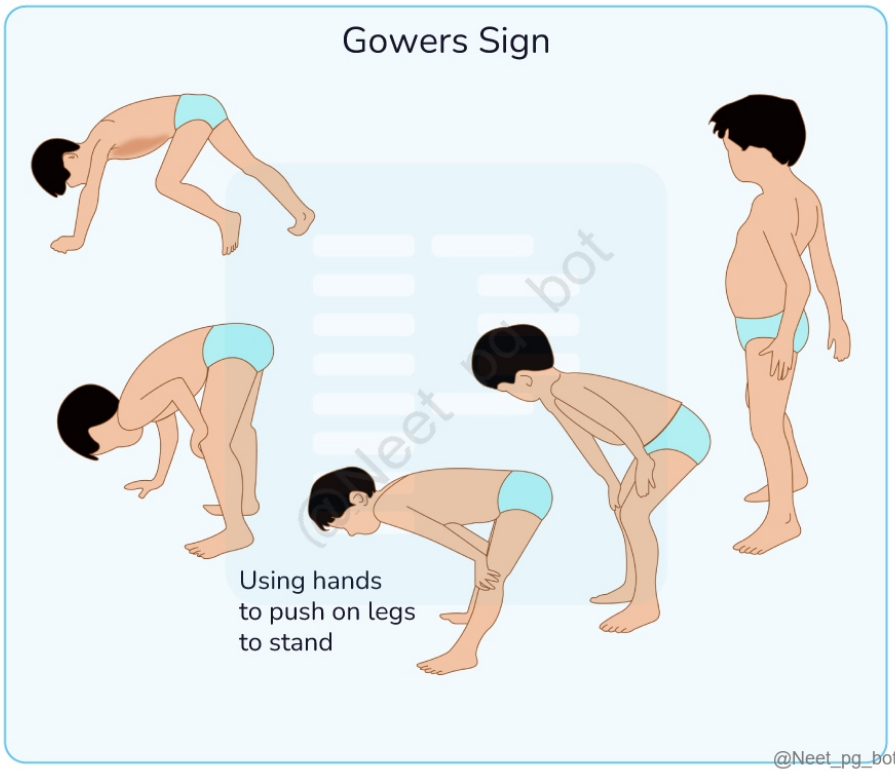
C. Emery-Dreifuss muscular dystrophy

D. Myotonic muscular dystrophy

Correct Answer: A. Duchenne muscular dystrophy

- *Listen (English)*
- *Listen (Hindi)*

Explanation: s: The findings of positive Gower’s sign, hypertrophy of the calf muscle, and elevated serum creatine kinase with a history of waddling gait and difficulty climbing stairs in a child <5 years of age are suggestive of Duchenne muscular dystrophy (DMD). Clinical Differences Between DMD and BMD Features Duchenne Muscular Dystrophy (DMD) Becker Muscular Dystrophy (BMD) Age of Onset Before 5 years After 5-7 years Early Symptoms Hip girdle weakness, delayed walking, Gowers’ sign, lordotic posture, frequent falls Mild motor delay, later onset of weakness Ambulation Loss Typically between 10-14 years Late adolescence or adulthood Progression Rate Rapid Slower Muscle Involvement Proximal muscle weakness, calf pseudohypertrophy Calf pseudohypertrophy, less severe proximal weakness Cardiac Involvement Common, usually worsens after loss of ambulation Common, may appear earlier despite ambulation Cognitive Impairment Common (20-30% with IQ < 70), possible autism-like behavior, epilepsy Less common Respiratory Involvement Common, leading to frequent pulmonary infections, sleep apnea, and respiratory failure Less severe, but present in later stages Life Expectancy Late teens to 20s Into 40s and 50s Gower sign presents with any other condition associated with weakness of the pelvic girdle or proximal muscles of the lower extremities , such as: Becker muscular dystrophy Limb-girdle and other muscular dystrophies Proximal ascending pseudomyopathic diseases Spinal muscular atrophy Sarcoglycanopathy Polymyositis Discitis Juvenile idiopathic arthritis Becker Muscular Dystrophy (Option B): It has a later onset (>5 years), slower progression , and allows for ambulation into adulthood. Emery-Dreifuss muscular dystrophy (Option C): It presents with Contractures of the elbows, ankles, and neck extensor muscles that develop early, and the muscles become wasted in the scapulohumeral distribution. Myotonic muscular dystrophy (Option D) : It does not present with hypertrophy of the calf muscles or elevated CK levels. Distal muscles (e.g., hands, forearms, anterior lower legs) show progressive atrophy and very slow relaxation of muscles after contraction (Myotonia) is seen.



References:

Nelson Textbook of Pediatrics, 21st edition, Page 3258.

https://ncbi.nlm.nih.gov/books/NBK540973/

https://www.ncbi.nlm.nih.gov/books/NBK540973/

↑ *Back to this question in Part A*

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• [17_Musculoskeletal Disorders in Children] 045 Previous Year Questions

« Back to Folder Directory

[17_Musculoskeletal Disorders in Children] 045 Previous Year Questions — Quick Jump

Q1 (p. 1587) *Q2 (p. 1587)* *Q3 (p. 1592)* *Q4 (p. 1593)* *Q5 (p. 1593)* *Q6 (p. 1594)*
Q7 (p. 1595) *Q8 (p. 1596)* *Q9 (p. 1597)* *Q10 (p. 1601)* *Q11 (p. 1602)*

Q1: A 10-year-old child weighs 40 kg and presents with mental retardation. On examination, the upper segment to lower segment (US:LS) ratio is 1.1:1. What is the most likely diagnosis? (Q866749)

A. Cretinism

B. Rickets

C. Achondroplasia

D. Hypothyroidism

Correct Answer: A. Cretinism

Explanation: Cretinism (Congenital Hypothyroidism): Untreated cretinism results in disproportionate short stature characterized by a persistent high US:LS ratio (short legs), along with mental retardation, coarse features, and delayed bone maturation. Mental Retardation (Developmental Delay): This is the hallmark of severe, untreated, congenital or early-onset hypothyroidism (Cretinism). Thyroid hormone is essential for early brain development. A ratio of 1.1:1 in a 10-year-old is abnormal and elevated for the child's age, indicating a relatively short lower segment (short legs) compared to the upper segment (trunk and head). Incorrect Options: Rickets (Option B): Rickets causes bone deformities like bowed legs and enlarged joints, but typically does not cause severe mental retardation (unless associated with other systemic issues) or a high US:LS ratio. Achondroplasia (Option C): Produces rhizomelic limb shortening from birth, with US:LS ratio much higher (~1.5:1), and characteristic facial features. Hypothyroidism (Option D): Hypothyroidism in later childhood may cause short stature, but mental retardation is uncommon unless congenital hypothyroidism.

↑ *Back to this question in Part A*

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Q2: In a child presenting with a beaded appearance in the chest with the following X-ray, what is the diagnosis? (Q852696)

A. Scurvy

B. Rickets

C. Beri Beri

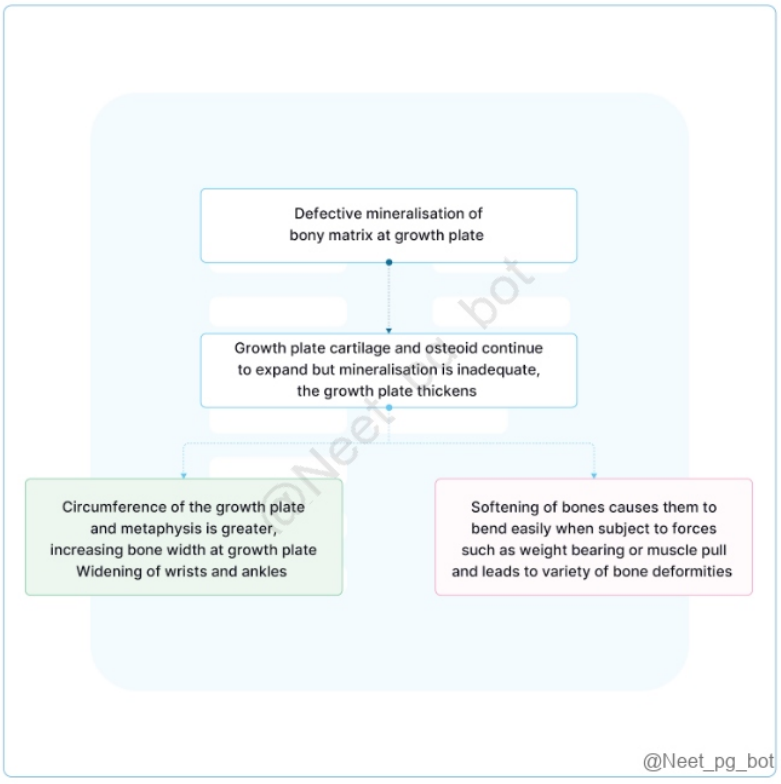
D. Pellagra



Correct Answer: B. Rickets

Explanation: The radiograph showing metaphyseal fraying and cupping and the clinical presentation of a beaded appearance on the chest (rachitic rosary) are characteristic features of rickets caused due to vitamin D deficiency. Pathophysiology of Rickets: Clinical Features of Rickets: General: Failure to thrive (malnutrition) Listlessness Protruding abdomen Muscle weakness (especially proximal) Hypocalcemic dilated cardiomyopathy Fractures (pathologic, minimal trauma) Increased intracranial pressure Head: Craniotabes: Softening of cranial bones Frontal bossing Delayed fontanel closure (usually closed by 2 yr) Delayed dentition Craniosynostosis Hypocalcemic Symptoms: Tetany Seizures Stridor caused by laryngeal spasm Chest: Rachitic rosary: Due to widening of the costochondral junction Harrison groove: Horizontal depression along the lower anterior chest due to pulling of softened ribs by the diaphragm during inspiration Respiratory infections and atelectasis Back: Scoliosis Kyphosis Lordosis Extremities: Enlargement of wrists and ankles: Due to growth plate widening Valgus or varus deformities Windswept deformity (valgus deformity of one leg with varus deformity of other leg) Anterior bowing of tibia and femur Coxa vara Treatment of Nutritional Rickets: 1. Vitamin D Supplementation:

Stoss Therapy: Administer 300,000-600,000 IU of vitamin D orally or intramuscularly over 1 day (2-4 doses). Vitamin D■ is preferred due to its longer half-life. Ideal for patients with questionable adherence. Alternative Strategy: Daily Vitamin D minimum dose of 2,000 IU/day for at least 3 months. Follow-Up: Both strategies should follow up with 400 IU/day (<1 year old) or 600 IU/day (>1 year old). 2. Calcium Supplementation: Provide oral calcium (30-75 mg/kg/day, maximum 500 mg). 3. Phosphorus Supplementation 4. Monitoring: Radiological improvement (white line of healing in the metaphyses) should be visible within 4 weeks. Age Daily dose of vitamin D3 for 12 weeks Alternative intermittent dose regimen Daily calcium supplementation Daily maintenance dose (follow-up) <6 months 2000 IU Not recommended 30-75 mg/kg/day 400 IU 6-12 months 2000 IU The equivalent of 2000 IU/ day may be given on a weekly or monthly basis 30-75 mg/kg/day 400 IU >12 months 3000IU 60,000 IU every 2 weeks for 5 doses 30-75 mg/kg/day (up to 500 mg) 600 IU Scurvy (Option A) is caused due to vitamin C deficiency and presents with irritability, leg swelling, gum bleeding, and elevated prothrombin time. Beriberi (Option C) is caused due to the deficiency of vitamin B1 (thiamine) that can lead to symptoms such as lethargy, restlessness, developmental delay, and abdominal distention. Late symptoms like peripheral neuritis, decreased reflexes, loss of vibration sense, muscle tenderness, heart failure, oedema, cardiomegaly, etc. Pellagra (Option D) is due to niacin (vitamin B3) deficiency leading to dementia, diarrhoea, and dermatitis.





Rachitic rosary in a child in rickets@Neet_pg_bot



Hand and forearm of a young child with rickets show prominence above the wrist

@Neet_pg_bot



Anterolateral bowing of legs and prominent malleoli in a child with rickets

@Neet_pg_bot



Windswept deformity of legs in rickets

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References:

Nelson Textbook of Pediatrics, 21st Edition, Page 380 OP Ghai Essential Pediatrics, 10th Edition, Page 106

↑ *Back to this question in Part A*

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Q3: A 15-year-old boy presents with short stature. On examination, his US/LS ratio is 0.8:1. Which of the following is the likely diagnosis? (Q840095)

A. Spondyloepiphyseal Dysplasia

B. Achondroplasia

C. Growth hormone deficiency

D. Hypothyroidism

Correct Answer: A. Spondyloepiphyseal Dysplasia

Explanation: Correct Option A - Spondyloepiphyseal Dysplasia: Spondyloepiphysal dysplasia (SED) is an inheritable dysplasia of the bone due to a defect in collagen. It can present a significant reduction in the upper

segment to a lower segment ratio- short trunk dwarfism. The patient's decreased upper segment to lower segment (US/LS) ratio of 0.8:1 points towards the diagnosis of spondyloepiphyseal dysplasia. Incorrect Options Option B – Achondroplasia: Achondroplasia results in short-limb dwarfism, so US/LS is likely to be increased. Option C - Growth hormone deficiency: Growth hormone deficiency results in proportionate short stature with a normal US/LS ratio. Option D – Hypothyroidism: Hypothyroidism also results in short-limb dwarfism, so US/LS is likely to be increased.

References:

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↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: Which of the following biochemical parameters are correct in vitamin D-dependent rickets? Serum calcium PTH level A Decreased / normal Normal B Decreased / normal Increased C Decreased Increased D Increased Increased (Q857204)

A. A

B. B

C. C

D. D

Correct Answer: B. B

Explanation: B In vitamin D-dependent rickets, the serum calcium is decreased or normal and PTH is increased. Biochemical changes in various vitamin D dependent conditions: Disorder Calcium Pi PTH 25-(OH)D 1,25-(OH)2D ALP Urine Calcium Urine Pi Vitamin D deficiency N,■ ■ ■ ■ ■, N,■ ■ ■ ■ Vitamin D-dependent rickets Type 1 N, ■ ■ ■ N,■ N,■ ■ ■ ■ Vitamin D dependent ricketsType 2 N, ■ ■ ■ N ■■ ■ ■ ■

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 376, 377, 378.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: Dystrophin protein is absent completely in which of the following diseases? (Q857595)

A. Becker's Muscular Dystrophy

B. Duchenne Muscular Dystrophy

C. Myasthenia gravis

D. Lambert Eaton myasthenic syndrome

Correct Answer: B. Duchenne Muscular Dystrophy

Explanation: h) release, which causes muscle weakness.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page: 3283.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 6-year-old girl, born out of a non-consanguineous marriage, presented with rachitic changes in her limbs since the age of 2 despite receiving several rounds of vitamin D treatment. Investigations are shown below. What is the most likely diagnosis? Parameter Lab determined value Serum Calcium 9.5 mg/dL Serum Phosphate 1.6 mg/dL ALP 814 IU PTH Within normal limits Serum electrolytes Within normal limits Serum creatinine Within normal limits ABG Within normal limits (Q856161)

A. Vitamin D-dependent rickets

B. Hypoparathyroidism

C. Chronic renal failure

D. Hypophosphatemic rickets

Correct Answer: D. Hypophosphatemic rickets

Explanation: can cause renal tubular dysfunction, leading to electrolyte imbalances and bone abnormalities. However, in the given scenario, the serum electrolytes and creatinine levels are within normal limits, indicating normal renal function.



References:

Nelson Textbook of Pediatrics, 21st edition, Page 376, 377, 378, 381, 382

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: What is the diagnosis for a 4-year-old boy who has muscle weakness, difficulty climbing stairs, and getting up from the floor, with a muscle biopsy showing small muscle fibrils and absence of dystrophin? (Q858512)

A. Becker muscle dystrophy

B. Duchenne muscular dystrophy

C. Myotonic dystrophy

D. Limb-girdle muscular dystrophy

Correct Answer: B. Duchenne muscular dystrophy

Explanation: Duchenne muscular dystrophy (DMD) is a genetic disorder characterized by progressive muscle degeneration and weakness. It is caused by mutations in the DMD gene that encodes the protein dystrophin. Symptoms: Children with DMD typically show signs of muscle weakness, difficulty climbing stairs, and getting up from the floor . Diagnosis: The clinical presentation, along with the muscle biopsy showing absence of dystrophin, confirms the diagnosis of Duchenne muscular dystrophy. Duchenne Muscular Dystrophy (DMD) vs Becker Muscular Dystrophy (BMD) : Aspect Duchenne Muscular Dystrophy (DMD) Becker Muscular Dystrophy

(BMD) Type of Mutation Frameshift mutations leading to a disrupted reading frame In frame mutations that preserve the reading frame Dystrophin Protein Dystrophin deficient Truncated and unstable (< 3% of normal) Abnormal dystrophin Partially functional (20–90% of normal) Inheritance Pattern X-linked recessive Age of onset Early childhood (Before 5 years) Later childhood (After 5-7 years) Clinical Severity Severe, early onset, rapid progression Milder, later onset, slower progression Nonambulatory by 9-10.5 years of age > 15 years of age Additional Symptoms Early onset of myalgia, rhabdomyolysis, and respiratory distress None or milder Becker Muscular Dystrophy (Option A) is also caused by mutations in the DMD gene but typically results in partially functional dystrophin. Symptoms are similar to DMD but milder and with later onset. Muscle biopsy would show reduced but not absent dystrophin. Myotonic dystrophy (Option C) is a different genetic disorder caused by mutations in the DMPK or CNBP genes. It involves myotonia (difficulty relaxing muscles), cataracts, and cardiac abnormalities and muscle biopsy would not show absence of dystrophin. Limb-girdle muscular dystrophy (LGMD) (Option D) involves a group of disorders affecting the voluntary muscles, particularly around the hips and shoulders. It typically shows a different pattern of muscle involvement and genetic mutations, and muscle biopsy would not show the absence of dystrophin but might show other abnormalities.

References:

Nelson Textbook of Pediatrics, 21st edition, Page 3283

Ghai Essential Pediatrics, 10th edition, Page 614

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: Which statement correctly describes X-linked hypophosphatemic rickets? (Q859765)

A. FGF-23 levels decreased

B. PHEX gene is affected

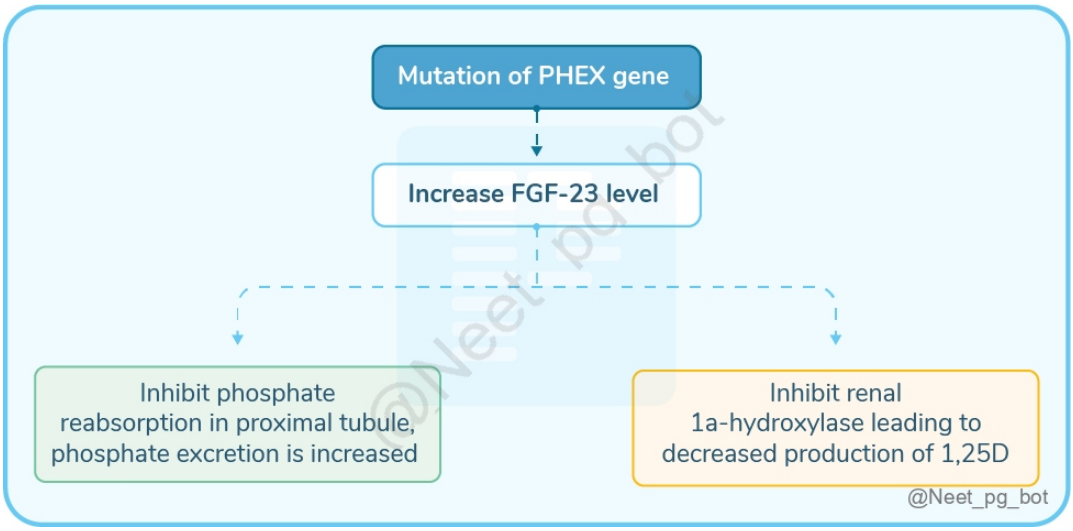
C. It is the most common cause of rickets

D. Excretion of phosphorus is decreased

Correct Answer: B. PHEX gene is affected

Explanation: X-linked hypophosphatemic rickets (XLH) is characterized by mutations in the PHEX gene. This gene encodes the phosphate-regulating endopeptidase homolog X-linked (PHEX) protein , which plays a crucial role in phosphate homeostasis. When the PHEX gene is mutated, it leads to increased FGF-23 levels , resulting in impaired phosphate reabsorption in the renal tubules and subsequent hypophosphatemia. XLH is inherited in an X-linked dominant pattern and presents with characteristic features including lower limb deformities, dental abnormalities, and skeletal manifestations without typical hypocalcemic symptoms. X-Linked Hypophosphatemic (XLH) Rickets Prevalence 1 in 20,000. Most common among genetic disorders causing rickets Inheritance X-linked dominant Gene Mutated PHEX (phosphate-regulating gene with homology to endopeptidases on X

chromosome) Normally, product of this gene appears to have an indirect role in inactivating FGF-23 Pathophysiology Clinical Manifestations Lower limb deformities: Coxa vara Genu valgum Genu varum Poor growth Maxillofacial abnormalities Skull deformities: Due to premature fusion of cranial sutures Delayed dentition Short stature Laboratory Findings High renal phosphate excretion Hypophosphatemia Elevated alkaline phosphatase (ALP) Normal PTH and serum calcium Low or inappropriately normal levels of 1,25-D Treatment Phosphorus Supplementation: 1-3 g elemental phosphorus daily, divided into 4-5 doses Can be given in the form of Joulie solution (30.4 mg phosphate/mL) or as neutral phosphate effervescent tablets Frequent dosing helps to prevent prolonged decrements in serum phosphorus because there is rapid decline after each dose Calcitriol: 30-70 ng/kg/day in 2 doses Burosumab-twza: Monoclonal antibody targeting FGF-23, an alternative for children >1 year Prognosis Generally good response to therapy, though frequent dosing can affect compliance FGF-23 levels decreased (Option A) : This is incorrect because XLH is characterized by elevated levels of FGF-23, not decreased levels. The increased FGF-23 leads to phosphate wasting and decreased active vitamin D production, which are hallmark features of the condition. It is the most common cause of rickets (Option C) : This statement is incorrect because while XLH is the most common inherited form of rickets, nutritional deficiencies, particularly vitamin D deficiency, remain the most common overall cause of rickets worldwide. Excretion of phosphorus is decreased (Option D) : This statement contradicts the pathophysiology of XLH, where there is increased renal phosphate wasting leading to elevated urinary phosphorus excretion. This increased phosphate excretion is a direct result of elevated FGF-23 levels and is a key diagnostic feature of the condition.



References:

Nelson Textbook of Pediatrics Edition 21st Page 382

OP Ghai Essential Pediatrics Edition 10th Page 108

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7860650/

↑ *Back to this question in Part A*

@Neet_pg_bot

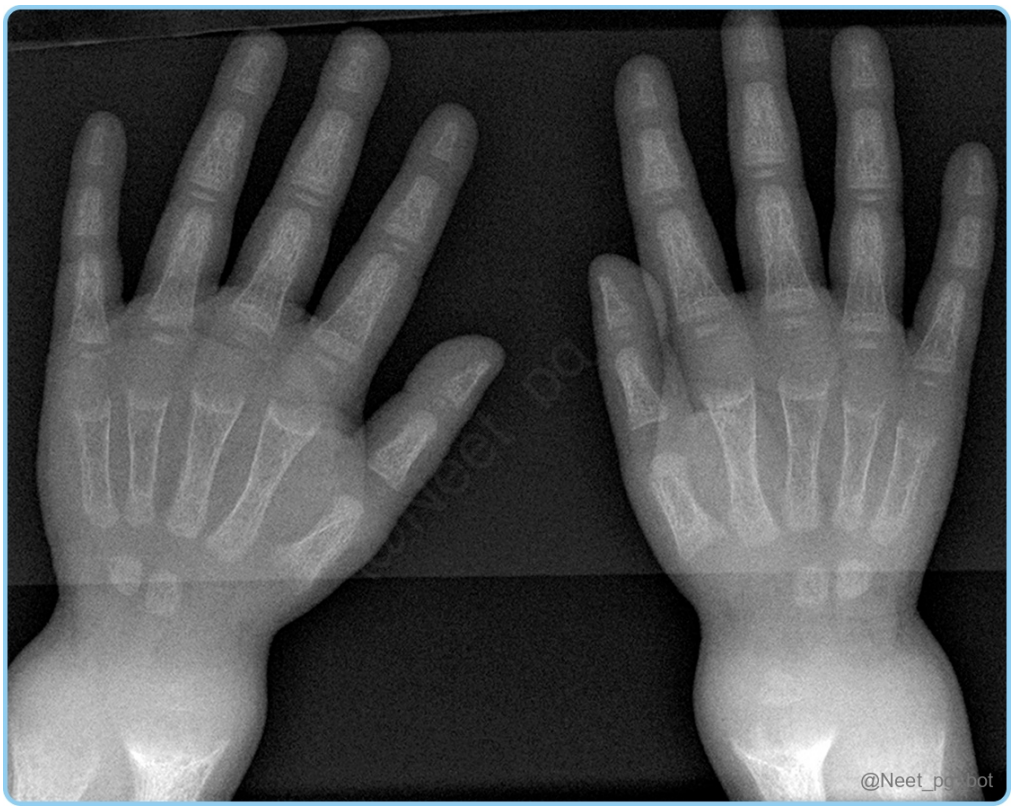
Q9: The X-ray image of a child with muscle weakness and failure to thrive is attached below. What is the likely diagnosis? (Q859775)

A. Scurvy

B. Rickets

C. Osteomalacia

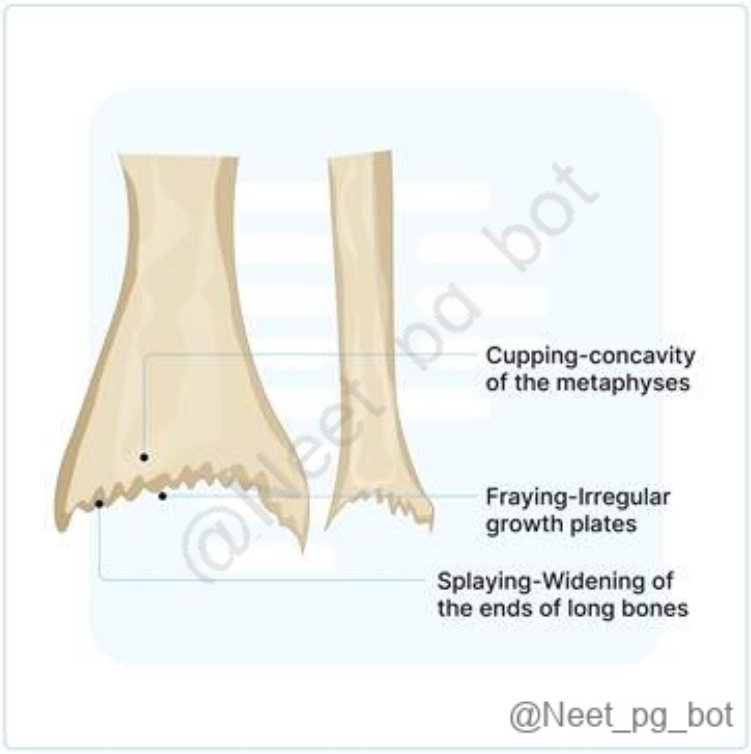
D. Osteopetrosis



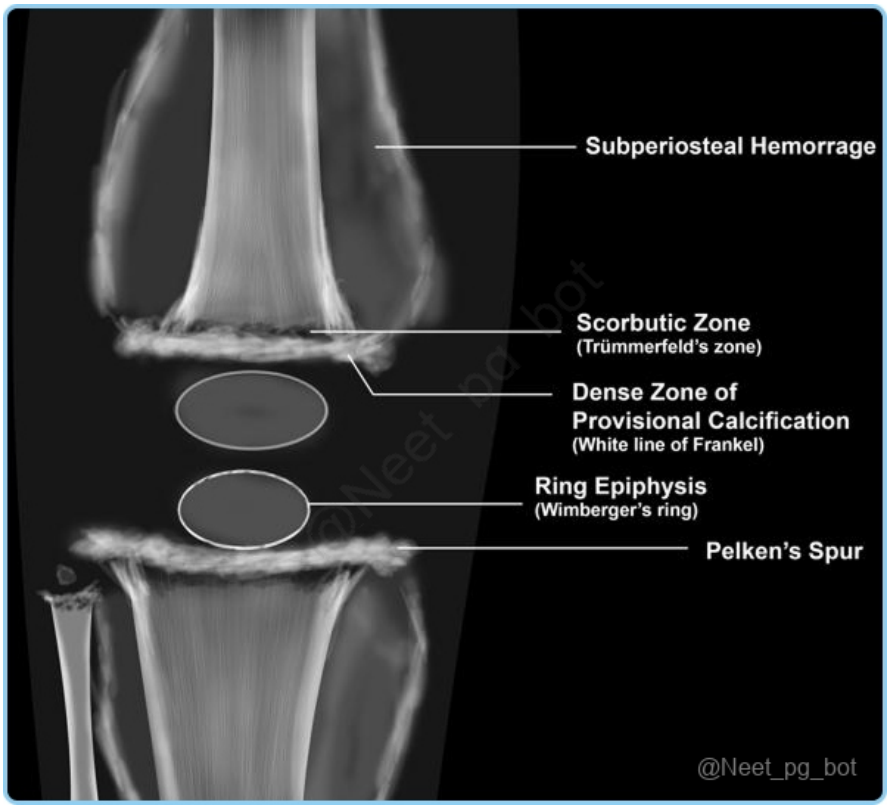
Correct Answer: B. Rickets

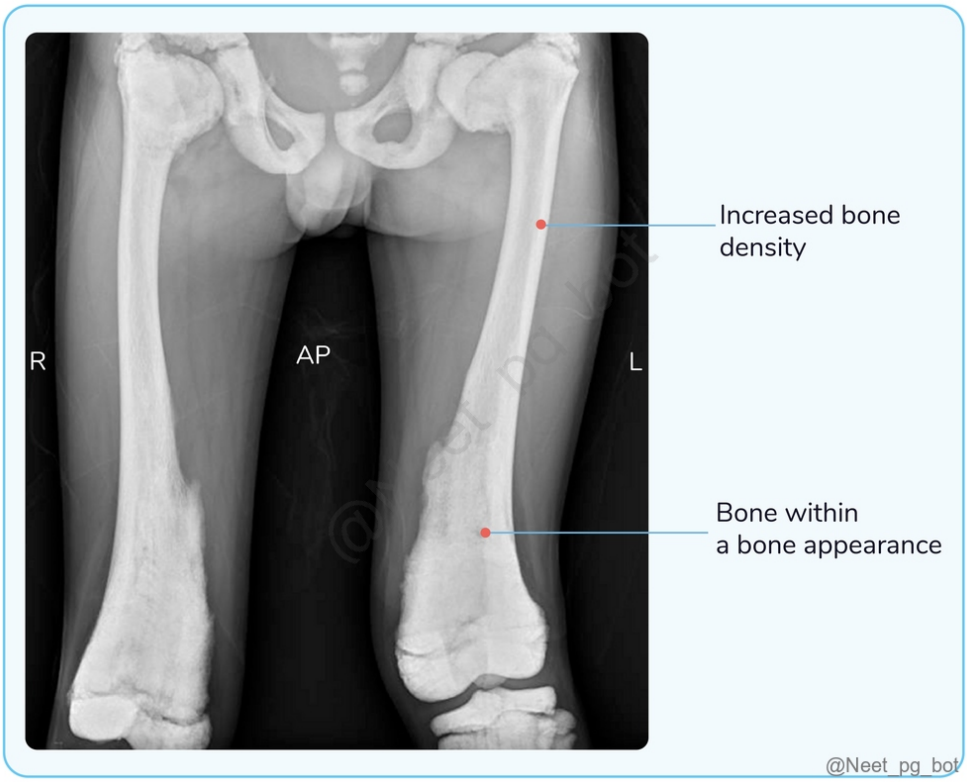
Explanation: The radiographical features such as widened or irregular growth plates in the phalanges and metacarpals & metaphyses near the growth plates showing a cupped or flared appearance indicate the diagnosis of Rickets. Rickets is a condition that primarily affects growing children and is caused by a deficiency in vitamin D, calcium, or phosphate. Radiological Changes: Decreased Calcification: Leads to the thickening of the growth plate. Fraying: Initial change is the loss of the normal zone of provisional calcification adjacent to the metaphysis, which appears as a blurring or frayed appearance of the metaphyseal margin. Cupping: Edge of the metaphysis changes from a convex or flat surface to a more concave surface, particularly noticeable at the distal ends of the radius, ulna, and fibula. Splaying: Cartilage hypertrophy leads to the widening of the growth plate resulting in the widening (splaying) of the metaphyseal ends. Generalized reduction in bone density: Osteopenia Widening of the Metaphysis {{caption_text}} Scurvy (Option A): Shows different radiological features, including ground-glass appearance and Wimberger's ring sign. {{caption_text}} Osteomalacia (Option C): Similar to rickets but occurs in adults and radiographically suggests growth plate closure. Osteopetrosis (Option D): Shows increased bone

density rather than the decreased density seen here. {{caption_text}}




X-ray of the wrist showing fraying, widening, and cupping of the metaphyseal ends of both the ulna and radius bones





References:

Nelson Textbook of Pediatrics, 21st Edition, Page 1092-1094

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A 10-year-old child is brought to the OPD with a history of repeated fractures for the past 2 years. On examination, blue sclera and dental abnormalities are noted. There is a family history of similar complaints. Which of the following is the diagnosis? (Q859781)

A. Scurvy

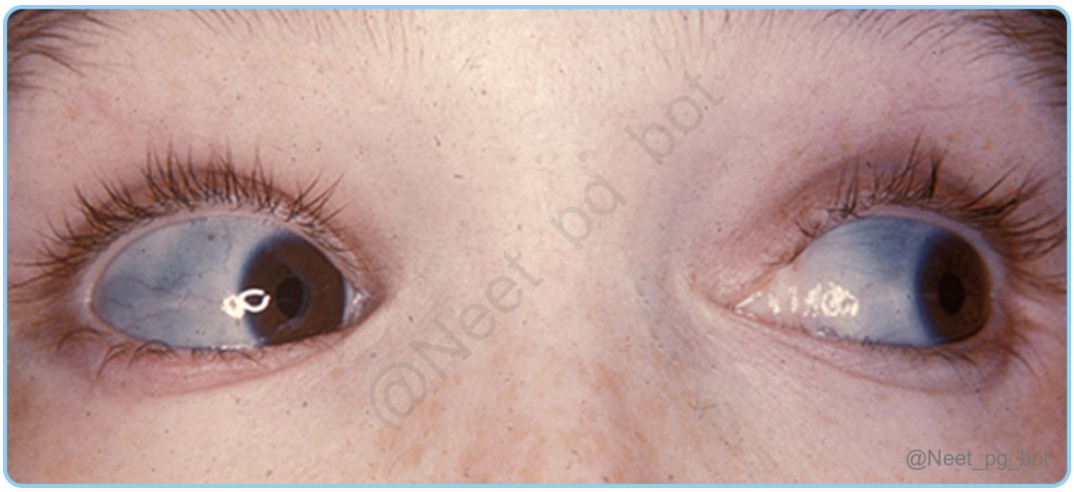
B. Rickets

C. Osteogenesis imperfecta

D. Osteomalacia

Correct Answer: C. Osteogenesis imperfecta

Explanation: The clinical manifestations indicate Osteogenesis Imperfecta (OI) based on the classic triad of repeated fractures, blue sclera, and dental abnormalities , along with a positive family history. Osteogenesis imperfecta (OI): It is caused by mutations in the genes responsible for producing type I collagen , which is the primary component of the bone matrix. This defective collagen synthesis leads to brittle bones, resulting in frequent fractures from minimal trauma. Additional clinical features like blue sclerae, hearing loss, and joint hypermobility are also seen in OI. {{caption_text}} Features of Osteogenesis Imperfecta: Pathophysiology Defective type I collagen synthesis Genetic Mutations Type I-IV: COL1A1, COL1A2 Type V: IFITM5 Type VI: SERPINF1 Key Clinical Features Recurrent fractures from minimal trauma, blue sclerae, hearing loss, joint hypermobility, osteopenia Complications Cardiopulmonary issues (pneumonia, cor pulmonale), neurological complications (basilar invagination, brainstem compression) Differential Diagnosis Rickets, osteopetrosis, and disorders related to abnormal calcium metabolism Treatment Physical rehabilitation, Bisphosphonates, growth hormone, orthopedic management (fracture care, surgery) Scurvy (Option A) is a vitamin C deficiency disorder characterized by weakness, fatigue, joint pain, easy bruising, and poor wound healing. While it can cause bone abnormalities, it does not present with blue sclera or repeated fractures. Rickets (Option B) results in impaired bone mineralization and skeletal deformities due to vitamin D deficiency or metabolism disorders, but does not present with blue sclera and dental abnormalities. Osteomalacia (Option D) is characterized by softening of bones due to impaired mineralization caused by vitamin D deficiency in adults. However it does not present with repeated fractures in children.



References:

Nelson Textbook of Pediatrics Edition 21, Page no: 3736, 3737

↑ *Back to this question in Part A*

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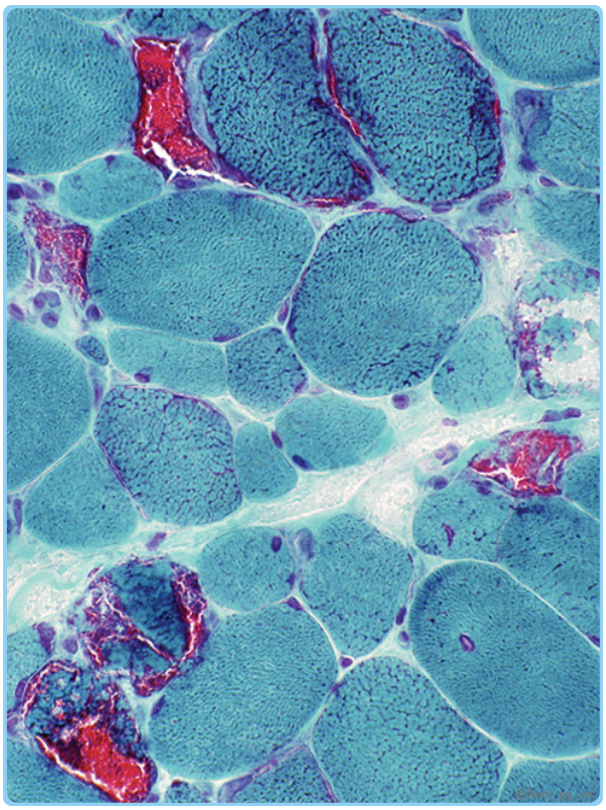
Q11: An 8-year-old child has difficulty walking and getting up from a squatting position. A muscle biopsy was done and is shown in the image. Which of the following is true about this condition? (Q856089)

A. Death occurs in 3 rd decade

B. Previous history of viral prodrome

C. It is a mitochondrial storage disorder

D. Early treatment has an excellent prognosis



Correct Answer: A. Death occurs in 3 rd decade

Explanation: Death occurs in 3rd decade: The clinical scenario and muscle biopsy showing fatty replacement of muscle fibers suggest Duchenne muscular dystrophy . This condition typically leads to progressive muscle weakness, with death occurring in the late teens or early 20s (third decade). {{caption_text}} Features Duchenne Muscular Dystrophy (DMD) Inheritance Pattern X-linked recessive Type of Mutation Frameshift mutations leading to a disrupted reading frame Dystrophin Protein Dystrophin deficient Truncated and unstable (< 3% of normal) Age of Onset Before 5 years Clinical Severity Severe, early onset, rapid progression Early Symptoms Hip girdle weakness, delayed walking, Gowers' sign , lordotic posture, frequent falls Ambulation Loss Typically between 10-14 years Progression Rate Rapid Muscle Involvement Proximal muscle weakness, calf pseudohypertrophy Cardiac Involvement Common, usually worsens after loss of ambulation Cognitive Impairment Common (20-30% with IQ < 70), possible autism-like behavior, epilepsy Respiratory Involvement Common, leading to frequent pulmonary infections, sleep apnea, and respiratory failure Initial Genetic Evaluation Primary Testing: Deletion/duplication analysis of the dystrophin gene using dosage analysis. Next-generation sequencing (NGS) if initial testing is negative. Muscle Biopsy Indications: Used when genetic tests are inconclusive, especially if serum CK levels are elevated. Findings: Endomysial connective tissue proliferation, degenerating/regenerating myofibers, hypercontracted fibers, dystrophin abnormalities. Steroid Therapy Purpose: Slows muscle strength decline, prolongs ambulation, and may benefit scoliosis progression. Dosing: Prednisone (0.75 mg/kg/day) or deflazacort (0.9 mg/kg/day); various dosing protocols available. Life Expectancy Late teens to 20s Previous history of viral prodrome (Option B) : A viral prodrome, which includes symptoms like fever or malaise before a viral infection, is not typically associated with Duchenne muscular dystrophy or mitochondrial disorders. It is a mitochondrial storage disorder (Option C) : Duchenne muscular dystrophy is caused by mutations in the dystrophin gene, not by the accumulation of abnormal substances in mitochondria, making it distinct from mitochondrial storage disorders. Early treatment has an excellent prognosis (Option D) : While early intervention can slow the progression of Duchenne muscular dystrophy, the condition typically has a poor long-term prognosis,

with death occurring in the late teens to early 20s due to respiratory or cardiac complications.





References:

Nelson Textbook of Pediatrics Edition 21, Page 3059,3281-3283 Ghai Essential Pediatrics Edition 10, Page 589,590

↑ *Back to this question in Part A*

@Neet_pg_bot

• [18_Pediatric Hematology and Oncology] 046 Pediatric Hematology

« Back to Folder Directory

[18_Pediatric Hematology and Oncology] 046 Pediatric Hematology — Quick Jump

Q1 (p. 1606)	*Q2 (p. 1607)*	*Q3 (p. 1607)*	*Q4 (p. 1608)*	*Q5 (p. 1609)*	*Q6 (p. 1610)*
Q7 (p. 1611)	*Q8 (p. 1612)*	*Q9 (p. 1613)*	*Q10 (p. 1614)*	*Q11 (p. 1614)*	*Q12 (p. 1615)*
Q13 (p. 1616)	*Q14 (p. 1617)*	*Q15 (p. 1618)*	*Q16 (p. 1619)*	*Q17 (p. 1619)*	*Q18 (p. 1621)*
Q19 (p. 1622)	*Q20 (p. 1623)*	*Q21 (p. 1625)*	*Q22 (p. 1626)*	*Q23 (p. 1627)*	*Q24 (p. 1628)*

Q1: In which of the following conditions, a child can have recurrent episodes of hemolysis and dark coloured urine? (Q850133)

A. Glucose-6-phosphatase deficiency

B. Alpha-1 antitrypsin deficiency

C. Glucose-6-phosphate dehydrogenase (G6PD) deficiency

D. Cystic fibrosis

Correct Answer: C. Glucose-6-phosphate dehydrogenase (G6PD) deficiency

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Recurrent episodes of hemolysis, dark-colored urine (hemoglobinuria) are suggestive of Glucose-6-phosphate dehydrogenase (G6PD) deficiency G6PD Deficiency X-linked recessive disorder Defect in pentose phosphate pathway ↓ NADPH → RBCs vulnerable to oxidative stress Triggers Infections Drugs (e.g., sulfa drugs, primaquine) Fava beans Pathophysiology Oxidative stress → RBC destruction (intravascular hemolysis) → Release of hemoglobin → dark urine Peripheral Smear Heinz bodies Bite cells Glucose-6-phosphatase deficiency (Option A): Von Gierke disease; causes hypoglycemia, hepatomegaly , and not hemolysis Alpha-1 antitrypsin deficiency (Option B): This genetic disorder can lead to lung and liver disease but does not affect the safety of Vitamin K administration in newborns. Cystic fibrosis (Option D): This genetic disorder affects the lungs and digestive system, leading to malabsorption of fat-soluble vitamins like Vitamin K. Newborns with cystic fibrosis often need Vitamin K supplementation, making its administration necessary rather than contraindicated.

References:

Nelson textbook of Pediatrics, 21st Edition, Pages 871, 972

Ghai Essentials of Pediatrics,10th Edition, Pages 375, 376

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: Which of the following statements regarding Burkitt's lymphoma is incorrect? (Q850151)

A. It is commonly associated with Epstein-Barr virus (EBV) infection, especially in endemic cases

B. The disease predominantly affects children and young adults

C. The standard treatment typically involves low-intensity chemotherapy due to its slow-growing nature

D. The tumor cells typically show translocation t(8;14) involving the MYC gene

Correct Answer: C. The standard treatment typically involves low-intensity chemotherapy due to its slow-growing nature

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Burkitt's lymphoma is a highly aggressive, rapidly growing lymphoma that requires intensive chemotherapy. High-intensity chemotherapy is the standard treatment approach in Burkitt's lymphoma Burkitt's Lymphoma Most common in children >5 years, males > females The disease is associated with Epstein-Barr virus (EBV), human immunodeficiency virus (HIV), and chromosomal translocations that cause the overexpression of oncogene C-MYC . Presents with fever, jaw swelling, tonsillar enlargement, abdominal mass, CNS and bone marrow involvement Histopathology shows starry-sky appearance with intermediate-sized homogenous cells CD markers: CD 10+, CD 20+, soluble immunoglobulin (Sig)+ Cytogenetics: t(2;8), t(8;14), t(8;22)

References:

Ghai Essential Pediatrics (10th edition), pages 631,632.

https://www.ncbi.nlm.nih.gov/books/NBK538148/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 17-year-old male is diagnosed with classical Hodgkin's lymphoma, and staging investigations reveal stage IIA disease, with involvement of lymph nodes only above the diaphragm but no B symptoms. Which of the following treatment regimens is considered the standard approach for initial therapy in this stage of the disease?

(Q850150)

A. Radiotherapy alone

B. Single-agent therapy with vinblastine

C. Chemotherapy with ABVD regimen

D. Chemotherapy with vinblastine, etoposide and prednisolone

Correct Answer: C. Chemotherapy with ABVD regimen

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Chemotherapy with ABVD regimen For patients with early-stage Hodgkin lymphoma, the standard initial treatment typically involves chemotherapy with ABVD regimen . Types: Nodular and Classical HL Ann Arbor staging of Hodgkin Lymphoma I Single lymphatic or extra lymphatic site involved II 2 or more regions on the same side of the diaphragm are involved III Lymph node (LN) regions on both sides of the diaphragm are involved IV Diffuse or disseminated disease +/- LN involvement Based on staging, HL can be either low risk or high risk: Low-risk disease High-risk disease Stage I, II, IIIA Stage IIIB, IV Absence of B symptoms, no evidence of bulky disease Presence of B symptoms, bulky mediastinal/peripheral lymphadenopathy, extranodal extension Treatment: 2-4 cycles of chemotherapy (ABVD regimen), low-dose field radiation Treatment: 4-6 cycles of chemotherapy (ABVD) with/without radiotherapy. Hematopoietic stem cell transplant in relapse or in refractory cases. ABVD regimen - A driamycin (Doxorubicin), B leomycin, V inblastine, D acarbazine

References:

Ghai Essential Pediatrics (10th edition), pages 629-631

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: Based on the Ann Arbor staging system, which stage is described by the following features: involvement of two or more lymph node regions on the same side of the diaphragm, without extranodal involvement? (Q850149)

A. IA E

B. X

C. IIIB E

D. IIB

Correct Answer: D. IIB

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Involvement of two or more lymph node regions on the same side of the diaphragm, without extranodal involvement and without B symptoms belongs to the IIB stage of the Ann Arbor grading system. Ann Arbor Grading System Stage I Involvement of a single lymph node region or a single extra lymphatic organ or site Stage II involvement of two or more lymph node regions on the same side of the diaphragm or localized involvement of an extra lymphatic organ or site Stage III involvement of lymph node regions or structures on both sides of the diaphragm III1 Abdominal disease is limited to the upper abdomen III2 Abdominal disease involving the lower abdomen Stage IV diffuse or disseminated involvement of one or more extra lymphatic organs, Additional Substaging A No B symptoms B presence of B symptoms (including fever, night sweats, and weight loss of ≥10% of body weight over 6 months) E involvement of a single, extranodal site, contiguous or proximal to a known nodal site (stages I to III only; additional extranodal involvement is stage IV) X bulky nodal disease: nodal mass >1/3 of intrathoracic diameter or 10 cm in dimension

References:

Ghai Essential Pediatrics (10th edition), pages 629-631.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: A 17-year-old patient undergoing treatment for acute promyelocytic leukemia develops severe adverse reactions, including high fever, difficulty breathing, and peripheral edema. What is the most appropriate treatment to manage this patient? (Q850148)

A. High-dose chemotherapy

B. Corticosteroids

C. Blood transfusion

D. ACE inhibitors

Correct Answer: B. Corticosteroids

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given clinical scenario of a patient undergoing treatment for acute promyelocytic leukemia (AML-M3) is most likely receiving ATRA (all-trans-retinoic acid). The symptoms of dyspnea, fever, and peripheral edema are suggestive of differentiation syndrome , a unique side effect of ATRA therapy, which is treated using dexamethasone. High-dose chemotherapy (Option A): The symptoms are not due to leukemic

progression , but due to treatment-induced differentiation syndrome . Giving high-dose chemotherapy would worsen patient instability, increase toxicity and does not address cytokine-mediated capillary leak Blood transfusion (Option C): Blood transfusion is indicated for severe anemia, thrombocytopenia, and active bleeding. This patient's symptoms (fever, dyspnea, edema) are due to capillary leak and inflammatory response , not cytopenias. Transfusion does not treat differentiation syndrome. ACE inhibitors (Option D): ACE inhibitors are used for hypertension, heart failure, and proteinuria. They have no role in managing cytokine-mediated capillary leak syndrome.

References:

Ghai Essential of Paediatrics, 10th Edition, Page 626

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: In a patient with more than 20% blast cells observed in a smear, which of the following chromosomal abnormalities is NOT useful in differentiating Acute Myeloid Leukemia (AML) from Acute Lymphoblastic Leukemia (ALL)? (Q850147)

A. t(8;21)

B. t(15;17)

C. t(9;22)

D. inv (16)

Correct Answer: C. t(9;22)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: t(9;22) (BCR/ABL1 fusion) is Non-Specific. It is known as the Philadelphia chromosome . Seen in: ALL (mainly adult B-cell ALL), CML, and occasionally AML . Therefore, it is not specific for differentiating AML from ALL, as it can be present in either. ≥ 20% blasts in peripheral blood or bone marrow examination are essential to diagnose ALL & AML. Exception: Irrespective of the percentage of blasts, the following genetic abnormalities are diagnostic for AML: t(8;21) (RUNX1/RUNX1T1 fusion) (Option A) t(15;17) (PML/RARA fusion) (Option B) inv (16) (CBFB/MYH1 fusion) (Option D)

References:

https://www.cancer.gov/publications/dictionaries/cancer-terms/def/philadelphia-chromosome

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: Which variant of leukemia is most commonly associated with the development of Disseminated Intravascular Coagulation? (Q850146)

A. M3 AML

B. M5 AML

C. M7 AML

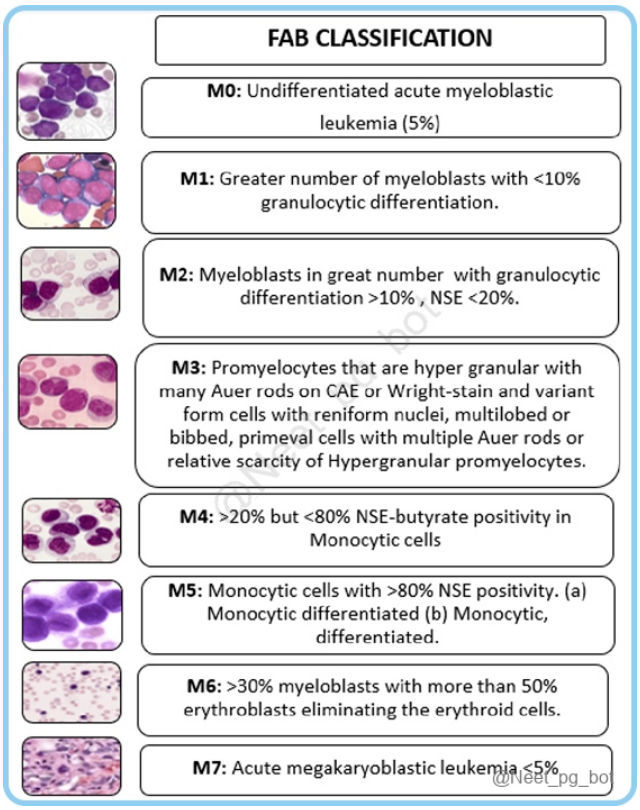
D. ALL

Correct Answer: A. M3 AML

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Most common leukemia associated with DIC is Acute Promyelocytic Leukemia (APL) - M3 AML Pathophysiology Abnormal promyelocytes release: Procoagulant substances Tissue factor–like activity Leads to activation of coagulation cascade Results in DIC (bleeding + thrombosis) Genetic Basis t(15;17) translocation Fusion gene: PML-RARA Treatment All-trans retinoic acid (ATRA) ± arsenic trioxide Initiate immediately , even before confirmation if suspected FAB subtype Name Salient features M0 Undifferentiated acute myeloblastic leukemia Myeloperoxidase negative M1 Acute myeloblastic leukemia with minimal differentiation - M2 Acute myeloblastic leukemia with maturation Chloromas/myeloid sarcoma; t(8;21) M3 Acute promyelocytic leukemia Faggot cells (rich in Auer rods), higher risk of DIC; t(15;17) M4 Acute myelomonocytic leukemia Organomegaly, gum hypertrophy or leukemia cutis; inv(16) M5 Acute monocytic leukemia Organomegaly M6 Acute erythroid leukemia - M7 Acute megakaryoblastic leukemia Dry tap, more common in Down’s syndrome <3 years ALL (Option D): Not typically associated with DIC



References:

Nelson Textbook of Pediatrics (21st edition) page 2654 (PDF page 4701)

Ghai Essential Pediatrics (10th edition), page 619-626

https://www.researchgate.net/figure/FAB-classification-of-Acute-Myeloid-Leukemia_fig1_348690489

https://www.ncbi.nlm.nih.gov/books/NBK507875/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: A 2.5-year-old child has been diagnosed with severe Acute Lymphoblastic Leukemia (ALL). Given the high risk of central nervous system (CNS) involvement with this condition, the oncologist is planning appropriate prophylactic measures. What is the most appropriate step for prophylaxis to prevent central nervous system (CNS) involvement in this child? (Q850145)

A. Oral methotrexate

B. Administration of intrathecal methotrexate

C. Use of oral corticosteroids

D. Multiagent chemotherapy

Correct Answer: B. Administration of intrathecal methotrexate

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Intrathecal methotrexate is the most appropriate and direct method for CNS prophylaxis in patients with ALL given repeatedly by LP. Treatment for ALL is divided into 4 phases: INDUCTION PHASE: Vincristine Prednisolone L-asparaginase Anthracycline CNS PROPHYLAXIS: Intrathecal Methotrexate with or without CNS irradiation CONSOLIDATION/INTENSIFICATION PHASE: Methotrexate Cyclophosphamide Cytosine-Arabinoside MAINTENANCE PHASE: Maintenance to prevent relapse: Methotrexate 6-Mercaptopurine

References:

Nelson textbook of pediatrics (21st edition) page no.- 2652

↑ *Back to this question in Part A*

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Q9: A 7-year-old child with Down syndrome presents with symptoms of fatigue, pallor, and easy bruising. Laboratory tests reveal anaemia, thrombocytopenia, and an elevated white blood cell count. A bone marrow biopsy shows the presence of lymphoblasts. Cytogenetic analysis confirms the presence of chromosomal abnormalities. Which type of leukaemia is most commonly associated with paediatric patients who have Down syndrome? (Q850137)

A. AML-M7

B. ALL

C. CML

D. CLL

Correct Answer: B. ALL

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Pediatric patients with Down syndrome are at an increased risk of developing ALL. Acute leukemia occurs about 15-20 times more frequently in children with Down syndrome than in the general population. The

ratio of ALL to AML in patients with Down syndrome is the same as that in the general population. The exception is during the 1 st 3 yr of life when AML is more common. Most common leukemia overall - ALL Most common leukemia in age < 3 years - AML-M7 (Option A) In children with Down syndrome who have ALL, the expected outcome of treatment is slightly inferior to that for other children.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2655

↑ *Back to this question in Part A*

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Q10: A 5-year-old child is diagnosed with acute lymphoblastic leukaemia (ALL). The initial diagnostic workup includes a white blood cell count of 15,000/µL, and cytogenetic analysis reveals hyperdiploidy. The child begins treatment with a standard chemotherapy regimen and responds well. Which of the following factors is most indicative of a favourable prognosis for this child? (Q850136)

A. The child's age at diagnosis >1 and < 10 years of age

B. The elevated initial white blood cell count (>50000/µL)

C. The presence of the Philadelphia chromosome - t(9;22)

D. Presence of t(4;11) translocation

Correct Answer: A. The child's age at diagnosis >1 and < 10 years of age

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Age >1 and < 10 years at diagnosis of ALL is associated with better prognosis, higher remission, and cure rates than in infants or children >10 years. Prognostic factors in ALL: Favourable Unfavourable Hyperdiploidy Hypodiploidy t(12;21) t(4;11) , t(9;22) (Option C and D) Age 1-10 years Age <1 year and >10 years Leukocyte count t <50,000/µL Leukocyte count t >50,000/µL (Option B) Female Male

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2650 (table 522.2), 2651

↑ *Back to this question in Part A*

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Q11: Which of the following genetic syndromes is not associated with the development of leukemia in a pediatric patient? (Q850135)

A. Down syndrome

B. Fanconi anemia

C. Neurofibromatosis type 1

D. Hereditary spherocytosis

Correct Answer: D. Hereditary spherocytosis

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Hereditary spherocytosis (characterized by the destruction of red blood cells leading to anemia, jaundice, and splenomegaly) is associated with hemolytic anemia, it does not typically predispose individuals to leukemia. Genetic syndromes associated with the development of leukemia in a pediatric patient Down syndrome Increased risk of acute lymphoblastic leukemia (ALL) and acute myeloid leukemia (AML). Diamond-Blackfan anemia Increased risk of acute myeloid leukemia (AML). Kostmann syndrome Increased risk of acute myeloid leukemia (AML) due to severe congenital neutropenia. Fanconi anemia High risk of acute myeloid leukemia (AML) and other hematologic malignancies. Neurofibromatosis type 1 (NF-1) Increased risk of juvenile myelomonocytic leukemia (JMML). Bloom syndrome Increased risk of acute lymphoblastic leukemia (ALL) and acute myeloid leukemia (AML). Shwachman-Diamond syndrome Increased risk of acute myeloid leukemia (AML). Li-Fraumeni syndrome Increased risk of various cancers, including acute leukemias, due to TP53 mutation. Ataxia-telangiectasia Increased risk of acute lymphoblastic leukemia (ALL) and acute myeloid leukemia (AML). Paroxysmal nocturnal hemoglobinuria (PNH) PNH primarily predisposes to aplastic anemia and venous thrombosis, not directly to leukemia.

References:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3734905/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: Which of the following statements are true regarding Heamophilia A? a. It is caused by a deficiency in clotting factor VIII. b. It is inherited in an autosomal dominant pattern. c. It shows increased aPTT and normal PT. d. Patients with severe Hemophilia A often experience spontaneous bleeding into joints and muscles. Select the correct answer from the codes given below. (Q850134)

A. a, b, c

B. a, b, d

C. a, c, d

D. b, c, d

Correct Answer: C. a, c, d

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Statement (a) It is caused by a deficiency in clotting factor VIII Hemophilia A is specifically caused by Factor VIII deficiency , which is part of the intrinsic coagulation pathway Statement (b) It is inherited in an autosomal dominant pattern Hemophilia A is inherited in an X-linked recessive pattern , not autosomal dominant. Primarily affects males Females are usually carriers No male-to-male transmission Statement (c) It shows increased aPTT and normal PT Factor VIII belongs to the intrinsic pathway ; therefore: aPTT → Increased (prolonged) PT → Normal Platelet count → Normal Statement (d) Patients with severe Hemophilia A often experience spontaneous bleeding into joints and muscles Severe hemophilia (Factor VIII activity <1%) causes: Spontaneous hemarthrosis Muscle hematomas Deep tissue bleeding

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2594, 2595

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: A 3-month-old infant is being evaluated for anemia. The pediatrician orders a hemoglobin electrophoresis test, and the results reveal that the majority of the hemoglobin present is fetal hemoglobin (HbF). What is the predominant hemoglobin chain composition of fetal hemoglobin found in this infant? (Q849993)

A. α■β■

B. α■δ■

C. α■γ■

D. α■ε■

Correct Answer: C. α■γ■

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: α■γ■ is the correct composition for fetal hemoglobin (HbF). It consists of two alpha (α) chains and two gamma (γ) chains. By 6-8 weeks gestation, HbF (α 2 γ 2) is the predominant hemoglobin; at 24 weeks gestation, it constitutes 90% of the total hemoglobin. Normal human hemoglobins: Haemoglobin Structural formula EMBRYONIC Hb Gower 1 ζ 2 ■ 2 Hb Gower 2 α 2 ■ 2 (Option D) Hb Portland ζ 2 γ 2 FETAL Hb-F α 2 γ 2 (0.5-1%) ADULT Hb-A α 2 β 2 (97%) (Option A) Hb-A■ α 2 δ 2 (1.5-3.2%) (Option B) Gene for ■ globin chain is encoded on chromosome 11 Gene for ■ globin chain is encoded on chromosome 16

References:

Nelson Textbook of Pediatrics, 21st Edition, Page2504

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A child is diagnosed with immune thrombocytopenic purpura (ITP). The most recent platelet count is 32,000/μL, and the child does not exhibit any signs of active bleeding. What is the appropriate next step in management for this child? (Q850126)

A. Prednisolone

B. Platelet transfusion

C. Splenectomy

D. Wait and watch

Correct Answer: D. Wait and watch

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The child doesn't have severe thrombocytopenia and/or any life-threatening bleeding. Hence in this case the child only requires close observation. Management of Immune thrombocytopenic purpura in children. Based on platelet count Platelet Count >30,000 cells/μL + No severe bleeding- Monitor closely Platelet Count < 30,000 cells/μL + No severe bleeding + Platelet Count ≥ 5,000 cells/μL: Glucocorticoids (e.g., Prednisone , Dexamethasone) (Option A) Platelet Count < 5,000 cells/μL or Severe Bleeding: IVIg + Glucocorticoids Other modalities Immediate Need to Raise Platelet Count, like surgery or trauma- Platelet Transfusion (Option B) Persistent or Severe Cases- Monitor with intermittent IVig, If Necessary, Consider Splenectomy (Option C) Alternative Medications Anti-CD20 Antibody: Rituximab TPO Receptor Agonists: Romiplostim, Eltrombopag

References:

Ghai Essential Pediatrics, 9th edition, Pg 349,350

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A newborn presents with an umbilical cord stump that has not separated from the body, even after 1 month. The pediatrician suspects an underlying coagulation disorder. Which of the following tests would be most appropriate to assess the suspected deficiency in this newborn? (Q850125)

A. Hageman factor (Factor XII) assay

B. Prothrombin Time (PT)

C. Activated Partial Thromboplastin Time (aPTT)

D. Fibrinogen level

Correct Answer: A. Hageman factor (Factor XII) assay

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Factor XII deficiency is a rare coagulation disorder that may present with delayed umbilical cord separation in newborns. Although it typically does not lead to bleeding, it can be linked to thrombotic complications. Causes of delayed umbilical cord separation Cause Mechanism Leukocyte Adhesion Deficiency (LAD) Neutrophils fail to adhere and migrate to infection sites, impairing cord separation. Neutrophil Dysfunction Disorders like chronic granulomatous disease impair neutrophil function, delaying cord detachment. Prematurity Underdeveloped immune responses in premature infants delay inflammatory and necrotic processes. Infections (e.g., Neonatal Sepsis) Systemic infections impair healing, leading to delayed cord separation. Hypothyroidism Congenital hypothyroidism slows metabolic and healing processes, delaying cord detachment. Umbilical Cord Care Practices Use of antiseptics (e.g., alcohol, chlorhexidine) on the cord stump slows desiccation and separation. Congenital Immunodeficiency Syndromes Conditions like SCID impair immune function, delaying healing and cord separation. Factor XII Deficiency Impaired clot formation and tissue remodeling delay wound healing and cord separation. Prothrombin Time (PT) (Option B): PT assesses the extrinsic and common coagulation pathways. It’s not the primary test for diagnosing Factor XII deficiency. Activated Partial Thromboplastin Time (aPTT) (Option C): aPTT measures the intrinsic and common pathways, often prolonged in Factor XII deficiency. However, a specific Factor XII assay is required for a definitive diagnosis. Fibrinogen level (Option D): Fibrinogen is crucial for clot formation. Measuring its levels helps diagnose fibrinogen-related disorders but isn’t directly related to Factor XII deficiency.

References:

Nelson's Textbook of Pediatrics, 21st Edition, Page 2598

http://www.ncbi.nlm.nih.gov/medgen/226769

↑ *Back to this question in Part A*

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Q16: Match the following bleeding and clotting disorders with their corresponding pathology. 1 Glanzmann Thrombasthenia a Defect in (GPIIb/IIIa) 2 Bernard-Soulier Syndrome b Defect in GPIb-IX-V 3 Von Willebrand Disease c Defect in (vWF) 4 Haemophilia A d Defect in Factor 8 (Q850123)

A. 1-b, 2-a, 3-c, 4-d

B. 1-a, 2-b, 3-c, 4-d

C. 1-a, 2-b, 3-d, 4-c

D. 1-b, 2-a, 3-d, 4-c

Correct Answer: B. 1-a, 2-b, 3-c, 4-d

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: 1 Glanzmann Thrombasthenia a Defect in (GPIIb/IIIa) 2 Bernard-Soulier Syndrome b Defect in GPIb-IX-V 3 Von Willebrand Disease c Defect in Von Willebrand Factor (vWF) 4 Hemophilia A d Defect in Factor 8 Glanzmann Thrombasthenia: Defect in platelet integrin αIIbβ3 (GPIIb/IIIa). It is autosomal recessive in inheritance and a defect of platelet aggregation. Bernard-Soulier Syndrome: Defect in platelet glycoprotein complex GPIb-IX-V. It is autosomal recessive in inheritance and a defect of platelet adhesion. Von Willebrand Disease: Defect in von Willebrand factor (vWF). It is an inherited bleeding disorder and involves defective platelet adhesion. Hemophilia A: Defect in Factor 8. It is an X-linked recessive disorder that presents with easy bruisability, intramuscular hematoma, and haemarthrosis.

References:

Ghai Essential Pediatrics, 9th edition, Pg 347.

↑ *Back to this question in Part A*

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Q17: A 15-year-old male presents with a history of chronic fatigue, frequent nosebleeds, and recurrent infections over the past few months. His laboratory results show pancytopenia and peripheral blood smear reveals markedly reduced cellularity without evidence of blasts or dysplasia. A bone marrow biopsy demonstrates severe hypocellularity with less than 10% hematopoietic cells and prominent fatty infiltration. Based on these findings, which of the following is the most likely

diagnosis? (Q850120)

A. Acute myeloid leukemia

B. Myelodysplastic syndrome

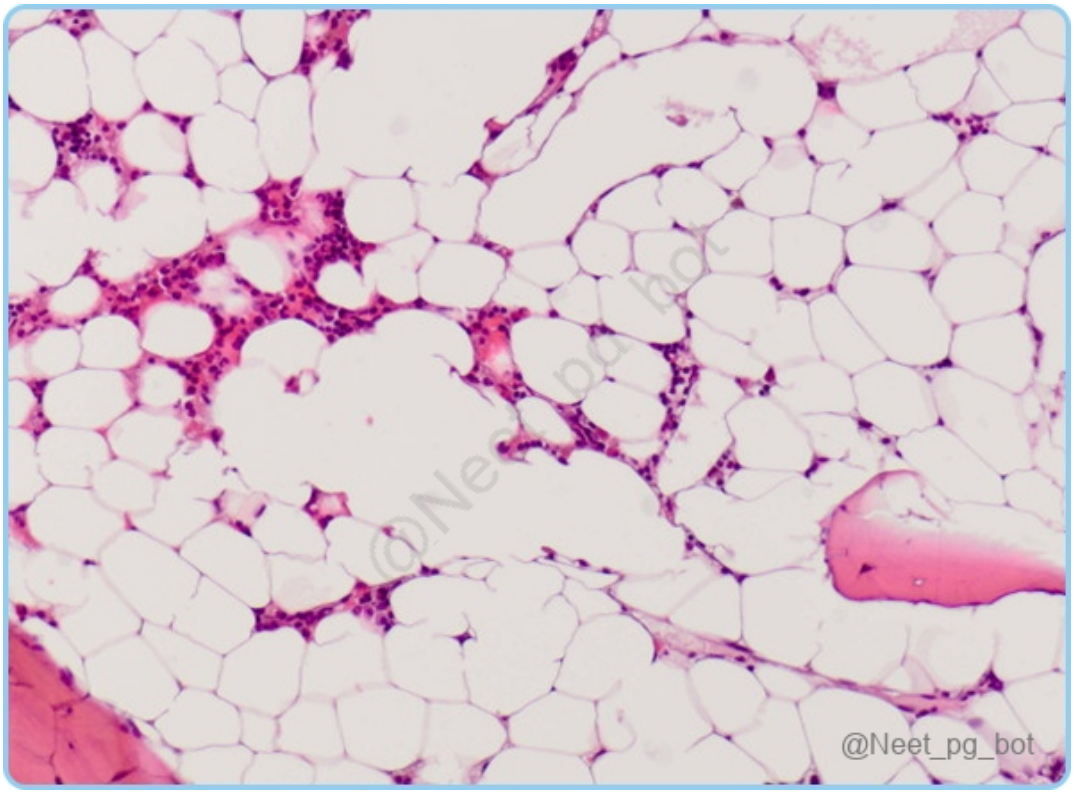
C. Aplastic anemia

D. Fanconi anemia

Correct Answer: C. Aplastic anemia

- *Listen (English)*
- *Listen (Hindi)*

Explanation: The severe pancytopenia with a hypocellular marrow with fatty infiltration strongly points towards aplastic anemia rather than other marrow failure syndromes. Aplastic anemia is characterized by the suppression of two or all three hematopoietic cell lines (RBCs, WBCs, platelets). Peripheral blood smear findings show anemia, the RBCs show macrocytosis (>100fl), thrombocytopenia, and neutropenia. The marrow cells are replaced with fat cells and lymphocytes , with very few hematopoietic cells. Acute myeloid leukemia (Option A): AML typically presents with pancytopenia, but the absence of blasts in this patient's smear makes AML unlikely. Myelodysplastic syndrome (Option B): MDS can present with pancytopenia and hypocellular marrow, but it is usually associated with dysplastic changes in the hematopoietic cells and the presence of abnormal cells in the bone marrow. Fanconi anemia (Option D): Fanconi anemia is a genetic disorder that leads to bone marrow failure, but it usually presents earlier in childhood with additional congenital abnormalities such as absent radius and short stature.



References:

Ghai Essential of Paediatrics, 10th Edition, Pages 365-367

↑ *Back to this question in Part A*

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Q18: A 6-year-old child presents with progressive bone marrow failure, short stature, and multiple congenital abnormalities. The child also has distinct skin lesions as shown below. Radiological imaging reveals the following features. Which of the following is the most appropriate management strategy for this condition? (Q850118)

A. High-dose corticosteroids

B. Hematopoietic stem cell transplantation

C. Blood transfusion

D. Targeted gene therapy



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Correct Answer: B. Hematopoietic stem cell transplantation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above radiological image of absent thumb and radius, along with the history of short stature, progressive bone marrow failure, and café-au-lait macules (hypopigmented skin lesions), is suggestive of Fanconi anemia . Hematopoietic stem cell transplantation (HSCT) is the only curative therapy for Fanconi anemia. Inheritance Autosomal recessive Features Absent thumbs, absent radius, microcephaly, renal abnormalities, short stature, café-au-lait spots Treatment Supportive care - PRBC and platelets transfusion, antibiotics for infection, oral androgens Hematopoietic stem cell transplant (curative) Horse anti-thymocyte globulin, cyclosporine (contraindicated in children) Risk of malignancy AML, myelodysplasia, oral or liver cancer

References:

Ghai Essential Pediatrics (10th edition), page 366

↑ *Back to this question in Part A*

@Neet_pg_bot

Q19: A 7-year-old boy presents with fatigue, pallor, and recurrent episodes of abdominal pain. His medical history includes multiple hospitalizations for anemia requiring transfusions. Physical examination reveals jaundice and a palpable liver/ On

ultrasound, no spleen is observed. Laboratory tests show a hemoglobin level of 7 g/dL, elevated reticulocyte count, and indirect hyperbilirubinemia. What is the most likely underlying condition? (Q850117)

A. Beta-thalassemia major

B. Hereditary spherocytosis

C. Sickle cell disease

D. Autoimmune hemolytic anemia

Correct Answer: C. Sickle cell disease

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above clinical history hints towards the diagnosis of sickle cell disease. Sickle cell anemia is an autosomal recessive disease that results from the substitution of valine for glutamic acid at position 6 of the beta-globin gene. Sickled red blood cells lead to the obstruction of the microcirculation, causing ischaemic injury and resulting in progressive damage and eventual loss of splenic function . This leads to an increased risk of infections, particularly from encapsulated organisms. Types of crises in sickle cell disease Vaso-occlusive crisis Caused by obstruction of the microcirculation by sickled RBCs Acute chest syndrome Caused by a vaso-occlusive crisis involving the lungs Sequestration crisis (spleen or liver) Obstruction of the splenic veins causes sequestration of peripheral blood in an engorged spleen Infectious crisis Caused by increased susceptibility to infection by encapsulated organisms Aplastic crisis Results from cessation of erythropoiesis in the bone marrow, usually following infections Beta-thalassemia major (Option A) usually causes severe anemia but doesn't typically result in spleen absence. Hereditary spherocytosis (Option B) often presents with splenomegaly. Autoimmune hemolytic anemia (Option D) can cause anemia, jaundice and splenomegaly.

References:

Ghai Essential of Paediatrics, 10th Edition, Page364

↑ *Back to this question in Part A*

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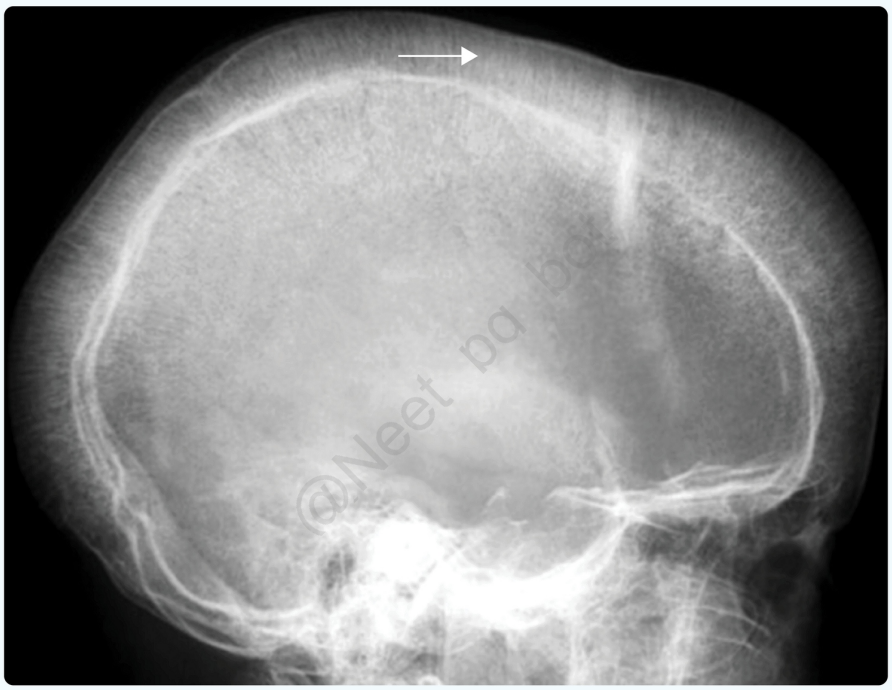
Q20: A 12-year-old boy presents with complaints of feeling excessively tired. He gives a history of repeated blood transfusions. A skull radiograph revealed the following findings. Which of the following is the most probable cause of this radiographic finding? (Q850116)

A. Increased osteoclastic activity

B. Increased marrow hyperplasia

C. Decreased bone remodeling

D. Increased osteoblastic activity



X-Ray skull showing hair-on-end appearance

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Correct Answer: B. Increased marrow hyperplasia

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above radiological image of the “ hair on end " appearance, along with the history of multiple blood transfusions, indicates the diagnosis of T halassemia . The characteristic radiological appearance is due to increased marrow hyperplasia, a response to chronic anemia in thalassemia, which leads to diploic space widening in the skull. Thalassemias are hemoglobinopathies that occur due to mutations in the globin chain. Complications: “Hair on end" appearance of skull, maxillary bone overgrowth, compression fractures Increased osteoclastic activity (Option A) leads to bone resorption rather than the formation of new bone. Decreased bone remodeling (Option C) would result in reduced bone turnover, leading to brittle bones. Increased osteoblastic activity (Option D): While increased osteoblastic activity could lead to increased bone formation, the "hair-on-end" appearance is specifically due to the hyperplasia of marrow, not just general osteoblastic activity.

References:

Ghai Essential Pediatrics (10th edition), page 363

↑ *Back to this question in Part A*

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Q21: A 6-year-old child is diagnosed with folate deficiency based on laboratory tests but shows no signs of Vitamin B12 deficiency. The pediatrician plans to initiate treatment to address the folate deficiency. Which of the following treatment options should be avoided in this child? (Q850114)

A. Oral folic acid supplementation

B. Parenteral folic acid supplementation

C. High-dose folic acid supplementation

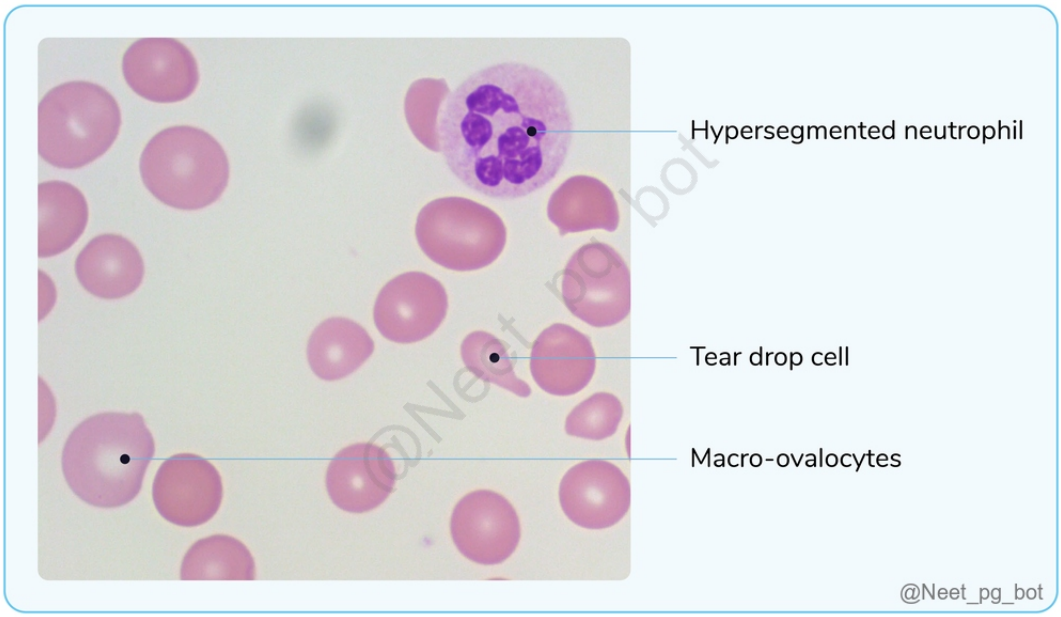
D. Dietary modification to include folate-rich food

Correct Answer: C. High-dose folic acid supplementation

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Doses of folate >0.1 mg can correct the anemia of vitamin B12 deficiency but might aggravate any associated neurological abnormalities therefore high doses of folic acid supplementation should be avoided in a child Megaloblastic Anemia: Type of macrocytic anemia with MCV>90 - 100 fL. Vit B12 deficiency causes Folate deficiency causes Pure vegetarian vegan diet Exclusive feeding with goat’s milk Pernicious anemia Drugs inhibiting folate metabolism Antifolates (e.g., methotrexate), Pyrimethamine; trimethoprim, Sulfasalazine, Valproic acid Malabsorption: Crohn's disease, chronic pancreatitis Cerebral folate deficiency (genetic or acquired) Metabolic: homocystinuria Defects in absorption: Gastric achlorhydria, Diseases of the upper small intestine- Tropical sprue Clinical features: Pallor Smooth, beefy red tongue Hepatosplenomegaly Hyperpigmented knuckle On Peripheral smear: Macroovalocytes Hypersegmented neutrophils (>5 lobes in 5% neutrophils). Treatment: When the diagnosis of folate deficiency is established, folic acid may be administered orally or parenterally at 0.5-1.0 mg/day. (Options A and B) If the specific diagnosis is in doubt, smaller doses of folate (0.1 mg/day) may be used for 1 week as a diagnostic test, because a hematologic response can be expected within 72 hr. Folic acid therapy (0.5-1.0 mg/day) should be continued for 3-4 weeks until a definite hematologic response has occurred. Maintenance therapy with a multivitamin (containing 0.2 mg of folate) is adequate. Encouraging a diet rich in folate is beneficial and supports overall treatment for folate deficiency. It is a complementary approach to oral folic acid supplementation and does not pose a risk. (Option D)



References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2519

↑ *Back to this question in Part A*

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Q22: A 4-year-old child has been diagnosed with iron deficiency anemia and has just started oral iron supplementation. The pediatrician advises the parents that certain changes and observations can be expected during the initial days of treatment. On the 3 rd day after initiating oral iron therapy, which of the following is most likely to be observed in the child on evaluation. (Q850112)

A. Immediate normalization of hemoglobin levels

B. Increase in the reticulocyte count

C. Decreased irritability, improved appetite

D. Replenishment of stores

Correct Answer: B. Increase in the reticulocyte count

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: An increase in the reticulocyte count is observed on the 3 rd day of iron therapy. An increase in reticulocyte count can be an early indicator of effective iron therapy, as the bone marrow responds to the increased availability of iron by producing more red blood cells. If the anemia is mild , the blood count can be repeated approximately 1 month after initiating therapy. At this point, the hemoglobin has usually risen by at least 1-2 g/dL and has often normalized. If the anemia is more severe, earlier confirmation of the diagnosis can be made by the appearance of a reticulocytosis, usually within 48-96 hr of instituting treatment. The hemoglobin will then begin to increase by 0.1-0.4 g/dL/day, depending on the severity of the anemia. Iron medication should be continued for 2-3 months after blood values normalize to re-establish iron stores. Response to treatment in iron deficiency anemia: Time after iron administration Response Within 24 hours Decreased irritability, improved appetite (Option C) 48-76 hours Reticulocytosis appears to peak at 5-7 days post-treatment. 1-4 weeks Hb level becomes normal (Option A ruled out) 2-3 months Replenishment of stores (Option D)

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2525, 2522

↑ *Back to this question in Part A*

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Q23: An 8-year-old child is brought to the pediatric clinic with complaints of fatigue and pallor. The pediatrician conducts a complete blood count (CBC) to evaluate the child's hemoglobin levels. According to WHO criteria, anemia is classified based on specific hemoglobin thresholds for different age groups. What hemoglobin level would classify this 8-year-old child as anemic according to WHO criteria? (Q850111)

A. <10 g/dl

B. <11g/dl

C. <12 g/dl

D. <13 g/dl

Correct Answer: C. <12 g/dl

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: According to WHO criteria, an 8-year-old child is classified as anemic if their hemoglobin level is below 12.0 g/dL. This threshold helps in the early detection and management of anemia in children. WHO criteria for anemia in children: Children 6 months to 5 years Hb <11g/dl Children 6 years to 14 years Hb <12 g/dl

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2506

↑ *Back to this question in Part A*

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Q24: At 5 weeks of intrauterine life, which of the following structures is the primary site of hematopoiesis in the developing fetus? (Q850100)

A. Liver

B. Bone Marrow

C. Spleen

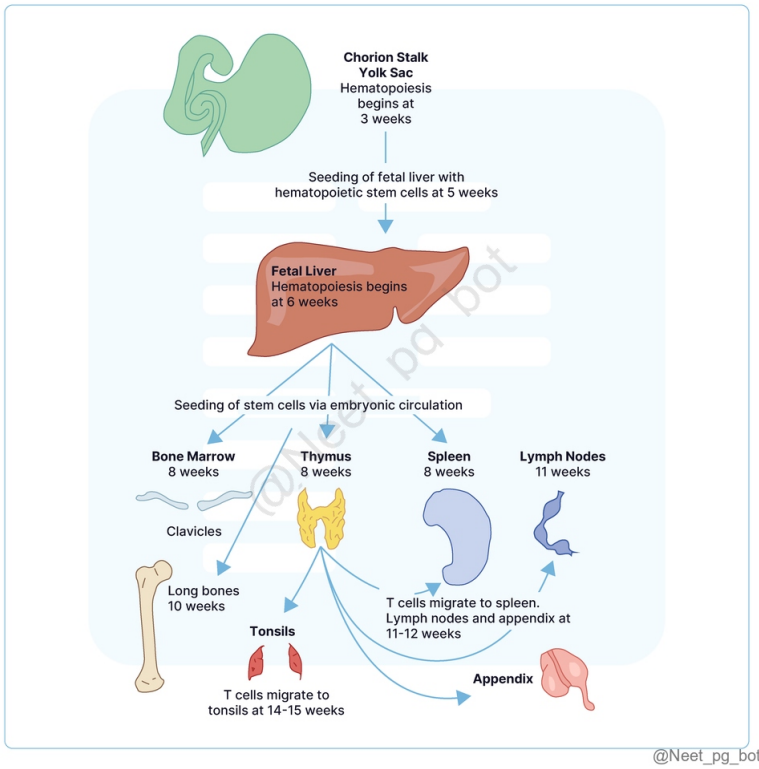
D. Yolk Sac

Correct Answer: D. Yolk Sac

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Pluripotential hematopoietic stem cells first appear in the yolk sac at 2.5-3 weeks of gestational age, migrate to the fetal liver at 5 weeks gestation, and later reside in the bone marrow, where they remain throughout life. Major sites of hematopoiesis: Site Starts at Continues till Yolk sac 3 rd week 10-12 th week Liver 6-8 th week 2 nd trimester Bone marrow 2 nd trimester onwards



References:

Nelson textbook of pediatrics (21st edition) page no.- 1103

↑ *Back to this question in Part A*

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• [18_Pediatric Hematology and Oncology] 047 Previous Year Questions

« Back to Folder Directory

[18_Pediatric Hematology and Oncology] 047 Previous Year Questions — Quick Jump

Q1 (p. 1630) *Q2 (p. 1631)* *Q3 (p. 1631)* *Q4 (p. 1633)* *Q5 (p. 1633)* *Q6 (p. 1634)*
Q7 (p. 1635) *Q8 (p. 1636)* *Q9 (p. 1637)* *Q10 (p. 1638)* *Q11 (p. 1639)* *Q12 (p. 1639)*
Q13 (p. 1640)

Q1: A child presents with petechiae, purpura, and a platelet count of 10,000/µL. Bone marrow examination reveals increased megakaryocytes.Which of the following is the drug of choice (DOC) for this condition? (Q865441)

A. Bone marrow transplant

B. Methotrexate

C. Intravenous immunoglobulin (IVIG)

D. Aspirin

Correct Answer: C. Intravenous immunoglobulin (IVIG)

Explanation: This clinical presentation (petechiae, purpura, platelet count of 10,000/µL, and increased megakaryocytes in bone marrow) is characteristic of Immune Thrombocytopenia (ITP) , also previously known as Idiopathic Thrombocytopenic Purpura. In ITP, the immune system mistakenly attacks and destroys platelets, leading to a low platelet count. The bone marrow, in an attempt to compensate for the rapid destruction, produces more megakaryocytes (the precursor cells to platelets), which is why their number is increased on bone marrow examination. Bone marrow transplant (Option A ruled out) : This is a very aggressive and high-risk procedure. It is not a first-line treatment for ITP. It might be considered in very rare, refractory cases of severe, chronic ITP that haven't responded to multiple other treatments, but it's far from the drug of choice. Methotrexate (Option B ruled out) : This is an immunosuppressant and chemotherapy agent. While some immunosuppressants might be used in refractory chronic ITP (e.g., rituximab, cyclosporine, azathioprine), methotrexate is not a standard first-line drug of choice for acute severe ITP in children. Intravenous immunoglobulin (IVIG) (Option C) : This is a primary drug of choice for acute, severe ITP, especially when a rapid increase in platelet count is desired due to significant bleeding or very low counts. It's often used alongside or as an alternative to corticosteroids. Aspirin (Option D ruled out) Aspirin is an antiplatelet agent that inhibits platelet function. Giving aspirin to a patient with a critically low platelet count and bleeding (petechiae, purpura) would be highly contraindicated as it would worsen bleeding.

References:

Ghai Essential Pediatrics, 9th edition, Pg 349,350

↑ *Back to this question in Part A*

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Q2: A 2-week-old infant presents with a history of epistaxis and recurrent rectal bleeding. The parents also reported a history of bleeding from the umbilicus since birth. Laboratory investigations revealed normal prothrombin time (PT), normal thrombin time, normal activated partial thromboplastin time (aPTT), normal platelet count, and normal function. Urea clot solubility test was positive. What is the most likely deficient factor in this patient? (Q853386)

A. Factor XIII

B. Factor XI

C. Factor X

D. Factor XII

Correct Answer: A. Factor XIII

Explanation: The given clinical feature is characteristic of Factor XIII (FXIII) deficiency / Laki lorand factor deficiency. It is a rare bleeding disorder that presents with symptoms spanning from delayed umbilical cord separation to intracranial hemorrhage. FXIII plays a pivotal role in stabilizing clots and facilitating the cross-linking of the fibrin polymer, thereby ensuring effective hemostasis The acquired FXIII deficiency typically arises from factors such as hyperconsumption, hemodilution, and decreased synthesis and is more prevalent than the congenital form. In rare instances, individuals with acquired FXIII deficiency may generate autoantibodies targeting FXIII subunits. Factor XI deficiency (Option B) and Factor XII deficiency (Option D) causes prolonged Activated partial prothrombin time (aPTT) but Prothrombin time (PT) will be normal. Factor X deficiency (Option C) causes both prolonged Prothrombin time (PT) and Activated partial thromboplastin time (aPTT).

References:

https://www.ncbi.nlm.nih.gov/books/NBK557467/ Robbins & Cotran Pathologic Basis Of Disease, 10th edition, Page 668, 669

↑ *Back to this question in Part A*

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Q3: A child presented with anemia, mental retardation, bone pains, and hepatosplenomegaly. Bone marrow biopsy showed a "crumpled tissue paper"

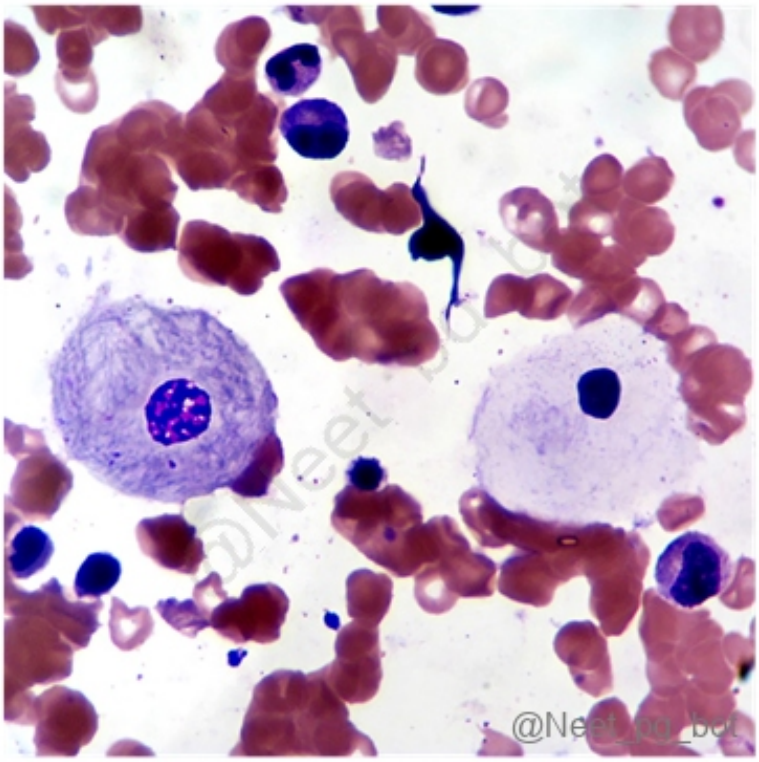
appearance. What is the enzyme deficiency producing this condition? (Q844196)

A. Hexosaminidase-A

B. Iduronate 2-sulphatase

C. Glucose-6-phosphate dehydrogenase

D. Glucocerebrosidase



Correct Answer: D. Glucocerebrosidase

Explanation: Correct Option D – Glucocerebrosidase: A child presented with anemia, mental r*etardation, bone pains, and hepatosplenomegaly. Bone marrow biopsy showed a "crumpled tissue paper" appearance. The enzyme deficiency producing this condition is Glucocerebrosidase , which is associated with Gaucher disease. Incorrect Options: Option A - Hexosaminidase-A : This enzyme deficiency is associated with Tay-Sachs disease, which is characterized by progressive neurological degeneration, but it does not typically present with the "crumpled tissue paper" appearance in bone marrow or the specific combination of symptoms described (anemia, mental retardation, bone pains, hepatosplenomegaly). Option B - Iduronate 2-sulphatase : Deficiency of this enzyme is associated with Hunter syndrome, a type of mucopolysaccharidosis (MPS II). This condition can cause developmental delay, skeletal abnormalities, and hepatosplenomegaly but does not typically present with the "crumpled tissue paper" appearance in bone marrow. Option C - Glucose-6-phosphate dehydrogenase : Deficiency in this enzyme leads to G6PD deficiency, which can cause hemolytic anemia but does not typically cause the "crumpled tissue paper" appearance in bone marrow or the combination of symptoms described.

↑ *Back to this question in Part A*

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Q4: An 18-month-old child presents with hepatosplenomegaly, a hemoglobin level of 7 g/dL, a white blood cell count of 50,000 cells/cu.mm, and petechiae and purpura. What is the recommended drug treatment for this condition? (Q844248)

A. Vincristine + Prednisolone

B. IVIG

C. L-Asparinigase +Prednisolone

D. Daunorubicin + Prednisolone

Correct Answer: A. Vincristine + Prednisolone

Explanation: Correct Option A - Vincristine + Prednisolone: This combination is commonly used as part of the treatment regimen for acute lymphoblastic leukemia (ALL). Vincristine is a chemotherapy agent that inhibits cell division, and Prednisolone is a corticosteroid that helps reduce inflammation and has antitumor effects. This option is appropriate if the child's symptoms are indicative of ALL, as the high WBC count and symptoms like hepatosplenomegaly and purpura are consistent with leukemia. Incorrect Options: Option B – IVIG: Intravenous immunoglobulin (IVIG) is used for treating immune thrombocytopenic purpura (ITP) and other conditions involving immune-mediated platelet destruction. While IVIG can be beneficial in conditions with bleeding tendencies, it is not typically used as the primary treatment for leukemia. Option C - L-Asparaginase + Prednisolone: L-Asparaginase is an enzyme used in the treatment of acute lymphoblastic leukemia (ALL) as part of a chemotherapy regimen. It works by depleting asparagine, an amino acid necessary for leukemia cell survival. Prednisolone is a corticosteroid used to enhance the effects of chemotherapy and reduce inflammation. This combination is appropriate for treating ALL, but without additional context, it’s less specific than Vincristine + Prednisolone in a classic ALL regimen. Option D - Daunorubicin + Prednisolone: Daunorubicin is a chemotherapy drug used primarily in the treatment of acute myeloid leukemia (AML) and sometimes in acute lymphoblastic leukemia (ALL). Prednisolone is a corticosteroid used to support chemotherapy treatment. This combination is generally used for AML rather than ALL.

↑ *Back to this question in Part A*

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Q5: Which of the following is least likely regarding Rh incompatibility in a newborn? (Q856764)

A. Increased unconjugated bilirubin

B. Increased fecal urobilinogen

C. Increased urine bilirubin

D. Increased stercobilinogen

Correct Answer: C. Increased urine bilirubin

Explanation: In Rh incompatibility, maternal antibodies destroy fetal Rh-positive RBCs , leading to hemolysis and excessive unconjugated bilirubin (Option A). Unconjugated bilirubin is water-insoluble and bound to albumin, preventing urinary excretion. Instead, intestinal bacteria convert it to urobilinogen and stercobilinogen, which are eliminated in stool. (Options B & D) Urine bilirubin consists of conjugated bilirubin, which requires hepatic processing. However, in Rh incompatibility, the liver is overwhelmed, leading to predominantly unconjugated hyperbilirubinemia and no significant increase in urine bilirubin .

References:

Nelson Textbook of Pediatrics, 21st edition, Page 953, 956

↑ *Back to this question in Part A*

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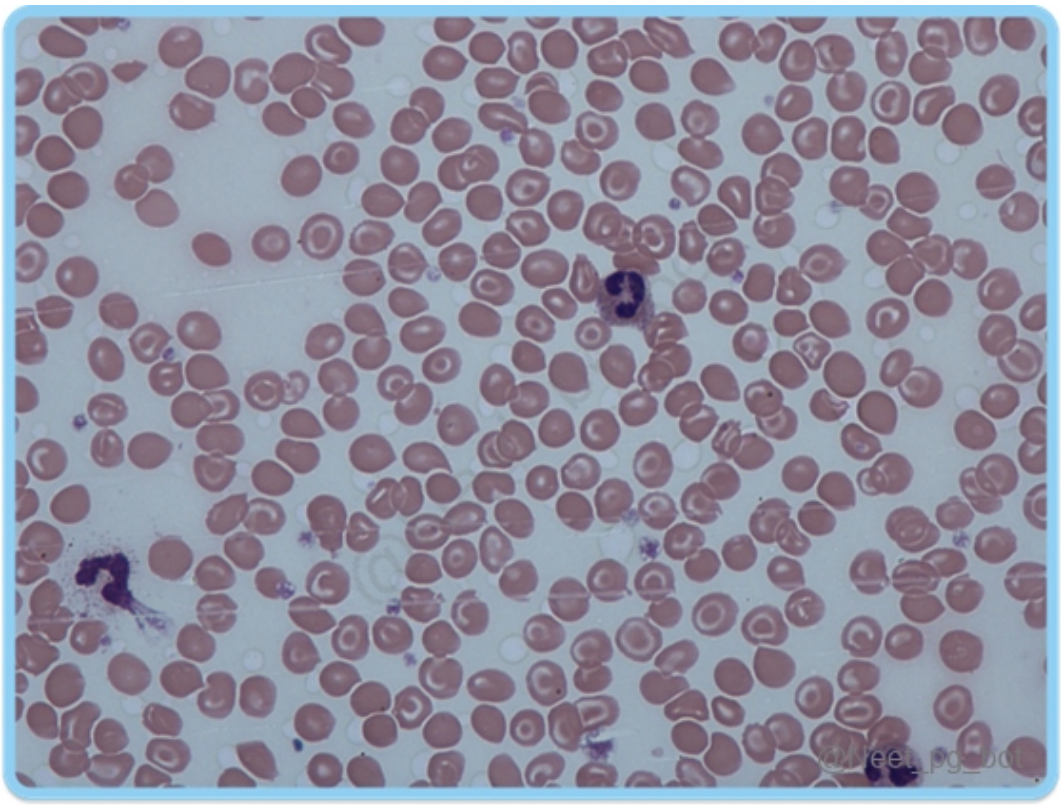
Q6: A 14-month-old child with Hb 6.3 was undergoing repeated blood transfusions. The last transfusion was given in the 9 th month. Which of the following investigations is used for a definitive diagnosis? (Q856451)

A. High-performance liquid chromatography

B. Ferritin levels estimation

C. Bone marrow aspiration

D. Globin gene sequencing



Correct Answer: D. Globin gene sequencing

Explanation: In this case, the presence of target cells and a history of repeated blood transfusions suggests a possible hemoglobinopathy, such as thalassemia or sickle cell disease . Globin gene sequencing is a molecular diagnostic test that can identify specific mutations or genetic alterations in the globin genes. By sequencing the globin genes, such as the alpha and beta globin genes, it is possible to identify the specific genetic abnormality responsible for the hemoglobinopathy. High-performance liquid chromatography (HPLC) (Option A) is a commonly used method to measure the different types of hemoglobin and their variants in the blood. While HPLC can help in identifying abnormal hemoglobin variants, it may not provide a definitive diagnosis of the underlying genetic abnormality causing the hemoglobinopathy. Estimating ferritin levels (Option B) can provide information about the iron stores in the body but may not directly help in diagnosing the underlying cause of the anemia or the specific genetic abnormality causing the hemoglobinopathy. While bone marrow examination (Option C) can provide valuable information about the cells in the bone marrow, it may not always be necessary for the definitive diagnosis of hemoglobinopathy

References:

Ghai Essential Pediatrics, 10th edition, Page 363

↑ *Back to this question in Part A*

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Q7: A patient has bruising, petechiae, and occasional minor epistaxis, which has very little interference with his daily activities. Based on further workup, a diagnosis of a mild case of ITP is made. How will you manage the patient? (Q859768)

A. Short course corticosteroid therapy

B. Intravenous anti-D administration

C. A single dose of intravenous immunoglobulin

D. Education, counseling, and watchful expectancy

Correct Answer: D. Education, counseling, and watchful expectancy

Explanation: In a patient with mild ITP who has bruising, petechiae, and occasional minor epistaxis but minimal interference with daily activities , the preferred approach is watchful expectancy. Most cases of mild ITP in children resolve spontaneously without treatment. Regular follow-up visits can help assess the progression of the disease and determine the need for intervention if symptoms worsen or if there is an increase in bleeding risk. The observation period involves providing education and counseling to the patient and closely monitoring platelet counts and symptoms over time. Management of Immune thrombocytopenic purpura in children Based on platelet count: Platelet Count >30,000 cells/μL + No severe bleeding- Monitor closely Platelet Count < 30,000 cells/μL + No severe bleeding + Platelet Count ≥ 5,000 cells/μL: Glucocorticoids (e.g., Prednisone , Dexamethasone) Platelet Count < 5,000 cells/μL or Severe Bleeding: i.v.i.g.+ Glucocorticoids Other modalities: Immediate Need to Raise Platelet Count like surgery or trauma- Platelet Transfusion Persistent or Severe Cases- Monitor with intermittent i.v.i.g. If necessary, consider Splenectomy Alternative Medications: Anti-CD20 Antibody: Rituximab TPO Receptor Agonists: Romiplostim, Eltrombopag Short course corticosteroid therapy (Option A) is not indicated as the first-line treatment for mild ITP with minimal symptoms. While corticosteroids like prednisone are effective, their side effects outweigh the benefits in mild cases. Corticosteroids are typically reserved for cases with more severe thrombocytopenia or significant bleeding risk. Intravenous anti-D administration (Option B) is an intervention reserved for Rh-positive patients with more severe ITP requiring rapid platelet count elevation. In mild cases with minimal symptoms, this aggressive approach is unnecessary and carries potential risks. A single dose of intravenous immunoglobulin (Option C) represents an aggressive and costly intervention that is not warranted in mild ITP cases. IVIG is typically reserved for severe cases with significant bleeding risk or very low platelet counts (<5,000/μL).

References:

Ghai Essential Pediatrics, 10th Edition, Pages 371-373

↑ *Back to this question in Part A*

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Q8: A 2 year old child presents with leg pain, difficulty walking and easy fatiguability. Which is the unusual diagnosis for this ? (Q865456)

A. Ewing sarcoma

B. Metastatic renal clear cell sarcoma

C. Metastatic neuroblastoma

D. Metastatic retinoblastoma

Correct Answer: D. Metastatic retinoblastoma

Explanation: Metastatic Retinoblastoma is the most unusual cause of a 2-year-old child presenting with leg pain, difficulty walking, and easy fatigability because of the following reasons: Retinoblastoma primarily affects the eyes and most commonly presents with leukocoria (white pupillary reflex), strabismus, or vision loss. Metastasis occurs late and usually spreads to the CNS (brain/spine), bones (skull), or lymph nodes—not typically long bones (legs). Leg pain and difficulty walking are rare as initial symptoms of retinoblastoma. Ewing Sarcoma (Option A) A bone tumor that frequently affects the femur/pelvis in children, causing bone pain, limping, and pathological fractures. Metastatic Renal Clear Cell Sarcoma (Option B) A rare kidney tumor that metastasizes to bones (including legs), causing bone pain and mobility issues. Metastatic Neuroblastoma (Option C) Commonly metastasizes to bones (especially femur, pelvis) and presents with bone pain, limping, and fatigue due to bone marrow infiltration.

References:

Nelson Textbook of Pediatrics, 21st Edition,Page 2628-2630.

↑ *Back to this question in Part A*

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Q9: Which of the following malignant tumors, commonly found in children, has a high tendency to spread to the bone marrow? (Q859770)

A. Wilms tumor

B. Neuroblastoma

C. Adrenal gland tumors

D. Granulosa cell tumor of ovary

Correct Answer: B. Neuroblastoma

Explanation: Neuroblastoma is an embryonal tumor arising from neural crest cells and is the most common extracranial solid tumor in childhood. It frequently presents with widespread metastatic disease at diagnosis, with bone marrow being one of the most common sites of metastasis . This characteristic bone marrow involvement often leads to pancytopenia and is a factor used for disease staging and prognosis. Neuroblastoma Definition &

Epidemiology Neural crest-derived tumor Most common extracranial solid tumor in children 7-8% of all childhood cancers Most common in first year of life Median age at diagnosis: 19 months Genetic Features MYCN amplification (~20% of cases) Loss of heterozygosity: 1p, 11q, 14q, 17q TERT and chromatin remodeling genes 1-2% show family history Higher MYCN copy number indicates worse prognosis Clinical Presentation Primary Sites: Abdominal (65%) Mediastinal (40%) Paraspinal (19%) Head/neck (5%) Symptoms: Pain, fever, irritability Weight loss Abdominal distension Periorbital ecchymosis Opsoclonus-myoclonus syndrome (rare) International Staging Stage L1: Localized tumor, complete excision Stage IIA: Incomplete gross excision Stage IIB: Complete/incomplete excision with positive lymph nodes Stage III: Midline crossing or bilateral involvement Stage IV: Distant metastasis (Bone marrow (MC), bone, liver, regional lymph nodes) Stage IVS : Localized primary with limited dissemination (infants) Diagnostic Markers Immunohistochemistry: Synaptophysin Tyrosine hydroxylase PHOX2B Neuron-specific enolase Other Markers: Desmin Myogenin Keratin CD99 Treatment Options Primary Treatments: Surgery Chemotherapy Radiation therapy Chemotherapy Regimens: OPEC (vincristine, cyclophosphamide, cisplatin) CADO (vincristine, cyclophosphamide, doxorubicin) PECADO (cisplatin, etoposide) Additional Therapies: 13-cis retinoic acid Autologous bone marrow transplantation Wilms tumor (Option A) primarily metastasizes to the lungs, liver, and regional lymph nodes. While it is the most common renal tumor in children, bone marrow involvement is not a characteristic feature. The typical pattern of spread follows hematogenous routes to the lungs and liver. Adrenal gland tumors (Option C), such as adrenocortical carcinomas, typically spread to local lymph nodes, liver, and lungs. Bone marrow metastasis is not a common feature of these tumors. Granulosa cell tumor of ovary (Option D) typically spreads within the peritoneal cavity and to regional lymph nodes. It is rare in children, and bone marrow metastasis is not a characteristic feature. These tumors are more commonly seen in adults.

References:

Ghai Essential Pediatrics, 10th Edition, Page 638-639

↑ *Back to this question in Part A*

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Q10: A 2-month-old child presents with watery eyes and photophobia. All of the following conditions can cause these symptoms, except? (Q840081)

A. Congenital glaucoma

B. Congenital NLD blockage

C. Congenital entropion

D. Herpes simplex keratitis

Correct Answer: B. Congenital NLD blockage

Explanation: Symptoms in the stem: Watery eyes (epiphora) Photophobia In a 2-month-old , the key is photophobia — this suggests corneal irritation or raised intraocular pressure . Congenital nasolacrimal duct (NLD) blockage causes epiphora (watery eyes) but NO photophobia , since cornea is unaffected. Congenital glaucoma

(Option A): Classic triad: epiphora, photophobia, blepharospasm . Due to increased IOP causing corneal edema. Causes watery eyes + photophobia. Congenital entropion (Option C): Inward turning of eyelids → lashes rub cornea → epiphora + photophobia . Herpes simplex keratitis (Option D): Even in infants, this viral infection of the cornea can cause significant inflammation and ulceration. The corneal irritation results in redness, pain, watery eyes, and severe photophobia

References:

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↑ *Back to this question in Part A*

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Q11: A 6-year-old child presented to emergency department with complaints of bleeding from the nose. Which of the following artery is most affected? (Q820457)

A. Anterior ethmoidal artery

B. Posterior ethmoidal artery

C. Sphenopalatine artery

D. Greater palatine artery

Correct Answer: C. Sphenopalatine artery

Explanation: Correct Option C - Sphenopalatine artery: The sphenopalatine artery is a branch of the maxillary artery and is a common source of nosebleeds, especially in children. It supplies blood to the lateral wall of the nasal cavity, including the Kiesselbach's plexus, which is a region known for its vulnerability to bleeding. In a 6-year-old child, nosebleeds often occur in this region due to fragile blood vessels. Incorrect Options: Option A - Anterior ethmoidal artery: This artery supplies blood to the anterior part of the nasal cavity and the ethmoidal sinuses. Bleeding from this artery could lead to epistaxis (nosebleeds), but it is less likely to be the primary source of bleeding in a 6-year-old child. Option B - Posterior ethmoidal artery: This artery supplies blood to the posterior part of the nasal cavity and the ethmoidal sinuses. Similar to the anterior ethmoidal artery, bleeding from this artery could contribute to nosebleeds, but it is less commonly the primary source of bleeding, especially in a 6-year-old child. Option D - Greater palatine artery: This artery supplies the hard palate, which is the roof of the mouth. While bleeding from this artery could potentially cause oral bleeding, it is not a common source of nosebleeds, especially in a 6-year-old child.

↑ *Back to this question in Part A*

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Q12: Which of the following is not a correct match for ABCD according to pediatric advanced life support? (Q858060)

A. Airway

B. Breathing

C. Circulation

D. Dehydration

Correct Answer: D. Dehydration

Explanation: = Airway (Option A) B = Breathing (Option B) C = Circulation (Option C) D = Disability Dehydration is not part of the ABCD approach in PALS , although it can be a concern in pediatric emergencies. Components of PALS Assessment: Airway: Assess airway patency (open/patent, unobstructed/obstructed) and determine if the patient will need assistance maintaining their airway Breathing: Assess respiratory rate, respiratory effort, lung sounds, airway sounds, chest movement, and oxygen saturation via pulse oximetry Circulation: Assess heart rate, heart rhythm, pulses, skin color, skin temperature, capillary refill time, and blood pressure Disability: Assess neurological function with the AVPU pediatric response scale (alert, voice, painful, unresponsive), pediatric Glasgow Coma Scale (eye opening, motor response, verbal response), pupil response to light (normal, pinpoint, dilated, unilateral dilated), and blood glucose test (hypoglycemia can cause altered mental status) Exposure: Assess temperature, signs of trauma (cuts, bleeding, bruises, burns, etc.), and skin (petechiae, purpura, etc.)

References:

Nelson Textbook of Pediatrics, 21st edition, Page515-525

https://pmc.ncbi.nlm.nih.gov/articles/PMC7576321/

↑ *Back to this question in Part A*

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Q13: What is the probable diagnosis for a 7-year-old girl who presents with cramping abdominal pain, rashes on the back of her legs, buttocks, and extensor surface of her forearms, along with proteinuria and microscopic hematuria upon laboratory analysis? (Q793677)

A. Systemic lupus erythematosus

B. Henoch-Schonlein purpura

C. Post-streptococcal glomerulonephritis

D. Hemolytic uremic syndrome

Correct Answer: B. Henoch-Schonlein purpura

Explanation: The presentation of cramping abdominal pain, rashes on the back of legs, buttocks, and the extensor surface of the forearms, along with laboratory findings of proteinuria and microscopic hematuria, suggest Henoch-Schonlein purpura (HSP) as the most likely diagnosis. HSP is a systemic vasculitis affecting small vessels, primarily in children. The classic presentation includes palpable purpura on the lower extremities, abdominal pain, arthritis or arthralgia, and renal involvement (hematuria, proteinuria, and occasionally, nephrotic syndrome). The diagnosis of HSP is made based on clinical features and laboratory findings, and a renal biopsy is rarely necessary. Incorrect Choices: a. Systemic lupus erythematosus (SLE) typically presents with more symptoms, including fatigue, joint pain, and skin rashes, and is less common in children. Laboratory findings in SLE include positive antinuclear antibodies and anti-double-stranded DNA antibodies, which are not seen in HSP. c. post-streptococcal glomerulonephritis (PSGN) typically presents with edema, hypertension, and oliguria following an upper respiratory or skin infection with group A beta-hemolytic streptococcus. Hematuria, proteinuria, and red blood cell casts are commonly seen on urinalysis. HSP is not typically associated with preceding infections and does not have hypertension or oliguria. d. Hemolytic uremic syndrome (HUS) typically presents with the triad of microangiopathic hemolytic anemia, thrombocytopenia, and acute renal failure. While HSP can cause renal involvement, it typically presents with isolated proteinuria and microscopic hematuria without the other features of HUS.

References:

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↑ *Back to this question in Part A*

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• [19_Normal Development] 048 Previous Year Questions

« Back to Folder Directory

[19_Normal Development] 048 Previous Year Questions — Quick Jump

Q1 (p. 1642)	*Q2 (p. 1643)*	*Q3 (p. 1644)*	*Q4 (p. 1644)*	*Q5 (p. 1645)*	*Q6 (p. 1646)*
Q7 (p. 1647)	*Q8 (p. 1648)*	*Q9 (p. 1648)*	*Q10 (p. 1649)*	*Q11 (p. 1649)*	*Q12 (p. 1650)*
Q13 (p. 1651)	*Q14 (p. 1652)*	*Q15 (p. 1653)*			

Q1: What is the underlying defect in the congenital malformation shown below? (Q820467)

A. Morulation

B. Neurulation

C. Lateral folding

D. Gastrulation



Correct Answer: D. Gastrulation

Explanation: Correct Option D - Gastrulation: Gastrulation is a crucial phase during early embryonic development when the blastula (hollow ball of cells) transforms into a trilaminar structure with three germ layers. These germ layers eventually give rise to various organs and tissues. If there is a defect in gastrulation, it can lead to severe congenital malformations due to incorrect formation of these germ layers and their subsequent development. Thus, the correct answer is option D, Gastrulation, as it is the process most directly related to the underlying defect in the congenital malformation mentioned. Incorrect Options: Option A - Morulation: Morulation is the process of early embryonic development that involves the division of the zygote into multiple smaller cells called blastomeres. This process occurs during the first few days after fertilization and leads to the formation of the morula, a solid ball of cells. However, morulation is not associated with the development of specific structures like the nervous system, so it is not the underlying defect for the congenital malformation in question. Option B - Neurulation: Neurulation is the process by which the neural tube is formed, which gives rise to the central nervous system (brain and spinal cord). This process occurs during the third week of embryonic development and involves the folding and fusion of the neural plate to create the neural tube. Neurulation defects can lead to neural tube defects such as spina bifida and anencephaly, but this process is not directly related to the congenital malformation mentioned. Option C - Lateral Folding: Lateral folding is a process that occurs during gastrulation, which is the early embryonic stage when the three germ layers (ectoderm, mesoderm, and endoderm) form. Lateral folding involves the folding of the embryo's sides towards the midline, allowing the germ layers to develop properly. Defects in lateral folding can lead to malformations, but again, this process is not specifically associated with the malformation mentioned

References:

Nelson Textbook of Pediatrics 21st International edition

↑ *Back to this question in Part A*

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Q2: What is the rate of increase in head circumference in infants less than 3 months of age? (Q840067)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

Correct Answer: C. 2cm/month

Explanation: Correct Option C - 2cm/month: At birth, head circumference is around 33 – 35 cm. It increases by approximately 2 cm per month for the first 3 months, 1 cm per month between 3 and 6 months, and 0.5 cm per month for the rest of the first year. Incorrect options: Options A, B, and D are incorrect, as explained above.

References:

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↑ *Back to this question in Part A*

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Q3: During a routine pediatric check-up, a mother brings her 5 month old baby to the clinic. The pediatrician observes that the baby actively looks at his mother's face and seems to respond with interest as she talks to him, showing recognition and engagement. When is this milestone normally achieved? (Q852742)

A. 2 months

B. 3 months

C. 6 months

D. 9 months

Correct Answer: B. 3 months

Explanation: Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed (Option B) Cooing 4 months Laugh Loud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach Recognize strangers, stranger anxiety Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, vertical and circular stroke Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences 3 years Rides tricycle, alternate feet going upstairs Tower of 9 blocks, copies circle Shares toys, knows full name and gender Asks questions, tells name and gender 4 years Hops on one foot, alternate feet going downstairs Copies cross, bridge with blocks Plays cooperatively in a group, goes to toilet alone Says song or poem, tells stories 5 years Copies triangle, gate with blocks Helps in household tasks, dresses and undresses Asks meaning of words

References:

Ghai Essential Paediatrics, 10th edition, Pages 29, 32, 35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: What is the rate of increase in head circumference in infants at the first 3 months of age? (Q853239)

A. 0.5cm/month

B. 1cm/month

C. 2cm/month

D. 4cm/month

Correct Answer: C. 2cm/month

Explanation: At birth, head circumference is around 33-35 cm. It increases approximately by 2 cm per month for the first 3 months, by 1 cm per month between 3 and 6 months, and by 0.5 cm per month for next 6 months. Maximum head circumference is measured from occipital protuberance posteriorly to the supra orbital ridge anteriorly using cross tape method. At birth , head circumference is more than chest circumference by 2.5 cm At age of 1 year head circumference is equal to chest circumference After 1 year head circumference is lesser than chest circumference

References:

Ghai Essential Pediatrics, 9th edition, Pages 12, 13, 14

↑ *Back to this question in Part A*

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Q5: Copies cross, tells stories, and goes to the toilet alone. What is the age of the child? (Q853383)

A. 3 years

B. 4 years

C. 5 years

D. 2 years

Correct Answer: B. 4 years

Explanation: Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed Cooing 4 months Laugh Loud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach Recognize strangers, stranger anxiety Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months

Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years (Option D ruled out) Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, vertical and circular stroke Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences 3 years (Option A ruled out) Rides tricycle, alternate feet going upstairs Tower of 9 blocks, copies circle Shares toys, knows full name and gender Asks questions, tells name and gender 4 years (Option B) Hops on one foot, alternate feet going downstairs Copies cross, bridge with blocks Plays cooperatively in a group, goes to toilet alone Says song or poem, tells stories 5 years (Option C ruled out) Copies triangle, gate with blocks Helps in household tasks, dresses and undresses Asks meaning of words

References:

OP Ghai 10th edition, Pg: 29,32,35

↑ *Back to this question in Part A*

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Q6: Handedness is seen at the age of _____ (Q855733)

A. 1 year

B. 2 years

C. 3 years

D. 4 years

Correct Answer: C. 3 years

Explanation: 3 years Handedness is seen at the age of 3 years. Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed Cooing 4 months Laugh Loud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach Recognize strangers, stranger anxiety Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, vertical and circular stroke Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences 3 years Rides tricycle, alternate feet going upstairs Tower of 9 blocks, copies circle, handedness Shares toys, knows full name and gender Asks questions, tells name and gender 4 years Hops on one foot, alternate feet going downstairs Copies cross, bridge with blocks Plays cooperatively in a group, goes to toilet alone Says song or poem, tells stories 5 years Copies triangle, gate with blocks Helps in household tasks, dresses and undresses Asks meaning of words

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 143

O.P. Ghai Essential Pediatrics, 10th Edition, Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: Match the following developmental milestones. 1 Transfers objects a 1-2 months 2 Social smile b 6-7 months 3 Pincer grasp c 12-15 months 4 Walks 1-2 steps d 9-12 months (Q856724)

A. 1-a, 2-b, 3-c, 4-d

B. 1-b, 2-a, 3-d, 4-c

C. 1-c, 2-b, 3-a, 4-d

D. 1-d, 2-c, 3-b, 4-a

Correct Answer: B. 1-b, 2-a, 3-d, 4-c

Explanation: - 1-b, 2-a, 3-d, 4-c The correct match is: Transfers objects 6-7 months Social smile 1-2 months Pincer grasp 9-12 months Walks 1-2 steps 12-15 months Age Gross Motor Domain Milestones Fine Motor Domain Milestones Language Domain Milestones Social Domain Milestones 1 month - - Alerts to sound - 2 months - - - Social smile 3 months Neck holding - Coos (musical vowel sounds) Recognizes mother; anticipates feeds 4 months - Bidextrous reach Laughs loud - 5 months Rolls over - - - 6 months Sits in tripod fashion (sitting with own support) Unidextrous reach; transfers objects Monosyllables (ba, da, pa), ah-goo sounds Recognizes strangers, stranger anxiety 8 months Sitting without support - - - 9 months Stands holding on (with support) Immature pincer grasp ; probes with forefinger Bisyllables (mama, baba, dada) Waves “bye-bye” 12 months Creeps well; walks but falls ; stands without support Pincer grasp mature 1-2 words with meaning Comes when called; plays simple ball game 15 months Walks alone; creeps upstairs Imitates scribbling; tower of 2 blocks Jargon - 18 months Runs; explores drawers Scribbles; tower of 3 blocks 8-10 word vocabulary Copies parents in task (e.g., sweeping) 2 years Walks up and downstairs (2 feet/step); jumps Tower of 6 blocks; vertical and circular stroke 2-3 word sentences, use pronouns “I”, “me”, “you” Asks for food, drink, toilet; pulls people to show toys 3 years Rides tricycle; alternate feet going upstairs Tower of 9 blocks; copies circle Asks questions; knows full name and gender Shares toys; knows full name and gender 4 years Hops on one foot; alternate feet going downstairs Copies cross; bridge with blocks Says song or poem; tells stories Plays cooperatively in a group; goes to the toilet alone 5 years Skips Copies triangle; gate with blocks Asks the meaning of words Helps in household tasks, dresses, and undresses

References:

OP Ghai Essential Pediatrics, 10th Edition, Page: 29, 32, 35.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: In an infant, which of the following milestones is achieved the earliest? (Q857221)

A. Immature pincer grasp

B. Mature pincer grasp

C. Radial palmar grasp

D. Ulnar palmar grasp

Correct Answer: D. Ulnar palmar grasp

Explanation: (8 to 10 months) is a radial digital grasp typically developed in which an object is held between the fingers and opposed thumb. The fingers are now strong and coordinated enough to hold an object without exterior stabilization from the palm

References:

Ghai Essential Paediatrics, 10th edition, Page: 29, 32, 35.

https://www.lancaster.ac.uk/fas/psych/glossary/palmar_grasp/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: The earliest indication of sexual maturation in females: (Q859488)

A. Maturation

B. Thelarche

C. Pubarche

D. Menarche

Correct Answer: B. Thelarche

Explanation: Thelarche, the development of breast buds, occurs as a result of hypothalamic-pituitary-gonadal axis activation , leading to estrogen release and subsequent breast tissue growth. This process typically begins between ages 8 and 13, marking the earliest visible sign of puberty in girls. Pubertal Changes Girls Boys Onset of Puberty Age: Around 10 years (range 8-12 years) Duration: 3-5 years Onset of Puberty Age: Around 11.5 years (range

9-14 years) Sequence of Pubertal Changes Sequence of Pubertal Changes Breast Development (Thelarche) ↓ Pubic Hair Growth (Pubarche) ↓ Growth Spurt ↓ Onset of Menstrual Cycles (Menarche) 2 years after Thelarche ↓ Final Breast Development (Adult Breast Maturation) Testicular Enlargement ↓ Penile Enlargement ↓ Pubic Hair Growth (Pubarche) ↓ Growth Spurt ↓ Spermarche Incorrect Options: Maturation (Option A): This term is quite broad and does not specifically refer to any particular aspect of sexual maturation. It does not provide a clear indication of the onset of sexual development in females. Pubarche (Option C): Pubarche refers to the development of pubic hair, specifically in the pubic region. It is another sign of sexual maturation in females and typically occurs after thelarche. Pubarche is influenced by androgen hormones, such as adrenal androgens. The onset of pubarche varies, but it often occurs around the same time as thelarche or shortly after. Menarche (Option D): Menarche refers to the onset of the first menstrual period in females. It is a significant milestone in sexual maturation and signifies the ability to conceive. Menarche usually occurs after the development of breast buds (thelarche) and the growth of pubic hair (pubarche). The average age of menarche is around 12 to 14 years, but it can vary widely.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2899

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: At what age does the transfer of one object to another hand happen? (Q860231)

A. 4 months

B. 9 months

C. 7 months

D. 12 months

Correct Answer: C. 7 months

Explanation: Transfer of objects between hands is an important fine motor milestone in infant development. Transfer of objects from one hand to another is a fine motor skill It appears at 7 months of age Represents development of hand coordination Part of neurological development

References:

Ghai Essential Paediatrics, 10th edition, Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q11: What is the likely age of a child who can ride a tricycle, walk up stairs with alternate steps, but cannot hop? (Q860253)

A. 2.5 years

B. 3.5 years

C. 4.5 years

D. 5.5 years

Correct Answer: B. 3.5 years

Explanation: The clinical scenario indicates a child at 3.5 years of age based on the developmental milestones described. At this age, children typically achieve the ability to ride a tricycle and climb stairs with alternating feet, while hopping skills are still developing . At 3 years, a child goes upstairs with alternating feet & downstairs with 2 per step and rides a tricycle. A child hops at 4 years and goes downstairs with alternating feet. Since the child described cannot hop, they are likely younger than 4 years old. So, the developmental age of the child is more than 3 years and less than 4 years . Incorrect Options: 2.5 years (Option A) : At 2.5 years, children usually go upstairs and downstairs with two feet per step but can not ride a tricycle. 4.5 years (Option C) : By 4.5 years, children should be able to hop and go up and down stairs with alternating feet. 5.5 years (Option D) : At 5.5 years, children should be able to skip and stand on one leg for more than 10 seconds. Also, hopping skills are well developed.

References:

Ghai Essential Paediatrics 10th Edition Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q12: How do you calculate the mid-parental height for a male child with a father who is 183 cm tall and a mother who is 175 cm tall? (Q860257)

A. 185.5

B. 169.5

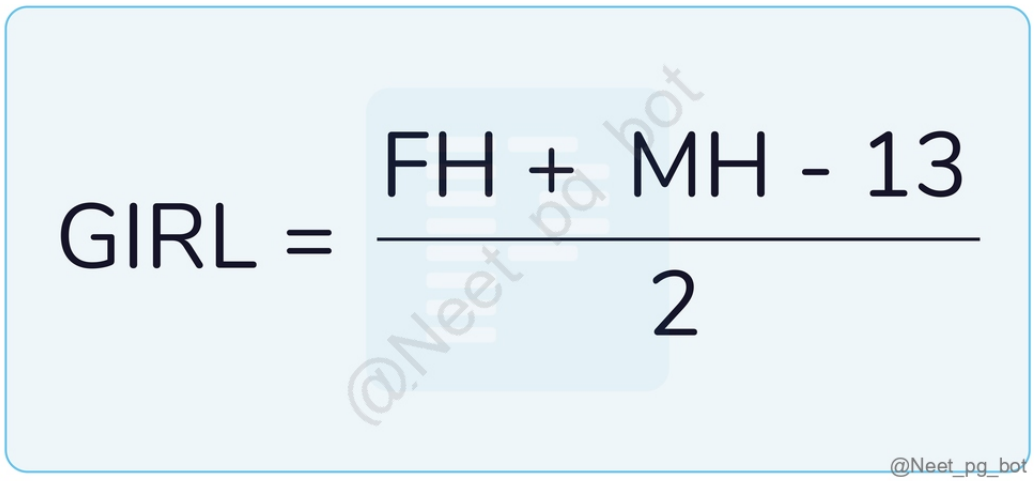
C. 192.5

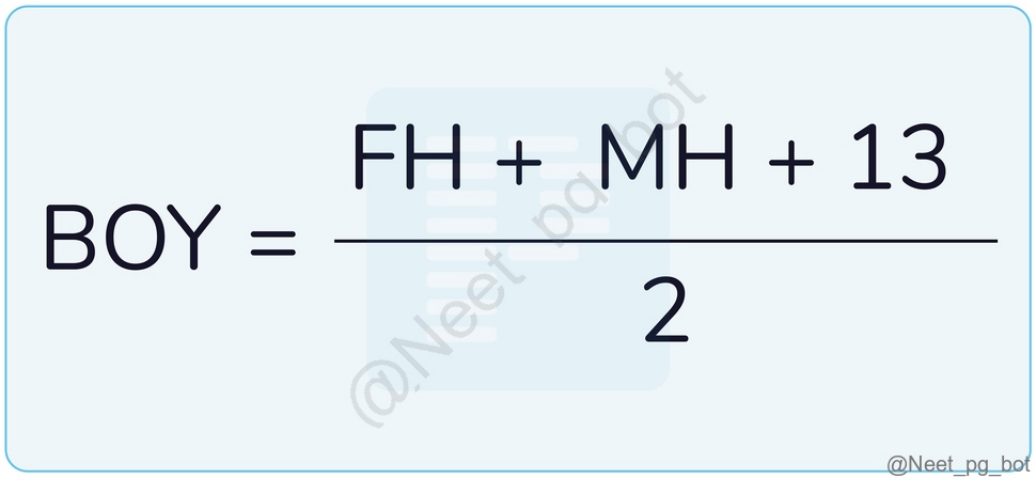
D. 195.5

Correct Answer: A. 185.5

Explanation: Mid-parental height for a male or female child is calculated using a specific formula: ■■■ Where: FH = Father's height MH = Mother's height 13 = Correction factor for male children Calculation for above clinical

scenario: Father's height = 183 cm Mother's height = 175 cm Using the formula: (183 + 175 + 13) ÷ 2 = 185.5 cm





References:

Ghai Essential Paediatrics, 10th edition, Page 32.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q13: At what age does stranger anxiety appear? (Q860614)

A. 7 months

B. 9 months

C. 12 months

D. 15 months

Correct Answer: A. 7 months

Explanation: Stranger anxiety is an important social milestone in infant development which appears around 6-7 months of age

References:

Ghai Essential Paediatrics, 10th edition, Page 29,32,35

↑ *Back to this question in Part A*

@Neet_pg_bot

Q14: A 9-month-old infant is brought to the pediatrician due to concerns that the child cannot sit without support. The child is otherwise able to roll over, says "mama" and "dada", and demonstrates stranger anxiety. Which of the following is the most appropriate next step in management? (Q865432)

A. Refer for developmental assessment

B. Order an immediate MRI

C. Reassure the parents, as this is normal for the age

D. No further action needed at this time

Correct Answer: C. Reassure the parents, as this is normal for the age

Explanation: Sitting without support typically appears by 8–9 months , and a few weeks of variation is normal. Since the child has normal language and social milestones , reassurance and follow-up are appropriate. Incorrect options: Refer for developmental assessment (Option A): This is needed only if multiple milestones are delayed (e.g., motor and language or social). In this case, only one gross motor skill (sitting unsupported) is slightly delayed, while all other milestones are appropriate, so no referral is needed . Order an immediate MRI (Option B): Imaging is only done if neurological abnormalities are found on assessment. No further action needed at this time (Option D): While the concern is minor, the pediatrician should always take some action, which is providing reassurance and anticipatory guidance (e.g., advising parents to encourage tummy time and practice sitting) and setting a date for a follow-up check to ensure the milestone is achieved soon.

References:

O.P Ghai Essentials of Pediatrics, 10th Edition, Pages 36

↑ *Back to this question in Part A*

@Neet_pg_bot

Q15: A 9-month-old infant is brought for a routine check-up. Which of the following developmental milestones is most likely to be present at this age? (Q866939)

A. Mature grasp

B. Creeps well on hands and knees

C. Can hop on one foot

D. Runs steadily

Correct Answer: B. Creeps well on hands and knees

Explanation: By 9 months , most infants develop good gross motor skills such as creeping (moving on hands and knees) and pulling to stand. They also typically have a crude pincer grasp, respond to their name, and show stranger anxiety. A mature grasp (refined pincer grasp involving thumb and finger opposition) usually starts to develop closer to 10-12 months . (Option A ruled out) Hoping at one foot is achieved by 4 years . (Option C ruled out) Running becomes steady around 2 years. (Option D ruled out) Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed Cooing 4 months Laugh Aloud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach stranger anxiety(7 months) Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, copies straight line Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences

↑ *Back to this question in Part A*

@Neet_pg_bot

• [20_Developmental and Behavioural Disorders] 049 Normal Development Developmental Behavioral Disorders

« Back to Folder Directory

[20_Developmental and Behavioural Disorders] 049 Normal Development Developmental Behavioral Disorders — Quick Jump

Q1 (p. 1654)	*Q2 (p. 1655)*	*Q3 (p. 1656)*	*Q4 (p. 1657)*	*Q5 (p. 1658)*	*Q6 (p. 1658)*
Q7 (p. 1659)	*Q8 (p. 1661)*	*Q9 (p. 1662)*	*Q10 (p. 1663)*	*Q11 (p. 1663)*	*Q12 (p. 1664)*
Q13 (p. 1665)	*Q14 (p. 1666)*	*Q15 (p. 1666)*	*Q16 (p. 1667)*	*Q17 (p. 1668)*	*Q18 (p. 1669)*
Q19 (p. 1670)	*Q20 (p. 1671)*				

Q1: A child has an IQ of 65 and is able to perform basic self-care tasks with some supervision.The boy is struggling academically and has limited vocabulary. Which level of intellectual disability is most likely? (Q849925)

A. Mild

B. Moderate

C. Severe

D. Profound

Correct Answer: A. Mild

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: IQ of 65 with ability to perform basic self care tasks with supervision is of Mild ID . Intellectual disability (ID) is a condition characterized by significant limitations in both intellectual functioning and adaptive behavior, which covers a range of everyday social and practical skills. Intellectual Disability levels is assessed by Intelligence Quotient(IQ) IQ = Mental age/Chronological age *100 Intellectual Disability levels: IQ Score Degree Characteristics 51-70 Mild ID Can learn practical life skills- May live independently with support- Can work in jobs with minimal supervision. 36-50 Moderate ID (Option B) May develop basic communication skills- Can learn simple daily living activities- Often requires supervised living. 21-35 Severe ID (Option C) Limited communication skills- Requires extensive supervision- Little understanding of written language. 0-20 Profound ID (Option D) Very limited communication- Dependent on others for all aspects of daily care- Significant physical and sensory impairments.

References:

Ghai Essential paediatrics, 10th edition, Page 42

IQ

↑ *Back to this question in Part A*

@Neet_pg_bot

Q2: A 7-year-old, otherwise well child has been experiencing involuntary urination in clothes at night, despite having been toilet trained for over a year. The episodes occur only at night and have been persistent for the past six months. Which of the following is the most appropriate initial management approach for the child? (Q849934)

A. Initiate treatment with desmopressin as the first-line treatment.

B. Comprehensive evaluation including urine culture, renal ultrasound, and voiding studies.

C. Behavioural therapy with positive reinforcement and using a bladder alarm if needed.

D. Refer to a specialist for a psychological assessment.

Correct Answer: C. Behavioural therapy with positive reinforcement and using a bladder alarm if needed.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The given scenario is suggestive of Nocturnal enuresis & Behavioral therapy with positive reinforcement and using a bladder alarm if needed is the most appropriate initial management. Nocturnal enuresis Definition Involuntary urination during sleep past the age of 5 years, with near-complete bladder emptying occurring at least twice a month for 3 months. Management Behavioral Modifications: Reassurance. Encourage voiding before bed. Restrict evening fluid intake (40% in the morning, 40% at noon, 20% after 6 PM). Avoid caffeinated drinks. Motivational Therapy: Use verbal praise and rewards for dry nights. Alarm Therapy: Use alarms that alert when the child starts to urinate, to condition recognition of a full bladder. Medication: Short-Term: Oral desmopressin for immediate relief. Long-Term: Oxybutynin or tolterodine to reduce bladder contractions. Imipramine is avoided due to side effects. Initiate treatment with desmopressin as the first-line treatment (Option A). Desmopressin is typically reserved for cases resistant to initial behavioral interventions. Comprehensive evaluation including urine culture, renal ultrasound, and voiding studies (Option B). In cases of primary monosymptomatic nocturnal enuresis, detailed investigations such as urine cultures and renal ultrasounds are usually not necessary unless there are additional signs or symptoms suggesting a possible underlying condition. Refer to a specialist for a psychological assessment (Option D). Psychological stressors can contribute to enuresis, primary monosymptomatic nocturnal enuresis is not usually caused by psychological issues alone.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 396, 2547, 2820, 2821.

Ghai Essential Paediatrics, 10th Edition, Pages 46, 489.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q3: A 10-year-old child has been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). The primary approach for managing ADHD involves several strategies. Which of the following treatment options is the most appropriate first-line approach for managing ADHD in children? (Q849933)

A. Immediate initiation of treatment with methylphenidate.

B. Intensive cognitive-behavioral therapy (CBT) as the sole treatment option.

C. Implementation of behavioral interventions and psychotherapy tailored to the individual, with medication if necessary.

D. Referral to a specialist for neurological evaluation before starting behavorial therapy.

Correct Answer: C. Implementation of behavioral interventions and psychotherapy tailored to the individual, with medication if necessary.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Implementation of behavioral interventions and psychotherapy tailored to the individual, with medication if necessary is the most appropriate first line approach for management of ADHD. ADHD management Management Approach Psychotherapy: The primary approach involves tailored psychotherapy for individuals and their families. Medication: Considered if psychotherapy alone is insufficient. Behavioral Interventions Behavioral Parent Training: Training for parents to manage ADHD-related behaviors effectively. Combined Training Interventions: Integrates multiple behavioral strategies. Behavioral Classroom Management: Techniques to manage behavior in the classroom setting. Behavioral Peer Interventions: Strategies to improve interactions with peers. Organization Training: Focuses on improving executive functions such as organization and planning. Medication Categories Stimulants: Boost the central nervous system, enhancing neurotransmitters like dopamine and norepinephrine. Examples: Methylphenidate (Option A) , Amphetamine, Dexmethylphenidate Alpha-2 Agonists: Used alone or with stimulants to regulate norepinephrine for managing symptoms. Examples: Clonidine, Guanfacine. Selective Norepinephrine Reuptake Inhibitors (SNRIs): Primarily for depression but also used for ADHD by increasing norepinephrine levels. Example: Atomoxetine Atypical Antidepressants: Considered if ADHD co-occurs with other conditions like depression or anxiety. Examples: Bupropion, Mirtazapine. Tricyclic Antidepressants (TCAs): Less commonly used, but may be an option if other treatments fail. Example: Imipramine Monitoring and Adjustments Regular medical monitoring is crucial to managing side effects and adjusting dosages Intensive cognitive-behavioral therapy (CBT) as the sole treatment option (Option B): CBT can be an effective component of ADHD treatment, it is not usually the sole approach. Referral to a specialist for neurological evaluation before starting treatment (Option D): A comprehensive neurological evaluation is not the standard first step in ADHD management.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 15, 112, 189, 332-337

Ghai Essential of Paediatrics, 10th edition, Pages 45, 46

↑ *Back to this question in Part A*

@Neet_pg_bot

Q4: A 7-year-old is brought to the clinic with complaints of low academic performance. He has difficulty listening in class, often makes careless mistakes, frequently interrupts others, is restless and is often fidgeting during lessons. He has had symptoms for the past year. Based on the above scenario, which diagnosis is most likely? (Q849932)

A. Autism Spectrum Disorder (ASD)

B. Generalized Anxiety Disorder (GAD)

C. Specific Learning Disability (SLD)

D. Attention Deficit Hyperactivity Disorder (ADHD)

Correct Answer: D. Attention Deficit Hyperactivity Disorder (ADHD)

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical presentation is suggestive of ADHD ADHD Prevalence Most common neurobehavioral disorder of childhood; prevalence in India is approximately 1.3 per 1000. Definition Children aged 4 to 18 years with academic or behavioral problems and symptoms of inattention, hyperactivity, and impulsivity. Diagnosis Based on DSM-5 criteria: Onset up to age 12; symptoms must occur in at least two settings and interfere with functioning. Symptoms: Inattention Hyperactivity impulsivity Management Psychotherapy tailored to the individual and family. If psychotherapy is insufficient, medications like methylphenidate and atomoxetine may be used. Autism Spectrum Disorder (ASD) (Option A) : ASD involves impaired communication and social reciprocity, it is usually characterized by symptoms present before the age of 3, and includes stereotypic and restrictive behaviors. Generalized Anxiety Disorder (GAD) (Option B) : GAD primarily involves excessive anxiety and worry about various aspects of life, including academic performance Specific Learning Disability (SLD) (Option C) : SLD involves difficulties with academic skills such as reading (dyslexia), writing (dysgraphia), or math (dyscalculia); it does not typically include symptoms of hyperactivity and impulsivity.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 15,112,189, 332-337.

Ghai Essential paediatrics, 10th edition, Pages 45, 46

↑ *Back to this question in Part A*

@Neet_pg_bot

Q5: Which of the following statements is true regarding PICA in children? (Q849931)

A. PICA is observed only in children who have experienced severe emotional trauma or neglect.

B. PICA is characterized by the persistent ingestion of non-nutritive substances for at least 1 month..

C. Typically occurs in children between 5-10 years.

D. Low socioeconomic status is not a risk factor.

Correct Answer: B. PICA is characterized by the persistent ingestion of non-nutritive substances for at least 1 month..

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: PICA DISORDER Condition Consumption of inedible or non-nutritive substances (e.g., chalk, mud, paint) for at least 1 month Age Typically occurs in children under 5 years (Option C) Inappropriate Behavior is not aligned with developmental stages or cultural practices. Risk Factors Malnutrition Iron deficiency anemia Low socioeconomic status (Option D) Psychosocial stress (e.g., parental neglect, maternal deprivation) Developmental delays (e.g., cerebral palsy) Complications Lead poisoning (from paint) Parasitic infestations (from mud) Management Behavioral therapy Deworming (one dose of Albendazole) Low-dose iron supplements (0.5 to 1 mg/kg/day) PICA is most commonly observed in children who have experienced severe emotional trauma or neglect (Option A) . Emotional trauma or neglect may contribute to PICA, but it is not the most common or primary association. PICA is more frequently linked to developmental disorders (e.g., autism spectrum disorder) and nutritional deficiencies (e.g., iron deficiency).

References:

Ghai Essentials of Paediatrics, 10th Edition, Page 46

https://www.ncbi.nlm.nih.gov/books/NBK532242/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q6: A 2-year-old boy has had several episodes- of turning pale or bluish and losing consciousness for a brief period. These episodes occur when he is upset or frustrated, no other significant symptoms and development is normal. During these events, he is unresponsive for about 30 seconds and then recovers spontaneously. What is the most

appropriate initial management? (Q849930)

A. ECG to rule out underlying cardiac issues and reassure about the disease.

B. Reassure and educate about the disease.

C. Administration of oral iron supplements to address possible iron deficiency anemia.

D. Initiation of anticonvulsant medication to prevent further episodes.

Correct Answer: B. Reassure and educate about the disease.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The clinical presentation is suggestive of breath holding spells & reassurance is the most appropriate initial management. Breath holding spells Age and onset Reflex event, lasts usually for about 2 minutes Begins around 6 months of age Peaks by 2 years; often resolves by 5 years Sequence of Events Triggered by anger, frustration, or pain ↓ Leads to crying ↓ Breath holding follows a full expiration Types 1. Cyanotic Type Most common Increased sympathetic activity Child turns cyanotic (bluish) May develop tonic-clonic movements Recovers in a few seconds 2. Pallid Type Increased parasympathetic activity. Child becomes pale, mimicking syncope. Lasts for a few seconds. If prolonged, ECG may be done to rule out long QT syndrome. Management Reassure about the benign nature of the disease. During a seizure like episode: place the child laterally to avoid aspiration. Do Not pick up a child during an episode-can lead to spontaneous reduced cerebral flow. Main differences between Breath holding and Cardiac involvement for a pallid type Breath-Holding Spells Cardiac Involvement Typical Duration Generally lasts less than 2 minutes. May last longer than 2 minutes (Option A) Symptoms Brief loss of consciousness, pallor, or cyanosis. May include chest pain, irregular heartbeats, or prolonged symptoms. Resolution Resolves spontaneously as the child starts breathing again. May require medical intervention to restore heart function. When to Investigate If the spell exceeds 2 minutes or has atypical symptoms, further evaluation is necessary. Persistent or atypical symptoms should prompt investigation. Management Reassure and educate about the benign nature of the disease. Manage according to the diagnosis. Administration of oral iron supplements to address possible iron deficiency anemia (Option C). Breath-holding spells are not typically related to iron deficiency anemia. The primary management for breath-holding spells focuses on reassurance and education. Initiation of anticonvulsant medication to prevent further episodes (Option D) , anticonvulsant medications are not typically used to treat breath-holding spells.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 2178.

Ghai Essential paediatrics, 10th edition, Page 46.

↑ *Back to this question in Part A*

@Neet_pg_bot

Q7: A 4-year-old girl is brought to the OPD by her parents reporting that she initially met her developmental milestones but has recently begun to lose previously acquired skills. They also mention that she has started to exhibit repetitive hand movements and difficulty with motor control. On examination, you observe that she has a characteristic hand-wringing movement and a loss of purposeful hand movements. Which of the following is the most likely diagnosis for this child? (Q849929)

A. Prader-Willi syndrome

B. Rett Syndrome

C. Cerebral Palsy

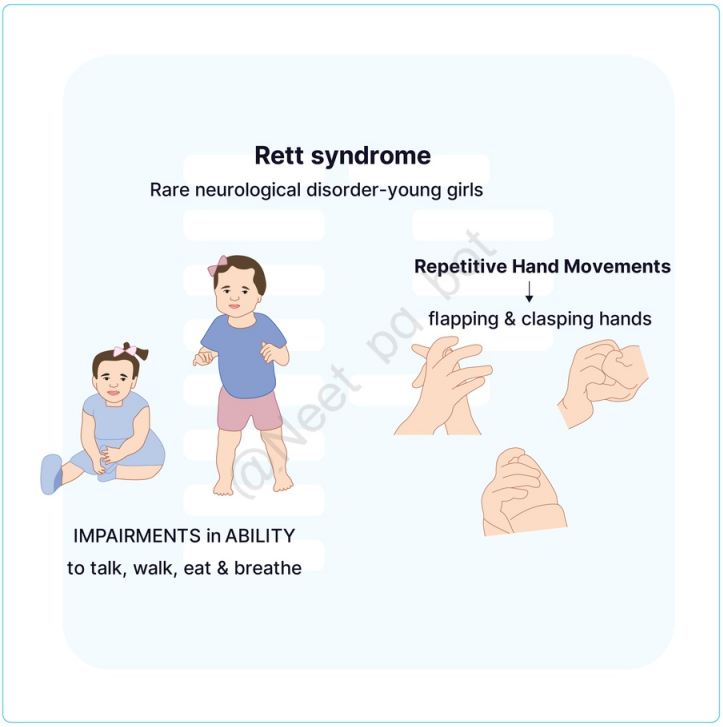
D. Attention Deficit Hyperactivity disorder

Correct Answer: B. Rett Syndrome

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The above features are suggestive of Rett syndrome. Rett syndrome: X-linked dominant (MECP2 mutation), seen in girls after 6–18 months of normal development. (The child initially meets milestones, followed by a period of regression and loss of acquired skills). Features: Loss of speech & hand skills Hand-wringing Gait issues Seizures Microcephaly Breathing irregularities Severe cognitive decline. Prader-Willi syndrome (Option A) : Characterised by Hypotonia, hyperphagia, obesity (no regression + hand stereotypies) Cerebral Palsy (Option C) : Results in motor impairment and does not involve a period of normal development followed by skill loss. ADHD (Option D) : Characterised by inattention, hyperactivity, and impulsivity, but does not feature the loss of acquired skills or the repetitive hand movements seen in Rett syndrome.



References:

www.ncbi.nlm.nih.gov/pmc/articles/PMC5830535/

↑ *Back to this question in Part A*

@Neet_pg_bot

Q8: Above what age should the absence of a social smile be considered a developmental red flag? (Q849928)

A. 1 month

B. 2 months

C. 4 months

D. 6 months

Correct Answer: D. 6 months

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The social smile typically emerges between 6-8 weeks of age. By 2 months, most infants should be smiling in response to social interactions, such as when a caregiver talks or smiles at them. The absence of a social smile above 6 months is considered a developmental red flag and may indicate delays in social-emotional development. Developmental Red Flags: Gross motor Upper limit Usual time Sitting with support 9 months 6 months Standing with support 12 months 9 months Walking with support 15 months 12 months Social Upper limit Usual time Social smile 6 months 2-3 months Waving bye-bye 12 months 9 months Language Upper limit Usual time Babbling 12 months 6 months Single words 15-16 months 1 months Fine motor Upper limit Usual time Immature pincer grasp 12 months 9 months Scribbling 24 months 15 months Beyond the upper limit is considered an abnormality.

References:

Ghai Essential paediatrics, 10th edition, Pages 29, 32, 35

Milestones

↑ *Back to this question in Part A*

@Neet_pg_bot

Q9: A 6-month-old infant presents with hypotonia, poor feeding, constipation and developmental delays. The child was born at term with a low birth weight. Which of the following conditions is most likely to be the underlying cause? (Q849927)

A. Down syndrome

B. Congenital Hypothyroidism

C. Cerebral palsy

D. Fragile X syndrome

Correct Answer: B. Congenital Hypothyroidism

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The presenting features along with low birth weight suggests Congenital Hypothyroidism. Congenital Hypothyroidism presents with features like: Hypotonia : Low muscle tone due to inadequate thyroid hormone levels. Poor Feeding : Infants with congenital hypothyroidism often have difficulty feeding, which can result in poor weight gain. Developmental Delays : Delay in reaching developmental milestones is common, including motor and cognitive delays. Congenital hypothyroidism can be associated with intrauterine growth restriction (IUGR) , leading to a low birth weight. Down Syndrome (Option A) : While Down syndrome can cause developmental delays, it usually presents with characteristic features such as hypotonia and distinct facial dysmorphisms, and it is not specifically associated with low birth weight. Cerebral Palsy (Option C) : This condition often results from brain injury and might present with hypotonia, but it typically becomes apparent later and is less likely to be the cause of poor feeding and low birth weight at 6 months. Fragile X Syndrome (Option D)

: This genetic disorder leads to developmental delays and behavioral issues but does not usually cause hypotonia or poor feeding in the early months of life.

References:

Ghai Essential paediatrics, 10th edition, Page 42

Congenital Hypothyroidism

↑ *Back to this question in Part A*

@Neet_pg_bot

Q10: A child who is 4 years old is capable of speaking only 2-word sentences and pronouns. What is the Developmental Quotient (DQ) of the child in the language domain? (Q849926)

A. 25

B. 50

C. 75

D. 100

Correct Answer: B. 50

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Developmental quotient (DQ) is a measure used in developmental psychology and pediatrics to assess a child's developmental progress compared to age-related norms. DQ = Developmental age/Chronological age*100 Capable of using only 2-3 word sentences and pronounce like I, You, Me is a marker of language milestone of 2 years age which is the developmental age. Developmental age= 2 years Chronological age= 4 years DQ= 2/4*100 = 50

References:

www.ncbi.nlm.nih.gov/pmc/articles/PMC7082247/

↑ *Back to this question in Part A*

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Q11: Which among the following developmental milestones is not developed by the age of 9 months? (Q849915)

A. Mature pincer grasp

B. Bisyllables

C. Unidextrous reach

D. Waves bye bye

Correct Answer: A. Mature pincer grasp

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed Cooing 4 months Laugh Aloud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach (Option C) stranger anxiety(7 months) Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye (Option D) Bisyllables (Option B) 12 months Creeps well, stands without support Mature pincer grasp (Option A) Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, copies straight line Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences

References:

Ghai Essential paediatrics, 10th edition, Pages 29, 32, 35

↑ *Back to this question in Part A*

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Q12: A 9-month-old watches as her mother hides her favorite toy bunny under a blanket. Instead of forgetting about it, Emma lifts the blanket to find the bunny. What does it imply? (Q849924)

A. Object permanence

B. Transferring object

C. Visuomotor coordination

D. Object comparison

Correct Answer: A. Object permanence

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Object permanence is typically achieved by 9 months of age. Infants understand that objects continue to exist even when out of sight. They persist in searching for hidden objects. Younger infants look down for a dropped object and quickly give up searching if the object is not visible.

References:

Nelson Textbook of Pediatrics, 21st Edition, Page 135

↑ *Back to this question in Part A*

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Q13: Match the following months with the milestones achieved at that age 1. 5 months a. Rolling over 2. 7 months b. Transfers objects 3. 9 months c. Waves bye-bye 4. 12 months d. 1-2 words with meaning (Q849923)

A. 1-a, 2-b, 3-c, 4-d

B. 1-d, 2-c, 3-b, 4-a

C. 1-b, 2-a, 3-d, 4-c

D. 1-a, 2-c, 3-b, 4-d

Correct Answer: A. 1-a, 2-b, 3-c, 4-d

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Month Milestone 5 Gross motor - Rolls over 6 Gross motor - Tripod sitting Fine motor - Unidextrous reach, object transfer(7 months) Social - Stranger anxiety(7 months) Language - Monosyllable 9 Gross motor - Stands with support Fine motor - Immature pincer grasp, probes with forefinger Social - Waves bye-bye Language - Bisyllables 12 Gross motor - Creeps well, walks but falls, stands without support Fine motor - Mature pincer grasp Social - Comes when called, plays simple ball game Language - 1-2 words with meaning

References:

Ghai Essential paediatrics, 10th edition, Pages 29, 32, 35

↑ *Back to this question in Part A*

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Q14: A 3-year-old girl can jump, copy circles, share toys, and ask questions. Which of these milestones would she have achieved before 3 years? (Q849922)

A. Jumping

B. Copying circles

C. Sharing toys

D. Asking questions

Correct Answer: A. Jumping

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Jumping is a milestone she would have achieved at 2 years of age. Rest all are milestones of 3 years. Milestones achieved at 3 years of age: Gross motor - Rides tricycle, alternate feet going upstairs Fine motor - Tower of 9 blocks, copies circles Social - Shares toys, knows full name and gender Language - Asks questions

References:

Ghai Essential paediatrics, 10th edition, Pages 29, 32, 35

↑ *Back to this question in Part A*

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Q15: A mother found her healthy baby boy sitting with the support of his hands for the first time. How old is he likely to be based on this finding ? (Q849921)

A. 1 year

B. 9 months

C. 6 months

D. 15 months

Correct Answer: C. 6 months

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Baby sits in tripod fashion (with the supports of his own hands) at 6 months Gross motor development milestones: 3 months Neck holding 5 months Rolls over 6 months Sits in tripod fashion (sitting with own support) 8 months Sits without support 9 months Stands holding on (with support) 12 months Creeps well , walks but falls; stands without support 15 months Walks alone; creeps upstairs 18 months Runs; explores drawers 2 years Walks up and downstairs (2 feet/step); jumps 3 years Rides tricycle; alternates feet going upstairs 4 years Hops on one foot; alternates feet going downstairs

References:

Ghai Essential paediatrics, 10th edition, Page 29

↑ *Back to this question in Part A*

@Neet_pg_bot

Q16: A 15-month-old baby girl can walk alone, imitate scribbling, creep upstairs, and is heard saying 1-2 words other than mama and dada. Which among these is not a developmental milestone she achieved at 15 months? (Q849920)

A. Walking alone

B. Imitates scribbling

C. 2 words sentences

D. Creeps upstairs

Correct Answer: C. 2 words sentences

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Saying 1-2 words with meaning is achieved at 12 months, and 2 word sentences , at 2 years. Milestones achieved at 15 months: Gross motor - Walks alone, creeps upstairs Fine motor - Imitates scribbling, tower of 2 blocks Social - Jargon Age Gross Motor Domain Milestones Fine Motor Domain Milestones Language Domain Milestones Social Domain Milestones 1 month - - Alerts to sound - 2 months - - - Social smile 3 months Neck holding - Coos (musical vowel sounds) Recognizes mother; anticipates feeds 4 months - Bidextrous reach Laughs loud - 5 months Rolls over - - - 6 months Sits in tripod fashion (sitting with own support) Unidextrous reach; transfers objects Monosyllables (ba, da, pa), ah-goo sounds Recognizes strangers, stranger anxiety 8 months Sitting without support - - - 9 months Stands holding on (with support) Immature pincer grasp; probes with forefinger Bisyllables (mama, baba, dada) Waves “bye-bye” 12 months Creeps well; walks but falls; stands without support Pincer grasp mature 1-2 words with meaning Comes when called; plays simple ball game 15 months Walks alone; creeps upstairs Imitates scribbling; tower of 2 blocks Jargon - 18 months Runs; explores drawers Scribbles; tower of 3 blocks 8-10 word vocabulary Copies parents in task (e.g., sweeping) 2 years Walks up and downstairs (2 feet/step); jumps Tower of 6 blocks; vertical and circular stroke 2-3 word sentences, use pronouns “I”, “me”, “you” Asks for food, drink, toilet; pulls people to show toys 3 years Rides tricycle; alternate

feet going upstairs Tower of 9 blocks; copies circle Asks questions; knows full name and gender Shares toys; knows full name and gender 4 years Hops on one foot; alternate feet going downstairs Copies cross; bridge with blocks Says song or poem; tells stories Plays cooperatively in a group; goes to toilet alone 5 years Skips Copies triangle; gate with blocks Asks meaning of words Helps in household tasks, dresses, and undresses

References:

Ghai Essential Pediatrics, 10th Edition, Page 29, 32, 35

↑ *Back to this question in Part A*

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Q17: By which age the milestone given in the image below is achieved by the child? (Q849919)

A. 1 month

B. 2 months

C. 3 months

D. 6 months



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Correct Answer: C. 3 months

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: The image depicts ventral suspension of the child (this co relates with neck holding milestone which also develops by 3 months) Method: The child is held in a prone position and then lifted from the couch, with the examiner supporting the chest and abdomen of the child with the palm of his hand. Different stages:- Till 4 weeks (1 month): Head flops down (Option A ruled out) 6 - 8 weeks: Child momentarily holds the head in the horizontal plane 8 weeks: He can maintain the position well. (Option B ruled out) 12 weeks: Lift the head above the horizontal plane 6 months (Option D): By this age, the milestone has already been achieved several months earlier, so this is too late for the expected timeline

References:

Ghai Essential paediatrics, 10th edition, Pages 24, 25

↑ *Back to this question in Part A*

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Q18: Which among the following statements is false regarding the rules of development of a child? (Q849918)

A. Sequence of attainment of milestone is same in all children

B. Disorganized mass activity is replaced by specific actions

C. Some primitive reflexes have to be lost before relevant milestone are attained

D. The process of development progresses from toe to head.

Correct Answer: D. The process of development progresses from toe to head.

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Development is a continuous process, starting in utero and progressing in an orderly manner until maturity. Development depends on the functional maturation of the nervous system. Maturity of the Nervous system is essential for a child to learn a particular milestone or skill. The sequence of attainment of milestones is the same in all children (Option A). Variation may exist in the time and manner of their attainment. The process of development progresses in a cephalocaudal direction (Option D) . Head control proceeds trunk control. Certain primitive reflexes have to be lost before relevant milestones are attained (Option C) . Eg. Asymmetric tonic neck reflex has to disappear to allow the child to turnover. The initial disorganized mass activity is gradually replaced by specific actions (Option B) . Eg. When a bright toy is shown to a 3 to 4 month old child, the child sequels loudly and moves all limbs in excitement, whereas a 3 to 4 year old may just smile and ask for it.

References:

Ghai Essential paediatrics, 10th edition, Page 22

↑ *Back to this question in Part A*

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Q19: During a routine pediatric check-up, a mother brings her 5 month old baby to the clinic. The pediatrician observes that the baby actively looks at his mother's face and seems to respond with interest as she talks to him, showing recognition and engagement. When is this milestone normally achieved? (Q849917)

A. 2 months

B. 3 months

C. 6 months

D. 9 months

Correct Answer: B. 3 months

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Mother regard develops by 3 months of age. Key Developmental Milestones Age Gross Motor Milestones Fine Motor Milestones Social Milestones Language Milestones 1 month Alerts to sounds 2 months Social smile 3 months Neck holding Recognises mother, anticipates feed (Option B) Cooing 4 months Laugh Loud 5 months Rolls over Bidextrous reach 6 months Sits in tripod position Unidextrous reach Recognize strangers, stranger anxiety Monosyllables 8 months Sits without support 9 months Stands with support Immature pincer grasp Waves bye bye Bisyllables 12 months Creeps well, stands without support Mature pincer grasp Comes when called, plays simple ball game 1 to 2 words with meaning 15 months Walks alone , creeps upstairs Imitates scribbling, tower of 2 blocks Jargon speech 18 months Runs, explores drawers Scribbles, tower of 3 blocks Copies parents in task 8 to 10 words vocabulary 2 years Walks up and downstairs (2 feet per step), jumps Tower of 6 blocks, vertical and circular stroke Asks for food, drink, toilet, pulls people to show toys 2 to 3 word sentences 3 years Rides tricycle, alternate feet going upstairs Tower of 9 blocks, copies circle Shares toys, knows full name and gender Asks questions, tells name and gender 4 years Hops on one foot, alternate feet going downstairs Copies cross, bridge with blocks Plays cooperatively in a group, goes to toilet alone Says song or poem, tells stories 5 years Copies triangle, gate with blocks Helps in household tasks, dresses and undresses Asks meaning of words

References:

Ghai Essential paediatrics, 10th edition, Pages 29, 32, 35

↑ *Back to this question in Part A*

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Q20: During a developmental check-up, a pediatrician observes a group of toddlers at a local playgroup. The children are engaged in playing with toys independently but are situated close to one another. Each child seems focused on their own activity, occasionally glancing at the others but not interacting directly. At what age is this type of play most commonly observed? (Q849916)

A. 6 months

B. 1 years

C. 2 years

D. 4 years

Correct Answer: C. 2 years

■ *Listen (English)*

■ *Listen (Hindi)*

Explanation: Parallel play occurs in children aged 2 years, where they play side by side with similar toys but without direct interaction. They enjoy the presence of others but do not engage in shared activities or communication. As they grow, children move from parallel to cooperative play, where they start sharing, collaborating, and learning essential social skills like empathy, negotiation, and turn-taking. The evolution of play throughout childhood is as follows: Infancy (0-1 year): Play is centered on sensory exploration and motor skills, like mouthing objects and practicing grasping. Toddlerhood (1-3 years): Play becomes imitative and symbolic, involving pretend play and simple interactive games. Preschool (3-6 years): Play becomes more complex, imaginative, and social, including cooperative play, role-playing, and scenarios with rules. School age (6-11 years): Children develop an interest in strategy games, wordplay, and hobbies that enhance cognitive and language skills.

References:

https://pubmed.ncbi.nlm.nih.gov/30020595/

Nelson Textbook of Pediatrics, 21st Edition, Pages 132, 135, 137, 145, 149

↑ *Back to this question in Part A*

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• [21_Miscellaneous] 050 Previous Year Questions

« Back to Folder Directory

[21_Miscellaneous] 050 Previous Year Questions — Quick Jump

Q1 (p. 1672)

Q1: A 5 year old boy presented with hematemesis and was found to have splenomegaly, on examination. There was a past history of exchange transfusion in this child for neonatal jaundice. What is the probable diagnosis? (Q859499)

A. Splenic vein thrombosis

B. Portal vein thrombosis

C. Budd chiari syndrome

D. Liver cirrhosis

Correct Answer: B. Portal vein thrombosis

Explanation: The presentation of hematemesis and splenomegaly, along with the significant history of exchange transfusion in the neonatal period, strongly suggests portal vein thrombosis. This condition is a common cause of portal hypertension in children and can result from umbilical vein catheterization during exchange transfusion. Incorrect Options Splenic vein thrombosis (Option A) is also a possibility in a case of splenomegaly, but the history of exchange transfusion suggests a more generalized thrombotic event involving the portal vein. Budd-Chiari syndrome (Option C) is a condition characterized by the obstruction of hepatic veins, leading to liver congestion. It is less likely in this case, as the presentation of hematemesis and splenomegaly is more suggestive of portal vein involvement. Liver cirrhosis (Option D): Although it can cause portal hypertension, cirrhosis is uncommon in a 5-year-old without a history of chronic liver disease.

References:

Nelson Textbook of Pediatrics, 21st Edition, Pages 2178-2180

↑ *Back to this question in Part A*

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