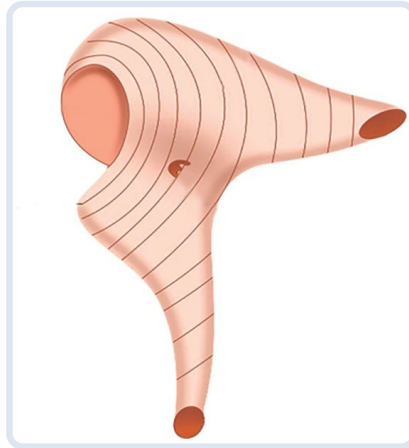


QUESTION

Identify the structure given in the image:



A Malleus

B Incus

CORRECT

C Stapes

D Vomer

RIGHT ANSWER

OK

B. Incus

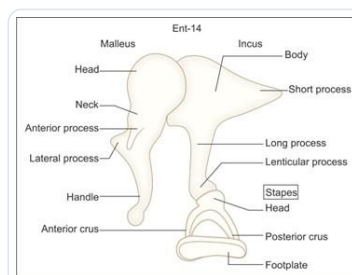
WHY THIS IS RIGHT

The incus is a middle ear ossicle shaped like an anvil, connecting the malleus to the stapes and transmitting sound vibrations.

- Parts of incus:
- Body -> articulates with malleus
- Long process -> ends in lenticular process, articulates with stapes
- Short process -> attached to posterior wall via ligament
- Function:
- Acts as a bridge in ossicular chain for sound conduction

Why not other options:

- Malleus: Hammer-shaped, attached to tympanic membrane
- Stapes: Smallest bone, stirrup-shaped
- Vomer: Part of nasal septum, not an ossicle



QUESTION

A 70-year-old male patient presents with decreased hearing in higher frequencies. It was noted that the basilar membrane was affected. Which of the following structures lie near the affected structure?

- A Modiolus
- B Stria vascularis
- C Oval window**
- D Helicotrema

CORRECT

RIGHT ANSWER

OK
C. Oval window

WHY THIS IS RIGHT

In high-frequency hearing loss (presbycusis), the pathology primarily affects the basal turn of the cochlea, where the basilar membrane near the oval window is located.

- Tonotopic organization of cochlea:
- Base (near oval window): High-frequency sounds
- Apex (near helicotrema): Low-frequency sounds
- Degeneration of hair cells in basal turn -> loss of high-frequency hearing

Anatomical correlation:

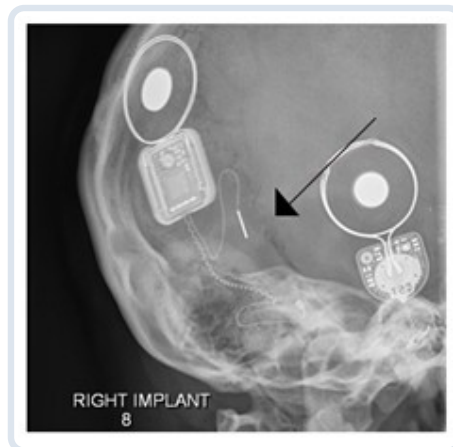
- Oval window lies adjacent to the basal turn of cochlea
- Hence, structures near the affected basilar membrane = oval window

Why not other options:

- Modiolus: Central core of cochlea, not frequency-specific
- Stria vascularis: Involved in endolymph production, not location-specific for high frequency
- Helicotrema: Apex -> low-frequency region

QUESTION

Identify the part of the cochlear implant marked?



A Grounding electrode

CORRECT

B Amplifier

C Receiver

D Electrode array

RIGHT ANSWER

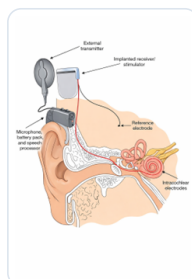
OK

A. Grounding electrode

WHY THIS IS RIGHT

In a cochlear implant, the grounding electrode is an extracochlear electrode placed outside the cochlea (often in temporalis muscle or subperiosteal region) to complete the electrical circuit.

- Electrode array: Inserted into cochlea -> stimulates auditory nerve
- Receiver-stimulator: Implanted under the skin -> receives signals from external device
- Grounding electrode: Provides reference/return path for electrical current



QUESTION

Mark the correct statement/s about Inner and Outer hair cells.

1. Inner hair cells are in a single row and transmit auditory impulses.
2. Outer hair cells are in 3-4 rows and modulate function of inner hair cells.
3. Outer hair cells are more responsible for movement of tectorial membrane.
4. Inner hair cells are in single row and modulate function of outer hair cells.
5. Outer and inner hair cells are present in the ratio 3:1.

A 1, 2 and 5 are correct

CORRECT

B 1, 2 and 3 are correct

C All are correct

D 2, 4 and 5 are correct

RIGHT ANSWER

OK **A. 1, 2 and 5 are correct**

WHY THIS IS RIGHT

Understanding the structure and function of inner and outer hair cells in the organ of Corti is essential for interpreting hearing physiology.

OHC : IHC = ~3 : 1

Inner Hair Cells (IHC):

- Arranged in single row
- Primary sensory receptors
- Transmit auditory impulses to brain via afferent fibers

Outer Hair Cells (OHC):

- Arranged in 3-4 rows
- Function: modulation and amplification of sound
- Show electromotility (prestin protein) -> enhance basilar membrane vibration
- Help in fine-tuning frequency and sensitivity

Incorrect statements explained:

- Statement 3: OHC do not primarily move the tectorial membrane; they amplify basilar membrane motion
- Statement 4: IHC do NOT modulate OHC; rather OHC modulate IHC function

QUESTION

Sequentially arrange the following structures that are involved in the production & conduction of otoacoustic emissions.

1. Outer hair cells
2. Basilar membrane
3. Oval window
4. Perilymph
5. Ossicles
6. Tympanic membrane

A 1-2-4-5-3-6

B 1-2-4-3-5-6

CORRECT

C 6-5-3-4-2-1

D 6-3-5-4-2-1

RIGHT ANSWER

OK B. 1-2-4-3-5-6

WHY THIS IS RIGHT

Otoacoustic emissions (OAEs) are sounds generated by the outer hair cells of the cochlea and transmitted in reverse through the middle ear to the external auditory canal.

Sequence of production and conduction:

1. Outer hair cells generate mechanical vibrations
2. Vibrations transmitted to basilar membrane
3. Passed into perilymph of inner ear
4. Transmitted via oval window
5. Through ossicles
6. To tympanic membrane -> then detected in external ear canal

Correct order: 1 -> 2 -> 4 -> 3 -> 5 -> 6

QUESTION

Identify the correct statements:

1. Gelle test is positive in otosclerosis
2. RLN and ILN are connected by Galen's Anastomosis
3. Cricothyroid is an extrinsic laryngeal muscle
4. Otoplasty may be done after 5-6 years of age.

A 1, 2, 3, 4

B 2, 4

CORRECT

C 1, 3

D 1, 4

RIGHT ANSWER

OK B. 2, 4

WHY THIS IS RIGHT

Statement 1- Gelle test positive in otosclerosis - False
-In otosclerosis -> stapes fixation -> Gelle test negative
Positive Gelle = normal ossicular mobility

- Statement 2: RLN and ILN connected by Galen's anastomosis - True

-Anastomosis between recurrent laryngeal nerve and internal laryngeal nerve
-Provides sensory-motor interconnections in larynx

- Statement 3- Cricothyroid is extrinsic muscle - False

-Cricothyroid is an intrinsic laryngeal muscle
-Only intrinsic muscle supplied by external laryngeal nerve

- Statement 4- Otoplasty after 5-6 years of age- True

-Pinna reaches ~85-90% adult size by 5-6 years of age
-Safe and appropriate age for correction of prominent ear

*

QUESTION

An ENT surgeon has difficulty locating the mastoid antrum due to the presence of Körner's septum. Which of the following sutures is persistent in this case?

- A Frontozygomatic suture
- B Petrosquamous suture**
- C Temporosquamous suture
- D Petromastoid suture

CORRECT

RIGHT ANSWER

- B. Petrosquamous suture**

WHY THIS IS RIGHT

Körner's septum (petrosquamous lamina) is a bony plate that may persist in the temporal bone and can obscure access to the mastoid antrum during mastoid surgery.

Clinical significance:

- Can make mastoid antrum difficult to locate
- Risk of incomplete mastoidectomy
- Important surgical landmark in otologic surgery

QUESTION

| All of the following are correctly matched congenital pinna anomalies, except:

- A** Microtia - Small pinna
- B** Mozart ear - Fusion of helix and antihelix
- C** Wildermuth ear - Large pinna
- D** Bat ear - Absent anti-helix

CORRECT

RIGHT ANSWER

- OK** **C. Wildermuth ear - Large pinna**

WHY THIS IS RIGHT

Congenital anomalies of the pinna are classified based on size, shape, and developmental defects of auricular cartilage.

Correct associations:

- Microtia: Abnormally small or rudimentary pinna
- Bat ear (prominent ear): Underdeveloped/absent antihelix -> protruding ear
- Mozart ear: Fusion of helix and antihelix (loss of normal folds)
- Wildermuth ear: Small, rudimentary ear with poorly formed cartilage (not large)

QUESTION

Which of the following properties of the eustachian tube predisposes to higher incidence of acute otitis media in children than adults?

A More angulated at isthmus

B Rigid cartilage

C Dense elastin in the cartilage

D Wider and shorter tube

CORRECT

RIGHT ANSWER

OK

D. Wider and shorter tube

WHY THIS IS RIGHT

Proper functioning of the Eustachian tube is essential for middle ear ventilation, pressure equalization, and clearance of secretions.

In children, the anatomical characteristics (short, wide, horizontal tube, Less rigid) lead to:

- Inefficient middle ear drainage
- Easy reflux of nasopharyngeal secretions during crying, feeding, or URTI
- Negative middle ear pressure -> leading to fluid accumulation

This predisposes to:

- Recurrent acute otitis media
- Otitis media with effusion (glue ear)
- Conductive hearing loss affecting speech development
- ☐ Option A: More angulated at isthmus - children actually have a more horizontal tube, not more angled.

☐ Option B: Rigid cartilage - pediatric tube is actually more compliant, not rigid.

☐ Option C: Dense elastin in cartilage - not the key predisposing factor.

QUESTION

The narrowest part of the external auditory canal (isthmus) is located at which of the following positions?

- A At the junction of cartilaginous and bony canal
- B In the cartilaginous part of the canal
- C Approximately 5-7 mm lateral to the tympanic membrane in the bony canal**
- D At the lateral opening of the external auditory canal

CORRECT

RIGHT ANSWER

- OK** C. Approximately 5-7 mm lateral to the tympanic membrane in the bony canal

WHY THIS IS RIGHT

The isthmus is the narrowest part of the external auditory canal (EAC) and is located in the bony canal approximately 5-7 mm lateral to the tympanic membrane.

- Outer 1/3: cartilaginous canal (with hair, glands)
- Inner 2/3: bony canal
- Narrowest point (isthmus): bony canal near tympanic membrane

Clinical significance:

- Common site for impaction of foreign bodies and wax
- Area where instrumentation is most painful due to thin skin tightly adherent to periosteum
- Important landmark during otoscopy and ear procedures (syndring, endoscopy, microsuction)
- Avoid deep instrumentation beyond this point to prevent tympanic membrane injury

QUESTION

A 6-year-old child presents with congenital severe sensorineural hearing loss. Imaging shows a normal bony labyrinth, but histopathology reveals degeneration of the organ of Corti and saccule, with preservation of the utricle and semicircular canals. Which of the following inner ear malformations best explains this condition?

A Michel aplasia

B Mondini dysplasia

C **Scheibe aplasia**

CORRECT

D Alexander dysplasia

RIGHT ANSWER

OK

C. Scheibe aplasia

WHY THIS IS RIGHT

Scheibe aplasia (cochleosaccular dysplasia) is the most common congenital membranous labyrinth malformation causing severe congenital sensorineural hearing loss.

Key differentiating points among inner ear malformations:

- Scheibe aplasia: Membranous defect of cochlea + saccule (most common; severe SNHL)
- Mondini dysplasia: Incomplete cochlear development (1.5 turns) with bony abnormality
- Michel aplasia: Complete absence of inner ear (most severe)
- Alexander dysplasia: Basal turn cochlear degeneration -> high-frequency hearing loss

QUESTION

Which of the following best describes the role of the phase difference between the oval and round windows in sound transmission?

- A** It amplifies sound waves by 10 dB
- B** It prevents the cancellation of sound waves, allowing perilymph movement CORRECT
- C** It ensures simultaneous vibration of the oval and round windows
- D** It decreases sound transmission efficiency, reducing hearing sensitivity by 4 dB

RIGHT ANSWER

- B. It prevents the cancellation of sound waves, allowing perilymph movement**

WHY THIS IS RIGHT

Effective cochlear sound transmission requires a phase difference between the oval window and round window.

Mechanism

- Stapes footplate movement at oval window pushes perilymph into scala vestibuli
- For fluid movement to occur, pressure must be released at round window
- Thus, oval and round windows move out of phase
- This prevents pressure buildup and allows perilymph displacement -> basilar membrane vibration -> hearing

If both windows moved in the same phase, perilymph would not move effectively and sound transmission would be poor due to wave cancellation.

QUESTION

On otoscopic examination, retraction of the pars tensa of the tympanic membrane is noted. According to the Sade classification, which of the following findings corresponds to Grade 3 retraction?

- A** Mild retraction
- B** Retracted tympanic membrane touching the long process of incus
- C** Tympanic membrane touching the promontory and not moving on Siegelization
- D** Tympanic membrane touching the promontory but moving on Siegelization CORRECT

RIGHT ANSWER

- OK** **D. Tympanic membrane touching the promontory but moving on Siegelization**

WHY THIS IS RIGHT

The Sade classification is used to grade pars tensa tympanic membrane retraction based on severity and mobility.

Grades

- Grade 1: Mild retraction of TM
- Grade 2: TM touches long process of incus/stapes
- Grade 3: TM touches promontory but remains mobile on Siegelization
- Grade 4: TM adherent to promontory and immobile (adhesive otitis media)

QUESTION

A patient presents with high-frequency hearing loss that worsens in noisy surroundings. What is the most likely diagnosis?

A Presbycusis

CORRECT

B Meniere disease

C Acoustic neuroma

D Otosclerosis

RIGHT ANSWER

OK A. Presbycusis

WHY THIS IS RIGHT

Presbycusis is an age-related sensorineural hearing loss characterized by bilateral high-frequency loss with difficulty understanding speech in noisy environments.

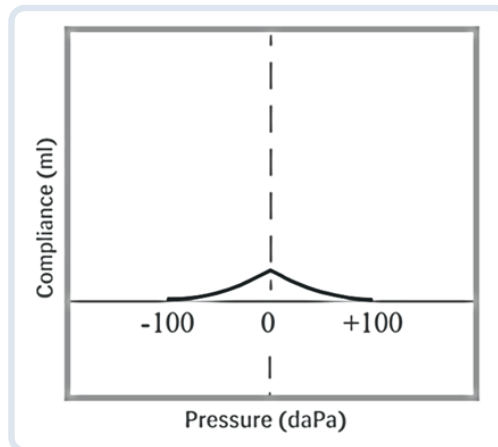
- Pathology: Degeneration of hair cells in the basal turn of cochlea
- Hearing loss:
 - o High frequency first
 - o Gradually progressive, bilateral and symmetric
- Hallmark complaint:
 - o "I can hear but cannot understand," especially in noisy settings (poor speech discrimination)

Why not other options:

- Meniere disease: Fluctuating low-frequency loss, vertigo, tinnitus
- Acoustic neuroma: Unilateral sensorineural loss with tinnitus
- Otosclerosis: Conductive hearing loss, not high-frequency SNHL

QUESTION

Based on the given tympanogram tracing, identify the type of tympanogram



A Type A

B Type B

C Type As

CORRECT

D Type Ad

RIGHT ANSWER

OK

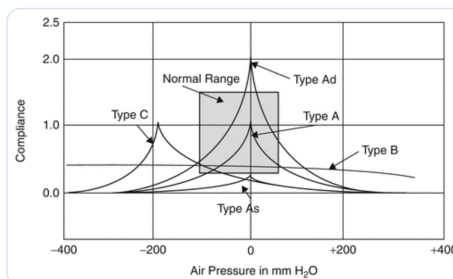
C. Type As

WHY THIS IS RIGHT

A Type As tympanogram shows a shallow peak at normal pressure (around 0 daPa), indicating reduced compliance (stiff middle ear system).

Common causes:

- Otosclerosis (stapes fixation)
- Tympanosclerosis
- Ossicular fixation



QUESTION

Which type of tympanogram is typically seen in patients with adenoid hypertrophy?

A Type A

B Type B

CORRECT

C Type As

D Type Ad

RIGHT ANSWER

OK B. Type B

WHY THIS IS RIGHT

Adenoid hypertrophy commonly leads to Eustachian tube dysfunction -> middle ear effusion (OME), producing a Type B (flat) tympanogram.

- Enlarged adenoids obstruct the Eustachian tube opening in the nasopharynx
- This causes negative middle ear pressure -> fluid accumulation
- Fluid dampens tympanic membrane movement -> no peak on tympanometry

Tympanogram interpretation:

- Type B (flat curve): Seen in
 - o Otitis media with effusion (OME)
 - o TM perforation (with large ear canal volume)

QUESTION

A 5-year-old child presents with a history of recurrent ear infections. On otoscopic examination, the tympanic membrane is noted to be dull and retracted, with fluid visible in the middle ear. What is the most likely diagnosis?

A Otitis media with effusion (OME)

CORRECT

B Acute suppurative otitis media (ASOM)

C Chronic suppurative otitis media (CSOM)

D Otitis externa (OE)

RIGHT ANSWER

OK

A. Otitis media with effusion (OME)

WHY THIS IS RIGHT

Otitis media with effusion (OME) is characterized by non-purulent fluid in the middle ear without signs of acute infection, commonly seen in children with Eustachian tube dysfunction.\

· Findings:

- o Dull, retracted tympanic membrane
- o Fluid level or air bubbles behind TM
- o Reduced mobility on pneumatic otoscopy

· Pathophysiology:

- o Poor Eustachian tube function -> negative pressure -> fluid accumulation

· Symptoms:

- o Hearing loss, ear fullness
- o Usually no fever or acute pain

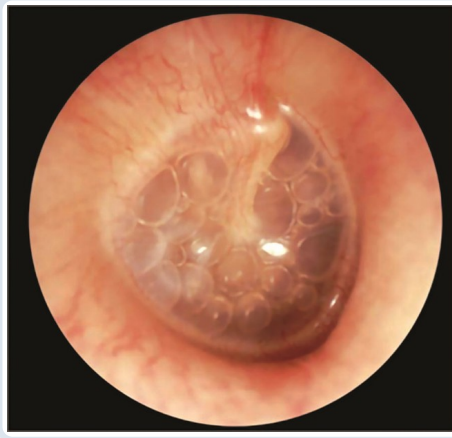
Why not other options:

- ASOM: Acute pain, fever, bulging congested TM
- CSOM: Chronic discharge with TM perforation
- Otitis externa: External canal inflammation, normal TM



QUESTION

A 5-year-old child presents with reduced hearing for the past 2-3 months. The otoscopy finding is given below. What is the most likely diagnosis?



A Myringitis bullosa

B Serous otitis media

CORRECT

C Acute otitis media

D Pneumo Tympanum

RIGHT ANSWER

OK

B. Serous otitis media

WHY THIS IS RIGHT

Serous otitis media (Otitis Media with Effusion, OME) is characterized by non-purulent fluid accumulation in the middle ear due to Eustachian tube dysfunction, commonly seen in children.

Key otoscopic findings (as shown in image):

- Dull, retracted tympanic membrane
- Air-fluid levels / bubbles behind TM
- Reduced mobility on pneumatic otoscopy

Clinical features:

- Painless hearing loss (conductive)
- Often follows URTI or associated with adenoid hypertrophy

Why not others:

- Myringitis bullosa: Painful hemorrhagic bullae on TM
- Acute otitis media: Bulging, hyperemic TM with pain and fever
- Pneumotympanum: Air in middle ear, usually post trauma/procedure, not fluid bubbles

QUESTION

A female patient with hearing loss is examined and is found to be Rinne's negative at 256 Hz and 512 Hz, while Rinne positive at 1024 Hz. What is the expected air conduction and bone conduction gap?

A 30-45 dB

CORRECT

B 15-30 dB

C 45-60 dB

D >60 dB

RIGHT ANSWER

OK

A. 30-45 dB

WHY THIS IS RIGHT

The Rinne test becomes negative only when the air-bone gap (ABG) exceeds a certain threshold, and this threshold varies with tuning fork frequency.

- Lower frequencies (256, 512 Hz): Rinne becomes negative earlier (smaller ABG needed)
- Higher frequency (1024 Hz): Requires a larger ABG to turn negative

Interpretation of the question:

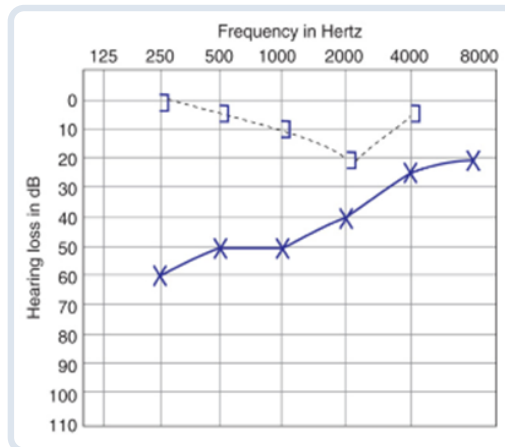
- Rinne negative at 256 & 512 Hz -> significant conductive hearing loss
- Rinne still positive at 1024 Hz -> ABG not large enough to affect higher frequency

This pattern corresponds to an air-bone gap of ~30-45 dB

- ABG ~15-30 dB: Rinne may turn negative at 256 Hz only
- ABG ~30-45 dB: Negative at 256 & 512 Hz, positive at 1024 Hz
- ABG >45-60 dB: Negative at all frequencies

QUESTION

| Audiogram of a patient is given. Find the sign that can be seen in the same case.



- A** Balance sign
- B** Hennebert sign
- C** **Schwartz sign**
- D** Hitzelberger sign

CORRECT

RIGHT ANSWER

- OK** **C. Schwartz sign**

WHY THIS IS RIGHT

The audiogram shows a conductive hearing loss with a characteristic dip at 2000 Hz (Carhart notch), which is suggestive of otosclerosis.

- Otosclerosis = stapes footplate fixation -> conductive hearing loss
- Audiogram finding:
- Air-bone gap
- Carhart notch at 2000 Hz (pseudo-sensorineural dip)

Associated clinical sign:

- Schwartz sign -> pinkish blush on tympanic membrane due to active otospongiotic phase

Why not other options:

- Hennebert sign: Vertigo on pressure (seen in labyrinthine fistula, syphilis)
- Hitzelberger sign: Loss of sensation in posterosuperior EAC (acoustic neuroma)
- Balance sign: Not specific here

QUESTION

A patient presents with a perforation in the tympanic membrane. During the evaluation, a Rinne test is performed. What is the expected outcome of the Rinne test in this case?

A Positive

B Negative

CORRECT

C Indeterminate

D Equivocal

RIGHT ANSWER

OK

B. Negative

WHY THIS IS RIGHT

A tympanic membrane perforation causes conductive hearing loss (CHL), and the Rinne test becomes negative on the affected side.

- Rinne test compares Air Conduction (AC) vs Bone Conduction (BC)
- Normal: $AC > BC$ (Rinne positive)
- Conductive hearing loss: $BC > AC$ (Rinne negative)

Pathophysiology in TM perforation:

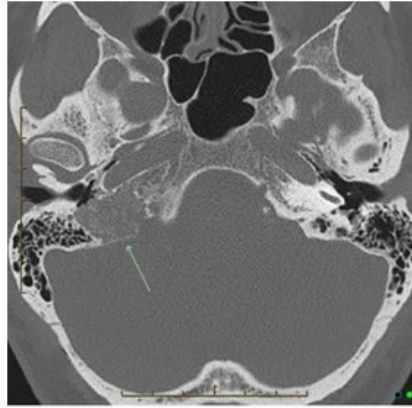
- TM perforation $\rightarrow$ impaired sound transmission through middle ear
- Air conduction is reduced $\rightarrow$ bone conduction becomes relatively better

Clinical interpretation:

- Rinne negative = conductive hearing loss
- Seen in:
 - TM perforation
 - Otitis media
 - Otosclerosis

QUESTION

On the promontory, behind the tympanic membrane, there is a red mass. CT is given. What is the diagnosis?



A Glomus jugulare

CORRECT

B Glomus tympanicum

C Otosclerosis

D None of the above

RIGHT ANSWER

OK

A. Glomus jugulare

WHY THIS IS RIGHT

A red pulsatile mass behind the tympanic membrane suggests a glomus tumor (paraganglioma). When imaging shows involvement of the jugular foramen with bony erosion, the diagnosis is glomus jugulare.

- Origin: Paraganglionic cells of jugular bulb
- Features:
 - Pulsatile tinnitus
 - Reddish mass behind TM
 - May show Brown's sign (blanching on pressure)
- CT: Irregular "moth-eaten" bone destruction at jugular foramen.

Differentiation:

- Glomus tympanicum: Smaller, confined to middle ear/promontory, no jugular foramen erosion
- Otosclerosis: Bony fixation of stapes, no red mass

QUESTION

On Head impulse test, for a Left vestibular neuritis patient, Saccade will be in which direction?

- A** Left on left head rotation
- B** Left on right head rotation
- C** Right on left head rotation CORRECT
- D** Right on right head rotation

RIGHT ANSWER

- OK** **C. Right on left head rotation**

WHY THIS IS RIGHT

The Head Impulse Test (HIT) assesses the vestibulo-ocular reflex (VOR). In unilateral vestibular loss (e.g., left vestibular neuritis), the VOR is impaired on the affected side.

- When the head is rapidly turned towards the affected side (left):
 - > Eyes fail to stay fixed on the target
 - > A corrective (catch-up) saccade occurs
 - The saccade is directed towards the target (opposite to head movement)

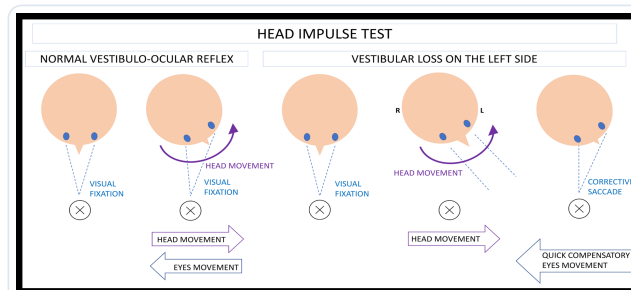
Application to question:

- Left vestibular neuritis -> defective left VOR
- Head turned to left -> eyes move with head (cannot fix gaze)
- Corrective saccade occurs to the right

Hence: Right saccade on left head rotation

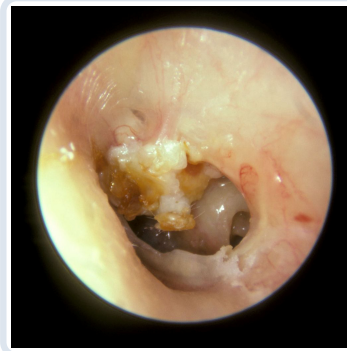
Why not other options:

- Saccades occur only when turning toward the affected side
- Direction of saccade is opposite to head movement, not same side



QUESTION

A 36-year-old man presents with a history of persistent foul-smelling ear discharge and progressive hearing loss in his right ear for several months. Otoscopic examination is shown below. There are no signs of acute infection, but the discharge has not resolved despite medical management. Which of the following is the most appropriate surgical management for this patient?



A Modified radical mastoidectomy (MRM)

CORRECT

B Myringoplasty

C Atticotomy

D Exploratory tympanotomy

RIGHT ANSWER

OK

A. Modified radical mastoidectomy (MRM)

WHY THIS IS RIGHT

The otoscopic image shows:

- Attic/posterosuperior retraction pocket
- Keratin debris (dirty white flakes)
- Likely cholesteatoma

Clinical correlation

- Foul-smelling, persistent discharge -> classic for unsafe CSOM
- Progressive hearing loss
- Not responding to medical therapy

Indicates cholesteatoma with bone-eroding potential

Why MRM?

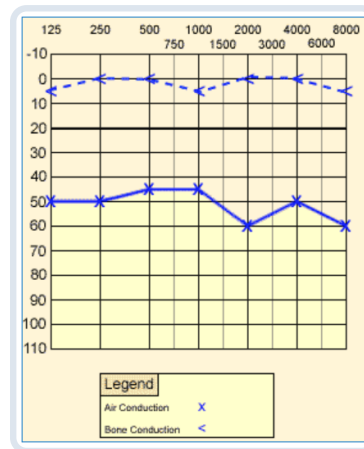
- Definitive surgery for unsafe CSOM (cholesteatoma)
- Removes disease + creates a safe, dry ear
- Preserves hearing structures where possible

Why NOT others?

- Myringoplasty -> only for *safe CSOM (central perforation)*
- Atticotomy -> limited disease (early attic cholesteatoma only)
- Exploratory tympanotomy -> ossicular issues, not cholesteatoma clearance

QUESTION

Based on the Pure Tone Audiogram (PTA) shown in the image below, identify the type and side of hearing loss.



A Right conductive hearing loss

B Left conductive hearing loss

CORRECT

C Right sensorineural hearing loss

D Left sensorineural hearing loss

RIGHT ANSWER

OK

B. Left conductive hearing loss

WHY THIS IS RIGHT

Pure tone audiometry is used to differentiate conductive and sensorineural hearing loss based on the relationship between air conduction (AC) and bone conduction (BC).

- Conductive hearing loss is characterized by an air-bone gap
- Bone conduction is normal (or near normal), while air conduction is reduced

Findings in this image: Left ear shows conductive hearing loss

Core principles:

- Conductive loss: AC ↓, BC normal → air-bone gap present
- Sensorineural loss: AC ↓ and BC ↓ equally → no air-bone gap

Why other options are incorrect:

- Sensorineural hearing loss would not show an air-bone gap
- Right ear is normal in this audiogram

QUESTION

A young male with a history of occupational loud sound exposure presents with hardness of hearing. On examination:

- Rinne test is negative on the left and positive on the right.
- Weber's test lateralizes to the left.

What is the most likely diagnosis?

A Right conductive hearing loss

B Left conductive hearing loss

CORRECT

C Right sensorineural hearing loss

D Left sensorineural hearing loss

RIGHT ANSWER

OK

B. Left conductive hearing loss

WHY THIS IS RIGHT

Tuning fork tests (Rinne and Weber) are used to differentiate conductive and sensorineural hearing loss and to localize the lesion.

· Rinne test:

- o Left ear -> Negative (bone conduction > air conduction) -> indicates conductive hearing loss
- o Right ear -> Positive -> normal or sensorineural

· Weber test:

- o Sound lateralizes to the left ear -> either conductive loss in left ear or sensorineural loss in right ear

Since Rinne is negative on the left, the diagnosis is left-sided conductive hearing loss

Why other options are incorrect:

- Right conductive hearing loss: Weber would lateralize to right
- Right sensorineural hearing loss: Weber would lateralize to left, but Rinne would remain positive bilaterally
- Left sensorineural hearing loss: Weber would lateralize to right

QUESTION

A patient presents to the OPD with complaints of hearing loss and can understand only shouted or amplified speech. What would be the degree of impairment according to the WHO classification of ability to understand speech ?

- A Mild hearing loss
- B Moderate hearing loss
- C Severe hearing loss**
- D Profound hearing loss

CORRECT

RIGHT ANSWER

- OK
- C. Severe hearing loss**

WHY THIS IS RIGHT

The WHO classification of hearing loss is based on the ability to understand speech and hearing thresholds (dB).

Key concept:

WHO Grade	dB HL	Description	Performance
0	≤25	No impairment	No/very slight problem; able to hear whisper at 1 m
1	26–40	Slight impairment	Able to hear and repeat words in normal voice at 1 m
2	41–60	Moderate impairment	Able to hear and repeat words using raised voice at 1 m
3	61–80	Severe impairment	Able to hear some words when shouted into better ear
4	≥81	Profound impairment including deafness	Unable to hear and understand even shouted voice

QUESTION

A patient presents to the OPD with bilateral hearing loss with worsened right ear hearing loss. On examination, the doctor recommends stapedectomy as a final resort to the problem. What would be the findings of tuning fork tests based on which the doctor has recommended stapedectomy?

- A** Rinne's test positive , Weber's test lateralized to left ear
- B** Rinne's test positive , Weber's test lateralized to right ear
- C** Rinne's test negative , Weber's test lateralized to left ear
- D** Rinne's test negative , Weber's test lateralized to right ear

CORRECT

RIGHT ANSWER

- OK** D. Rinne's test negative , Weber's test lateralized to right ear

WHY THIS IS RIGHT

Otosclerosis causes conductive hearing loss due to stapes fixation, leading to characteristic findings on tuning fork tests.

- Rinne test: Negative (Bone conduction > Air conduction)
- Weber test: Lateralizes to the affected ear (right ear in this case)

Why stapedectomy is advised:

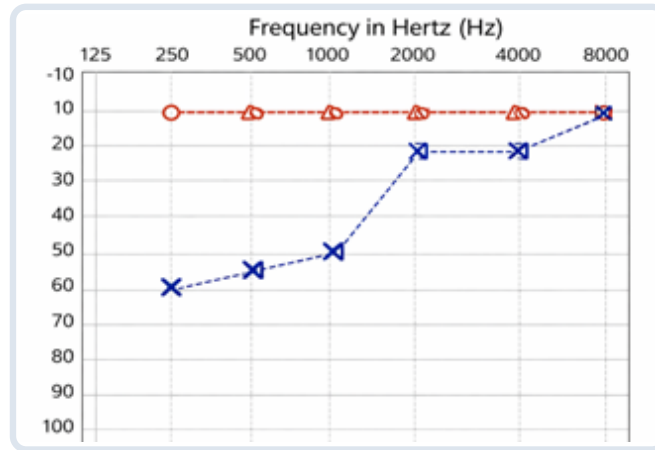
- Fixation of stapes footplate
- Surgery restores ossicular chain mobility

Why other options are incorrect:

- Rinne positive: Seen in normal or SNHL
- Weber to opposite ear: Seen in SNHL

QUESTION

A patient presents to the OPD with complaints of vertigo, sensorineural hearing loss and tinnitus which lasts minutes to hours with accompanied nausea and vomiting. On investigation, there is endolymphatic hypertension present. What is the diagnosis ?



A Meniere's disease

CORRECT

B Otosclerosis

C BPPV

D Acoustic neuroma

RIGHT ANSWER

OK A. Meniere's disease

WHY THIS IS RIGHT

Ménière's disease is characterized by episodic vertigo, tinnitus, and fluctuating sensorineural hearing loss due to endolymphatic hydrops.

Key clinical triad:

- Episodic vertigo (minutes to hours)
- Tinnitus (often roaring type)
- Fluctuating SNHL

Audiogram finding:

- Low-frequency sensorineural hearing loss (early)
- Rising configuration (worse at low frequencies)
- May progress to flat SNHL

Pathophysiology:

- Increased endolymph pressure -> distension of membranous labyrinth
- Affects cochlea + vestibular apparatus

Why other options are incorrect:

- Otosclerosis: Conductive loss with Carhart notch (2 kHz)
- BPPV: Positional vertigo, no hearing loss
- Acoustic neuroma: Progressive unilateral SNHL, not episodic vertigo

QUESTION

A patient has otitis media with effusion. Which of the following is wrong?

- A** It is bilateral
- B** It undergoes spontaneous resolution after cold decreases
- C** It is associated with cold
- D** It shows Ad type of curve

CORRECT

RIGHT ANSWER

- OK** **D. It shows Ad type of curve**

WHY THIS IS RIGHT

Otitis media with effusion (OME) is characterized by fluid in the middle ear without acute infection, leading to conductive hearing loss.

- OME shows a Type B (flat) tympanogram
- Indicates reduced tympanic membrane mobility due to fluid

Why option D is wrong (Ad curve):

- Type Ad curve = hypermobile tympanic membrane (e.g., ossicular discontinuity)
- Not seen in OME

Clinical features:

- Commonly bilateral (especially in children)
- Associated with upper respiratory infections (cold)
- Often resolves spontaneously after resolution of infection

QUESTION

| Which of the following is not preferred in a child with bilateral SNHL?

A Cochlear implant

B Adenoidectomy with grommet insertion

CORRECT

C Speech therapy

D Hearing aid

RIGHT ANSWER

OK

B. Adenoidectomy with grommet insertion

WHY THIS IS RIGHT

In bilateral sensorineural hearing loss (SNHL), management focuses on amplification and auditory rehabilitation, not middle ear procedures.

- SNHL involves inner ear (cochlea) or auditory nerve damage
- Therefore, treatment should bypass or compensate for cochlear dysfunction

Appropriate management options:

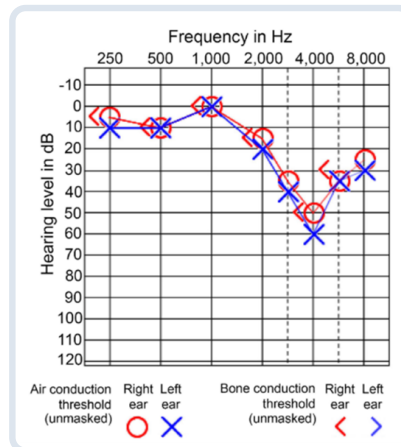
- Hearing aids -> first-line in mild to moderate SNHL
- Cochlear implant -> severe to profound SNHL
- Educational support -> e.g., front-row seating, speech therapy

Why adenoidectomy with grommet insertion is NOT preferred:

- Grommets treat conductive hearing loss (e.g., otitis media with effusion)
- They act on the middle ear, not the cochlea
- Hence, no benefit in SNHL

QUESTION

Identify the audiogram.



A Noise-induced hearing loss

CORRECT

B Otosclerosis

C Meniere's disease

D Acoustic neuroma

RIGHT ANSWER

OK **A. Noise-induced hearing loss**

WHY THIS IS RIGHT

Noise-induced hearing loss (NIHL) is characterized by a sensorineural hearing loss with a classic "4 kHz notch" on audiogram.

- Partial recovery at higher frequencies (6-8 kHz)
- Usually bilateral and symmetrical
- Damage to outer hair cells of the organ of Corti
- Most vulnerable region: basal turn of cochlea (high-frequency area)

Common causes:

- Chronic exposure to loud noise (industrial, machinery)
- Sudden acoustic trauma (blast injury)

Why other options are incorrect:

- Otosclerosis: Conductive loss with Carhart notch at 2 kHz
- Meniere's disease: Low-frequency SNHL
- Acoustic neuroma: Asymmetric SNHL without 4 kHz notch

QUESTION

What is the instrument shown below used for?



A Stapedectomy

CORRECT

B Myringoplasty

C Ossiculoplasty

D Mastoidectomy

RIGHT ANSWER

A. Stapedectomy

WHY THIS IS RIGHT

Stapedotomy is a surgical procedure performed to treat conductive hearing loss in otosclerosis, where the stapes footplate becomes fixed.

Mechanism of hearing improvement:

- Restores sound transmission from ossicles to inner ear fluid
- Improves air conduction hearing

Clinical indications:

- Otosclerosis with stapes fixation
- Conductive hearing loss with normal tympanic membrane

Why other options are incorrect:

- Myringoplasty: Repair of tympanic membrane perforation
- Ossiculoplasty: Reconstruction of ossicular chain (not specifically stapes footplate)
- Mastoidectomy: Removal of mastoid air cells (infection/cholesteatoma)

QUESTION

Which of the following is the first investigation in newborn for audiological assessment?

A BERA

B PTA

C OAE (Otoacoustic Emissions)

CORRECT

D Impedance

RIGHT ANSWER

OK

C. OAE (Otoacoustic Emissions)

WHY THIS IS RIGHT

Otoacoustic Emissions (OAE) is the first-line screening test for hearing assessment in newborns.

- Measures sound waves generated by outer hair cells of cochlea
- A small probe in the ear canal records these emissions

Screening protocol:

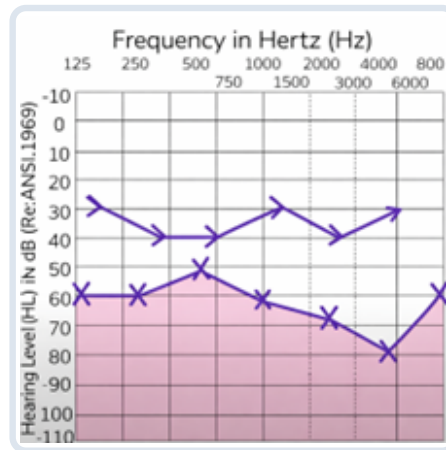
- Step 1: OAE screening
- Step 2 (if abnormal): BERA/ABR for confirmation

Why other options are incorrect:

- BERA: Confirmatory test, not initial screening
- PTA: Requires cooperation (not suitable for newborns)
- Impedance audiometry: Assesses middle ear, not primary screening

QUESTION

| Identify the PTA



A. CHL

B. SNHL

C. Mixed

CORRECT

D. None

RIGHT ANSWER

OK

C. C. Mixed

WHY THIS IS RIGHT

The audiogram shows:

- Elevated air conduction thresholds
- Elevated bone conduction thresholds
- Significant air-bone gap present

This combination is diagnostic of mixed hearing loss.

How to differentiate types:

- Conductive hearing loss (CHL): Normal BC, ↓ AC, air-bone gap present
- Sensorineural hearing loss (SNHL): ↓ AC & BC equally, no gap
- Mixed hearing loss: ↓ AC & BC + air-bone gap

Clinical relevance:

- Seen in conditions like:
 - o Chronic otitis media with inner ear involvement
 - o Otosclerosis with cochlear damage

QUESTION

A 32-year-old female presents with progressive hearing loss. Pure tone audiometry shows a dip in bone conduction at 2 kHz with relatively preserved air conduction. What is the most likely diagnosis?

- A Presbycusis
- B Otosclerosis
- C Meniere's disease
- D Acoustic neuroma

CORRECT

RIGHT ANSWER

- OK B. Otosclerosis

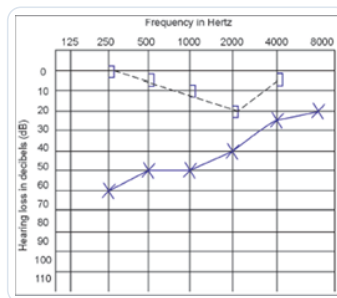
WHY THIS IS RIGHT

Carhart notch is a characteristic finding seen in otosclerosis, appearing as a dip in bone conduction threshold at 2000 Hz on audiometry.

- Otosclerosis causes fixation of the stapes footplate at the oval window
- This affects the resonance of the ossicular chain, especially around 2000 Hz
- Results in an artificial depression (notch) in bone conduction

Why other options are incorrect:

- Sudden SNHL: True sensorineural loss without specific notch
- Meniere's disease: Fluctuating low-frequency SNHL
- Acoustic neuroma: Retrocochlear SNHL, no Carhart notch



QUESTION

| What causes maximum hearing loss?

- A** Otitis media with effusion
- B** Partial fixation of footplate of stapes
- C** Ossicular discontinuity with intact TM
- D** Malleus-incus disruption with TM disruption

CORRECT

RIGHT ANSWER

- OK** **C. Ossicular discontinuity with intact TM**

WHY THIS IS RIGHT

Among conductive pathologies, ossicular discontinuity with an intact tympanic membrane (TM) causes the maximum hearing loss because the mechanical linkage between TM and inner ear is completely disrupted.

- Sound transmission depends on intact ossicular chain (malleus -> incus -> stapes)
- Discontinuity -> no effective transmission of sound vibrations to oval window
- Results in maximum conductive hearing loss (up to ~60 dB)

Degree of hearing loss

- TM perforation: 10-40 dB
- Complete obstruction of EAC / Headphones: ~40 dB
- Ossicular discontinuity:
 - With TM perforation
 - With intact TM: ~55 dB
- Complete stapes footplate fixation: ~60 dB

QUESTION

A patient presents with vertigo and vomiting that is consistently triggered by turning in bed or changing head position. What is the most likely diagnosis?

A BPPV

CORRECT

B Vestibular neuritis

C Ménière's disease

D Labyrinthitis

RIGHT ANSWER

OK A. BPPV

WHY THIS IS RIGHT

BPPV is caused by displaced otoliths (canaliths) in the semicircular canals, most commonly the posterior canal. These particles move with head position changes, stimulating the vestibular system and causing vertigo.

- Vertigo triggered by turning in bed or head movement
- Brief episodes (seconds)
- Associated nausea/vomiting
- No hearing loss

Why other options are incorrect:

B. Vestibular neuritis

- Causes sudden severe continuous vertigo lasting days
- Not triggered by position
- Often follows viral infection

C. Ménière's disease

- Episodic vertigo with hearing loss, tinnitus, and ear fullness

D. Labyrinthitis

- Vertigo with hearing loss (due to involvement of cochlea)

QUESTION

Cochlear implantation is not indicated in which of the following conditions?

- 1. Otosclerosis**
- 2. Congenital hearing loss**
- 3. Fixed malleus**
- 4. Ototoxicity induced hearing loss**

A 1 & 3

CORRECT

B 2 & 4

C 1 & 4

D 2 & 3

RIGHT ANSWER

OK A. 1 & 3

WHY THIS IS RIGHT

Cochlear implant bypasses damaged hair cells in the cochlea and directly stimulates the auditory nerve. Therefore, it is useful only when the problem lies in the cochlea (sensorineural loss), not in sound conduction.

Indicated conditions:

- Congenital sensorineural hearing loss
- Ototoxicity-induced sensorineural hearing loss

Not indicated conditions:

1. Otosclerosis

Primarily causes conductive hearing loss due to stapes fixation. Managed with stapedotomy or hearing aids, not cochlear implant (unless advanced with cochlear involvement, which is rare).

2. Fixed malleus

A conductive pathology affecting ossicular chain mobility. Treated with ossiculoplasty, not cochlear implant.

QUESTION

| Which of the following modalities is not used for hearing assessment in an infant?

A Brain stem evoked response audiometry (BEA)

B Otoacoustic emission

C Pure tone audiometry

CORRECT

D Freefield audiometry

RIGHT ANSWER

OK

C. Pure tone audiometry

WHY THIS IS RIGHT

Assessment of hearing in infants requires objective or behavioral methods because they are unable to cooperate with subjective tests. Early detection of hearing loss is essential for speech and language development.

Methods used in infants:

- Brainstem Evoked Response Audiometry (BERA/ABR): Objective, evaluates auditory pathway up to brainstem
- Otoacoustic Emissions (OAE): Screens cochlear (outer hair cell) function
- Free-field audiometry (Behavioral observation audiometry): Uses sound stimuli and observes infant response

Why pure tone audiometry is not used:

- Requires active participation and subjective response from the patient
- Infants cannot understand or respond reliably to tones

QUESTION

A 60-year-old man presents with gradual progressive hearing loss. On examination, he has difficulty perceiving high frequency sounds, but other findings are normal. Which structure is primarily affected in this condition?

A Stria vascularis

B Tectorial membrane

C Inner hair cell of basal turn

CORRECT

D Apex of cochlea

RIGHT ANSWER

OK

C. Inner hair cell of basal turn

WHY THIS IS RIGHT

High-frequency hearing loss in elderly patients (presbycusis) primarily involves damage to the inner hair cells at the basal turn of the cochlea.

- Base (basal turn) -> detects high-frequency sounds
- Apex -> detects low-frequency sounds

Pathophysiology:

- Age-related degeneration of hair cells (especially inner hair cells)
- Most pronounced at the basal turn -> early loss of high-frequency hearing

Why other options are incorrect:

- Stria vascularis: Affects endolymph production (metabolic hearing loss)
- Tectorial membrane: Structural role, not primary site here
- Outer hair cells: Amplify sound, but inner hair cells are primary sensory receptors

QUESTION

Which of the following tests can be used if otoacoustic emissions is absent for screening?

1. Pure tone audiometry
2. Tympanometry
3. Free field audiometry
4. Speech audiometry

A 2 and 4

CORRECT

B 1, 3, 4

C 2, 3, 4

D 2 and 3

RIGHT ANSWER

OK

A. 2 and 4

WHY THIS IS RIGHT

If otoacoustic emissions (OAE) are absent during hearing screening, further evaluation is needed to differentiate between conductive and sensorineural hearing loss.

Tests useful after absent OAE:

- Tympanometry:
 - Assesses middle ear status
 - Detects fluid, Eustachian tube dysfunction, TM mobility
 - Helps rule out conductive cause of absent OAE
- Speech audiometry:
 - Assesses speech detection and discrimination
 - Helps evaluate functional hearing and neural processing

Why others are less useful for screening in this context:

- Pure tone audiometry -> requires patient cooperation (not ideal screening, especially in children)
- Free field audiometry -> less specific and influenced by environment

QUESTION

Identify the causes of sensorineural hearing loss:

1. Acoustic neuroma
2. Presbycusis
3. Meniere's disease
4. Superior semicircular dehiscence syndrome

A 1, 2, 3, 4

B 1, 2, 3

CORRECT

C 1,4

D 2,3

RIGHT ANSWER

OK B. 1, 2, 3

WHY THIS IS RIGHT

Sensorineural hearing loss (SNHL) results from pathology of the cochlea, auditory nerve, or central auditory pathways.

Causes of SNHL:

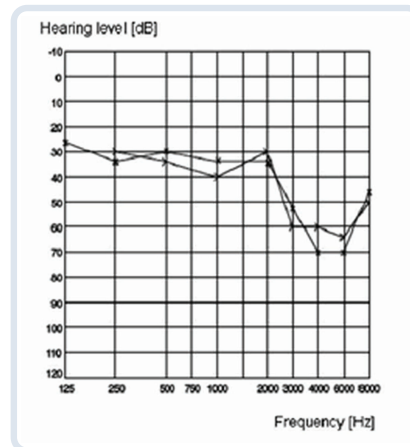
- Acoustic neuroma (vestibular schwannoma): Retrocochlear SNHL due to VIII nerve compression
- Presbycusis: Age-related degeneration of cochlear hair cells -> bilateral high-frequency SNHL
- Ménière's disease: Endolymphatic hydrops causing fluctuating SNHL

Not a cause of SNHL: Superior semicircular canal dehiscence (SSCD):

- Causes conductive or mixed hearing loss
- Due to "third window effect" in inner ear
- Presents with autophony, sound-induced vertigo

QUESTION

The following curve may be seen with the following drugs except:



A Neomycin

B Kanamycin

C Amikacin

D Streptomycin

CORRECT

RIGHT ANSWER

OK D. Streptomycin

WHY THIS IS RIGHT

Aminoglycoside ototoxicity typically causes high-frequency sensorineural hearing loss, seen first at 4-8 kHz on audiogram. These produce a down-sloping high-frequency loss on audiogram like the curve shown.

Cochleotoxic aminoglycosides (hearing loss):

- Neomycin
- Kanamycin
- Amikacin
- Gentamicin (also cochlear)

Vestibulotoxic aminoglycoside:

- Streptomycin (primarily vestibular toxicity)
- Causes vertigo and balance problems rather than marked cochlear hearing loss

QUESTION

A patient presents to the OPD with bilateral hearing loss with worsened right ear hearing loss. Based on the findings the surgeon recommends stapedectomy as a final resort to the problem. What would be the findings of tuning fork tests based on which the doctor has recommended stapedectomy?

- A** Rinne's test positive, Weber's test lateralized to left ear
- B** Rinne's test positive, Weber's test lateralized to right ear
- C** Rinne's test negative, Weber's test lateralized to left ear
- D** Rinne's test negative, Weber's test lateralized to right ear

CORRECT

RIGHT ANSWER

- OK** D. Rinne's test negative, Weber's test lateralized to right ear

WHY THIS IS RIGHT

Stapedectomy is performed in otosclerosis, which causes conductive hearing loss due to stapes footplate fixation.

Tuning fork findings in conductive hearing loss (otosclerosis):

- Rinne test: Negative (BC > AC) in affected ear
- Weber test: Lateralizes to affected ear (conductive loss)

In this case:

- Bilateral hearing loss, worse in right ear
- Conductive pattern -> Weber lateralizes to right (worse ear)
- Rinne negative in affected ear

-> Suggests otosclerosis requiring stapedectomy.

QUESTION

A patient presents with complaints of the sudden vertigo when his head is in one particular position. The physician performs a maneuver to relieve the patient's symptoms. Arrange the steps of that procedure in the proper sequence:

- a. Affected ear is facing up at 90° rotation
- b. Head turned 45° to the affected side and head in hanging position
- c. Head turned forward and chin brought down to 20°
- d. Whole body and head rotated to a lateral recumbent position
- e. Sitting position with head turned to unaffected side by 45°

A b, a, d, e, c

CORRECT

B b, d, a, c, e

C b, d, a, e, c

D b, a, d, c, e

RIGHT ANSWER

OK A. b, a, d, e, c

WHY THIS IS RIGHT

The described maneuver is the Epley maneuver, used to treat posterior canal BPPV, the most common cause of positional vertigo. BPPV occurs due to displaced otoliths (canaliths) in the posterior semicircular canal. The Epley maneuver sequentially repositions these particles back into the utricle using gravity.

Correct sequence:

1. Head turned 45° to affected side and placed in hanging position (Dix-Hallpike position)
2. Rotate head 90° so affected ear faces up
3. Rotate whole body to lateral recumbent position
4. Bring patient to sitting with head turned to unaffected side
5. Head brought forward (chin down)

QUESTION

A 14-year-old patient arrives at the OPD with a concern about her ability to perceive speech sounds while struggling to comprehend the actual words being spoken. Her Pure Tone Audiometry (PTA) and Brainstem Evoked Response Audiometry (BERA) results show discrepancies, as the PTA is relatively within the normal range. However, her mid-latency and cortical responses are both non-existent. What probable diagnosis can be inferred from these findings?

A Michel aplasia

B Auditory neuropathy

CORRECT

C Malingering

D Cochlear otosclerosis

RIGHT ANSWER

OK

B. Auditory neuropathy

WHY THIS IS RIGHT

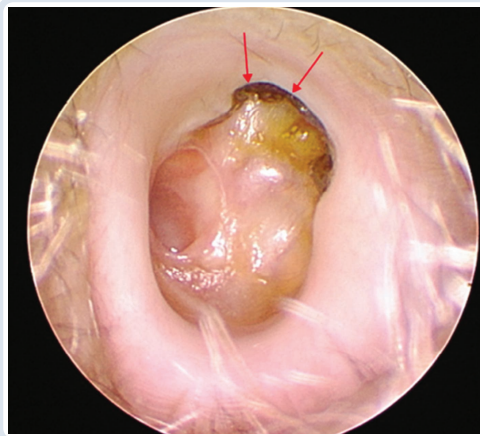
Auditory neuropathy spectrum disorder (ANSD) is characterized by normal outer hair cell function with impaired neural transmission of sound from cochlea to brain.

- Difficulty understanding speech > hearing pure tones
- PTA: normal or near-normal
- OAE: present (outer hair cells intact)
- ABR/BERA: abnormal or absent
- Middle and late cortical responses absent

-> Indicates neural dys-synchrony.

QUESTION

| All of the following are true about type of CSOM shown in the image except:



A Also called as unsafe disease

B Involves the protympanum

CORRECT

C Marginal perforation is more common

D Associated with polyps and granulation

RIGHT ANSWER

OK

B. Involves the protympanum

WHY THIS IS RIGHT

The image represents atticoantral (unsafe) type CSOM, characterized by cholesteatoma with marginal or attic perforation and a higher risk of complications.

- Called unsafe/dangerous CSOM due to risk of bone erosion and intracranial complications
- Usually involves attic (epitympanum) and aditus, not protympanum
- Marginal or attic perforation common
- Associated with cholesteatoma, granulation tissue, and aural polyps
- Foul-smelling discharge and conductive hearing loss

Why option B is incorrect:

- Protympanum involvement is typical of tubotympanic (safe) disease
- Unsafe disease primarily affects epitympanum/posterosuperior mesotympanum

QUESTION

Which of the following statements are true?

1. Sinus tympani is most common site of residual cholesteatoma
2. Canal wall down procedure has a higher risk of residual disease
3. Prussack space is the most common site for recurrent disease
4. Trautmann's triangle gives access to middle ear cavity.

A 2, 4

B 1, 4

C 1

CORRECT

D 1, 2, 3, 4

RIGHT ANSWER

OK C. 1

WHY THIS IS RIGHT

Key concepts:

- 1\ Sinus tympani -is the most common site of residual cholesteatoma (True)
 - Deep recess posterior to oval window
 - Difficult to visualize and access surgically
 - Most frequent site for residual disease after surgery
- 2\ Canal wall down (CWD) has higher risk of residual disease (False)
 - CWD provides better exposure
 - Lower residual/recurrent rates than canal wall up
 - Easier postoperative surveillance
- 3\ Prussack space is the most common site for recurrent disease (False)
 - Most common site for primary acquired cholesteatoma
 - Recurrent disease more often due to retraction pockets or inadequate clearance, not specifically Prussack space
- 4\ Trautmann's triangle gives access to middle ear cavity (False)
 - Trautmann's triangle provides access to posterior cranial fossa
 - Not middle ear cavity

QUESTION

A patient with left side vestibular neuritis had a positive head impulse test. What does it indicate?

A On rotating head to left, right saccade is seen

CORRECT

B On rotating head toward right, left saccade is seen

C On rotating head toward right, right saccade is seen

D On rotating to the left, left saccade is seen

RIGHT ANSWER

OK A. On rotating head to left, right saccade is seen

WHY THIS IS RIGHT

The Head Impulse Test (HIT) evaluates the vestibulo-ocular reflex (VOR) and helps identify peripheral vestibular dysfunction.

- When the head is rapidly turned toward the affected side, a defective vestibular system fails to maintain gaze fixation, causing the eyes to move with the head.
- A corrective (catch-up) saccade then occurs toward the opposite side to refixate on the target\.

In left vestibular neuritis:

- Left labyrinth is hypoactive
- When head is turned toward left (affected side) -> VOR fails
- Eyes move with head
- Corrective saccade toward right to refocus -> Positive HIT

*

QUESTION

A 55-year-old male presents with dizziness and involuntary eye movements. Examination reveals non-fatiguable nystagmus that changes direction with gaze and is not suppressed by visual fixation. There are no significant auditory symptoms. What is the most likely cause of his nystagmus?

A Benign paroxysmal positional vertigo (BPPV)

B Vestibular neuritis

C Brainstem stroke

CORRECT

D Ménière's disease

RIGHT ANSWER

OK C. Brainstem stroke

WHY THIS IS RIGHT

Features of central vertigo (brainstem or cerebellar lesion) must be distinguished from peripheral vestibular disorders.

Central nystagmus characteristics:

- Non-fatigable
- Direction-changing with gaze
- Not suppressed by visual fixation
- May be vertical or multidirectional
- Usually no auditory symptoms
- Often associated with neurological deficits

Peripheral nystagmus characteristics (BPPV, Ménière, vestibular neuritis):

- Fatigable
- Unidirectional
- Suppressed by visual fixation
- Often associated with tinnitus or hearing loss
- Severe vertigo but fewer CNS signs

QUESTION

A patient presents with vertigo associated with horizontal nystagmus. The slow component is towards the right. What is the most likely diagnosis?

A Posterior canal BPPV

B Superior canal BPPV

C Right purulent labyrinthitis

CORRECT

D Right serous labyrinthitis

RIGHT ANSWER

OK C. Right purulent labyrinthitis

WHY THIS IS RIGHT

The direction of the slow phase of nystagmus indicates the side of the lesion, while the fast phase (named direction of nystagmus) beats toward the more active labyrinth.

- Destructive lesions (e.g., purulent labyrinthitis) -> affected labyrinth becomes hypoactive
- Brain perceives opposite side dominance -> fast phase toward normal side
- Therefore, slow phase toward affected side

In this case:

- Slow component toward right -> lesion on right side
- Purulent labyrinthitis = destructive lesion -> nystagmus to opposite side -> Consistent with right purulent labyrinthitis

QUESTION

A 3-year-old boy is brought to the clinic due to left ear pain over the past 3 days. Last week, the patient developed a runny nose and cough, which resolved 2 days prior to the development of ear pain. There is purulent drainage from the left ear. Otoscopic examination of the left ear reveals a normal-appearing external canal and an erythematous tympanic membrane with purulent fluid pooling within the distal external canal. Which of the following organisms is the most likely cause of this patient's diagnosis?

- A Moraxella catarrhalis
- B Proteus mirabilis
- C Pseudomonas aeruginosa

D Streptococcus pneumoniae

CORRECT

RIGHT ANSWER

D. Streptococcus pneumoniae

WHY THIS IS RIGHT

Acute otitis media (AOM) most commonly occurs after a viral upper respiratory infection due to Eustachian tube dysfunction leading to secondary bacterial infection of the middle ear.

Most common causative organism:

- Streptococcus pneumoniae (most common)
- Haemophilus influenzae
- Moraxella catarrhalis

Clinical clues in this case:

- Recent URI
- Ear pain and fever
- Purulent otorrhea due to TM perforation
- Erythematous tympanic membrane
- Normal external canal (rules out otitis externa)

QUESTION

Which of the following will not be associated in this condition?



A Abnormal stapedial decay

B Roll over phenomenon

C **Abnormal SISI score**

CORRECT

D Hitzelberger sign

RIGHT ANSWER

OK **C. Abnormal SISI score**

WHY THIS IS RIGHT

The image depicts a vestibular schwannoma (acoustic neuroma) located in the cerebellopontine angle, which causes retrocochlear hearing loss.

Findings in vestibular schwannoma:

- Abnormal stapedius reflex decay
- Roll-over phenomenon on speech audiometry
- Hitzelberger sign (reduced sensation in posterior EAC)
- Poor speech discrimination disproportionate to hearing loss

Not seen:

- Abnormal/high SISI score
- High SISI indicates cochlear pathology (e.g., Ménière's disease)
- Vestibular schwannoma typically shows low/normal SISI

QUESTION

A 27-year-old woman, gravida 1 para 0 at 30 weeks gestation, comes to the OPD due to increasing difficulty hearing, especially on the right side. A tuning fork held over the middle of the forehead sounds louder in the right ear. Tuning fork sounds are better heard with bone conduction on the right side and with air conduction on the left. The remainder of the neurologic examination shows no abnormalities. Which of the following is the most likely cause of this patient's current symptoms?

A Chronic otitis media

B Medication ototoxicity

C Ménière disease

D Otosclerosis

CORRECT

RIGHT ANSWER

OK D. Otosclerosis

WHY THIS IS RIGHT

Otosclerosis is a disorder of abnormal bone remodeling in the otic capsule causing stapes fixation and progressive conductive hearing loss, commonly seen in young women and during pregnancy.

- Progressive hearing loss (often bilateral, may start unilateral)
- Weber lateralizes to affected ear
- Rinne negative in affected ear (BC > AC -> conductive loss)
- Normal tympanic membrane on otoscopy
- Worse during pregnancy due to hormonal influence

Abnormal spongy bone formation around stapes footplate -> fixation -> impaired sound transmission.

QUESTION

A 48-year-old woman comes to the OPD due to an intermittent ear discharge over the last 2 years. She has also noticed decreased hearing in the right ear recently. Otoscopy shows a small perforation in the right tympanic membrane and a pearly mass behind the membrane. Conduction hearing loss is noted in the right ear. The remainder of the ear, nose, and throat examination is normal. Which of the following is the most likely cause of this patient's aural mass?

- A Cholesterol and lipid accumulation
- B Malignant squamous cell neoplasm
- C Noncaseating granuloma

D Squamous cell debris

CORRECT

RIGHT ANSWER

OK D. Squamous cell debris

WHY THIS IS RIGHT

A cholesteatoma is an abnormal collection of keratinizing squamous epithelium and squamous debris within the middle ear that leads to chronic ear discharge and conductive hearing loss.

- Retraction pocket or perforation of tympanic membrane
- Causes bone erosion (ossicles, mastoid)

Clinical features:

- Chronic intermittent foul-smelling otorrhea
- Conductive hearing loss
- Pearly white mass behind tympanic membrane
- Possible complications: facial nerve palsy, labyrinthitis, brain abscess

QUESTION

52-year-old man comes to the OPD for evaluation of hearing loss in the left ear. The patient works in sales and is frequently on the phone. Over the past several months, he has had difficulty hearing phone conversations in the left ear and must move the headset to right ear. He has no pain or vertigo but sometimes feels off-balance when walking at night and holds onto walls. A tuning fork placed on the forehead is lateralised to the the right ear. Air conduction is greater than bone conduction bilaterally. There is decreased sensation to touch on the left side of the face. Which of the following is the most likely cause of this patient's symptoms?

A Cholesteatoma

B Herpes zoster oticus

C Ménière disease

D Vestibular schwannoma

CORRECT

RIGHT ANSWER

OK

D. Vestibular schwannoma

WHY THIS IS RIGHT

Vestibular schwannoma (acoustic neuroma) is a benign tumor of the vestibulocochlear nerve (CN VIII) that presents with unilateral progressive sensorineural hearing loss, imbalance, and involvement of adjacent cranial nerves.

- Weber lateralizes to normal ear
- Rinne positive bilaterally (SNHL pattern)
- Tinnitus ± imbalance
- Trigeminal nerve involvement -> decreased facial sensation
- No middle ear findings on otoscopy

Tumor arises from Schwann cells (usually vestibular division) -> grows in cerebellopontine angle -> compresses CN VIII first, then CN V and VII.

Best investigation: MRI with gadolinium of cerebellopontine angle (gold standard)

QUESTION

A 33-year-old woman comes to the office due to intermittent dizziness. The patient describes a sensation of severe spinning accompanied by intense nausea that lasts 1-2 hours. She feels unsteady during these episodes and has to lie down with her eyes closed for relief. She also hears a "mechanical humming" sound in her right ear during these episodes. The patient has no associated headaches, ear pain, or ear discharge. On examination, air conduction is greater than bone conduction in both ears. When the base of a tuning fork is placed against her forehead, the sound is heard more prominently in the left ear. Which of the following is the most likely cause of this patient's condition?

A CSOM

B Otosclerosis

C Elevated endolymphatic pressure

CORRECT

D SCC dehiscence

RIGHT ANSWER

OK C. Elevated endolymphatic pressure

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$2" here and does not include a written explanation for this item.

QUESTION

A 58-year-old man comes to the OPD due to muffled hearing and difficulty understanding speech over the past several weeks. Medical history includes hypertension, coronary artery disease, ischemic cardiomyopathy, and chronic kidney disease. He has had repeated hospitalizations for acute heart failure decompensation and was recently treated for acute prostatitis. Vital signs are within normal limits. Otoscopic examination shows no abnormalities. Audiometry reveals symmetric high-frequency sensorineural hearing loss. Which of the following medications is the most likely cause of this patient's current symptoms?

A

Aspirin

B

Ciprofloxacin

C

Furosemide

CORRECT

D

Sacubitril-valsartan

RIGHT ANSWER

OK

C. Furosemide

WHY THIS IS RIGHT

According to the given scenario:

Likely that the patient was treated with such a drug during hospitalisation and treatment of CHF that led to SNHL.

Loop diuretics (e.g., furosemide) can cause ototoxicity, leading to bilateral symmetric high-frequency SNHL, especially in patients with renal failure or those receiving high IV doses.

- Inhibit $\text{Na}^+ \text{K}^+ \text{2Cl}^-$ transporter in stria vascularis
- Disrupt endolymph production and cochlear hair cell function
- Results in reversible or sometimes permanent SNHL

Drug comparison:

- Aspirin -> tinnitus, reversible hearing loss
- Ciprofloxacin -> rarely ototoxic
- Sacubitril-valsartan -> no ototoxicity
- Furosemide -> classic cause of ototoxic SNHL.

QUESTION

An 82-year-old woman with Alzheimer dementia is brought to the OPD for evaluation of new-onset drooling. The patient lives in a nursing home and the staff noticed that she has been having liquid drip out of the right side of her mouth when they feed her. She has also been very tearful over the past 2 weeks, particularly at night when she wakes up crying and clutching her ear. The patient has type 2 diabetes mellitus that requires insulin and multiple medications. Her last hemoglobin A1c was 8.5%. Temperature is 38 C (100.4 F), blood pressure is 140/90 mm Hg, pulse is 96/min, and respirations are 18/min. Physical examination of the right ear canal shows granulation tissue with a surrounding white drainage in the floor of the canal. The tympanic membrane is clear and mobile to pneumatic otoscopy. There is facial asymmetry with some downward deviation of the right corner of the mouth. Which of the following is the most likely causative organism for this patient's condition?

A Aspergillus niger

B Herpes zoster

C Pseudomonas aeruginosa

CORRECT

D Rhizopus species

RIGHT ANSWER

OK

C. Pseudomonas aeruginosa

WHY THIS IS RIGHT

This is Malignant otitis externa and m/c/c is *pseudomonas aeruginosa.*
This is invasive infection of external auditory canal -> skull base osteomyelitis

Classic risk factors:

- Elderly , Diabetic ,Immunocompromised

Classical findings:

- Granulation tissue at the floor of the ear canal
- Severe pain out of proportion
- Cranial nerve involvement (drooling -> facial nerve)
- ☐ Option A: Aspergillus niger
- Causes otomycosis.
- (Black fungal debris , Itching)
- Not skull base infection / Not cranial nerve deficits.
- ☐ Option B :Herpes zoster
- Facial paralysis + vesicles
- No vesicles mentioned here.
- ☐ Option D:Rhizopus
- Causes mucormycosis:
- Seen in uncontrolled diabetes but affects sinuses and orbit.
- Does Not cause isolated ear canal granulation tissue.

QUESTION

Nystagmus to the opposite side of the lesion occurs in

- 1. Purulent labyrinthitis**
- 2. Trauma to labyrinth**
- 3. Serous labyrinthitis**
- 4. Hypoactive labyrinth**

A 1, 3, 4

B 1, 2, 3, 4

C 1, 4

D 1, 2, 4

CORRECT

RIGHT ANSWER

OK D. 1, 2, 4

WHY THIS IS RIGHT

Direction of nystagmus in labyrinthine disorders depends on whether the labyrinth is irritative (hyperactive) or destructive (hypoactive).

- Irritative lesions (hyperactive labyrinth) -> nystagmus towards same side
- Destructive lesions (hypoactive labyrinth) -> nystagmus towards opposite side

Opposite-side nystagmus occurs in destructive lesions:

- Purulent labyrinthitis -> destroys labyrinth -> opposite side
- Labyrinthine trauma -> loss of function -> opposite side
- Hypoactive labyrinth -> reduced vestibular tone -> opposite side

Serous labyrinthitis: Irritative stage so Nystagmus usually towards affected ear (same side)

QUESTION

A 30-year-old man with a history of chronic otitis media presents for tympanoplasty. During the surgery, the surgeon finds that both the malleus and incus are absent. According to Wullstein's classification, which type of tympanoplasty is most appropriate for this patient?

A Type I

B Type II

C Type III

CORRECT

D Type IV

RIGHT ANSWER

OK

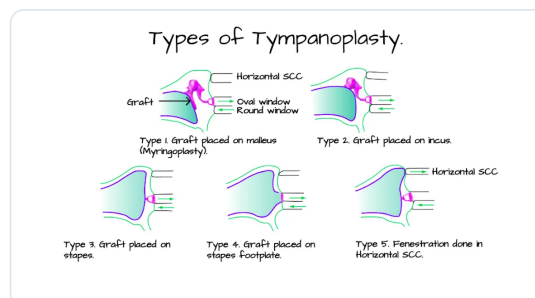
C. Type III

WHY THIS IS RIGHT

Wullstein classification of tympanoplasty is based on the status of ossicles and how sound conduction is reconstructed.

Wullstein classification summary:

- Type I: Only tympanic membrane repair; ossicles intact (myringoplasty)
- Type II: Malleus partially eroded; graft placed on incus or remnant ossicle
- Type III: Malleus and incus absent; graft placed on stapes (most important exam point)
- Type IV: Only mobile footplate present; graft protects round window
- Type V: Fenestration procedure (rare/obsolete)



QUESTION

A patient with long-standing Ménière's disease suddenly collapses to the ground without loss of consciousness and without warning vertigo. He is able to get up immediately after the fall. What is the most likely explanation for this episode?

A Vertebrobasilar insufficiency

B Tulio phenomenon

C Lermoyez syndrome

D Tumarkin otolithic crisis

CORRECT

RIGHT ANSWER

OK

D. Tumarkin otolithic crisis

WHY THIS IS RIGHT

Tumarkin otolithic crisis (drop attack) is a complication of long-standing Ménière's disease characterized by sudden falls without warning, vertigo, or loss of consciousness, with immediate recovery.

Sudden stimulation or dysfunction of the otolithic organs (utricle/sacculle) due to endolymphatic hydrops -> abrupt loss of postural control -> patient suddenly collapses.

Differentiation:

- Vertebrobasilar insufficiency -> LOC or neurological deficits
- Tulio phenomenon -> vertigo induced by loud sound
- Lermoyez syndrome -> hearing improves after vertigo

QUESTION

A 45-year-old patient has recurrent episodic vertigo, fluctuating sensorineural hearing loss, tinnitus, and aural fullness. Despite treatment with salt restriction, diuretics, vestibular sedatives, and betahistine, the patient continues to have intractable vertigo. Audiometry shows that hearing is still useful. What is the next best step in management?

A Total labyrinthectomy

B Vestibular nerve section

C Transtympanic steroid injection

CORRECT

D Cochlear implantation

RIGHT ANSWER

OK C. Transtympanic steroid injection

WHY THIS IS RIGHT

In Ménière's disease with intractable vertigo despite maximal medical therapy, the next step depends on hearing status. When hearing is still serviceable, the preferred next management is intratympanic (transtympanic) steroid injection, which reduces vertigo, preserves hearing, and is minimally invasive.

☐ Total labyrinthectomy

Destroys hearing.

Only done when hearing is already non-functional.

☐ Vestibular nerve section

More invasive. Reserved for refractory cases but after less invasive measures.

☐ Cochlear implant

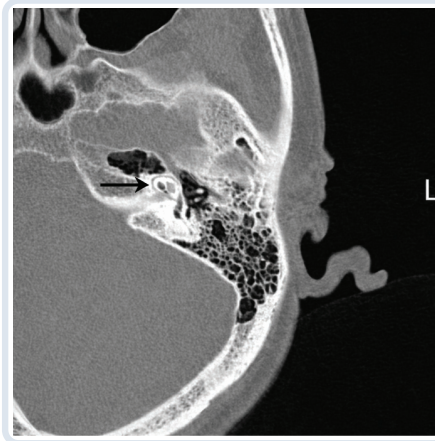
For profound hearing loss - not this scenario.

Management ladder in Ménière's disease:

1. Lifestyle + medical therapy -> salt restriction, diuretics, betahistine
2. Persistent vertigo with useful hearing -> intratympanic steroid
3. Persistent vertigo with poor hearing -> intratympanic gentamicin (chemical labyrinthectomy)
4. Refractory cases:
 - Useful hearing -> vestibular nerve section
 - Non-serviceable hearing -> labyrinthectomy

QUESTION

A 36-year-old woman presents with progressive bilateral hearing loss. Otoscopy is normal. Pure tone audiometry shows mixed hearing loss. HRCT of temporal bone is given below. Diagnosis?



- A Ménière disease
- B Vestibular schwannoma
- C Cochlear otosclerosis**
- D Labyrinthitis ossificans

CORRECT

RIGHT ANSWER

OK

C. Cochlear otosclerosis

WHY THIS IS RIGHT

Cochlear otosclerosis is suspected in patients with progressive bilateral mixed hearing loss and normal otoscopy and is confirmed by HRCT temporal bone showing hypodense (lucent) foci around the cochlea or oval window due to abnormal bone remodeling.

- Typically affects young to middle-aged adults, more common in females
- Causes stapes fixation -> conductive loss and cochlear involvement -> SNHL, producing mixed hearing loss
- HRCT shows demineralization around the otic capsule (double ring/halo around cochlea)

Management:

- Hearing aids (early)
- Stapedotomy (fenestral disease)
- Cochlear implant in advanced cochlear involvement

QUESTION

A newborn undergoes transient evoked otoacoustic emission (TEOAE) screening within 48 hours of birth. The result is absent bilaterally. According to the neonatal hearing screening protocol, what is the next best step?

- A** Refer directly for BERA
- B** Diagnose congenital SNHL
- C** Start hearing aids
- D** Clean the external auditory canal and repeat TEOAE after 7-10 days

CORRECT

RIGHT ANSWER

OK

D. Clean the external auditory canal and repeat TEOAE after 7-10 days

WHY THIS IS RIGHT

In newborn hearing screening, an absent TEOAE within the first 48 hours is often due to transient external or middle ear factors such as vernix, debris, or middle ear fluid rather than true sensorineural hearing loss.

Next best step: Clean the external auditory canal and repeat TEOAE after 7-10 days before proceeding to definitive testing.

- ☐ Refer directly for BERA - Too early. You repeat screening first.
- ☐ Diagnose congenital SNHL - Way too premature.
- ☐ Start hearing aids - Absolutely not without confirmatory testing.

Screening protocol logic:

- Initial failed OAE -> repeat screening after clearing canal/debris
- Persistent failure -> perform BERA (ABR) for confirmation
- Do not diagnose congenital SNHL or start hearing aids until confirmatory testing

QUESTION

A 38-year-old patient presents with recurrent episodes of tinnitus and progressive hearing loss. Each episode is followed by a sudden attack of vertigo, after which the hearing improves dramatically. There is no history of ear discharge or trauma. Which of the following best describes this condition?

- A Ménière's disease
- B Benign paroxysmal positional vertigo
- C Lermoyez syndrome**
- D Vestibular neuronitis

CORRECT

RIGHT ANSWER

- OK
- C. Lermoyez syndrome**

WHY THIS IS RIGHT

Lermoyez syndrome is a rare variant of Ménière's disease characterized by fluctuating sensorineural hearing loss and tinnitus that improve suddenly after an attack of vertigo.

- Hearing improves after vertigo -> Lermoyez syndrome (reverse Ménière's)
- Hearing worsens after vertigo -> Ménière's disease
- Vertigo without hearing loss -> Vestibular neuronitis
- Positional vertigo lasting seconds -> BPPV

QUESTION

A 55-year-old patient with sensorineural hearing loss undergoes hearing tests. The examiner performs the Absolute Bone Conduction (ABC) Test and the Schwabach Test. What are the expected findings of the duration of both tests?

- A** Both are Longer
- B** Both are Shorter
- C** ABC - Longer, Schwabach - Shorter
- D** ABC - Shorter, Schwabach - Same as Examiner

CORRECT

RIGHT ANSWER

B. Both are Shorter

WHY THIS IS RIGHT

Tuning fork tests comparing bone conduction duration help distinguish type of hearing loss.

Test	Sensorineural Hearing Loss (SNHL)	Conductive Hearing Loss (CHL)
Absolute Bone Conduction (ABC)	Shortened	Normal or relatively prolonged
Schwabach Test	Shortened (patient < examiner)	Prolonged (patient > examiner)
Reason	Cochlear/nerve defect -> ↓ perception	Bone conduction preserved, air conduction reduced

QUESTION

A patient with chronic suppurative otitis media reports that their hearing improves when the ear is discharging compared to when it is dry. Which phenomenon best explains this observation?

A Cholesteatoma hearer effect

B Round window shielding effect

CORRECT

C Ossicular chain erosion

D Both A & B

RIGHT ANSWER

OK B. Round window shielding effect

WHY THIS IS RIGHT

In chronic suppurative otitis media (CSOM), some patients report better hearing when ear discharge is present than when the ear is dry called as Round window shielding effect

- Normally, sound transmission depends on pressure difference between oval and round windows
- When discharge/pus fills middle ear:
 - It may cover (shield) the round window
 - Prevents dissipation of sound waves through round window
 - Improves effective transmission to cochlea
 - Result -> temporary improvement in hearing during discharge

QUESTION

A 60-year-old patient presents with hearing issues. During the examination, the audiologist performs the Bing Test and Gelle's Test to assess the type of hearing loss. What would be indicative of conductive hearing loss in the Bing and Gelle tests?

A Bing: No change; Gelle: No change

CORRECT

B Bing: Louder; Gelle: Decreased

C Bing: Louder; Gelle: No change

D Bing: No change; Gelle: Decreased

RIGHT ANSWER

OK

A. Bing: No change; Gelle: No change

WHY THIS IS RIGHT

Bing and Gelle tests are tuning fork tests used to differentiate conductive hearing loss (CHL) from normal or sensorineural hearing loss.

Bing Test

- Based on occlusion effect
- Normal/SNHL: Sound becomes louder when ear canal is occluded (positive Bing)
- Conductive loss: Already has occlusion effect -> no change in loudness (negative Bing)

Gelle's Test

- Assesses stapes mobility by applying pressure in external canal
- Normal/SNHL: Increased pressure reduces sound perception (positive Gelle)
- Conductive loss (e.g., otosclerosis, ossicular fixation):

Stapes already fixed -> no change in sound (negative Gelle)

QUESTION

A 7-year-old child presents with persistent foul-smelling otorrhea from the right ear. Otoscopic examination reveals a small perforation in the pars flaccida with surrounding retraction. There is no history of acute pain or fever. Based on these findings, what is the most appropriate next step in management?

- A** Prolonged topical antibiotics with nasal decongestants
- B** Intravenous antibiotics followed by delayed reassessment
- C** Type I tympanoplasty after infection control

D Tympanomastoid exploration

CORRECT

RIGHT ANSWER

OK

D. Tympanomastoid exploration

WHY THIS IS RIGHT

Pars flaccida perforation with foul-smelling otorrhea and retraction is highly suggestive of atticoantral (unsafe) chronic suppurative otitis media, often associated with cholesteatoma.

- Atticoantral disease = bone-eroding cholesteatoma
- Risk of intracranial complications (meningitis, brain abscess, lateral sinus thrombosis)
- Medical therapy alone is not definitive
- Tympanomastoid exploration (mastoidectomy) for removal of cholesteatoma and disease clearance is the most appropriate management.

Why other options are wrong

- Topical antibiotics: only temporary control; cholesteatoma persists
- IV antibiotics: not primary treatment without acute complication
- Type I tympanoplasty: for safe (tubotympanic) CSOM, not unsafe disease

QUESTION

According to Fisch's classification of glomus tumors, tumors with intracranial invasion measuring less than 2 cm are classified under which type?

A Type D2

B Type C

C Type B

D Type D1

CORRECT

RIGHT ANSWER

OK

D. Type D1

WHY THIS IS RIGHT

Fisch classification is used to stage temporal bone paragangliomas (glomus tumors) based on extent of local and intracranial spread.

- Type A: Limited to middle ear (glomus tympanicum)
- Type B: Tympanomastoid involvement
- Type C: Infralabyrinthine/apical involvement with carotid canal erosion
- Type D: Intracranial extension
- Type D1: Intracranial extension < 2 cm
- Type D2: Intracranial extension > 2 cm

QUESTION

| Which of the following is not a characteristic of the inactive phase of otosclerosis?

A Dense hypercellular bone

B Excessive osteoclast activity

CORRECT

C Mineralized sclerotic bone

D Minimal remodeling

RIGHT ANSWER

B. Excessive osteoclast activity

WHY THIS IS RIGHT

Otosclerosis has two histopathological phases: Active (otospongiosis) and inactive (sclerotic) phase.

Inactive (sclerotic) phase features

- Dense, sclerotic, mineralized bone
- Minimal bone remodeling
- Hypocellular, avascular bone
- Replacement of earlier spongy bone with hard sclerotic bone

Excessive osteoclast activity is NOT seen in the inactive phase as it is a feature of the active otospongiotic phase, where bone resorption and vascular spongy bone formation occur.

QUESTION

A 6-year-old child is admitted with high fever, headache, neck stiffness, and altered mental status. The child was recently treated for acute otitis media. Lumbar puncture shows a predominance of polymorphs, protein level is raised, sugars reduced and chlorides diminished. Otoscopic examination reveals bulging of the tympanic membrane. Which of the following is the most appropriate immediate intervention to manage the underlying cause?

A Myringotomy

CORRECT

B Radical mastoidectomy

C Modified radical mastoidectomy

D Culture and sensitivity of CSF

RIGHT ANSWER

OK A. Myringotomy

WHY THIS IS RIGHT

In a child with acute bacterial meningitis secondary to acute otitis media, the most important immediate step is drainage of the middle ear infection. Myringotomy is the treatment of choice because it:

- Provides immediate drainage of infected middle ear pus
- Reduces bacterial load and intracranial spread
- Allows culture of middle ear pus for targeted antibiotics
- Relieves pressure from bulging tympanic membrane

Radical/modified radical mastoidectomy -> indicated only if mastoiditis, abscess, or complications persist despite myringotomy + antibiotics

QUESTION

A 5-year-old child is diagnosed with Congenital cholesteatoma. According to Levenson's criteria, which factor is not used to diagnose this condition?

A Whitish mass behind a normal tympanic membrane

B Intact pars flaccida and pars tensa

C Family history of Congenital Cholesteatoma

CORRECT

D No prior ear surgeries

RIGHT ANSWER

OK C. Family history of Congenital Cholesteatoma

WHY THIS IS RIGHT

Levenson's diagnostic criteria for congenital cholesteatoma are used to differentiate it from acquired cholesteatoma.

Diagnosis requires:

- Pearl-like whitish mass behind an intact, normal tympanic membrane
- Intact pars flaccida and pars tensa
- No history of tympanic membrane perforation, otorrhea, or ear surgery
- Exclusion of conditions such as canal atresia

> Family history is NOT part of Levenson's criteria - congenital cholesteatoma is typically sporadic, not inherited.

QUESTION

A patient presents with the complaint of inability to close the eye, drooling of saliva, and deviation of the angle of the mouth. Which of the following nerves is most likely to be affected?

A Facial nerve

CORRECT

B Trigeminal nerve

C Oculomotor nerve

D Glossopharyngeal nerve

RIGHT ANSWER

OK

A. Facial nerve

WHY THIS IS RIGHT

Facial nerve (CN VII) palsy causes ipsilateral lower motor neuron facial paralysis, leading to:

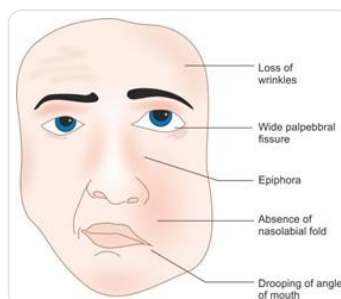
- Inability to close eye -> orbicularis oculi paralysis
- Drooling of saliva -> loss of buccinator tone
- Deviation of angle of mouth to opposite side -> unopposed normal side
- Loss of forehead wrinkling (LMN lesion)

Functions of facial nerve:

- Motor: Muscles of facial expression
- Parasympathetic: Lacrimal, submandibular, sublingual glands
- Sensory: Taste from anterior 2/3 of tongue

Why not others:

- Trigeminal nerve (CN V): Mastication, facial sensation (not facial expression)
- Oculomotor nerve (CN III): Eye movements, ptosis
- Glossopharyngeal nerve (CN IX): Taste posterior 1/3, swallowing



QUESTION

A 40-year-old patient presented with left facial weakness. Routine lab workup was normal. What is the next best step in management?

- A Acyclovir
- B Corticosteroids**

CORRECT

- C Antibiotics
- D Physiotherapy

RIGHT ANSWER

- B. Corticosteroids**

WHY THIS IS RIGHT

A patient with acute onset unilateral facial weakness and normal investigations is most likely having Bell's palsy (idiopathic facial nerve palsy).

First-line management:

- Corticosteroids (within 72 hours) -> reduce nerve inflammation and edema
- Significantly improve recovery outcomes
- Inflammation of facial nerve (CN VII) within facial canal
- Leads to compression -> demyelination -> weakness of facial muscles

Clinical features:

- Unilateral facial paralysis
- Inability to close eye (lagophthalmos)
- Loss of forehead wrinkling (LMN lesion)

Why other options are incorrect:

- Acyclovir: May be added in severe cases, but not first-line alone
- Antibiotics: No role (non-bacterial)
- Physiotherapy: Adjunct, not initial primary treatment

QUESTION

A 74-year-old woman comes to the office due to several days of right ear pain. This morning she had 2 episodes of dizziness and almost fell. The patient is currently taking trimethoprim-sulfamethoxazole for an uncomplicated urinary tract infection. She has had no subjective fever, vision loss, or headaches. Temperature is 37°C (98.6°F), blood pressure is 116/78 mm Hg, and pulse is 100/min. Ear examination reveals several erythematous vesicles in the right external auditory canal with no drainage. The tympanic membrane is visible and intact. There is mild right-sided facial droop. The rest of the physical examination is unremarkable. Which is the most likely cause of this patient's illness?

A Pseudomonas

B Herpes simplex virus type 1

C Keratitis obturans

D Varicella zoster virus

CORRECT

RIGHT ANSWER

OK D. Varicella zoster virus

WHY THIS IS RIGHT

Ramsay Hunt syndrome (herpes zoster oticus) is caused by reactivation of varicella zoster virus (VZV) in the geniculate ganglion of the facial nerve.

Classic triad:

- Painful vesicular rash in external auditory canal/pinna
- Ipsilateral LMN facial palsy
- Possible vertigo, tinnitus, hearing loss

Management:

- Acyclovir/valacyclovir
- Corticosteroids
- Eye protection

QUESTION

A 60-year-old man is brought to the emergency department because of a 1-hour history of disorientation and slurred speech. He has a 10-year history of hypertension and hypercholesterolemia. His blood pressure is 210/110 mmHg, and pulse is 90/min. Once the patient is stabilized, an MRI of the brain is performed, which shows an infarct of the left precentral gyrus involving the region that supplies the facial nerve. Given the MRI findings, which of the following neurological findings would most be expected?

A Loss of taste in the posterior third of the right half of the tongue

B Flattening of the right nasolabial fold

CORRECT

C Decreased lacrimation of the left eye

D Hyperacusis of left ear

RIGHT ANSWER

OK

B. Flattening of the right nasolabial fold

WHY THIS IS RIGHT

A lesion in the left precentral gyrus (primary motor cortex) affecting the facial area causes a contralateral upper motor neuron (UMN) facial palsy.

- Facial nucleus has bilateral cortical input for upper face
- Lower face receives contralateral cortical input only
- UMN lesion -> weakness of contralateral lower face with forehead sparing

Expected finding:

- Right lower facial weakness
- Flattening of right nasolabial fold
- Forehead wrinkling preserved
- Eye closure preserved

Why other options are wrong:

- Taste loss posterior 1/3 -> glossopharyngeal nerve
- Decreased lacrimation/hyperacusis -> LMN facial nerve lesion
- Cortical stroke causes UMN, not LMN features

QUESTION

A woman presents with a history of sudden spontaneous lacrimation upon salivation. The lesion behind this pathology is located at?

A Facial nerve proximal to geniculate ganglion

CORRECT

B Chorda tympani in infratemporal fossa

C Facial nerve at stylomastoid foramen

D Facial nerve at the vertical segment of ear

RIGHT ANSWER

OK **A. Facial nerve proximal to geniculate ganglion**

WHY THIS IS RIGHT

Crocodile tears syndrome (Bogorad syndrome) is characterized by lacrimation during eating due to aberrant regeneration of facial nerve fibers.

Site of lesion: Must be proximal to geniculate ganglion because:

- Greater petrosal nerve (lacrimal secretomotor) arises here
- Aberrant regeneration occurs before separation of lacrimal and salivary pathways

Why other options are incorrect:

- Chorda tympani lesion -> affects salivation/taste only
- Stylomastoid foramen lesion -> motor only (no parasympathetic)
- Vertical segment lesion -> distal to lacrimal fibers

QUESTION

A patient presents with the complaint of loss of wrinkles on forehead, inability to close the eye, drooling of saliva, and deviation of the angle of the mouth. Which of the following nerves is most likely to be affected?

A I/L Facial UMN

B C/L Facial UMN

C C/L Facial LMN

D I/L Facial LMN

CORRECT

RIGHT ANSWER

OK

D. I/L Facial LMN

WHY THIS IS RIGHT

Lower motor neuron (LMN) facial nerve palsy causes ipsilateral paralysis of the entire face, including the forehead and eye closure. LMN facial nerve palsy features:

- Loss of forehead wrinkles
- Inability to close eye
- Drooling of saliva
- Deviation of mouth to opposite side
- Entire ipsilateral face affected (upper + lower face)

UMN vs LMN facial palsy:

- UMN lesion: Forehead spared (bilateral cortical supply)
- LMN lesion: Forehead involved (complete ipsilateral paralysis)

QUESTION

A 58-year-old man comes to the physician for evaluation of increasing swelling in his left cheek and recurrent oral ulcers for 1 year. He has smoked a pack of cigarettes daily for 25 years. Examination shows firm, nontender swelling above the angle of jaw. USG guided biopsy shows adenoid cystic carcinoma. A left sided total parotidectomy is performed. This patient is at greatest risk for which of the following complications?

- A** Hyperesthesia of the left ear lobe
- B** Impaired taste of the posterior 1/3 of the tongue
- C** Flushing of the right cheek while eating
- D** Inability to wrinkle the left side of the forehead

CORRECT

RIGHT ANSWER

- OK** **D. Inability to wrinkle the left side of the forehead**

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$2" here and does not include a written explanation for this item.

QUESTION

Which of the following middle ear structures is the most reliable landmark for identifying the first genu of the facial nerve during otologic surgery?

A Pyramidal eminence

B Oval window

C **Processus cochleariformis**

CORRECT

D Round window niche

RIGHT ANSWER

OK **C. Processus cochleariformis**

WHY THIS IS RIGHT

The processus cochleariformis is the most reliable surgical landmark for identifying the first genu (geniculate ganglion region) of the facial nerve during middle ear surgery.

- The tympanic segment of the facial nerve runs just superior to the processus cochleariformis.
- The processus cochleariformis acts as a pulley for the tensor tympani tendon and consistently marks the turn (first genu) of the facial nerve.

Other landmarks (less reliable):

- Oval window -> related to stapes
- Pyramidal eminence -> marks stapedius tendon
- Round window niche -> posteroinferior landmark
- Sinus tympani -> posterior recess near facial nerve but variable

QUESTION

A diabetic patient presents with facial pain and a black eschar in the nasal cavity. What is the most probable diagnosis?

A Mucormycosis

CORRECT

B Acute sinusitis

C Allergic fungal rhinosinusitis

D Nasal polyposis

RIGHT ANSWER

OK A. Mucormycosis

WHY THIS IS RIGHT

Mucormycosis (rhino-orbito-cerebral form) is an aggressive angioinvasive fungal infection classically seen in uncontrolled diabetes, presenting with facial pain and black necrotic eschar in the nasal cavity.

- Causative organisms: Mucor, Rhizopus species
- Pathogenesis: Angioinvasion -> thrombosis -> tissue necrosis -> black eschar
- Predisposing factors:
 - o Diabetes (especially DKA)
 - o Immunocompromised states
- Rapid progression to orbit and brain if untreated

Why not other options:

- Acute sinusitis: No necrosis or black eschar
- Allergic fungal rhinosinusitis: Allergic mucin, not invasive or necrotic
- Nasal polyposis: Pale, non-necrotic masses

QUESTION

| The tip of the uncinate is attached superiorly to which of the following structures?

A Middle turbinate

CORRECT

B Middle meatus

C Inferior turbinate

D Ethmoid bulla

RIGHT ANSWER

OK

A. Middle turbinate

WHY THIS IS RIGHT

The uncinate process is a key structure in the lateral nasal wall that forms part of the osteomeatal complex, and its superior attachment is most commonly to the middle turbinate.

- The uncinate process is a thin, curved bone of the ethmoid
- It helps form the medial wall of the infundibulum (drainage pathway of frontal, maxillary, and anterior ethmoid sinuses)
- Superior attachment variations exist (middle turbinate, lamina papyracea, skull base), but:
 - o Most common attachment = middle turbinate

Clinical significance:

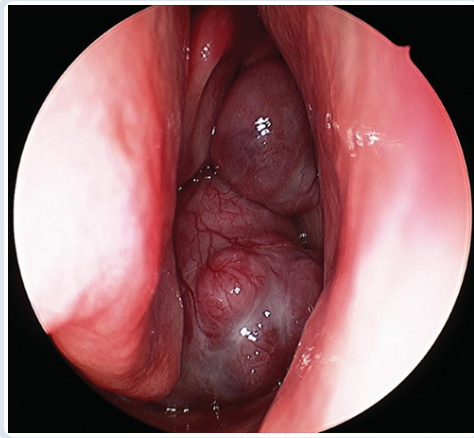
- Determines the drainage pathway of frontal sinus
- Important landmark in FESS (Functional Endoscopic Sinus Surgery)

Why not other options:

- Middle meatus: Space, not an attachment site
- Inferior turbinate: Not related to uncinate attachment
- Ethmoid bulla: Lies posterior to uncinate, not a superior attachment

QUESTION

A 20-year-old male patient presents with unilateral nasal obstruction and recurrent bleeding for the past 1 year. Transnasal endoscopic results are shown below. A contrast-enhanced CT revealed a mass extending from the posterior choana to the nasopharynx. What is the most likely diagnosis?



A Nasopharyngeal angiofibroma

CORRECT

B Antrochoanal polyp

C Rhinoscleroma

D Concha bullosa

RIGHT ANSWER

OK A. Nasopharyngeal angiofibroma

WHY THIS IS RIGHT

Juvenile nasopharyngeal angiofibroma (JNA) is a highly vascular benign tumor seen in adolescent/young males, presenting with unilateral nasal obstruction and recurrent epistaxis.

- Origin: Sphenopalatine foramen (posterior nasal cavity)
- Presentation:
 - Recurrent severe epistaxis
 - Unilateral nasal obstruction
- Endoscopy: Smooth, reddish vascular mass
- Imaging (CECT):
 - Intense enhancement
 - Holman-Miller sign (anterior bowing of posterior maxillary wall)

Biopsy is contraindicated due to risk of profuse bleeding.

Why not other options:

- Antrochoanal polyp: Pale, non-vascular, no epistaxis
- Rhinoscleroma: Chronic granulomatous disease, not vascular tumor
- Concha bullosa: Pneumatized turbinate, not a mass lesion

QUESTION

A patient comes with a history of asthma and sinusitis. On looking into his medical records, you notice this has been attributed to Samter's triad. Which drug should be avoided in this patient?

- A** Cotrimoxazole
- B** Co-amoxiclav
- C** Aspirin
- D** Chloramphenicol

CORRECT

RIGHT ANSWER

OK
C. Aspirin

WHY THIS IS RIGHT

Samter's triad (Aspirin-Exacerbated Respiratory Disease, AERD) consists of:

- Asthma
- Chronic rhinosinusitis with nasal polyps
- Sensitivity to aspirin/NSAIDs

Key concepts:

- Aspirin and other COX-1 inhibitors trigger:
- ↑ Leukotriene production → bronchospasm, nasal congestion
- Pathophysiology:
- Shunting of arachidonic acid pathway → leukotrienes (LTC₄, LTD₄, LTE₄)
- Patients develop severe bronchospasm after NSAID intake
- Avoid aspirin and NSAIDs (e.g., ibuprofen, diclofenac)
- Safe alternatives:
- Paracetamol (low dose)
- Selective COX-2 inhibitors

QUESTION

A post-COVID patient, who is a known diabetic, develops unilateral facial pain and loosening of teeth. Which investigation would you do to confirm the diagnosis on this patient?

A MRI

B Biopsy with histopathologic examination

CORRECT

C Serum ferritin

D HbA1c

RIGHT ANSWER

OK

B. Biopsy with histopathologic examination

WHY THIS IS RIGHT

In a post-COVID diabetic patient with facial pain and loosening of teeth, suspect rhino-orbito-cerebral mucormycosis.

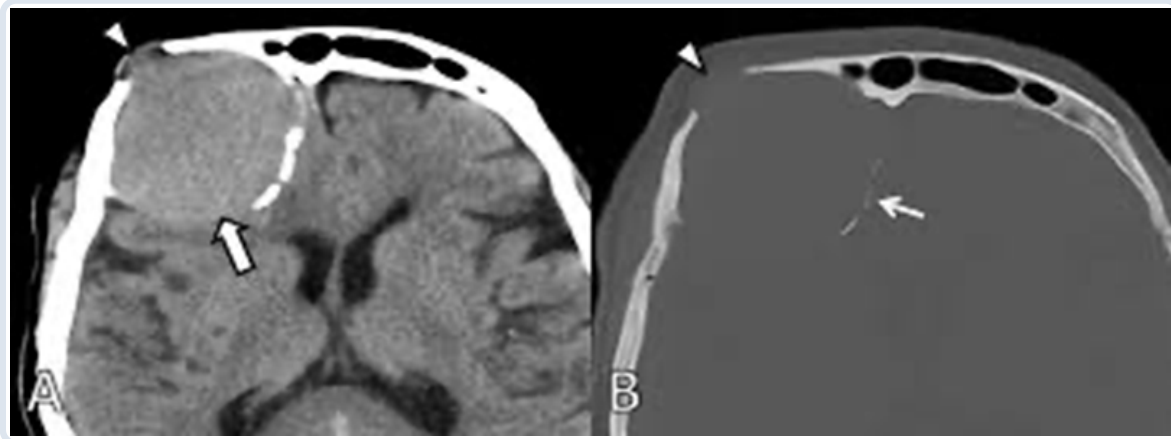
- Definitive diagnosis = Biopsy with histopathology
- Shows broad, aseptate, ribbon-like hyphae with right-angle branching
- Confirms fungal invasion of tissue (angioinvasion)
- Differentiates mucormycosis from other fungal infections (e.g., aspergillosis)

Role of other options:

- MRI: Assesses extent (orbit/brain involvement), not confirmatory
- Serum ferritin: Marker of inflammation, not diagnostic
- HbA1c: Indicates glycemic control, risk factor only

QUESTION

A 30-year-old male presents with nonaxial proptosis of the left eye. The patient gives a history of a road traffic accident 15 years back. The CT image is given below. What is the most likely diagnosis?



A Frontal mucocoele

CORRECT

B Frontal meningioma

C Juvenile nasopharyngeal angiofibroma

D Pseudotumor of orbit

RIGHT ANSWER

A. Frontal mucocoele

WHY THIS IS RIGHT

A frontal mucocoele is a slow-growing, mucus-filled expansile lesion of the paranasal sinus that can cause non-axial proptosis due to orbital displacement.

- Cause: Obstruction of sinus drainage (often post-trauma or surgery)
- Leads to progressive expansion -> bone erosion -> orbital extension
- Presents with painless, non-axial proptosis (eye displaced downward/outward)

Imaging features (CT):

- Homogeneous expansile lesion in frontal sinus
- Thinning/erosion of sinus walls
- Displacement of orbit and surrounding structures

Why not other options:

- Frontal meningioma: Intracranial, not sinus-based expansile lesion
- JNA: Nasopharyngeal vascular tumor in adolescent males
- Orbital pseudotumor: Inflammatory, painful, no sinus expansion

QUESTION

1. Identify the structure marked in the image?

**A Fossa of Rosenmüller**

CORRECT

B Tubal tonsil**C** Opening of eustachian tube**D** Adenoid

RIGHT ANSWER

OK

A. Fossa of Rosenmüller

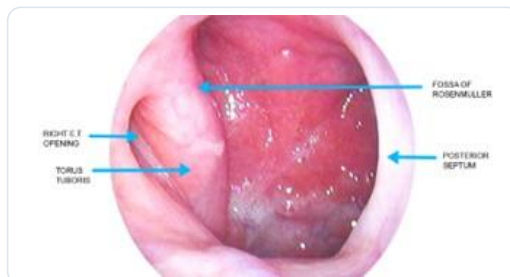
WHY THIS IS RIGHT

The image represented is the endoscopic view of lateral wall of the nasopharynx. Structure marked is Fossa of Rosenmüller.

The fossa of Rosenmüller is a deep recess located posterior to the torus tubarius in the nasopharynx.

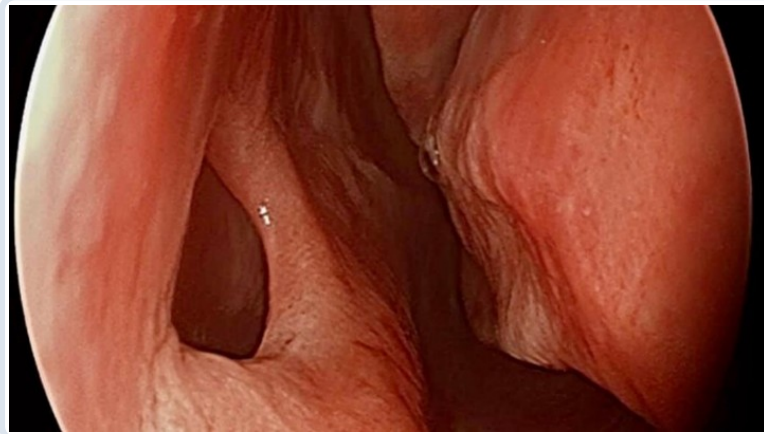
It is clinically important as the most common site for nasopharyngeal carcinoma.

Its position posterior to the Eustachian tube opening distinguishes it from adenoid and tubal tonsil.



QUESTION

| Septal perforation is more commonly associated with which of the following?



A FESS

B **SMR**

CORRECT

C Septoplasty

D None of the above

RIGHT ANSWER

OK

B. SMR

WHY THIS IS RIGHT

Septal perforation is a known complication of Submucous Resection (SMR) due to bilateral mucoperichondrial flap damage leading to ischemia and necrosis of septal cartilage.

- Septal cartilage is avascular -> depends on mucoperichondrium for nutrition
- Injury to both sides -> cartilage necrosis -> perforation
- More common with SMR (aggressive cartilage removal)

Why not other options:

- FESS: Sinus surgery, not septal cartilage
- Septoplasty: More conservative, lower risk of perforation
- SMR: Higher risk due to extensive resection

Clinical features of septal perforation:

- Whistling sound during breathing
- Crusting, epistaxis
- Nasal obstruction

QUESTION

| Indication for this incision:



A Caldwell luc

B Midfacial degloving

C Open rhinoplasty

CORRECT

D None of the above

RIGHT ANSWER

OK

C. Open rhinoplasty

WHY THIS IS RIGHT

A transcolumellar (inverted V / stair-step) incision is characteristic of open rhinoplasty, providing direct visualization of nasal tip structures.

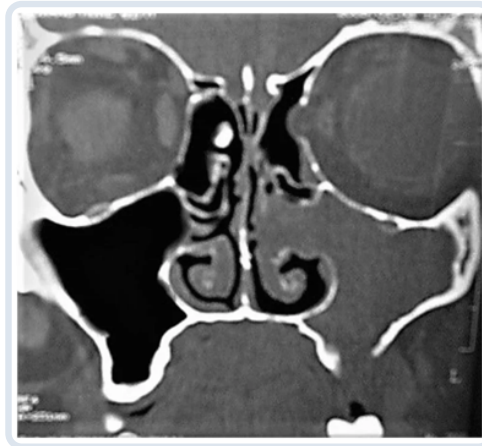
- Incision placed on columella connecting bilateral marginal incisions
- Allows wide exposure of lower lateral cartilages and nasal framework
- Used for precise structural correction (deformities, revision surgery)

Why not other options:

- Caldwell-Luc: Intraoral incision for maxillary sinus
- Midfacial degloving: Intranasal + sublabial incisions, no external scar
- Open rhinoplasty: Only approach with visible columellar incision

QUESTION

Identify the blocked structure.



A Maxillary sinus

CORRECT

B Ethmoid sinus

C Frontal sinus

D Sphenoid sinus

RIGHT ANSWER

OK A. Maxillary sinus

WHY THIS IS RIGHT

The maxillary sinus is the largest paranasal sinus and appears on coronal CT as a large air-filled cavity below the orbit. Opacification indicates blockage or sinusitis.

- Location: Inferior to orbit, lateral to nasal cavity
- Drainage: Via osteomeatal complex (middle meatus)
- Most commonly involved sinus in sinusitis

Radiological identification:

- Maxillary sinus: Large, pyramid-shaped cavity below orbit
- Ethmoid sinus: Multiple small air cells between orbit and nasal cavity
- Frontal sinus: Above orbit
- Sphenoid sinus: Posterior, midline (not seen well in this coronal anterior cut)

QUESTION

A 16-year-old boy presents with recurrent profuse epistaxis and nasal obstruction. On examination, a reddish mass is seen in the nasopharynx. What is the investigation of choice?

A MRI

B Diagnostic nasal endoscopy

C Biopsy

D Contrast-enhanced CT

CORRECT

RIGHT ANSWER

OK

D. Contrast-enhanced CT

WHY THIS IS RIGHT

The investigation of choice for Juvenile Nasopharyngeal Angiofibroma (JNA) is Contrast-Enhanced CT (CECT) because it best demonstrates bony anatomy and tumor extent.

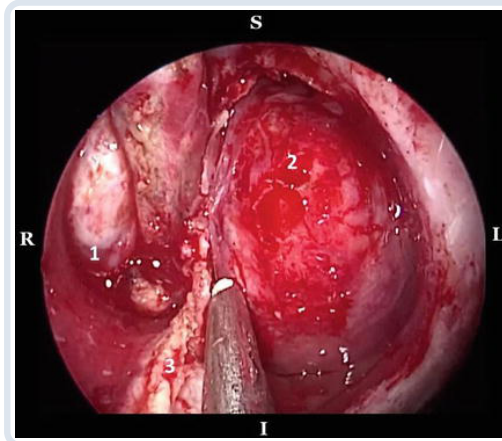
- CECT findings:
- Intense contrast enhancement (high vascularity)
- Bony remodeling/destruction
- Holman-Miller sign (anterior bowing of posterior wall of maxillary sinus)

Why not other options:

- MRI: Better for soft tissue and intracranial extension, but not first-line
- DNE (Diagnostic nasal endoscopy): Helps visualize mass, but not definitive imaging
- Biopsy: Contraindicated due to risk of severe hemorrhage (highly vascular tumor)

QUESTION

A 20-year-old male presents with a history of recurrent epistaxis. Diagnostic nasal endoscopy (DNE) and imaging are performed, and the findings are shown below. What is the most likely diagnosis?



- A** Nasopharyngeal carcinoma (NPC)
- B** Juvenile nasopharyngeal angiofibroma (JNA) CORRECT
- C** Inverted papilloma
- D** Nasal polyposis

RIGHT ANSWER

- OK** **B. Juvenile nasopharyngeal angiofibroma (JNA)**

WHY THIS IS RIGHT

Juvenile nasopharyngeal angiofibroma (JNA) is a highly vascular, benign tumor that typically occurs in adolescent males and presents with recurrent epistaxis and nasal obstruction.

- Origin: Posterolateral nasal wall (sphenopalatine foramen)
- Hallmark: Profuse recurrent epistaxis + nasal mass in young male
- Imaging: Anterior bowing of posterior wall of maxillary sinus (Holman-Miller sign)
- Biopsy is contraindicated due to risk of severe bleeding

Why not other options:

- Nasopharyngeal carcinoma: Older patients, associated with neck nodes, not highly vascular mass
- Inverted papilloma: Unilateral mass, less vascular, risk of malignancy but not severe epistaxis
- Nasal polyposis: Pale, non-bleeding, bilateral masses

QUESTION

A 60-year-old hypertensive patient presents with epistaxis unresponsive to nasal packing. Which artery should be ablated for relief?

A Sphenopalatine artery

CORRECT

B Greater palatine artery

C Maxillary artery

D External carotid artery

RIGHT ANSWER

OK

A. Sphenopalatine artery

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$2” here and does not include a written explanation for this item.

QUESTION

A patient presents with a displaced nasal bone fracture after a road traffic accident (RTA). Which instrument is used for nasal bone reduction?

A Walsham forceps

CORRECT

B Thudiculum

C Luc forceps

D Killian forceps

RIGHT ANSWER

OK A. Walsham forceps

WHY THIS IS RIGHT

Walsham forceps are specifically designed for closed reduction of displaced nasal bone fractures.

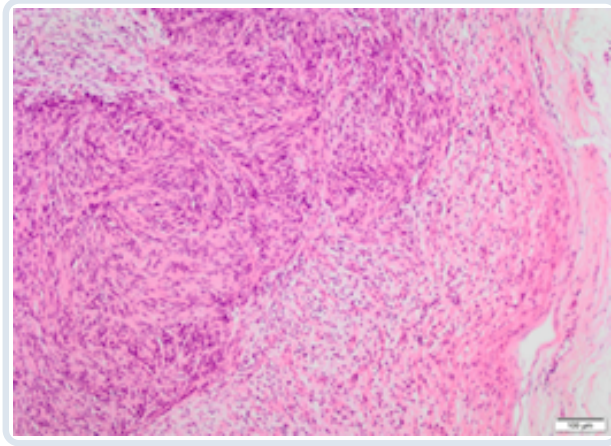
They allow controlled elevation and repositioning of the nasal bones with minimal trauma.

Other options:

- Asch forceps: used for reduction of nasal septal fractures
- Luc forceps: used for removing tissue (e.g., polyps)
- Thudiculum/ Killian forceps/speculum: used for nasal examination and septal procedures

QUESTION

A 50-year-old patient is diagnosed with a cerebellopontine (CP) angle tumour. On histopathological examination (HPE), the image is shown below. What is the most likely diagnosis?



A Schwannoma

CORRECT

B Meningioma

C Ependymoma

D Oligodendroglioma

RIGHT ANSWER

OK A. Schwannoma

WHY THIS IS RIGHT

A tumor in the cerebellopontine angle showing Verocay bodies with Antoni A and Antoni B areas on histopathology is characteristic of a schwannoma, most commonly a vestibular schwannoma (acoustic neuroma).

- Antoni A areas: densely packed spindle cells with nuclear palisading
 - Verocay bodies: rows of aligned nuclei separated by acellular zones
 - Antoni B areas: loosely arranged, myxoid tissue
- Arises from Schwann cells of the vestibular division of cranial nerve VIII

Clinical features:

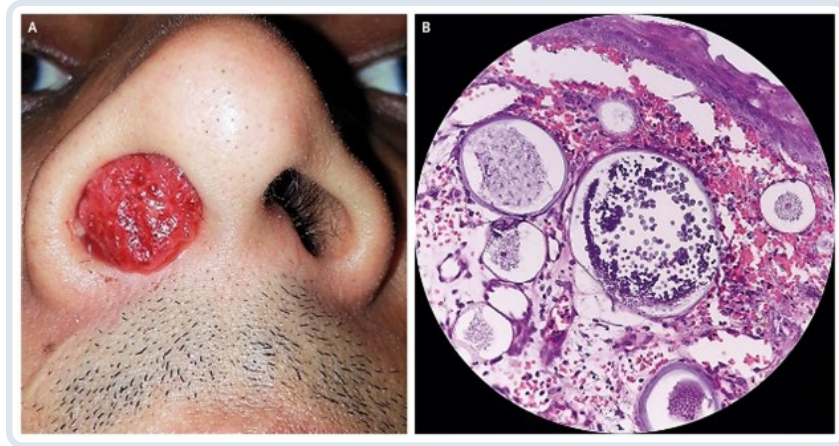
- Progressive unilateral sensorineural hearing loss
- Tinnitus
- Imbalance
- Large tumors may compress adjacent cranial nerves (V, VII) and cerebellum

Why other options are incorrect:

- Meningioma: shows whorls and psammoma bodies
- Ependymoma: perivascular pseudorosettes
- Oligodendroglioma: fried-egg appearance cells

QUESTION

A patient presents to the OPD with complaints of bleeding from the nose, nasal obstruction and difficulty in breathing. He gave the history of bathing in the local pool near his house.. Based on the history, examination and given histopathological image what would be the diagnosis of this patient?



A Rhinosporidiosis

CORRECT

B Basal cell carcinoma

C Rhinoscleroma

D Lupus vulgaris

RIGHT ANSWER

OK A. Rhinosporidiosis

WHY THIS IS RIGHT

Rhinosporidiosis is a chronic granulomatous infection caused by *Rhinosporidium seeberi*, commonly associated with bathing in stagnant water.

- Red, friable polypoidal mass (strawberry-like)
- Whitish dots on surface -> represent sporangia
- Recurrent epistaxis
- Nasal obstruction

Histopathology hallmark: Large thick-walled sporangia filled with endospores

Mode of transmission:

- Exposure to contaminated water (ponds, pools)
- Entry via traumatized epithelium

Why other options are incorrect:

- Basal cell carcinoma: Ulcerative lesion, not polypoidal with spores
- Rhinoscleroma: Caused by *Klebsiella*, shows Mikulicz cells
- Lupus vulgaris: Tubercular lesion, not polypoid with white dots

QUESTION

A 13-year-old boy presents with right-sided nasal obstruction and recurrent epistaxis for the past 6 months. What is the most likely diagnosis?

A JNA

CORRECT

B Allergic rhinitis

C Coagulation disorder

D Antrochoanal polyp

RIGHT ANSWER

OK

A. JNA

WHY THIS IS RIGHT

A teenage boy with unilateral nasal obstruction and recurrent epistaxis is classic for Juvenile Nasopharyngeal Angiofibroma (JNA).

- Occurs in adolescent males
- Highly vascular benign tumor arising from nasopharynx (sphenopalatine foramen area)
- Presents with:
 - o Recurrent epistaxis
 - o Progressive unilateral nasal obstruction

Pathophysiology:

- Tumor is fibrovascular -> prone to profuse bleeding
 - Locally aggressive -> can extend to pterygopalatine fossa, orbit, intracranial space
- Biopsy is contraindicated due to risk of severe bleeding

Why other options are incorrect:

- Allergic rhinitis: Bilateral symptoms, no epistaxis
- Coagulation disorder: Generalized bleeding, not localized obstruction
- Antrochoanal polyp: Nasal obstruction but no recurrent epistaxis

QUESTION

Which of the following signs is not typically seen in allergic rhinitis?

A Allergic shiners

B Allergic salute

C Otto veraguth folds

CORRECT

D Dennis Morgan lines

RIGHT ANSWER

OK C. Otto veraguth folds

WHY THIS IS RIGHT

Allergic rhinitis has characteristic facial signs due to chronic nasal obstruction and itching.

Typical signs:

- Allergic shiners -> dark infraorbital discoloration (venous stasis)
- Allergic salute -> upward rubbing of nose -> transverse nasal crease
- Dennie-Morgan lines -> infraorbital skin folds

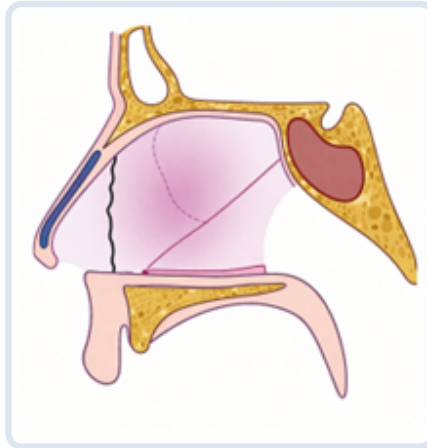
Otto-Veraguth folds :

- Seen in psychiatric conditions (e.g., depression)
- Not associated with allergic rhinitis



QUESTION

Identify the fracture shown in the image below



A Chevallet fracture

CORRECT

B Jarjaway fracture

C C-shaped fracture

D None of the above

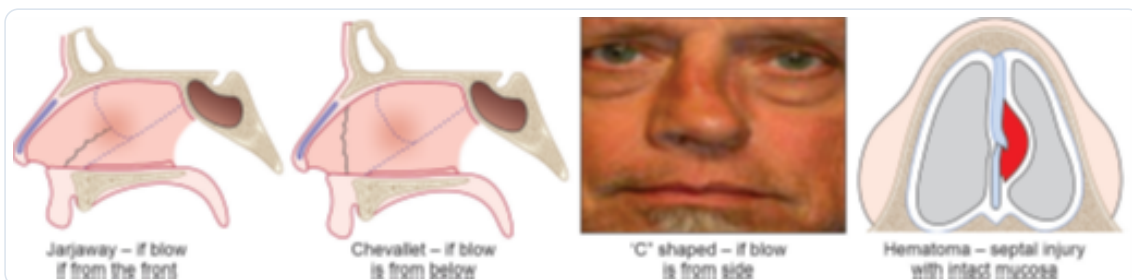
RIGHT ANSWER

OK A. Chevallet fracture

WHY THIS IS RIGHT

Chevallet fracture is a longitudinal fracture of the nasal septum involving the cartilaginous septum with displacement.

It causes overriding or buckling of septal cartilage, leading to septal deviation and nasal obstruction following trauma. This appearance distinguishes it from transverse or comminuted nasal fractures.



QUESTION

Which of the following statements about Juvenile Nasopharyngeal Angiofibroma (JNA) is incorrect?

- A Recurrent epistaxis
- B Unilateral nasal obstruction
- C Exclusively adolescent male

D Biopsy done under L/A

CORRECT

RIGHT ANSWER

D. Biopsy done under L/A

WHY THIS IS RIGHT

JNA is a benign but locally aggressive vascular tumor arising near the sphenopalatine foramen. It is classically seen in adolescent males due to androgen dependence.

- Recurrent, profuse epistaxis due to high vascularity
- Progressive unilateral nasal obstruction
- May extend to pterygopalatine fossa, orbit, or intracranial cavity

Biopsy is not performed in suspected JNA because:

- Tumor is highly vascular
- Attempting biopsy can cause life-threatening hemorrhage

Diagnosis is made by:

- Clinical presentation
- Imaging (contrast CT/MRI)
- Angiography showing feeding vessels

Management principle: Preoperative embolization followed by surgical excision is the standard treatment.

QUESTION

Arrange the following steps of functional endoscopic sinus surgery (FESS) in the correct order

- I. Visualization of the maxillary sinus ostium
- II. Bullectomy
- III. Uncinectomy
- IV. Removal of postethmoid cells
- V. Penetration of basal lamella

A III -> I -> II -> V -> IV

CORRECT

B III -> II -> I -> V -> IV

C I -> III -> II -> V -> IV

D III -> I -> V -> II -> IV

RIGHT ANSWER

OK A. III -> I -> II -> V -> IV

WHY THIS IS RIGHT

Functional Endoscopic Sinus Surgery (FESS) follows a systematic, anatomical, and physiological sequence to restore normal sinus drainage by proceeding from anterior to posterior structures.

Stepwise concept:

1. Uncinectomy: This is the first and most essential step. Removal of the uncinate process exposes the middle meatus and allows access to the natural sinus ostia.
2. Visualization of maxillary sinus ostium: After uncinectomy, the natural ostium of the maxillary sinus becomes visible. Identification of the natural ostium is crucial to avoid creating false passages.
3. Bullectomy: The ethmoid bulla, which is the largest anterior ethmoid air cell, is removed. This clears anterior ethmoid disease.
4. Penetration of basal lamella: The basal lamella separates anterior and posterior ethmoid air cells. Crossing it provides access to posterior ethmoid sinuses.
5. Removal of posterior ethmoid cells: Posterior ethmoidectomy is performed as the final step.

QUESTION

Match the following:

A. Submucous Resection	1. Vasomotor rhinitis
B. Lautenschlager Operation	2. Chronic rhinosinusitis
C. Functional endoscopic sinus Surgery	3. Atrophic Rhinitis
D. Vidian Neurectomy	4. Deviated nasal Septum

A A2, B4, C3, D1

B A4, B3, C1, D2

C A3, B4, C1, D2

D A4, B3, C2, D1

CORRECT

RIGHT ANSWER

OK D. A4, B3, C2, D1

WHY THIS IS RIGHT

Correct associations:

- Submucous resection -> Deviated nasal septum

Used to correct septal deviation causing nasal obstruction.

- Lautenschlager operation -> Atrophic rhinitis

Narrows nasal cavity to improve humidification and reduce crusting.

- Functional endoscopic sinus surgery (FESS) -> Chronic rhinosinusitis

Restores sinus ventilation and drainage.

- Vidian neurectomy -> Vasomotor rhinitis

Interrupts parasympathetic supply to reduce excessive nasal secretion.

QUESTION

Identify the correct statements:

1. Ideal time to do electroneurography studies in a patient with facial nerve injury will be 1 week to 3 weeks following injury.
2. Tonsillolingual sulcus is the ENT surgeon's graveyard.
3. Outer hair cells are in 3-4 rows and modulate function of inner hair cells
4. The Chevallet and Jarjaway fractures are important describing vertical and horizontal fractures of the nasal septum respectively.

A 1, 2, 3, 4

CORRECT

B 1, 3, 4

C 2, 3

D 1, 4

RIGHT ANSWER

OK A. 1, 2, 3, 4

WHY THIS IS RIGHT

1\). Electroneurography (ENoG) timing in facial nerve injury will be 1-3 weeks following injury: True

- Best performed 1-3 weeks after facial nerve injury
- Allows Wallerian degeneration to occur for accurate assessment
- Used in Bell's palsy, trauma, and prognostication

2\). Tonsillolingual sulcus is the "surgeon's graveyard": True

- Risk of severe hemorrhage during tonsillectomy
- Contains tonsillar branch of facial artery

3\). Outer hair cells: True

- Arranged in 3-4 rows
- Modulate and enhance inner hair cell function and sensitivity

4\). Chevallet & Jarjavay fractures: True

- Describe vertical and horizontal nasal septal fractures respectively
- Important in septal trauma assessment

QUESTION

| Which of the following tests cannot be used to assess nasal mucociliary clearance?

A Nasal nitric oxide

B **Electron microscopy**

CORRECT

C Charcoal powder method

D Scintigraphy

RIGHT ANSWER

OK

B. Electron microscopy

WHY THIS IS RIGHT

Nasal mucociliary clearance evaluates the ability of nasal cilia and mucus to transport debris toward the nasopharynx and is important in conditions like primary ciliary dyskinesia and chronic sinusitis.

Tests used to assess mucociliary clearance:

- Saccharin/charcoal test: Measures time for particle transport
- Scintigraphy: Radioisotope tracking of mucociliary movement
- Nasal nitric oxide: Low in primary ciliary dyskinesia -> indirect functional assessment

Not used to assess clearance: Electron microscopy

- Evaluates ultrastructure of cilia (dynein arms, microtubules)
- Detects structural defects but does not measure functional clearance

QUESTION

| Identify the incorrect pair of branch and parent nerve

- A** Supraorbital- Frontal Nerve
- B** Anterior ethmoidal- Nasociliary Nerve
- C** Infratrochlear- Maxillary Nerve
- D** Ciliary- Nasociliary nerve

CORRECT

RIGHT ANSWER

- OK** **C. Infratrochlear- Maxillary Nerve**

WHY THIS IS RIGHT

Correct nerve-branch relationships:

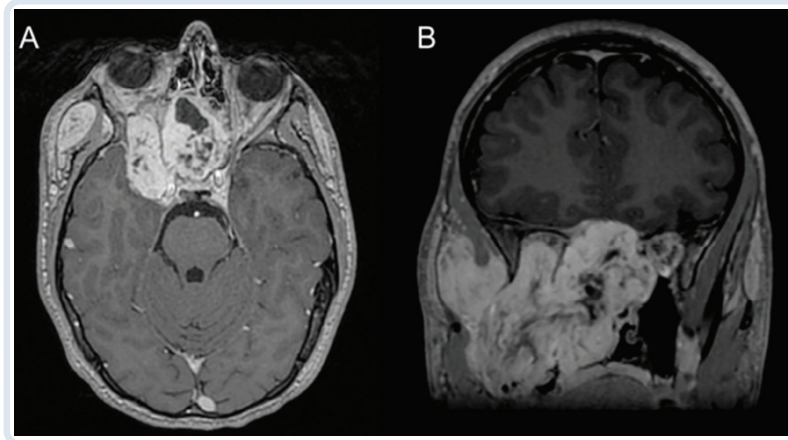
- Frontal nerve (V1) -> supraorbital, supratrochlear
- Nasociliary nerve (V1) -> anterior ethmoidal, posterior ethmoidal, long ciliary, infratrochlear
- Maxillary nerve (V2) -> infraorbital, zygomatic, superior alveolar nerves

Incorrect pair:

- Infratrochlear nerve is a branch of nasociliary nerve (V1), NOT maxillary nerve (V2)

QUESTION

A 15-year-old male presents with epistaxis since 5 days. MRI is done which is shown below. Identify the Radkowski stage of the tumor in this case.



A Stage IIA

B Stage IIB

C Stage IIC

D Stage III

CORRECT

RIGHT ANSWER

OK

D. Stage III

WHY THIS IS RIGHT

Juvenile nasopharyngeal angiofibroma (JNA) is staged using the Radkowski classification, which is based on tumor extension from the nasopharynx to adjacent spaces and intracranial involvement.

Radkowski staging (high yield):

- Stage IA: Limited to nasal cavity/nasopharynx
- Stage IB: Extension into one or more paranasal sinuses
- Stage IIA: Minimal extension into pterygopalatine fossa
- Stage IIB: Full occupation of pterygopalatine fossa $\pm$ bone erosion
- Stage IIC: Extension into infratemporal fossa/cheek/orbit
- Stage III: Intracranial extension (with or without cavernous sinus involvement)

*

QUESTION

A 1-hour-old boy is evaluated in the newborn nursery for feeding difficulty. He was able to latch and begin feeding but within 1 minute, his face developed a blue tinge. The boy cried, and his color improved. Chest radiograph is normal. Which of the following is the best next step in evaluation of this patient's symptoms?

- A** Draw blood cultures
- B** Measure blood methemoglobin level
- C** Obtain an echocardiogram
- D** Pass a catheter through the nares

CORRECT

RIGHT ANSWER

- OK** D. Pass a catheter through the nares

WHY THIS IS RIGHT

Choanal atresia should be suspected in a newborn with cyclic cyanosis that worsens during feeding and improves with crying.

- Newborns are obligate nasal breathers
- Bilateral choanal atresia -> airway obstruction during feeding
- Crying opens mouth -> improves oxygenation

Key diagnostic step: Pass a catheter through the nares

- Failure to pass into nasopharynx confirms choanal atresia
- Follow with CT scan for confirmation

Associated condition:

- CHARGE syndrome (Coloboma, Heart defects, Atresia choanae, Retardation, Genital anomalies, Ear anomalies)

QUESTION

50-year-old man comes to the OPD due to a lump in his neck that has been present for 4 months and is enlarging. On examination, there is a firm, nontender, nonmobile mass in the right anterior neck. Otoscopic examination shows a clear right middle ear effusion. Needle biopsy of the neck mass is consistent with regional nodal spread of squamous cell carcinoma. Which of the following is the most likely site of the primary tumor?

A Base of tongue

B Nasopharynx

CORRECT

C Parotid gland

D Piriform sinus

RIGHT ANSWER

OK B. Nasopharynx

WHY THIS IS RIGHT

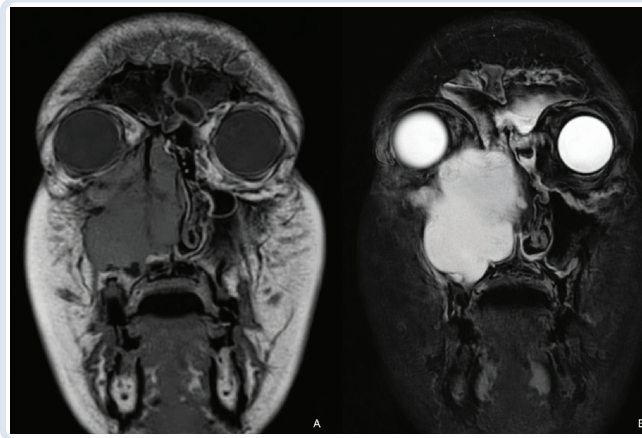
An adult with unilateral middle ear effusion and cervical lymphadenopathy should be presumed to have nasopharyngeal carcinoma until proven otherwise.

Why nasopharynx is the likely primary:

- Tumor near Eustachian tube opening -> obstruction
- Leads to serous otitis media (unilateral effusion in adults = red flag)
- Early metastasis to cervical lymph nodes common
- Often presents with painless neck mass

QUESTION

A 30-year-old male presents with a painless swelling in his right medial face since a few months. The MRI image is given below. What is the most likely diagnosis?



A Mucocoele

CORRECT

B Maxillary sinusitis

C Juvenile nasopharyngeal angiofibroma

D Inverted papilloma

RIGHT ANSWER

OK A. Mucocoele

WHY THIS IS RIGHT

A paranasal sinus mucocoele is a benign, expansile cystic lesion caused by obstruction of sinus ostium, leading to accumulation of mucus and progressive sinus expansion.

- Slow-growing, painless facial swelling
- Most commonly affects frontal and ethmoid sinuses, but can involve maxillary sinus
- Causes bony expansion and remodeling rather than destruction
- MRI/CT shows well-defined cystic expansile lesion filling sinus

Differentiation:

- Maxillary sinusitis -> acute pain, fever, mucosal thickening
- Juvenile nasopharyngeal angiofibroma -> adolescent males, epistaxis
- Inverted papilloma -> nasal mass with bone destruction

QUESTION

3-year-old boy is brought to the office due to nasal discharge for the past 2 weeks. His mother reports whitish nasal discharge that has become progressively thicker and more malodorous. The patient has had no fever, cough, or shortness of breath. Medical history includes congenitally acquired HIV, and the patient has taken antiretroviral therapy since birth. Three months ago, CD4 cell count was 520/mm³. He has received all age-appropriate vaccinations. There is purulent drainage from the right nostril, and the right nasal mucosa and turbinates are erythematous and swollen. There is no discharge from the left side, and the left turbinates are pink and nonedematous. The oropharynx and tonsils are normal. There is no cervical lymphadenopathy. Which of the following is the most likely cause of this patient's current symptoms?

A Acute bacterial sinusitis

B Allergic rhinosinusitis

C Frontal sinus agenesis

D Intranasal foreign body

CORRECT

RIGHT ANSWER

OK

D. Intranasal foreign body

WHY THIS IS RIGHT

Unilateral, foul-smelling purulent nasal discharge in a young child is highly suggestive of an intranasal foreign body until proven otherwise.

- No systemic symptoms (fever, cough)
- Local mucosal erythema and edema
- Common in toddlers/young children

Common foreign bodies:

- Beads, seeds, paper, toy parts
- Button batteries (emergency due to necrosis)

Why not sinusitis/allergy:

- Acute sinusitis -> usually bilateral with fever/cough
- Allergic rhinitis -> bilateral clear discharge, itching, sneezing

QUESTION

| What test is not used for testing olfaction?

A Smell diskettes

B Arnold stick test

CORRECT

C UPSIT

D CC-SIT

RIGHT ANSWER

OK

B. Arnold stick test

WHY THIS IS RIGHT

Olfactory function is assessed using standardized smell identification tests, while tests that stimulate trigeminal sensation are not true olfactory tests. Tests used for olfaction:

- UPSIT (University of Pennsylvania Smell Identification Test) - gold standard
- CC-SIT (Cross-Cultural Smell Identification Test)
- Smell diskettes - commonly used clinically

Not used for olfaction:

- Arnold stick test -> stimulates Arnold's nerve (auricular branch of vagus) in ear canal causing cough reflex. Used to test vagus nerve reflex, not smell

QUESTION

I All of the following contribute to the formation of the nasal septum, except:

A Perpendicular plate of ethmoid

B Septal cartilage

C Inferior nasal concha

CORRECT

D Vomer

RIGHT ANSWER

OK C. Inferior nasal concha

WHY THIS IS RIGHT

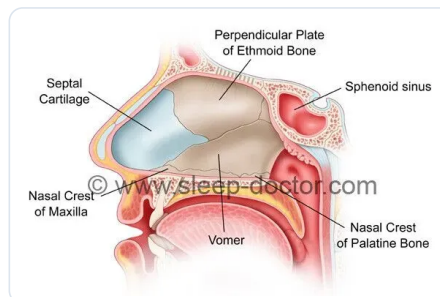
The nasal septum forms the medial wall of the nasal cavity and is composed of both bony and cartilaginous components.

Components of nasal septum:

- Perpendicular plate of ethmoid -> superior bony part
- Vomer -> posteroinferior bony part
- Septal cartilage -> anterior cartilaginous part
- Contributions from nasal crest of maxilla & palatine (minor support)

Not part of septum:

- Inferior nasal concha -> separate bone forming the lateral wall of nasal cavity (inferior turbinate)



QUESTION

A woman develops wheezing after taking aspirin for a headache. Which statement is true about this condition?

- ☐ A A type of extrinsic asthma
- ☐ B Raised serum IgE levels
- ☒ C Associated with ethmoid polyps
- ☐ D Positive skin test for inhaled allergens

CORRECT

RIGHT ANSWER

- ☒ C. Associated with ethmoid polyps

WHY THIS IS RIGHT

Aspirin-exacerbated respiratory disease (AERD), also called Samter's triad, is characterized by:

1. Asthma
2. Aspirin/NSAID sensitivity
3. Ethmoidal nasal polyps

> What's going on physiologically?

> Aspirin inhibits COX-1 -> ↓ Prostaglandin E2 (which normally suppresses leukotrienes) -> ↑ Leukotriene production -> Bronchoconstriction + inflammation.

>

> This is not IgE mediated.

- ☐ A type of extrinsic asthma

Extrinsic asthma is IgE-mediated allergy.
Aspirin asthma is non-IgE mediated.

- ☐ Raised serum IgE levels

Not an IgE allergy.

- ☐ Positive skin test for inhaled allergens

Not allergy based.

*

QUESTION

A 45-year-old patient presents with long-standing nasal obstruction, post-nasal drip, and facial heaviness for several months. A CT scan of the paranasal sinuses is performed to differentiate chronic sinusitis from acute sinusitis. Which of the following CT findings is most specific for chronic sinusitis?

A Air-fluid level within the sinus

B Frothy secretions in the sinus cavity

C Bony sclerosis of the sinus walls

CORRECT

D Diffuse mucosal edema

RIGHT ANSWER

OK

C. Bony sclerosis of the sinus walls

WHY THIS IS RIGHT

Bony sclerosis (thickening) of sinus walls on CT is the most specific radiological feature of chronic sinusitis, indicating long-standing inflammation and osteitis of the sinus walls.
Chronic sinusitis = long-standing inflammation.

When inflammation persists for months or years, the sinus walls respond by:
Thickening, sclerosing, Becoming denser (reactive bone change)
This is called osteitis.

Bone changes = chronic process. Bone doesn't remodel in acute disease.

☐ Air-fluid level
Classic for acute sinusitis.

☐ Frothy secretions
Seen in acute infection.

☐ Diffuse mucosal edema
Seen in both acute and chronic - not specific.

QUESTION

Ventilation of the paranasal sinuses occurs predominantly during which phase of respiration and by what mechanism?

- A** Inspiration by laminar airflow
- B** Inspiration by diffusion across mucosa
- C** Expiration by mucociliary activity

D Expiration by eddy currents in the nasal cavity

CORRECT

RIGHT ANSWER

OK D. Expiration by eddy currents in the nasal cavity

WHY THIS IS RIGHT

Ventilation of the paranasal sinuses occurs mainly during expiration, facilitated by eddy currents (turbulent airflow) in the nasal cavity that drive air into and out of the sinus ostia.

Physiological basis:

- During inspiration -> airflow is relatively laminar and directed posteriorly, with minimal entry into sinus ostia
- During expiration -> turbulent airflow creates eddy currents around sinus openings, These eddies push air into and out of the sinus ostia. This allows sinus aeration and gas exchange.

☐ Inspiration by laminar airflow

Laminar flow doesn't effectively ventilate sinuses.

☐ Inspiration by diffusion across mucosa

Gas exchange via diffusion is minimal and not the primary mechanism.

☐ Expiration by mucociliary activity

Mucociliary clearance moves mucus, not air.

QUESTION

During diagnostic nasal endoscopy, the endoscope is advanced along a specific pathway that allows visualization of the medial surface of the middle turbinate, sphenoethmoidal recess, and the medial wall of the middle meatus. Which endoscopic path is being used in this procedure?

A First endoscopic path

B Second endoscopic path

C Third endoscopic path

CORRECT

D Trans-septal path

RIGHT ANSWER

OK

C. Third endoscopic path

WHY THIS IS RIGHT

In diagnostic nasal endoscopy, three standard endoscopic pathways are used, each visualizing different anatomical areas of the nasal cavity. The third endoscopic path runs between the middle turbinate and nasal septum, allowing visualization of:

- Medial surface of the middle turbinate
- Sphenoethmoidal recess
- Medial wall of the middle meatus
- Openings of posterior ethmoid and sphenoid sinus

Pathways:

- First path: Along floor of nose -> inferior meatus, nasopharynx
- Second path: Between inferior & middle turbinate -> middle meatus, osteomeatal complex
- Third path: Between septum & middle turbinate -> sphenoethmoidal recess, posterior structures

QUESTION

45-year-old patient presents with chronic nasopharyngeal discomfort and intermittent nasal obstruction. Imaging studies reveal a midline cystic structure in the nasopharynx. The patient is diagnosed with Thornwaldt's disease. Which of the following anatomical remnants is most likely associated with this condition?

A Remnant of Rathke's pouch

B Remnant of the pharyngeal cleft

C Remnant of the notochord

CORRECT

D Persistence of the thyroglossal duct

RIGHT ANSWER

OK

C. Remnant of the notochord

WHY THIS IS RIGHT

Thornwaldt cyst is a benign midline nasopharyngeal cyst arising from a developmental remnant. Formed from persistent communication between nasopharyngeal mucosa and notochord. Thus, it represents a remnant of the notochord.

Management

- Asymptomatic -> observation
- Symptomatic -> endoscopic marsupialization/excision

QUESTION

Match the following conditions with their most commonly affected sinuses:

1. Osteoma a. Maxillary sinus
2. Fibrous Dysplasia b. Ethmoid sinus
3. Chronic Rhinosinusitis with Nasal Polyps c. Frontal sinus

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

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

CORRECT

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

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

RIGHT ANSWER

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

WHY THIS IS RIGHT

Condition	Most Commonly Affected Sinus	Reason / Key Point
Osteoma	Frontal sinus	Most common benign tumor of paranasal sinuses; often incidental on imaging
Fibrous dysplasia	Maxillary sinus	Causes bony expansion with "ground-glass" appearance
Chronic rhinosinusitis with nasal polyps	Ethmoid sinus	Ethmoids are primary site for polyp formation

QUESTION

A 65-year-old man presents with nasal obstruction, facial swelling, and proptosis. Imaging reveals a malignancy in the sinonasal region. According to Lederman's classification, which of the following tumor locations is categorized as mesostructural?

- A Invasion of the cribriform plate
- B Extension to the respiratory part of the nasal cavity**
- C Extending to sphenoid sinus and the orbit
- D Tumor involving the Alveolar process

CORRECT

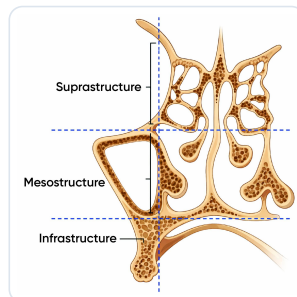
RIGHT ANSWER

- B. Extension to the respiratory part of the nasal cavity**

WHY THIS IS RIGHT

Lederman classification divides maxillary/sinonasal tumors based on anatomical spread into suprastructure, mesostructure, and infrastructure, which helps predict prognosis and surgical planning.

Category	Anatomical Involvement	Structures Included	Prognosis
Suprastructure	Superior extension	Orbit, ethmoid sinus, frontal sinus, sphenoid sinus, cribriform plate, skull base	Worst prognosis
Mesostructure	Central/respiratory part	Respiratory part of nasal cavity, turbinates, medial wall of maxilla	Intermediate prognosis
Infrastructure	Inferior extension	Floor of maxillary sinus, hard palate, alveolar process, upper teeth	Best prognosis



QUESTION

Which of the following incisions is most appropriate when ligating the anterior ethmoidal artery to control anterior epistaxis?

A Lynch-Howarth incision

CORRECT

B Sublabial incision

C Gullwing incision (deconstructive eyelid procedures)

D Weber-Ferguson incision

RIGHT ANSWER

OK

A. Lynch-Howarth incision

WHY THIS IS RIGHT

The anterior ethmoidal artery is a key arterial supply to the anterior nasal septum and lateral wall. When severe anterior epistaxis is uncontrolled by packing or cautery, surgical ligation may be required.

Best surgical approach: Lynch-Howarth incision

- Medial orbital incision along the anterior lacrimal crest
- Provides access to anterior ethmoidal artery at frontoethmoidal suture line
- Used for ligation/cauterization to control refractory epistaxis

Why other options are incorrect

- Sublabial incision: used for maxillary sinus/Caldwell-Luc
- Gullwing incision: eyelid reconstructive procedures
- Weber-Ferguson incision: maxillary tumor access

QUESTION

Which type of sphenoid sinus pneumatization is contraindicated in endoscopic transsphenoidal surgery?

A Sellar

B Presellar

C Conchal

CORRECT

D Lateral

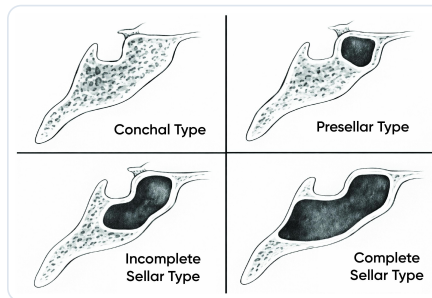
RIGHT ANSWER

OK

C. Conchal

WHY THIS IS RIGHT

Conchal Pneumatization involves minimal air space and dense trabecular bone, making surgical access to the sella turcica extremely difficult.



QUESTION

Which of the following statements about the venous drainage of the nose is false?

CORRECT

- A** The venous networks parallel the arterial supply in their distribution
- B** The fronto-median area drains to the facial vein, while the orbito-palpebral area drains to the ophthalmic vein
- C** The facial vein originates as the angular vein, which is formed by the confluence of the supratrochlear and supraorbital veins
- D** Infections in the upper lip and nose can potentially spread to the cavernous sinus due to a valveless venous connection

RIGHT ANSWER

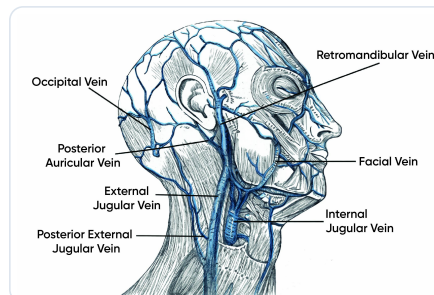
OK

A. The venous networks parallel the arterial supply in their distribution

WHY THIS IS RIGHT

Venous drainage of the nose is clinically important because of its connection to intracranial venous sinuses.

- Nasal veins do NOT strictly parallel arterial supply -> statement is false
- Fronto-median area drains into facial vein
- Orbito-palpebral area drains into ophthalmic vein -> cavernous sinus
- Facial vein begins as angular vein (union of supratrochlear + supraorbital veins)
- Veins of face and nose are valveless so infections can spread from upper lip, nose and medial canthus can spread retrograde via angular -> ophthalmic veins -> cavernous sinus, causing cavernous sinus thrombosis.



QUESTION

Examine the image provided. The finding indicated by the arrow represents which of the following signs?



A Blow out fracture

CORRECT

B Thumb sign

C Steeple sign

D Phelps sign

RIGHT ANSWER

OK

A. Blow out fracture

WHY THIS IS RIGHT

A blow-out fracture involves a fracture of the orbital floor (usually maxillary bone) leading to herniation of orbital contents into the maxillary sinus.

- Mechanism: Blunt trauma -> increased intraorbital pressure -> floor fractures
- CT finding:
 - “Teardrop sign” -> herniated orbital fat/muscle into maxillary sinus
 - Most commonly affected: Inferior orbital wall

Clinical features:

- Diplopia (due to inferior rectus entrapment)
- Restricted upward gaze
- Enophthalmos (sunken eye)
- Infraorbital nerve anesthesia (cheek numbness)

Why not other options:

- Thumb sign: Epiglottitis (lateral neck X-ray)
- Steeple sign: Croup (subglottic narrowing)
- Phelps sign: Not related to orbit

QUESTION

A patient presents with bleeding from the ear following a fall. What is the investigation of choice in this scenario?

A CT temporal bone

CORRECT

B MRI brain

C CBP

D X ray skull

RIGHT ANSWER

OK A. CT temporal bone

WHY THIS IS RIGHT

In a patient with ear bleeding following trauma, the investigation of choice is CT temporal bone, as it is the best modality to detect temporal bone fractures.

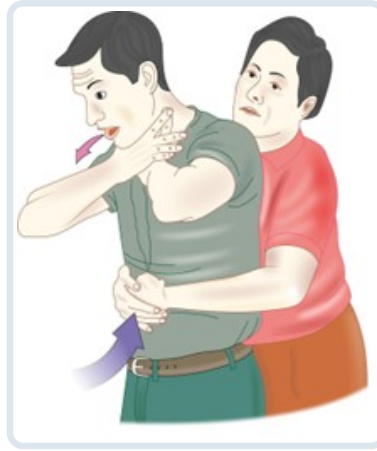
- CT temporal bone (HRCT) provides detailed visualization of:
 - o Bony structures of ear (external, middle, inner ear)
 - o Fracture lines (longitudinal/transverse)
 - o Ossicular disruption, facial canal involvement
- Helps classify fractures and identify complications such as:
 - o CSF leak
 - o Facial nerve injury
 - o Hearing loss

Why not other options:

- MRI brain: Better for soft tissue and intracranial complications, not first-line for fractures
- CBP: Irrelevant
- X-ray skull: Low sensitivity, largely obsolete

QUESTION

An adult man in a restaurant suddenly begins choking on his food. He is conscious. The following procedure was performed. Identify the procedure:



A Heimlich's maneuver

CORRECT

B Back slap

C Chest thrust

D Blind insertion of finger

RIGHT ANSWER

OK

A. Heimlich's maneuver

WHY THIS IS RIGHT

The Heimlich maneuver (abdominal thrusts) is the first-line emergency intervention for conscious adults with complete airway obstruction (choking).

- Sudden choking -> inability to speak, cough, or breathe
- Perform forceful upward abdominal thrusts just above the umbilicus
- Mechanism:
- $\uparrow$ Intra-abdominal -> $\uparrow$ intrathoracic pressure -> expels foreign body from airway

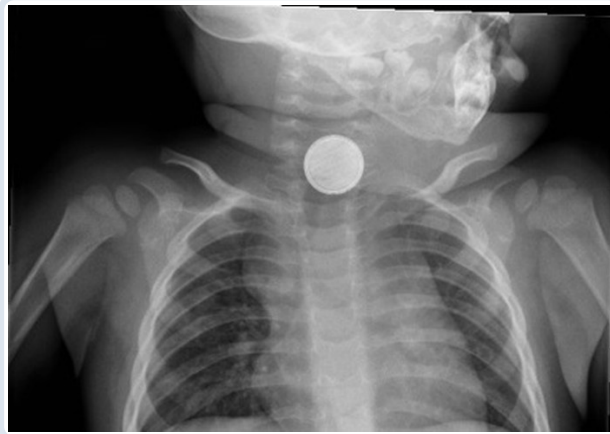
Indications: Conscious adult or child (>1 year) with severe airway obstruction

Why not other options:

- Back slaps: Preferred in infants, not adults
- Chest thrusts: Used in infants, pregnant, or obese patients
- Blind finger sweep: Contraindicated (pushes object deeper)

QUESTION

Identify the sign shown on x-ray.



A String sign

B Double ring sign

CORRECT

C Steeple sign

D Thumb sign

RIGHT ANSWER

OK

B. Double ring sign

WHY THIS IS RIGHT

The double ring (double halo) sign on X-ray indicates a button battery lodged in the esophagus, not a simple coin.

- Double rim/halo appearance -> characteristic of button battery
- Caused by bilaminar structure of battery
- Medical emergency due to rapid mucosal injury (alkali burn, necrosis, perforation)

Clinical importance:

- Must be removed urgently (within hours)
- Can cause tracheoesophageal fistula, perforation, mediastinitis

Differentiation:

- Coin: Single uniform circular opacity (no double rim)
- Button battery: Double ring sign + step-off on lateral view

QUESTION

A 35-year-old scuba diver presents with sudden onset vertigo, tinnitus, and hearing loss in the right ear after rapidly surfacing from a deep dive. Which of the following is the most likely diagnosis?

A Otitis externa

B Vestibular neuritis

C Perilymphatic fistula

CORRECT

D EAC osteoma

RIGHT ANSWER

OK

C. Perilymphatic fistula

WHY THIS IS RIGHT

Perilymphatic fistula occurs due to rupture of the oval or round window membrane, leading to leakage of perilymph from the inner ear into the middle ear.

Common causes:

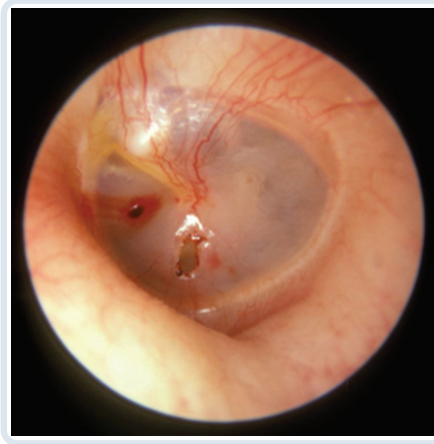
- Barotrauma (scuba diving, flying)
- Sudden pressure changes
- Head injury
- Forceful Valsalva

Clinical features:

- Sudden sensorineural hearing loss
- Vertigo after pressure change
- Tinnitus
- Aural fullness
- Symptoms worsen with straining or pressure changes

QUESTION

A 30-year-old woman comes to the OPD due to hearing loss in her right ear. A week ago, the patient developed symptoms of nasal congestion, cough, and rhinorrhea. Three days ago, she travelled from New York to Delhi. On her return flight yesterday, the patient developed hearing loss and severe pain in her right ear and noticed a drop of blood on her finger when she scratched her ear canal. All symptoms have resolved except for persistent hearing loss in the right ear. Which of the following is the most appropriate next step in management?



A Aural irrigation

B Oxymetazoline

C Reassurance and follow-up examination

CORRECT

D Tympanoplasty

RIGHT ANSWER

OK

C. Reassurance and follow-up examination

WHY THIS IS RIGHT

Traumatic tympanic membrane perforation (commonly due to barotrauma during flying, diving, or URTI with pressure changes) usually heals spontaneously and is managed conservatively.

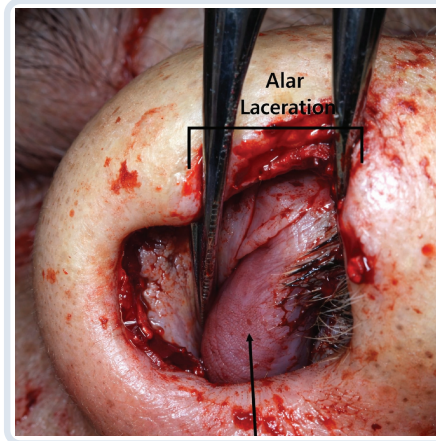
- Sudden ear pain during flight/pressure change
- Possible small bleeding from ear
- Conductive hearing loss
- Otoscopy: small perforation with minimal bleeding
- No active infection

Management:

- Reassurance and follow-up (most heal within weeks)
- Keep ear dry
- Avoid aural irrigation or instrumentation
- Surgery (tympanoplasty) only if persistent >2-3 months

QUESTION

A 22-year-old man comes to the urgent care clinic after being hit in the face with a basketball. He is currently unable to breathe through his nose. Oxygen saturation is 99% on room air. Examination is shown. Which of the following is the best next step in management of this patient?



A Apply ice packs to the nose and recommend NSAIDs

B Embolize the sphenopalatine artery

C Incise and drain the nasal septum

CORRECT

D Insert anterior nasal packing

RIGHT ANSWER

OK

C. Incise and drain the nasal septum

WHY THIS IS RIGHT

A nasal septal hematoma is a surgical emergency that occurs after nasal trauma and presents with nasal obstruction and a fluctuant swelling of the septum.

Why urgent treatment is required:

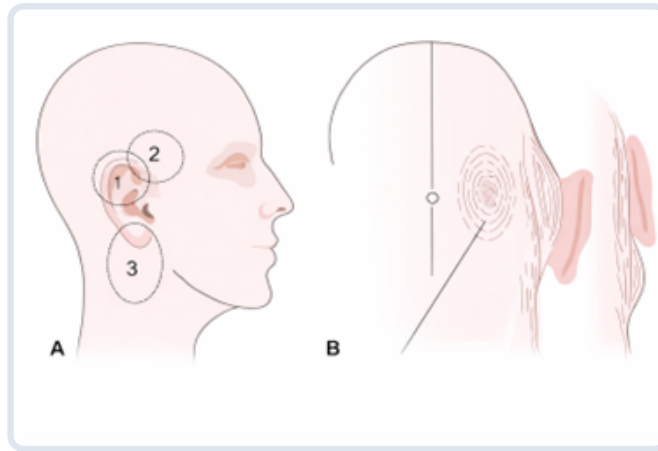
- Hematoma separates septal cartilage from perichondrium
- Cuts off blood supply -> cartilage necrosis
- Can lead to septal abscess and saddle nose deformity

Management:

- Immediate incision and drainage with nasal packing
- Antibiotics to prevent infection

QUESTION

An abscess has developed in area (2) as a complication of chronic suppurative otitis media (CSOM). Which abscess is this most likely to represent?



A Zygomatic

CORRECT

B Bezold

C Luc

D Citelli

RIGHT ANSWER

OK A. Zygomatic

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$2” here and does not include a written explanation for this item.

QUESTION

A patient presents with a firm, tender, slow-growing mass below the ear as shown in the image below. What could be the diagnosis?



- A Bezold abscess
- B Parotid abscess**
- C Upper cervical lymphadenopathy
- D Osteoma of the mandible

CORRECT

RIGHT ANSWER

OK **B. Parotid abscess**

WHY THIS IS RIGHT

A parotid abscess presents as a painful, tender, erythematous swelling below and in front of the ear, typically over the parotid region.

- Acute onset pain and tenderness
- Swelling in parotid area (preauricular + angle of mandible)
- Redness and fluctuation (abscess formation)
- May have fever and purulent discharge from Stensen's duct

Pathogenesis:

- Usually due to ascending bacterial infection (commonly *Staphylococcus aureus*)
- Predisposing factors:
 - Dehydration
 - Poor oral hygiene
 - Post-operative state
 - Diabetes

Why not others:

- Bezold abscess: Deep neck swelling (below SCM), secondary to mastoiditis
- Upper cervical lymphadenopathy: Firm, not acutely inflamed or fluctuant
- Osteoma of mandible: Hard, non-tender bony swelling

QUESTION

A 10-year-old child presents with throat pain, fever, and ear pain. He is diagnosed with recurrent tonsillitis. Which nerve is responsible for the ear pain in this patient

A Tympanic branch of glossopharyngeal nerve

CORRECT

B Greater auricular nerve

C Auriculotemporal nerve

D Auricular branch of vagus nerve

RIGHT ANSWER

OK **A. Tympanic branch of glossopharyngeal nerve**

WHY THIS IS RIGHT

In tonsillitis, referred ear pain (otalgia) occurs due to shared sensory innervation by the glossopharyngeal nerve (CN IX).

- Palatine tonsil is supplied by glossopharyngeal nerve (CN IX)
- The tympanic branch of CN IX (Jacobson's nerve) supplies the middle ear
- Irritation of tonsil -> pain referred to ear via common nerve pathway

Why not other options:

- Greater auricular nerve (C2-C3): Supplies skin over parotid/ear, not tonsil
- Auriculotemporal nerve (V3): Supplies TMJ, external ear
- Auricular branch of vagus (Arnold's nerve): External auditory canal, not tonsil

QUESTION

A child presents with trismus and painful limb spasms following a recent untreated ear infection. What is the most likely diagnosis?

A Tetanus

CORRECT

B Meningitis

C Sigmoid sinus thrombosis

D Bezold's abscess

RIGHT ANSWER

OK A. Tetanus

WHY THIS IS RIGHT

A child with trismus (lockjaw) and painful generalized muscle spasms following an untreated infection is most consistent with tetanus, caused by *Clostridium tetani*.

- *C. tetani* produces tetanospasmin toxin
- Toxin blocks release of inhibitory neurotransmitters (GABA and glycine) in the CNS
- Leads to unopposed muscle contraction -> rigidity and spasms

Clinical features:

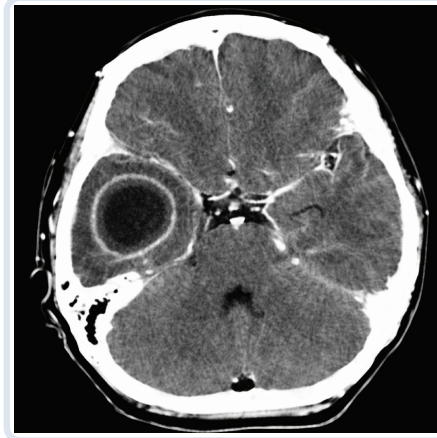
- Trismus (lockjaw) - earliest sign
- Painful muscle spasms
- Risus sardonicus (facial grimace)
- Opisthotonus (arching of back)

Why other options are incorrect:

- Meningitis: Fever, neck stiffness, altered sensorium (no trismus/spasms)
- Sigmoid sinus thrombosis: Headache, papilledema, sepsis features
- Bezold's abscess: Neck swelling due to mastoiditis

QUESTION

A 5-year-old girl is brought to the emergency department after having a seizure at home. Her mother says that the girl has had a mild headache and fatigue for the past few days. CT scan of the head is shown in the image below. Which of the following historical details is most relevant in establishing this patient's diagnosis?



- A** Family history of seizures
- B** Maternal history of perinatal infection
- C** Previous recurrent gingival bleeding
- D** Recent episode of otitis media

CORRECT

RIGHT ANSWER

- OK** **D. Recent episode of otitis media**

WHY THIS IS RIGHT

A brain abscess in children commonly results from contiguous spread of infection, most often from otitis media, mastoiditis, or sinusitis.

- Recent history of ear infection or sinusitis
- Headache, fever, seizures
- Focal neurological signs
- CT/MRI: ring-enhancing lesion with surrounding edema

Why otitis media is important:

- Most common source of pediatric brain abscess
- Especially temporal lobe or cerebellar abscess
- Requires urgent IV antibiotics ± surgical drainage

QUESTION

16-year-old boy comes to the emergency department due to sore throat and fever. He started having a mild sore throat after returning from summer camp about a week ago, and it has worsened in the last 2 days. The patient also has right neck pain and earache but no cough or shortness of breath. Enlarged and tender cervical lymph nodes are present. The patient is not able to fully open his mouth, but examination of the oral cavity shows pooling of saliva, a large right tonsil with swelling of the right soft palate, and deviation of the uvula to the left. A rapid test for *Streptococcus pyogenes* is negative. Which of the following is the most likely diagnosis?

- A Acute tonsillitis
- B Herpangina
- C Parapharyngeal abscess

D Peritonsillar abscess

CORRECT

RIGHT ANSWER

D. Peritonsillar abscess

WHY THIS IS RIGHT

Peritonsillar abscess is a deep space infection located between the tonsillar capsule and superior constrictor muscle and represents the most common complication of untreated or partially treated acute tonsillitis. Important differentiating points:

- Peritonsillar abscess: Uvular deviation, trismus, hot potato voice (most common)
- Parapharyngeal abscess: Neck swelling, medial tonsillar displacement, severe systemic toxicity
- Retropharyngeal abscess: Neck stiffness, dysphagia, bulging posterior pharyngeal wall (children)

Common organisms:

Group A *Streptococcus*

Staphylococcus aureus

Anaerobes (polymicrobial)

QUESTION

5-year-old boy is brought to the clinic by his parents due to hearing loss. Over the past year, the patient has had increased difficulty hearing normal conversations. He was born at 36 weeks gestation and was small for gestational age but otherwise has had no medical problems. A tuning fork held over the middle of the forehead sounds louder in the left ear. Tuning fork sounds are better heard with air conduction bilaterally. Which of the following is the most likely etiology of this patient's hearing loss?

A Cholesteatoma

B Chronic otitis media

C Congenital infection

CORRECT

D Otosclerosis

RIGHT ANSWER

OK C. Congenital infection

WHY THIS IS RIGHT

In children with bilateral sensorineural hearing loss, always consider congenital infections as a major cause, especially when hearing loss is progressive and otoscopic exam is normal.

Tuning fork interpretation:

- Rinne: AC > BC bilaterally -> sensorineural hearing loss
- Weber lateralizes to better ear -> indicates SNHL in opposite ear
- Suggests bilateral SNHL, worse in right ear

Most common congenital infectious cause: Congenital CMV (most common)

Others: rubella, toxoplasmosis, syphilis, HSV

QUESTION

| Which structures pass between superior and middle constrictor?

- A Eustachian tube
- B IX nerve (Glossopharyngeal Nerve)**
- C Superior laryngeal nerve
- D Recurrent laryngeal nerve

CORRECT

RIGHT ANSWER

- OK B. IX nerve (Glossopharyngeal Nerve)**

WHY THIS IS RIGHT

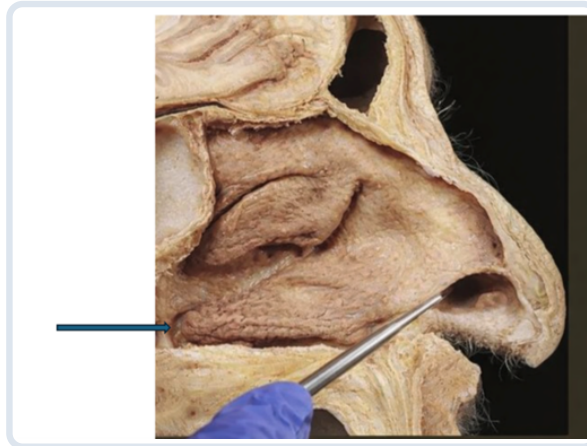
The glossopharyngeal nerve (CN IX) passes between the superior and middle pharyngeal constrictor muscles along with the stylopharyngeus muscle.

Key anatomical concept (gaps of constrictors):

1. Above superior constrictor:
 - o Levator veli palatini
 - o Auditory (Eustachian) tube
 - o Tensor velu palatini
 - o Ascending pharyngeal artery
2. Between superior & middle constrictor:
 - o Glossopharyngeal nerve (CN IX)
 - o Stylopharyngeus muscle
3. Between middle & inferior constrictor:
 - o Internal laryngeal nerve
 - o Superior laryngeal vessels
4. Below inferior constrictor:
 - o Recurrent laryngeal nerve
 - o Inferior laryngeal vessels

QUESTION

Which opening is present posterior to the marked structure in the image?



A Eustachian tube

CORRECT

B Onodi cell

C Sphenopalatine foramen

D Sphenoid sinus

RIGHT ANSWER

OK A. Eustachian tube

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$2" here and does not include a written explanation for this item.

QUESTION

Identify the correct plane of Frankfurt horizontal plane:

A Inferior border of infraorbital rim and superior border of external auditory canal

CORRECT

B Superior border of infraorbital rim and superior border of external auditory canal

C Inferior border of infraorbital rim and inferior border of external auditory canal

D Superior border of infraorbital rim and inferior border of external auditory canal

RIGHT ANSWER

OK

A. Inferior border of infraorbital rim and superior border of external auditory canal

WHY THIS IS RIGHT

The Frankfurt horizontal plane is an important anthropometric reference plane used in ENT, dentistry, maxillofacial surgery, and radiology to standardize head position. It is a line joining:

- Inferior orbital margin (orbitale)
- Superior border of external auditory canal (porion)

This plane should be parallel to the ground when the head is in anatomical position.

Clinical uses:

- Standard head positioning in cephalometry
- Planning orthognathic and facial surgeries
- Radiographic skull measurements
- Anthropometric facial analysis

QUESTION

What is the improper pairing between the anatomical limits of lymph nodes and the Level of lymph nodes?

A Level 2: Skull base to hyoid

B Level 3: Hyoid to cricoid

C Level 5: Cricoid to suprasternal notch

CORRECT

D Level 6: Hyoid to suprasternal notch

RIGHT ANSWER

OK C. Level 5: Cricoid to suprasternal notch

WHY THIS IS RIGHT

Cervical lymph node levels and their anatomical boundaries

- Level I: Submental & submandibular region
- Level II: Skull base -> hyoid bone
- Level III: Hyoid -> cricoid cartilage
- Level IV: Cricoid -> clavicle
- Level V: Posterior triangle nodes (skull base -> clavicle along SCM posterior border)
- Level VI: Central compartment (hyoid -> suprasternal notch)

Level V is not limited from cricoid to suprasternal notch. It extends from skull base to clavicle in posterior triangle.

QUESTION

A 60-year-old male patient with squamous cell carcinoma of the neck undergoes radical neck dissection. Which of the following structures is typically spared during this procedure?

A Digastric muscle

CORRECT

B Sternocleidomastoid muscle

C Submandibular gland

D Tail of parotid

RIGHT ANSWER

OK A. Digastric muscle

WHY THIS IS RIGHT

Classical Radical Neck Dissection:

Removes:

- All cervical lymph nodes (levels I-V)
- Sternocleidomastoid muscle
- Internal jugular vein
- Spinal accessory nerve
- Submandibular gland ± tail of parotid

Structures usually preserved unless directly invaded:

- Digastric muscle
- Carotid artery
- Vagus nerve
- Hypoglossal nerve

Modified Radical Neck Dissection Preserves one or more of:

- Spinal accessory nerve
- SCM
- IJV

QUESTION

A 25-year-old female presents with a slowly growing deep neck mass. She reports episodes of lightheadedness with fainting and recalls a family member having neck surgery in the past. CT imaging shows that the mass is splaying the internal and external carotid arteries. A diagnosis of carotid body tumor is being considered. What is your next step in management?

- A** Fine needle aspiration biopsy
- B** Core or open biopsy to confirm diagnosis
- C** Surgical resection
- D** Angiography with preoperative embolization

CORRECT

RIGHT ANSWER

- OK** **D. Angiography with preoperative embolization**

WHY THIS IS RIGHT

- Slowly growing deep neck mass
- Family history (suggests hereditary paraganglioma)
- CT shows splaying of internal and external carotid arteries

That splaying is called the: "Lyre sign". Classic for carotid body tumor.

-Because it is highly vascular tumor, it must NOT be biopsied. Can lead to massive haemorrhage

-So before surgery - bleeding risk needs to be reduced, which is done by : angiography with preoperative embolisation.

- ☐ Angiography with preoperative embolization
- Identifies feeding vessels
- Decreases intraoperative bleeding
- Makes surgical resection safer
- Why the other options are wrong
 - ☐ Fine needle aspiration - dangerous; very vascular tumor.
 - ☐ Core/open biopsy - absolutely contraindicated.
 - ☐ Immediate surgical resection without embolization - high bleeding risk.

*

QUESTION

A 50-year-old patient presents with dysphagia and a sensation of a lump in the throat. On examination, a mass is noted on the posterior pharyngeal wall. Which anatomical structure primarily forms the inner layer?

- A** Investing fascia
- B** Buccopharyngeal Fascia
- C** Prevertebral fascia
- D** **Pharyngobasilar Fascia**

CORRECT

RIGHT ANSWER

- OK** **D. Pharyngobasilar Fascia**

WHY THIS IS RIGHT

The pharyngeal wall is composed of distinct layers from inside to outside.

Layers of pharynx (inner -> outer)

1. Mucosa
2. Submucosa
3. Pharyngobasilar fascia -> inner fibrous layer (forms inner structural framework)
4. Muscular layer (constrictors and longitudinal muscles)
5. Buccopharyngeal fascia -> outer fascial covering

Other options

- Investing fascia -> neck fascia
- Buccopharyngeal fascia -> outer covering of pharynx
- Prevertebral fascia -> posterior boundary of retropharyngeal space

QUESTION

A patient presents with stridor, and endotracheal intubation is unsuccessful. Which of the following is the best alternative method for airway management in this situation?

A Cricothyrotomy

CORRECT

B Nasotracheal intubation

C Bronchoscopy

D LMA

RIGHT ANSWER

OK

A. Cricothyrotomy

WHY THIS IS RIGHT

In a cannot intubate, cannot ventilate (CICV) situation with stridor, the preferred emergency airway is cricothyrotomy, which provides rapid access to the airway through the cricothyroid membrane.

- Indication: Failed intubation with impending airway obstruction
- Site: Cricothyroid membrane (between thyroid and cricoid cartilage)
- Advantage: Quick, life-saving, minimal dissection compared to tracheostomy
- Considered a temporary airway until a definitive airway (tracheostomy) is established

Why not other options:

- Nasotracheal intubation: Difficult/impossible in obstructed airway
- Bronchoscopy: Time-consuming, not suitable in emergency
- LMA: May not bypass severe upper airway obstruction

QUESTION

A professional singer presents with difficulty in raising the pitch of her voice. Which nerve is most likely injured?

A ELN

CORRECT

B ILN

C RLN

D None

RIGHT ANSWER

OK
A. ELN

WHY THIS IS RIGHT

Inability to raise the pitch of voice indicates dysfunction of the cricothyroid muscle, which is supplied by the external laryngeal nerve (ELN).

- Cricothyroid muscle:
 - o Tenses and elongates vocal cords -> produces high-pitched sounds
- External laryngeal nerve (branch of superior laryngeal nerve):
 - o Supplies cricothyroid muscle
- Injury leads to:
 - o Monotonous voice
 - o Inability to sing high notes (important in professional voice users)

Why not other options:

- Internal laryngeal nerve (ILN): Sensory above vocal cords, no role in pitch
- Recurrent laryngeal nerve (RLN): Supplies all other intrinsic muscles -> causes hoarseness, not specifically loss of high pitch

QUESTION

A patient presents with a fish bone lodged in the pyriform sinus. During attempted removal, which nerve is most at risk of injury?

A Internal laryngeal nerve (ILN)

CORRECT

B External laryngeal nerve (ELN)

C Recurrent laryngeal nerve (RLN)

D None

RIGHT ANSWER

OK

A. Internal laryngeal nerve (ILN)

WHY THIS IS RIGHT

A fish bone in the pyriform sinus puts the internal laryngeal nerve (ILN) at risk during removal because it provides sensory innervation to the supraglottic larynx and pyriform fossa.

- Internal laryngeal nerve (branch of superior laryngeal nerve):
- Purely sensory above the vocal cords
- Supplies pyriform sinus, epiglottis, laryngeal inlet
- It pierces the thyrohyoid membrane -> lies close to the pyriform fossa
- Injury leads to:
- Loss of protective cough reflex
- Risk of silent aspiration

Why not other options:

- External laryngeal nerve (ELN): Motor to cricothyroid, not in pyriform sinus
- Recurrent laryngeal nerve (RLN): Supplies below vocal cords, deeper course

QUESTION

| Which of the following is the narrowest part of the airway in the adult larynx?

A Glottis

CORRECT

B Subglottis

C Supraglottis

D Trachea

RIGHT ANSWER

OK A. Glottis

WHY THIS IS RIGHT

In adults, the glottis (rima glottidis) is the narrowest part of the airway, formed by the space between the true vocal cords.

- The glottis is the most critical site for airway resistance in adults.
- It is the narrowest functional segment during normal respiration and phonation.
- Any pathology at this level (edema, tumor, vocal cord paralysis) can significantly compromise the airway.

Clinical importance:

- In intubation, the endotracheal tube size is determined based on the glottic opening.
- Conditions like laryngeal edema or vocal cord lesions can rapidly lead to airway obstruction.

Contrast with pediatrics:

- In children, the narrowest part is the subglottis (cricoid cartilage level), not the glottis.

QUESTION

A 55-year-old patient comes with hoarseness of voice and difficulty swallowing. The patient was diagnosed with laryngeal carcinoma and surgical management was done. The post-operative image of the patient is given below. Which of the following surgery was done on this patient?



A Partial laryngectomy

B Percutaneous tracheostomy

C Standard tracheostomy

D Total laryngectomy

CORRECT

RIGHT ANSWER

OK D. Total laryngectomy

WHY THIS IS RIGHT

A permanent tracheostoma without a tube indicates a total laryngectomy, where the larynx is completely removed and the trachea is brought out to the skin.

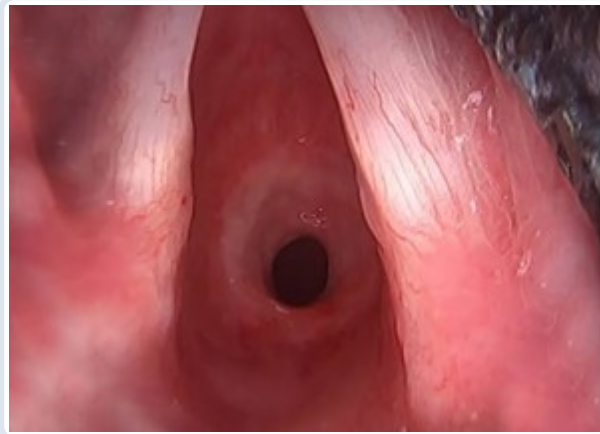
- Airway is permanently separated from nose and mouth
- Patient breathes only through the stoma
- No normal voice production -> requires alternative speech (e.g., electrolarynx)

How to differentiate:

- Total laryngectomy: Permanent stoma, no connection to upper airway
- Tracheostomy (standard/percutaneous): Temporary opening with tube, airway continuity maintained
- Partial laryngectomy: No permanent stoma

QUESTION

In a prolonged intubation patient, the following is seen. Staging for this is given by:



A Cotton Meyer

CORRECT

B Radkowski

C AJCC

D TNM

RIGHT ANSWER

OK A. Cotton Meyer

WHY THIS IS RIGHT

Subglottic stenosis is a common complication of prolonged endotracheal intubation, and its severity is graded using the Cotton-Meyer classification.

- Cause: Pressure necrosis from endotracheal tube -> fibrosis -> airway narrowing
- Site: Subglottis (narrowest part of pediatric airway)

Cotton-Meyer grading (based on % obstruction):

- Grade I: < 50% obstruction
- Grade II: 51-70%
- Grade III: 71-99%
- Grade IV: No detectable lumen

Why not other options:

- Radkowski: Used for JNA staging
- AJCC / TNM: Used for malignancy staging, not airway stenosis



QUESTION

| Tracheal deviation is given on the chest X-ray. Which is difficult?



A Tracheostomy

CORRECT

B Laryngeal airway

C Endotracheal intubation

D Cricothyroidotomy

RIGHT ANSWER

OK A. Tracheostomy

WHY THIS IS RIGHT

Tracheal deviation indicates mediastinal shift due to underlying pathology (e.g., mass, collapse, pleural effusion), which can distort normal neck anatomy and make tracheostomy difficult.

- Tracheostomy requires midline tracheal access
- In deviation -> trachea is shifted laterally -> difficult to locate and cannulate
- Risk of false passage, bleeding, or injury to adjacent structures

Why not other options:

- Laryngeal airway: Inserted blindly via mouth -> not affected by tracheal position
- Endotracheal intubation: Done via larynx -> tracheal deviation usually doesn't prevent tube placement
- Cricothyroidotomy: Landmark-based at cricothyroid membrane -> less affected by tracheal shift

QUESTION

| Which is the best stain for biopsy during laryngoscopy for vocal cord examination?

A Supravital

CORRECT

B Silver nitrate

C H&E

D Congo red

RIGHT ANSWER

OK

A. Supravital

WHY THIS IS RIGHT

Supravital staining is used during laryngoscopy for vocal cord examination to assess epithelial cell viability and early malignant changes in real time.

- Supravital stains (e.g., toluidine blue) are applied in vivo on mucosa
- They preferentially stain areas of high nucleic acid content -> suspicious for dysplasia/malignancy
- Help in targeted biopsy by highlighting abnormal epithelium

Why not other options:

- H&E: Standard histopathological stain, used after biopsy, not during procedure
- Silver nitrate: Cauterizing agent, not a diagnostic stain
- Congo red: Used for amyloidosis, not for vocal cord lesions

QUESTION

A female singer with hoarseness of voice, unable to sing higher frequency notes. Bowed and depressed unilateral vocal cord is seen. Which muscle is involved?

A Posterior cricoarytenoid

B Thyroarytenoid

C Cricothyroid

CORRECT

D Interarytenoid

RIGHT ANSWER

OK C. Cricothyroid

WHY THIS IS RIGHT

The cricothyroid muscle is the primary tensor of the vocal cords, responsible for increasing pitch (high-frequency sound production).

- Action: Tilts thyroid cartilage forward -> stretches & tenses vocal cords
- Function: Enables high-pitched sounds (singing high notes)
- Nerve supply: External branch of superior laryngeal nerve (SLN)
- Hoarseness + inability to sing high notes -> loss of vocal cord tension

Suggests cricothyroid muscle paralysis

Why not other options:

- Posterior cricoarytenoid: Only abductor of vocal cords -> affects airway, not pitch
- Thyroarytenoid: Relaxes vocal cords -> affects low pitch, not high pitch loss
- Interarytenoid: Adducts vocal cords -> affects closure, not tension

QUESTION

A 2-year-old child is brought to the emergency department with a complaint of choking due to peanut ingestion. On arrival, the child is found to be unresponsive. What is the next step in management?

- A 5 back slaps
- B Abdominal thrusts
- C Endotracheal intubation

D Chest compressions

CORRECT

RIGHT ANSWER

OK

D. Chest compressions

WHY THIS IS RIGHT

In a child with foreign body airway obstruction (e.g., peanut) who becomes unresponsive, the next step is to start chest compressions (CPR).

- Once the child is unconscious, management shifts from choking maneuvers to CPR protocol
- Chest compressions help dislodge the foreign body by generating artificial airflow and also maintain circulation

Stepwise approach

- Conscious child (<1 yr): Back slaps + chest thrusts
- Conscious child (>1 yr): Abdominal thrusts (Heimlich maneuver)
- Unconscious child (any age):

- > Start chest compressions immediately
- > Open airway and look for visible object (remove if seen)
- > Attempt ventilation

Why not other options:

- A) Back slaps: Only for conscious infants
- B) Abdominal thrusts: Only for conscious children >1 yr
- C) Endotracheal intubation: Not the immediate first step; attempted after initiating CPR if trained

QUESTION

A construction worker is brought to the emergency department after a fall from a building. He has unstable vital signs and his upper airway is injured with stones, making bag-mask ventilation and intubation difficult. The doctor performs a procedure as shown in the image below. Which of the following statements is correct regarding this procedure?



- A** It is used to measure central venous pressure
- B** It has increased respiratory efforts compared to bag and mask ventilation in this case
- C** It can be used safely for 6 hours
- D** It should be followed by a tracheostomy

CORRECT

RIGHT ANSWER

- OK** **D. It should be followed by a tracheostomy**

WHY THIS IS RIGHT

Cricothyroidotomy is an emergency airway procedure performed when intubation and bag-mask ventilation are not possible (cannot intubate, cannot ventilate situation).

- Done through the cricothyroid membrane for rapid airway access
- Temporary life-saving measure
- Provides oxygenation but is not a definitive airway

Cricothyroidotomy must be followed by a tracheostomy for long-term airway management

Why not other options:

- A) Central venous pressure: This is for central line placement, not airway
- B) Increased respiratory effort: This procedure reduces respiratory distress by securing airway
- C) Safe for 6 hours: Cricothyroidotomy is only for short duration, risk of complications if prolonged

QUESTION

A patient with a history of smoking presents with hoarseness of voice and undergoes a surgical procedure. The postoperative image is shown below. What is the surgical procedure performed?



A Total laryngectomy

CORRECT

B Partial laryngectomy

C Tracheostomy

D Cricothyroidotomy

RIGHT ANSWER

OK A. Total laryngectomy

WHY THIS IS RIGHT

Total laryngectomy is characterized by a permanent tracheostoma in the anterior neck, indicating complete removal of the larynx with permanent separation of airway from the upper respiratory tract.

- Patient breathes only through the stoma (not through nose or mouth)
- Loss of normal voice (requires alternative speech methods)
- Typically done for advanced laryngeal carcinoma, especially in smokers with hoarseness

Differentiation points:

- Partial laryngectomy: No permanent stoma; airway continuity maintained
- Tracheostomy: Temporary opening with tube; larynx intact
- Cricothyroidotomy: Emergency airway; high level (cricothyroid membrane), not permanent

QUESTION

Identify marked structure (white arrow) in the image shown below?



A Pyriform fossa

CORRECT

B Thyroid cartilage

C Epiglottis

D Vallecula

RIGHT ANSWER

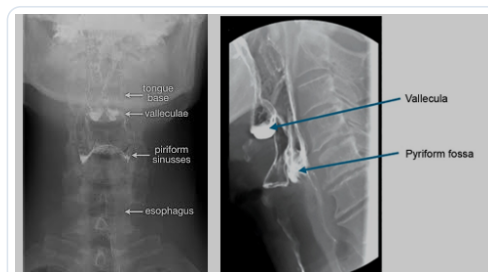
OK A. Pyriform fossa

WHY THIS IS RIGHT

The white arrow indicates the pyriform fossa, seen as a lateral recess on either side of the laryngeal inlet in contrast studies.

It lies lateral to the larynx and directs food toward the esophagus during swallowing.

This location distinguishes it from the vallecula (midline) and laryngeal cartilages.



QUESTION

| Which of the following has the worst prognosis?

- A** A. Partial U/L RLN palsy
- B** B. Partial B/L RLN palsy
- C** C. Complete U/L RLN palsy
- D** **D. Complete B/L RLN palsy**

CORRECT

RIGHT ANSWER

- OK** **D. D. Complete B/L RLN palsy**

WHY THIS IS RIGHT

Complete bilateral recurrent laryngeal nerve (RLN) palsy has the worst prognosis due to its life-threatening effect on the airway.

- RLN supplies all intrinsic laryngeal muscles except cricothyroid
- Bilateral complete palsy -> vocal cords fixed in paramedian position
- Leads to severe airway obstruction

Clinical implications:

- Stridor and respiratory distress
- May require emergency tracheostomy
- Voice may be relatively preserved, but airway is critically compromised

Comparison:

- Unilateral palsy: Hoarseness, but airway usually adequate
- Partial palsy: Some function preserved -> better prognosis
- Bilateral complete palsy: Airway emergency -> worst prognosis

QUESTION

While attempting to remove a fish bone lodged in the pyriform fossa, injury to which of the following nerves is most likely?

A Vagus

B Internal laryngeal

CORRECT

C Recurrent laryngeal

D Glossopharyngeal

RIGHT ANSWER

OK B. Internal laryngeal

WHY THIS IS RIGHT

The pyriform fossa lies on either side of the laryngeal inlet and is a common site for lodgment of foreign bodies such as fish bones. Just beneath its mucosa runs the internal laryngeal nerve along with the superior laryngeal vessels.

- Internal laryngeal nerve supplies sensation above the vocal cords
- It is responsible for the cough reflex when foreign material enters the laryngeal inlet
- Injury can lead to loss of protective cough reflex -> increased risk of aspiration

Why other options are incorrect:

- A. Vagus nerve: Main trunk lies deeper in the carotid sheath and is not directly exposed in the pyriform fossa
- B. Recurrent laryngeal nerve: Supplies intrinsic muscles of larynx and lies in tracheoesophageal groove, not in pyriform fossa
- C. Glossopharyngeal nerve: Supplies oropharynx and posterior tongue, not the pyriform fossa

QUESTION

Which of the following conditions are potential causes of stridor in a newborn?

1. Laryngomalacia
2. Subglottic stenosis
3. Papilloma
4. Hemorrhagic polyp

A 1 & 2

CORRECT

B 3 & 4

C 1 & 4

D 2 & 3

RIGHT ANSWER

OK A. 1 & 2

WHY THIS IS RIGHT

Stridor is a high-pitched sound caused by turbulent airflow due to airway obstruction. In newborns, causes are usually congenital.

Correct causes:

1. Laryngomalacia:

Most common cause of stridor in newborns

Due to collapse of supraglottic structures during inspiration

Typically presents with inspiratory stridor that improves in prone position

2. Subglottic stenosis:

Narrowing of subglottic airway (can be congenital or acquired)

Causes biphasic stridor and respiratory distress

Why other options are incorrect:

3. Papilloma:

Caused by HPV (recurrent respiratory papillomatosis)

Seen in infants/children but not typically presenting at birth (newborn period)

4. Hemorrhagic polyp:

Not a recognized cause of neonatal stridor

More related to vocal cord lesions in older individuals

QUESTION

Match the following:

A. Abductor	1. Cricothyroid
B. Adductor	2. Posterior Cricoarytenoid
C. Tensor	3. Lateral Cricoarytenoid
D. Opener of laryngeal Inlet	4. Thyroepiglotticus

A A1, B2, C3, D4

B A3, B2, C4, D1

C A2, B3, C1, D4 **CORRECT**

D A3, B2, C1, D4

RIGHT ANSWER

OK C. A2, B3, C1, D4

WHY THIS IS RIGHT

Functional classification of intrinsic laryngeal muscles:

Function	Muscle	Action
Abductor of vocal cords	Posterior cricoarytenoid	Only abductor; opens glottis (safety muscle)
Adductor of vocal cords	Lateral cricoarytenoid (main)	Closes glottis for phonation
Tensor of vocal cords	Cricothyroid	Increases pitch by stretching cords
Opener of laryngeal inlet	Thyroepiglotticus	Widens laryngeal inlet during breathing

QUESTION

A middle-aged woman develops hoarseness following a total thyroidectomy. On laryngoscopic examination, there is complete vocal cord palsy on left side. What is the best management in this condition?

- A Speech therapy, lateralization of cord
- B Speech therapy, medialization of cord**
- C Tracheostomy
- D Gutzmann manouever

CORRECT

RIGHT ANSWER

- OK
- B. Speech therapy, medialization of cord**

WHY THIS IS RIGHT

Unilateral vocal cord paralysis following thyroidectomy is most commonly due to recurrent laryngeal nerve injury and leads to hoarseness due to a paramedian, immobile vocal cord.

Best management: Speech therapy + medialization of vocal cord

- Injection laryngoplasty or thyroplasty
- Improves glottic closure and voice quality
- Prevents aspiration

Why not others:

- Tracheostomy -> only for bilateral paralysis with airway compromise
- Lateralization -> done in bilateral paralysis to improve airway
- Gutzmann maneuver -> used in functional voice disorders

QUESTION

A 44-year-old man comes to the office for evaluation of a neck lump. Serum TSH level is normal. Fine-needle aspiration biopsy reveals papillary thyroid cancer. A total thyroidectomy is performed. During an attempt to ligate the inferior thyroid artery, a nervous structure in close proximity is inadvertently damaged. Which of the following was most likely injured during the surgery?

- A External laryngeal nerve
- B Internal laryngeal nerve
- C Vagus trunk
- D Recurrent laryngeal nerve**

CORRECT

RIGHT ANSWER

- OK **D. Recurrent laryngeal nerve**

WHY THIS IS RIGHT

During thyroidectomy, the recurrent laryngeal nerve (RLN) is closely related to the inferior thyroid artery, making it highly susceptible to injury during ligation of this vessel.

- Motor supply to all intrinsic laryngeal muscles except cricothyroid.

Effects of injury:

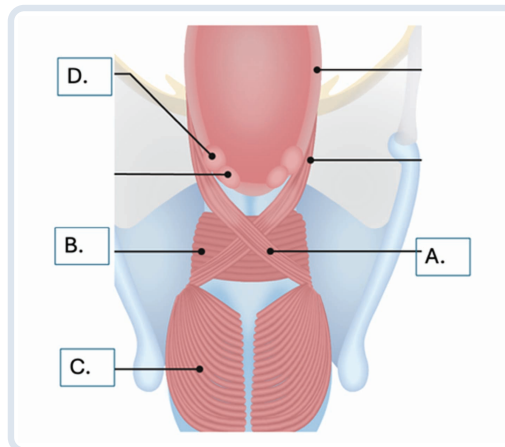
- Unilateral injury -> hoarseness
- Bilateral injury -> airway obstruction, stridor
- Vocal cord paralysis

Surgical principle:

- Inferior thyroid artery ligated away from gland to protect RLN
- Superior thyroid artery ligated close to gland to protect external laryngeal nerve

QUESTION

Which of the following is the safety muscle of larynx?



A A

B B

C C

CORRECT

D D

RIGHT ANSWER

OK C. C

WHY THIS IS RIGHT

The posterior cricoarytenoid muscle is known as the “safety muscle of the larynx” because it is the only abductor of the vocal cords.

Functions:

- Abducts (opens) vocal cords
- Maintains airway patency during inspiration
- Essential for breathing

Other intrinsic laryngeal muscles:

- Lateral cricoarytenoid -> adduction (option A)
- Interarytenoids -> adduction (option B)
- Cricothyroid -> tensor of vocal cords (option D)
- Thyroarytenoid -> relaxes cords

QUESTION

A 36-year-old man is rushed to the emergency department after sudden onset of shortness of breath and difficulty swallowing. He has visited the emergency department several times before due to food and skin allergies. The patient is unconscious on arrival. Examination shows excessive accessory respiratory muscle use and edematous swelling of the face, lips, and tongue. There is also scattered urticaria over the upper body. Attempts at intubation are unsuccessful due to massive soft tissue edema involving the pharynx. A decision is made to perform an emergency cricothyrotomy. The incisions made during this procedure will most likely pass through which of the following structures?

- A** Buccopharyngeal fascia and platysma
- B** Platysma and thyroid isthmus
- C** Pretracheal fascia and cricoid cartilage
- D** Superficial cervical fascia and cricothyroid membrane

CORRECT

RIGHT ANSWER

- OK** **D. Superficial cervical fascia and cricothyroid membrane**

WHY THIS IS RIGHT

Emergency cricothyrotomy is performed to establish a rapid airway when endotracheal intubation is not possible (e.g., severe anaphylaxis with upper airway edema).

Skin -> superficial cervical fascia (including platysma) -> cricothyroid membrane -> airway.

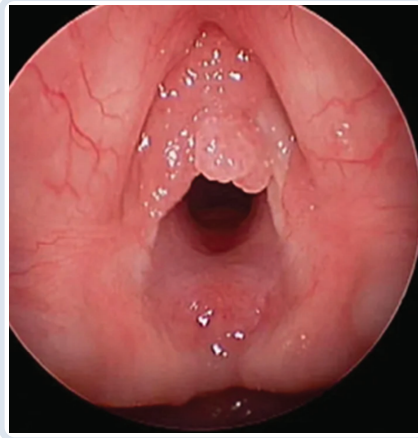
- Cricothyroid membrane lies between thyroid cartilage and cricoid cartilage
- Most superficial and avascular entry into airway
- Preferred site for emergency surgical airway

Why not tracheostomy in emergency:

- Takes longer
- More bleeding risk
- Thyroid isthmus and major vessels present
- Cricothyrotomy is faster and safer in acute airway obstruction

QUESTION

A 4-year-old boy is brought to the OPD due to hoarseness. Flexible laryngoscopy is performed and is shown below. Histopathologic analysis shows a fibrovascular core with benign squamous cells. The physician explains to the parents that this is likely due to infection acquired through which of the following routes of transmission?



A Arthropod vector

B Direct droplet

C Water borne

D Vertical contact

CORRECT

RIGHT ANSWER

OK D. Vertical contact

WHY THIS IS RIGHT

Juvenile laryngeal papillomatosis is caused by human papillomavirus (HPV types 6 and 11) and is most commonly transmitted to children through vertical transmission during vaginal delivery from an infected mother.

- Recurrent hoarseness in children
- Multiple wart-like lesions on vocal cords
- Histology: fibrovascular core with benign squamous epithelium
- May cause airway obstruction if severe

QUESTION

| All of the following are true about the device shown below except:



A It bypasses upper airway structures from nose to larynx thereby reducing the dead space by 50%.

B Usually done at the level of 2nd to 3rd tracheal rings.

C High tracheostomy (1st ring) done along with surgeries related to cancer larynx.

D An uncuffed tube is preferred

CORRECT

RIGHT ANSWER

OK

D. An uncuffed tube is preferred

WHY THIS IS RIGHT

A tracheostomy tube provides a direct airway by bypassing the upper airway (nose, pharynx, larynx), thereby reducing anatomical dead space and airway resistance.

- Standard tracheostomy performed at 2nd-3rd tracheal rings
- Reduces dead space and work of breathing
- Used for prolonged ventilation, airway obstruction, or secretion clearance
- Cuffed tubes preferred in adults on ventilator to prevent aspiration and air leak
- Uncuffed tubes mainly used in children or when aspiration risk is minimal

High tracheostomy:

- Through first tracheal ring
- Sometimes done during laryngeal cancer surgery or laryngectomy

QUESTION

23-year-old comes to the ED with the feeling of food being stuck in the throat. Laryngoscopy reveals fish bone lodged in the left piriform recess. During retrieval of the fish bone, a nerve deep to the mucosa overlying the recess is damaged. Which of the following is most likely to be impaired in this patient as a result of his iatrogenic injury?

A Cough reflex

CORRECT

B Gag reflex

C Mastication

D Salivation

RIGHT ANSWER

OK A. Cough reflex

WHY THIS IS RIGHT

The internal laryngeal nerve (branch of the superior laryngeal nerve of CN X) lies just beneath the mucosa of the piriform recess, making it vulnerable to injury from foreign bodies or instrumentation. Functions of internal laryngeal nerve:

- Sensory supply to supraglottic larynx (above vocal cords)
- Afferent limb of cough reflex

Clinical consequence of injury:

- Loss of supraglottic sensation
- Impaired cough reflex
- Increased risk of aspiration

Other options explained:

- Gag reflex -> CN IX & X (pharyngeal wall)
- Mastication -> CN V (trigeminal)
- Salivation -> CN VII & IX

QUESTION

| Which among the following is not used in post laryngectomy rehabilitation?

A Tracheo- esophageal prosthesis

B Esophageal speech

C Polite yawning

D Super supraglottic swallow

CORRECT

RIGHT ANSWER

OK D. Super supraglottic swallow

WHY THIS IS RIGHT

Rehabilitation after total laryngectomy focuses mainly on voice restoration and airway care, not swallowing maneuvers used for laryngeal preservation. Methods used in post-laryngectomy voice rehabilitation:

- Tracheoesophageal prosthesis (TEP): Most effective method for speech restoration
- Esophageal speech: Air swallowed and released to produce sound
- Polite yawning technique: Helps train esophageal speech by facilitating air intake into esophagus

Not used:

- Super-supraglottic swallow -> a swallowing maneuver used in patients with intact larynx (e.g., after supraglottic surgery or aspiration risk) to protect airway

QUESTION

A 4-month-old boy is brought to the office for "noisy breathing", especially when he is lying on his back. The noise seems to improve when the patient is held upright or during "tummy time." He does not appear to have laboured breathing and has never turned blue. Which of the following would confirm the most likely diagnosis for this patient?

- A Chest radiography
- B CT scan of the neck
- C Flexible fiberoptic laryngoscopy**
- D Fluoroscopic barium swallow

CORRECT

RIGHT ANSWER

- OK C. Flexible fiberoptic laryngoscopy**

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$2" here and does not include a written explanation for this item.

QUESTION

The presence of which structure is responsible for infants to be able to breathe simultaneously while suckling milk?

- A Small tongue
- B Small soft palate
- C High larynx
- D Small pharynx

CORRECT

RIGHT ANSWER

- OK
- C. High larynx

WHY THIS IS RIGHT

Infants can breathe and suckle simultaneously because of a highly placed larynx in the neck. Anatomical basis:

- In infants, the larynx lies at C2-C3 level (higher than adults)
- Epiglottis lies close to the soft palate
- Creates a near-separate airway and food passage
- Allows milk to pass laterally while airway remains patent

Changes with age:

- With growth, larynx descends to C4-C6 level
- Separation between airway and food passage increases
- Adults cannot breathe and swallow simultaneously

QUESTION

Which of the following is the most likely risk factor for this patient's current condition?



- A** Childhood obesity
- B** Inadequate dental hygiene
- C** Lack of recommended immunizations
- D** Poorly controlled diabetes mellitus

CORRECT

RIGHT ANSWER

- OK** C. Lack of recommended immunizations

WHY THIS IS RIGHT

A child presenting with fever, sore throat, dysphagia, drooling, and respiratory distress with lateral neck X-ray showing the "thumb sign" indicates acute epiglottitis.

- Most commonly caused by *H. influenzae* type b in unimmunized children
- Rapidly progressive and can cause acute airway obstruction
- X-ray lateral neck: thumb-shaped swollen epiglottis
- Do NOT attempt throat examination -> risk of sudden airway collapse

Management priority:

- Secure airway first (intubation if needed)
- IV antibiotics (ceftriaxone/cefotaxime)

QUESTION

A 55-year-old patient is diagnosed with glottic carcinoma involving the right side of the vocal cord. The tumor extends to the supraglottis with impaired vocal cord mobility. What is the most appropriate primary treatment for this patient?

- A** Total laryngectomy
- B** Radiotherapy
- C** Endoscopic CO2 laser excision

D Vertical hemilaryngectomy

CORRECT

RIGHT ANSWER

OK **D. Vertical hemilaryngectomy**

WHY THIS IS RIGHT

Vertical hemilaryngectomy is the preferred primary treatment for selected unilateral glottic cancers with extension to supraglottis and impaired vocal cord mobility, provided the disease remains confined to one side without cartilage invasion or distant spread.

Treatment selection in glottic carcinoma depends on stage and cord mobility:

- Early T1-T2 with mobile cord: Radiotherapy or endoscopic laser excision
- Unilateral disease with impaired mobility (T2-early T3): Vertical hemilaryngectomy
- Bilateral involvement, cartilage invasion, or advanced T3-T4: Total laryngectomy

QUESTION

A 35-year-old teacher complains of hoarseness, vocal fatigue, and a weak voice, especially after prolonged speaking. Laryngoscopic examination reveals keyhole appearance of the glottis during phonation. What is the most likely diagnosis?

A Puberphonia

B Phonasthenia

CORRECT

C Functional aphonia

D Hysteric aphonia

RIGHT ANSWER

OK

B. Phonasthenia

WHY THIS IS RIGHT

Phonasthenia is a functional voice disorder seen commonly in professional voice users (teachers, singers) characterized by vocal fatigue, hoarseness, weak voice, and throat discomfort without structural laryngeal pathology. On laryngoscopy, it shows a “keyhole” or spindle-shaped glottic gap during phonation due to incomplete closure of the vocal cords from vocal strain and misuse.

It must be differentiated from:

- Puberphonia: high-pitched voice in adolescent males
- Functional/hysteric aphonia: whispering voice with normal cough and sudden onset, usually psychogenic

Management: Voice therapy, vocal hygiene, and speech therapy are mainstay.

QUESTION

What type of epithelium lines the vocal cords, and what is the space between them called?

- A Non-keratinizing stratified squamous epithelium; Rima vestibularis
- B Pseudostratified ciliated columnar epithelium; Rima glottidis
- C Non-keratinizing stratified squamous epithelium; Rima glottidis**
- D Pseudostratified ciliated columnar epithelium; Rima vestibularis

CORRECT

RIGHT ANSWER

- OK
- C. Non-keratinizing stratified squamous epithelium; Rima glottidis**

WHY THIS IS RIGHT

True vocal cords are lined by non-keratinizing stratified squamous epithelium to withstand friction and vibration during phonation. In contrast, Most of larynx is lined by pseudo stratified ciliated columnar (respiratory) epithelium

Space between true vocal cords is Called rima glottidis

- Narrowest part of laryngeal airway in adults
- Extends between the two true vocal cords and arytenoids

Space between false vocal cords is called rima vestibuli

QUESTION

Human papillomavirus (HPV) is most commonly associated with which of the following carcinoma?

A Nasopharyngeal carcinoma

B Laryngeal carcinoma

C Oropharyngeal carcinoma

CORRECT

D Hypopharyngeal carcinoma

RIGHT ANSWER

OK C. Oropharyngeal carcinoma

WHY THIS IS RIGHT

Human papillomavirus (HPV), especially type 16, is most strongly associated with oropharyngeal carcinoma, particularly involving the tonsil and base of tongue.

- HPV-related cancers arise from oropharyngeal lymphoid tissue
- Mechanism: Viral oncoproteins E6 and E7 inactivate p53 and Rb tumor suppressor genes

· Epidemiology:

- o Often seen in younger patients
- o Less association with smoking/alcohol compared to other head & neck cancers

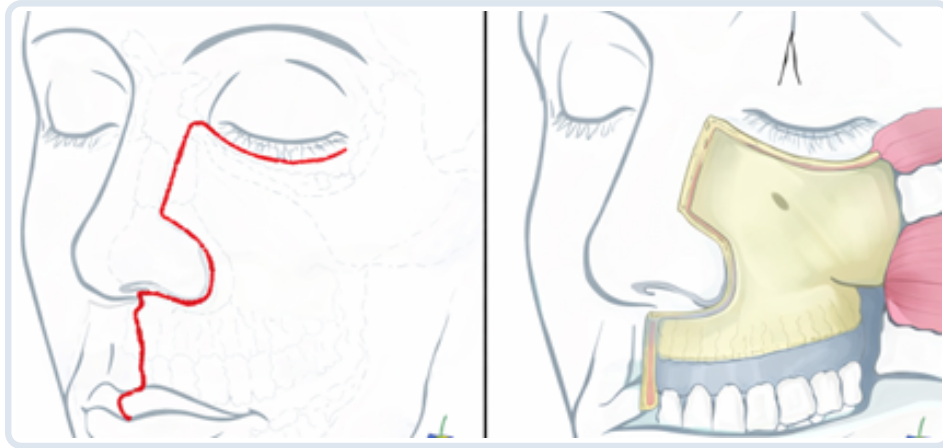
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Why not other options:

- Nasopharyngeal carcinoma: Associated with Epstein-Barr virus (EBV)
- Laryngeal carcinoma: Strongly linked to smoking and alcohol
- Hypopharyngeal carcinoma: Also related to tobacco and alcohol, not HPV

QUESTION

Examine the given clinical image. Which of the following surgeries is being performed?



A Total maxillectomy

CORRECT

B Partial maxillectomy

C Total ethmoidectomy

D Partial ethmoidectomy

RIGHT ANSWER

OK A. Total maxillectomy

WHY THIS IS RIGHT

The image depicts a Weber-Ferguson incision, which is classically used for total maxillectomy to provide wide exposure of the maxilla, orbit, and nasal cavity.

- Total maxillectomy involves removal of the entire maxilla, often including:
 - Maxillary sinus
 - Hard palate
 - Part of orbital floor (depending on extent)
- Indicated for malignancies of maxilla/maxillary sinus
- Weber-Ferguson incision:
 - Extends from upper lip -> along nose -> infraorbital region
 - Provides excellent access to midface structures

Why not other options:

- Partial maxillectomy: Limited resection, less extensive incision
- Ethmoidectomy (partial/total): Done endoscopically or via medial orbital approach, not this incision

QUESTION

A 32-year-old patient with a history of chronic alcohol abuse presents to the clinic with complaints of oral ulcers and a burning sensation in the mouth. A picture of the patient's oral cavity is provided, which reveals several white patches on the tongue and inner cheek. Based on this presentation, what is the likely diagnosis for this patient?



A Leukoplakia

CORRECT

B Erythroplakia

C Submucosal fibrosis

D Malakoplakia

RIGHT ANSWER

OK A. Leukoplakia

WHY THIS IS RIGHT

Leukoplakia is defined as a non-scrapable white patch in the oral cavity that cannot be characterized as any other disease and is considered a premalignant lesion.

- Risk factors:
 - Tobacco, alcohol, chronic irritation
- Appearance:
 - White plaques on tongue, buccal mucosa
 - Cannot be scraped off (distinguishes from candidiasis)
- Pathology:
 - May show dysplasia -> risk of malignant transformation

Why not other options:

- Erythroplakia: Red lesion, higher malignant potential
- Submucosal fibrosis: Fibrosis with restricted mouth opening, not white patches
- Malakoplakia: Rare granulomatous condition, not typical oral white lesions

QUESTION

| The instrument shown in the image is not used for which of the following?



- A Airway toileting
- B Upper airway examination
- C Acute nasopharyngeal obstruction
- D Prolonged mechanical ventilation

CORRECT

RIGHT ANSWER

OK

B. Upper airway examination

WHY THIS IS RIGHT

The instrument shown is an oropharyngeal airway (Guedel airway), used to maintain airway patency in unconscious patients by preventing tongue fall-back.

- Indications:
 - Airway toileting (suctioning)
 - Bag-mask ventilation
 - Relief of acute upper airway obstruction (tongue fall)
 - Color-coded sizes for appropriate patient selection

Why NOT used for upper airway examination:

- It is an airway adjunct, not a diagnostic instrument
- It does not provide visualization of larynx/pharynx (unlike laryngoscope/endoscope)

Not used in conscious patients -> can trigger gag reflex and vomiting

QUESTION

A patient with oral cancer invading floor of mouth. What is the T stage?



A T2

B T3

C T4a

CORRECT

D T4b

RIGHT ANSWER

OK C. T4a

WHY THIS IS RIGHT

Invasion of floor of mouth = T4a (moderately advanced local disease). T2 and T3 are size-based without invasion. T4b involves masticator space/skull base, not present here.

Outline of the T category from the American Joint Committee on Cancer (AJCC) tumour-node-metastasis (TNM) staging manual, 8th edition.	
T category	T criteria
TX	Primary tumour cannot be assessed
Tis	Carcinoma in situ
T1	Tumour ≤ 2 cm, ≤ 5 mm DOI
T2	Tumour ≤ 2 cm, DOI > 5 mm ≤ 10 mm or tumour > 2 cm but ≤ 4 cm, and ≤ mm DOI
T3	Tumour > 4 cm or any tumour > 10 mm DOI
T4	Moderately advanced or very advanced local disease
T4a	Moderately advanced local disease; (lip) tumour invades through cortical bone or involves the inferior alveolar nerve, floor of mouth or skin of face (i.e. chin or nose); (oral cavity) tumour invades adjacent structures only (e.g. through cortical bone of the mandible or maxilla, or involves the superficial erosion of bone/tooth socket (alone) by a gingival primary is not sufficient to classify a tumour as T4
T4b	Very advanced local disease; tumour invades masticator space, pterygoid plates or skull base and/or encases the internal carotid artery

QUESTION

Identify the nerve being blocked in the local anesthesia procedure shown below



A Greater palatine nerve

CORRECT

B Maxillary nerve

C Infraorbital nerve

D Anterior ethmoidal nerve

RIGHT ANSWER

OK A. Greater palatine nerve

WHY THIS IS RIGHT

The image shows an intraoral injection directed toward the posterolateral hard palate near the greater palatine foramen. This is the site where the greater palatine nerve emerges.

The greater palatine nerve is a branch of the maxillary nerve (V2) and supplies:

- Posterior hard palate mucosa
- Palatal gingiva of posterior teeth

This nerve block is commonly used in dental and oral surgical procedures involving:

- Maxillary molars (palatal aspect)
- Palatal surgeries
- Extraction procedures requiring palatal anesthesia

Why other options are incorrect:

B. Maxillary nerve: This is a proximal nerve (V2) and is not directly blocked intraorally at the palate; requires deeper approaches like pterygopalatine fossa block.

C. Infraorbital nerve: Supplies upper lip, cheek, and anterior maxillary teeth region; blocked at infraorbital foramen, not palate.

D. Anterior ethmoidal nerve: Branch of ophthalmic division (V1); supplies anterior nasal cavity, not palate.

QUESTION

A person presents with a tongue ulcer persisting for 3 months. Upon examination, a lesion measuring 3.5 cm x 2.5 cm is observed, accompanied by an 12 mm depth of invasion on biopsy. No lymph node enlargement is detected. According to the 8th AJCC guidelines, what stage does this lesion correspond to?

A Stage I

B Stage II

C Stage III

CORRECT

D Stage IV

RIGHT ANSWER

OK

C. Stage III

WHY THIS IS RIGHT

In the AJCC 8th edition TNM staging for oral cavity cancers, depth of invasion (DOI) is a critical factor in determining T stage, not just surface size.

T staging (oral tongue SCC):

- T1: ≤ 2 cm and DOI ≤ 5 mm
- T2: ≤ 2 cm with DOI 5-10 mm OR 2-4 cm with DOI ≤ 10 mm
- T3: > 4 cm OR DOI > 10 mm
- T4: Invasion of adjacent structures

In this case:

- Tumor size: 3.5 cm (would suggest T2)
- DOI: 12 mm (> 10 mm) $\rightarrow$ upgrades to T3
- No nodes, no metastasis $\rightarrow$ N0 M0

Stage grouping (simplified)

- Stage I: T1 N0
- Stage II: T2 N0
- Stage III: T3 N0 or T1-T3 with N1
- Stage IVA: T4a or N2
- Stage IVB: T4b or N3
- Stage IVC: Any T, any N with distant metastasis

Thus: T3N0M0 = Stage III

QUESTION

A 68-year-old man with a long history of using chewing tobacco comes to the office for follow up of squamous cell carcinoma (SCC) of the oral cavity. A month ago, the patient was diagnosed with SCC of the left lateral tongue. He underwent resection, the surgical specimen showed clear margins, and he started additional treatment. The patient recently noticed a second ulcerative lesion on the right lateral tongue. Biopsy is performed and it also shows SCC. The second tumor most likely arose from which of the following mechanisms?

A Chemotherapy-induced malignancy

B Field cancerization

CORRECT

C Hematogenous spread

D Immunologic privilege

RIGHT ANSWER

OK B. Field cancerization

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$2” here and does not include a written explanation for this item.

QUESTION

25-year-old man comes to the office for evaluation of a painless mass in his mouth. The patient has had the mass for many years and has had no growth or other changes in the mass over that time. The patient smokes a pack of cigarettes a day and drinks 2 or 3 alcoholic beverages on the weekends. Examination of the mass is seen below:

Which of the following is the most likely cause of this patient's mass?



A Bone tumor

CORRECT

B Toxin mediated

C Malignant transformation

D Viral infection

RIGHT ANSWER

OK A. Bone tumor

WHY THIS IS RIGHT

A torus palatinus is a benign bony exostosis arising from the hard palate and represents a type of bone tumor (hamartomatous bony growth).

- Midline hard palate mass
- Painless and slow growing
- Present for many years without change
- Hard, non-tender, mucosa-covered swelling
- Developmental bony overgrowth
- Genetic predisposition
- Not related to smoking, infection, or malignancy

Clinical significance:

- Usually requires no treatment
- Surgical removal only if causing trauma, speech, swallowing, or denture issues

QUESTION

A 45-year-old patient presents with ear pain, tinnitus, a feeling of ear fullness, and headache. Otoscopic examination is normal. Symptoms worsen on chewing. The patient has loss of posterior teeth. Which of the following best explains this condition?

A Otitis media with effusion

B Glossopharyngeal neuralgia

C Temporomandibular joint dysfunction due to loss of vertical dimension (Costen's syndrome)

CORRECT

D Trigeminal neuralgia

RIGHT ANSWER

OK

C. Temporomandibular joint dysfunction due to loss of vertical dimension (Costen's syndrome)

WHY THIS IS RIGHT

Costen's syndrome refers to temporomandibular joint (TMJ) dysfunction caused by loss of vertical dimension, usually due to loss of posterior teeth, leading to referred otologic symptoms.

Clinical features:

- Ear pain with normal otoscopy
- Tinnitus
- Ear fullness
- Headache
- Pain worsens on chewing
- Often associated with missing molars/posterior teeth

QUESTION

A middle aged female came to the OPD with the complaint of a slowly growing, painless firm mass in her right parotid region for over 2 years. She notes recent rapid enlargement over the last 1-2 months. An ultrasound is done for the same and that reveals a heterogenous hypoechoic lesion in the superficial lobe. A subsequent FNAC reveals the presence of epithelial and myxochondroid stromal elements. She is counselled about the risks associated with this tumor. Which of the following is the most concerning complication if treated inadequately?

- A** Early facial nerve paralysis due to perineural infiltration
- B** High grade transformation into adenocarcinoma with early nodal metastasis
- C** Recurrence due to the presence of pseudopodia that causes tumor spill during surgery CORRECT
- D** Multiloculated cystic spaces with oncocytic epithelium causing high bilateral recurrence

RIGHT ANSWER

- OK** **C. Recurrence due to the presence of pseudopodia that causes tumor spill during surgery**

WHY THIS IS RIGHT

This patient has pleomorphic adenoma (benign mixed tumor) of the parotid:

- Slow-growing painless parotid mass
- FNAC: epithelial + myxochondroid stromal elements (classic)

Most concerning complication if inadequately treated is Recurrence due to pseudopodia and tumor spillage during surgery. Therefore, Superficial parotidectomy with facial nerve preservation should be done. Avoid simple enucleation.

- Why other options are wrong
- Early facial nerve paralysis due to perineural infiltration -> suggests malignancy
- High-grade adenocarcinoma transformation -> rare (carcinoma ex pleomorphic adenoma), long-term risk
- Oncocytic multiloculated cysts -> Warthin tumor

QUESTION

Human papillomavirus (HPV) is most commonly associated with which of the following carcinoma?

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CORRECT

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RIGHT ANSWER

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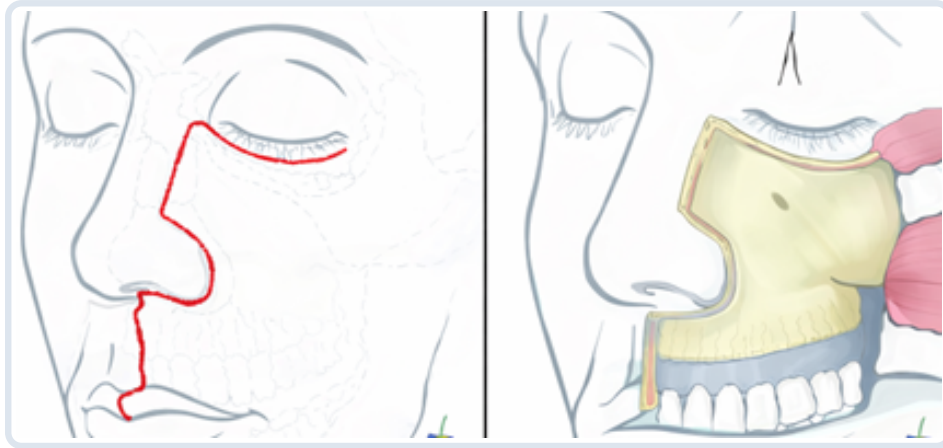
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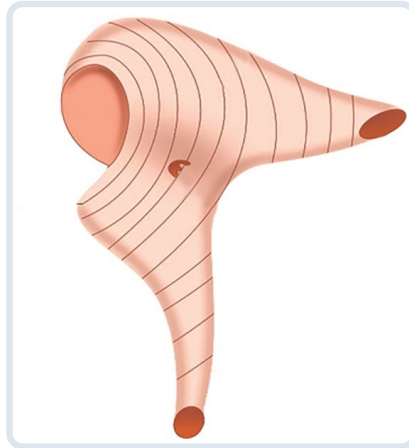
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D. Anterior ethmoidal nerve: Branch of ophthalmic division (V1); supplies anterior nasal cavity, not palate.

QUESTION

Identify the structure given in the image:



A Malleus

B Incus

CORRECT

C Stapes

D Vomer

RIGHT ANSWER

OK

B. Incus

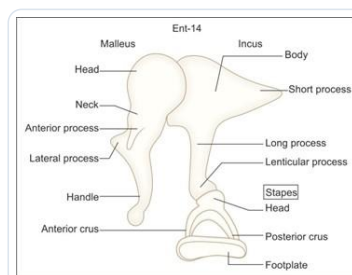
WHY THIS IS RIGHT

The incus is a middle ear ossicle shaped like an anvil, connecting the malleus to the stapes and transmitting sound vibrations.

- Parts of incus:
- Body -> articulates with malleus
- Long process -> ends in lenticular process, articulates with stapes
- Short process -> attached to posterior wall via ligament
- Function:
- Acts as a bridge in ossicular chain for sound conduction

Why not other options:

- Malleus: Hammer-shaped, attached to tympanic membrane
- Stapes: Smallest bone, stirrup-shaped
- Vomer: Part of nasal septum, not an ossicle



QUESTION

A 70-year-old male patient presents with decreased hearing in higher frequencies. It was noted that the basilar membrane was affected. Which of the following structures lie near the affected structure?

- A Modiolus
- B Stria vascularis
- C Oval window**
- D Helicotrema

CORRECT

RIGHT ANSWER

- OK
- C. Oval window**

WHY THIS IS RIGHT

In high-frequency hearing loss (presbycusis), the pathology primarily affects the basal turn of the cochlea, where the basilar membrane near the oval window is located.

- Tonotopic organization of cochlea:
- Base (near oval window): High-frequency sounds
- Apex (near helicotrema): Low-frequency sounds
- Degeneration of hair cells in basal turn -> loss of high-frequency hearing

Anatomical correlation:

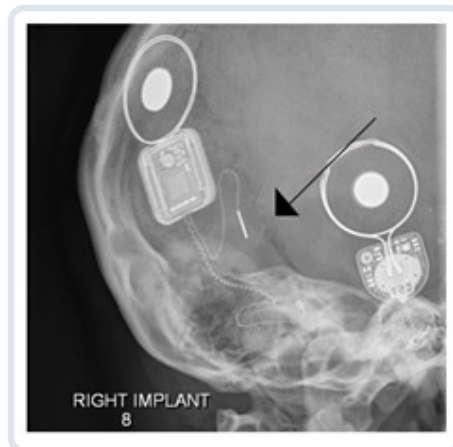
- Oval window lies adjacent to the basal turn of cochlea
- Hence, structures near the affected basilar membrane = oval window

Why not other options:

- Modiolus: Central core of cochlea, not frequency-specific
- Stria vascularis: Involved in endolymph production, not location-specific for high frequency
- Helicotrema: Apex -> low-frequency region

QUESTION

Identify the part of the cochlear implant marked?



A Grounding electrode

CORRECT

B Amplifier

C Receiver

D Electrode array

RIGHT ANSWER

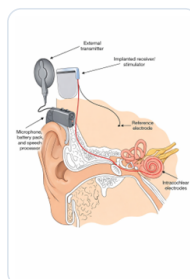
OK

A. Grounding electrode

WHY THIS IS RIGHT

In a cochlear implant, the grounding electrode is an extracochlear electrode placed outside the cochlea (often in temporalis muscle or subperiosteal region) to complete the electrical circuit.

- Electrode array: Inserted into cochlea -> stimulates auditory nerve
- Receiver-stimulator: Implanted under the skin -> receives signals from external device
- Grounding electrode: Provides reference/return path for electrical current



QUESTION

Mark the correct statement/s about Inner and Outer hair cells.

1. Inner hair cells are in a single row and transmit auditory impulses.
2. Outer hair cells are in 3-4 rows and modulate function of inner hair cells.
3. Outer hair cells are more responsible for movement of tectorial membrane.
4. Inner hair cells are in single row and modulate function of outer hair cells.
5. Outer and inner hair cells are present in the ratio 3:1.

A 1, 2 and 5 are correct

CORRECT

B 1, 2 and 3 are correct

C All are correct

D 2, 4 and 5 are correct

RIGHT ANSWER

OK A. 1, 2 and 5 are correct

WHY THIS IS RIGHT

Understanding the structure and function of inner and outer hair cells in the organ of Corti is essential for interpreting hearing physiology.

OHC : IHC = ~3 : 1

Inner Hair Cells (IHC):

- Arranged in single row
- Primary sensory receptors
- Transmit auditory impulses to brain via afferent fibers

Outer Hair Cells (OHC):

- Arranged in 3-4 rows
- Function: modulation and amplification of sound
- Show electromotility (prestin protein) -> enhance basilar membrane vibration
- Help in fine-tuning frequency and sensitivity

Incorrect statements explained:

- Statement 3: OHC do not primarily move the tectorial membrane; they amplify basilar membrane motion
- Statement 4: IHC do NOT modulate OHC; rather OHC modulate IHC function

QUESTION

A patient presents with high-frequency hearing loss that worsens in noisy surroundings. What is the most likely diagnosis?

A Presbycusis

CORRECT

B Meniere disease

C Acoustic neuroma

D Otosclerosis

RIGHT ANSWER

OK A. Presbycusis

WHY THIS IS RIGHT

Presbycusis is an age-related sensorineural hearing loss characterized by bilateral high-frequency loss with difficulty understanding speech in noisy environments.

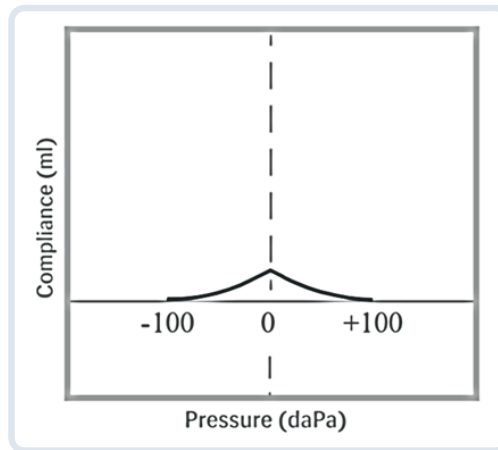
- Pathology: Degeneration of hair cells in the basal turn of cochlea
- Hearing loss:
 - o High frequency first
 - o Gradually progressive, bilateral and symmetric
- Hallmark complaint:
 - o "I can hear but cannot understand," especially in noisy settings (poor speech discrimination)

Why not other options:

- Meniere disease: Fluctuating low-frequency loss, vertigo, tinnitus
- Acoustic neuroma: Unilateral sensorineural loss with tinnitus
- Otosclerosis: Conductive hearing loss, not high-frequency SNHL

QUESTION

Based on the given tympanogram tracing, identify the type of tympanogram



A Type A

B Type B

C Type As

CORRECT

D Type Ad

RIGHT ANSWER

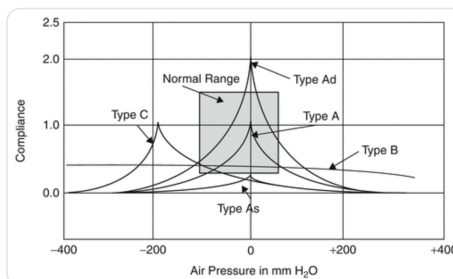
OK C. Type As

WHY THIS IS RIGHT

A Type As tympanogram shows a shallow peak at normal pressure (around 0 daPa), indicating reduced compliance (stiff middle ear system).

Common causes:

- Otosclerosis (stapes fixation)
- Tympanosclerosis
- Ossicular fixation



QUESTION

| Which type of tympanogram is typically seen in patients with adenoid hypertrophy?

A Type A

B Type B

CORRECT

C Type As

D Type Ad

RIGHT ANSWER

OK B. Type B

WHY THIS IS RIGHT

Adenoid hypertrophy commonly leads to Eustachian tube dysfunction -> middle ear effusion (OME), producing a Type B (flat) tympanogram.

- Enlarged adenoids obstruct the Eustachian tube opening in the nasopharynx
- This causes negative middle ear pressure -> fluid accumulation
- Fluid dampens tympanic membrane movement -> no peak on tympanometry

Tympanogram interpretation:

- Type B (flat curve): Seen in
 - o Otitis media with effusion (OME)
 - o TM perforation (with large ear canal volume)

QUESTION

A 5-year-old child presents with a history of recurrent ear infections. On otoscopic examination, the tympanic membrane is noted to be dull and retracted, with fluid visible in the middle ear. What is the most likely diagnosis?

A Otitis media with effusion (OME)

CORRECT

B Acute suppurative otitis media (ASOM)

C Chronic suppurative otitis media (CSOM)

D Otitis externa (OE)

RIGHT ANSWER

OK

A. Otitis media with effusion (OME)

WHY THIS IS RIGHT

Otitis media with effusion (OME) is characterized by non-purulent fluid in the middle ear without signs of acute infection, commonly seen in children with Eustachian tube dysfunction.\

- Findings:
 - o Dull, retracted tympanic membrane
 - o Fluid level or air bubbles behind TM
 - o Reduced mobility on pneumatic otoscopy
- Pathophysiology:
 - o Poor Eustachian tube function -> negative pressure -> fluid accumulation
- Symptoms:
 - o Hearing loss, ear fullness
 - o Usually no fever or acute pain

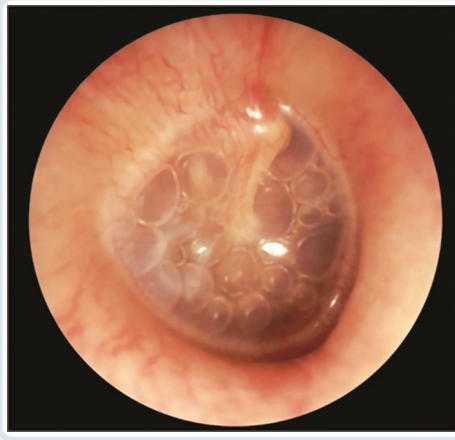
Why not other options:

- ASOM: Acute pain, fever, bulging congested TM
- CSOM: Chronic discharge with TM perforation
- Otitis externa: External canal inflammation, normal TM



QUESTION

A 5-year-old child presents with reduced hearing for the past 2-3 months. The otoscopy finding is given below. What is the most likely diagnosis?



A Myringitis bullosa

B Serous otitis media

CORRECT

C Acute otitis media

D Pneumo Tympanum

RIGHT ANSWER

OK

B. Serous otitis media

WHY THIS IS RIGHT

Serous otitis media (Otitis Media with Effusion, OME) is characterized by non-purulent fluid accumulation in the middle ear due to Eustachian tube dysfunction, commonly seen in children.

Key otoscopic findings (as shown in image):

- Dull, retracted tympanic membrane
- Air-fluid levels / bubbles behind TM
- Reduced mobility on pneumatic otoscopy

Clinical features:

- Painless hearing loss (conductive)
- Often follows URTI or associated with adenoid hypertrophy

Why not others:

- Myringitis bullosa: Painful hemorrhagic bullae on TM
- Acute otitis media: Bulging, hyperemic TM with pain and fever
- Pneumotympanum: Air in middle ear, usually post trauma/procedure, not fluid bubbles

QUESTION

A female patient with hearing loss is examined and is found to be Rinne's negative at 256 Hz and 512 Hz, while Rinne positive at 1024 Hz. What is the expected air conduction and bone conduction gap?

A 30-45 dB

CORRECT

B 15-30 dB

C 45-60 dB

D >60 dB

RIGHT ANSWER

OK

A. 30-45 dB

WHY THIS IS RIGHT

The Rinne test becomes negative only when the air-bone gap (ABG) exceeds a certain threshold, and this threshold varies with tuning fork frequency.

- Lower frequencies (256, 512 Hz): Rinne becomes negative earlier (smaller ABG needed)
- Higher frequency (1024 Hz): Requires a larger ABG to turn negative

Interpretation of the question:

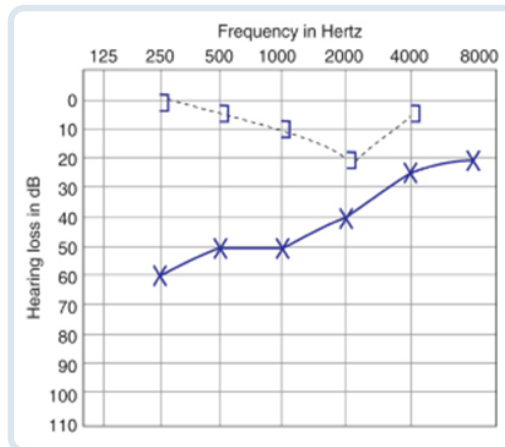
- Rinne negative at 256 & 512 Hz -> significant conductive hearing loss
- Rinne still positive at 1024 Hz -> ABG not large enough to affect higher frequency

This pattern corresponds to an air-bone gap of ~30-45 dB

- ABG ~15-30 dB: Rinne may turn negative at 256 Hz only
- ABG ~30-45 dB: Negative at 256 & 512 Hz, positive at 1024 Hz
- ABG >45-60 dB: Negative at all frequencies

QUESTION

| Audiogram of a patient is given. Find the sign that can be seen in the same case.



- A** Balance sign
- B** Hennebert sign
- C** **Schwartz sign**
- D** Hitzelberger sign

CORRECT

RIGHT ANSWER

- OK** **C. Schwartz sign**

WHY THIS IS RIGHT

The audiogram shows a conductive hearing loss with a characteristic dip at 2000 Hz (Carhart notch), which is suggestive of otosclerosis.

- Otosclerosis = stapes footplate fixation -> conductive hearing loss
- Audiogram finding:
- Air-bone gap
- Carhart notch at 2000 Hz (pseudo-sensorineural dip)

Associated clinical sign:

- Schwartze sign -> pinkish blush on tympanic membrane due to active otospongiotic phase

Why not other options:

- Hennebert sign: Vertigo on pressure (seen in labyrinthine fistula, syphilis)
- Hitzelberger sign: Loss of sensation in posterosuperior EAC (acoustic neuroma)
- Balance sign: Not specific here

QUESTION

A patient presents with a perforation in the tympanic membrane. During the evaluation, a Rinne test is performed. What is the expected outcome of the Rinne test in this case?

A Positive

B Negative

CORRECT

C Indeterminate

D Equivocal

RIGHT ANSWER

OK

B. Negative

WHY THIS IS RIGHT

A tympanic membrane perforation causes conductive hearing loss (CHL), and the Rinne test becomes negative on the affected side.

- Rinne test compares Air Conduction (AC) vs Bone Conduction (BC)
- Normal: $AC > BC$ (Rinne positive)
- Conductive hearing loss: $BC > AC$ (Rinne negative)

Pathophysiology in TM perforation:

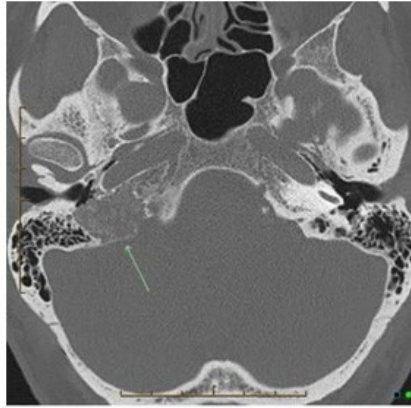
- TM perforation $\rightarrow$ impaired sound transmission through middle ear
- Air conduction is reduced $\rightarrow$ bone conduction becomes relatively better

Clinical interpretation:

- Rinne negative = conductive hearing loss
- Seen in:
 - TM perforation
 - Otitis media
 - Otosclerosis

QUESTION

On the promontory, behind the tympanic membrane, there is a red mass. CT is given. What is the diagnosis?



A Glomus jugulare

CORRECT

B Glomus tympanicum

C Otosclerosis

D None of the above

RIGHT ANSWER

OK A. Glomus jugulare

WHY THIS IS RIGHT

A red pulsatile mass behind the tympanic membrane suggests a glomus tumor (paraganglioma). When imaging shows involvement of the jugular foramen with bony erosion, the diagnosis is glomus jugulare.

- Origin: Paraganglionic cells of jugular bulb
- Features:
 - Pulsatile tinnitus
 - Reddish mass behind TM
 - May show Brown's sign (blanching on pressure)
- CT: Irregular "moth-eaten" bone destruction at jugular foramen.

Differentiation:

- Glomus tympanicum: Smaller, confined to middle ear/promontory, no jugular foramen erosion
- Otosclerosis: Bony fixation of stapes, no red mass

QUESTION

On Head impulse test, for a Left vestibular neuritis patient, Saccade will be in which direction?

- A** Left on left head rotation
- B** Left on right head rotation
- C** Right on left head rotation
- D** Right on right head rotation

CORRECT

RIGHT ANSWER

- OK** **C. Right on left head rotation**

WHY THIS IS RIGHT

The Head Impulse Test (HIT) assesses the vestibulo-ocular reflex (VOR). In unilateral vestibular loss (e.g., left vestibular neuritis), the VOR is impaired on the affected side.

- When the head is rapidly turned towards the affected side (left):
 - > Eyes fail to stay fixed on the target
 - > A corrective (catch-up) saccade occurs
 - The saccade is directed towards the target (opposite to head movement)

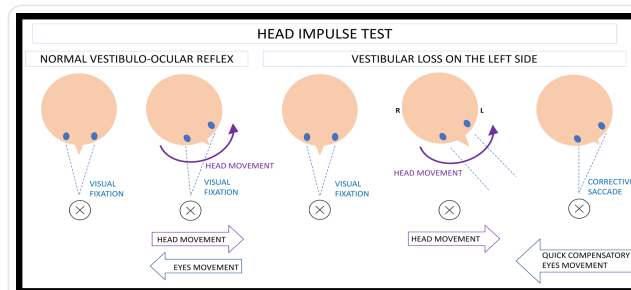
Application to question:

- Left vestibular neuritis -> defective left VOR
- Head turned to left -> eyes move with head (cannot fix gaze)
- Corrective saccade occurs to the right

Hence: Right saccade on left head rotation

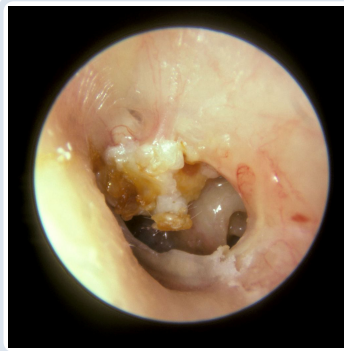
Why not other options:

- Saccades occur only when turning toward the affected side
- Direction of saccade is opposite to head movement, not same side



QUESTION

A 36-year-old man presents with a history of persistent foul-smelling ear discharge and progressive hearing loss in his right ear for several months. Otoscopic examination is shown below. There are no signs of acute infection, but the discharge has not resolved despite medical management. Which of the following is the most appropriate surgical management for this patient?



A Modified radical mastoidectomy (MRM)

CORRECT

B Myringoplasty

C Atticotomy

D Exploratory tympanotomy

RIGHT ANSWER

OK **A. Modified radical mastoidectomy (MRM)**

WHY THIS IS RIGHT

The otoscopic image shows:

- Attic/posterosuperior retraction pocket
- Keratin debris (dirty white flakes)
- Likely cholesteatoma

Clinical correlation

- Foul-smelling, persistent discharge -> classic for unsafe CSOM
- Progressive hearing loss
- Not responding to medical therapy

Indicates cholesteatoma with bone-eroding potential

Why MRM?

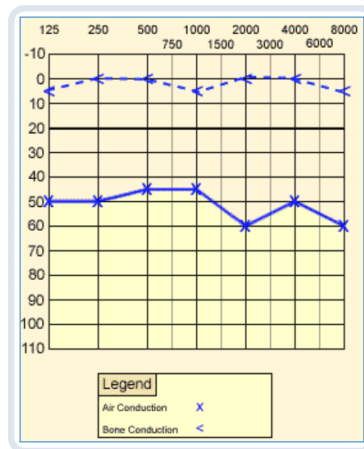
- Definitive surgery for unsafe CSOM (cholesteatoma)
- Removes disease + creates a safe, dry ear
- Preserves hearing structures where possible

Why NOT others?

- Myringoplasty -> only for *safe CSOM (central perforation)*
- Atticotomy -> limited disease (early attic cholesteatoma only)
- Exploratory tympanotomy -> ossicular issues, not cholesteatoma clearance

QUESTION

Based on the Pure Tone Audiogram (PTA) shown in the image below, identify the type and side of hearing loss.



A Right conductive hearing loss

B Left conductive hearing loss

CORRECT

C Right sensorineural hearing loss

D Left sensorineural hearing loss

RIGHT ANSWER

OK

B. Left conductive hearing loss

WHY THIS IS RIGHT

Pure tone audiometry is used to differentiate conductive and sensorineural hearing loss based on the relationship between air conduction (AC) and bone conduction (BC).

- Conductive hearing loss is characterized by an air-bone gap
- Bone conduction is normal (or near normal), while air conduction is reduced

Findings in this image: Left ear shows conductive hearing loss

Core principles:

- Conductive loss: AC ↓, BC normal → air-bone gap present
- Sensorineural loss: AC ↓ and BC ↓ equally → no air-bone gap

Why other options are incorrect:

- Sensorineural hearing loss would not show an air-bone gap
- Right ear is normal in this audiogram

QUESTION

A young male with a history of occupational loud sound exposure presents with hardness of hearing. On examination:

- Rinne test is negative on the left and positive on the right.
- Weber's test lateralizes to the left.

What is the most likely diagnosis?

A Right conductive hearing loss

B Left conductive hearing loss

CORRECT

C Right sensorineural hearing loss

D Left sensorineural hearing loss

RIGHT ANSWER

OK

B. Left conductive hearing loss

WHY THIS IS RIGHT

Tuning fork tests (Rinne and Weber) are used to differentiate conductive and sensorineural hearing loss and to localize the lesion.

· Rinne test:

- o Left ear -> Negative (bone conduction > air conduction) -> indicates conductive hearing loss
- o Right ear -> Positive -> normal or sensorineural

· Weber test:

- o Sound lateralizes to the left ear -> either conductive loss in left ear or sensorineural loss in right ear

Since Rinne is negative on the left, the diagnosis is left-sided conductive hearing loss

Why other options are incorrect:

- Right conductive hearing loss: Weber would lateralize to right
- Right sensorineural hearing loss: Weber would lateralize to left, but Rinne would remain positive bilaterally
- Left sensorineural hearing loss: Weber would lateralize to right

QUESTION

A patient presents to the OPD with complaints of hearing loss and can understand only shouted or amplified speech. What would be the degree of impairment according to the WHO classification of ability to understand speech ?

- A Mild hearing loss
- B Moderate hearing loss
- C Severe hearing loss**
- D Profound hearing loss

CORRECT

RIGHT ANSWER

- OK
- C. Severe hearing loss**

WHY THIS IS RIGHT

The WHO classification of hearing loss is based on the ability to understand speech and hearing thresholds (dB).

Key concept:

WHO Grade	dB HL	Description	Performance
0	≤25	No impairment	No/very slight problem; able to hear whisper at 1 m
1	26–40	Slight impairment	Able to hear and repeat words in normal voice at 1 m
2	41–60	Moderate impairment	Able to hear and repeat words using raised voice at 1 m
3	61–80	Severe impairment	Able to hear some words when shouted into better ear
4	≥81	Profound impairment including deafness	Unable to hear and understand even shouted voice

QUESTION

A patient presents to the OPD with bilateral hearing loss with worsened right ear hearing loss. On examination, the doctor recommends stapedectomy as a final resort to the problem. What would be the findings of tuning fork tests based on which the doctor has recommended stapedectomy?

- A** Rinne's test positive , Weber's test lateralized to left ear
- B** Rinne's test positive , Weber's test lateralized to right ear
- C** Rinne's test negative , Weber's test lateralized to left ear
- D** Rinne's test negative , Weber's test lateralized to right ear

CORRECT

RIGHT ANSWER

- OK** D. Rinne's test negative , Weber's test lateralized to right ear

WHY THIS IS RIGHT

Otosclerosis causes conductive hearing loss due to stapes fixation, leading to characteristic findings on tuning fork tests.

- Rinne test: Negative (Bone conduction > Air conduction)
- Weber test: Lateralizes to the affected ear (right ear in this case)

Why stapedectomy is advised:

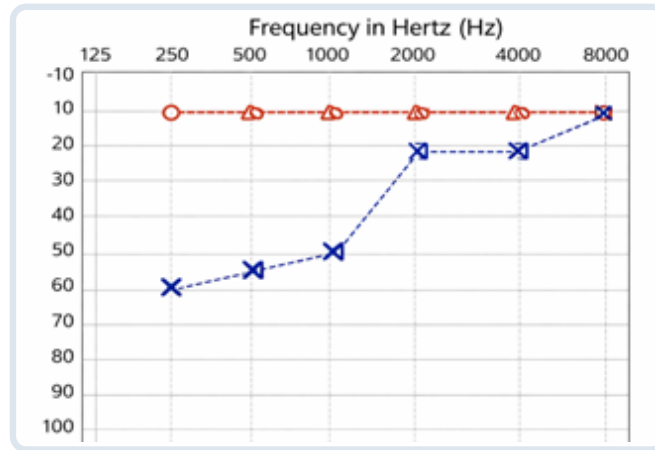
- Fixation of stapes footplate
- Surgery restores ossicular chain mobility

Why other options are incorrect:

- Rinne positive: Seen in normal or SNHL
- Weber to opposite ear: Seen in SNHL

QUESTION

A patient presents to the OPD with complaints of vertigo, sensorineural hearing loss and tinnitus which lasts minutes to hours with accompanied nausea and vomiting. On investigation, there is endolymphatic hypertension present. What is the diagnosis ?



A Meniere's disease

CORRECT

B Otosclerosis

C BPPV

D Acoustic neuroma

RIGHT ANSWER

OK A. Meniere's disease

WHY THIS IS RIGHT

Ménière's disease is characterized by episodic vertigo, tinnitus, and fluctuating sensorineural hearing loss due to endolymphatic hydrops.

Key clinical triad:

- Episodic vertigo (minutes to hours)
- Tinnitus (often roaring type)
- Fluctuating SNHL

Audiogram finding:

- Low-frequency sensorineural hearing loss (early)
- Rising configuration (worse at low frequencies)
- May progress to flat SNHL

Pathophysiology:

- Increased endolymph pressure → distension of membranous labyrinth
- Affects cochlea + vestibular apparatus

Why other options are incorrect:

- Otosclerosis: Conductive loss with Carhart notch (2 kHz)
- BPPV: Positional vertigo, no hearing loss
- Acoustic neuroma: Progressive unilateral SNHL, not episodic vertigo

QUESTION

A patient has otitis media with effusion. Which of the following is wrong?

- A** It is bilateral
- B** It undergoes spontaneous resolution after cold decreases
- C** It is associated with cold
- D** It shows Ad type of curve

CORRECT

RIGHT ANSWER

- OK** **D. It shows Ad type of curve**

WHY THIS IS RIGHT

Otitis media with effusion (OME) is characterized by fluid in the middle ear without acute infection, leading to conductive hearing loss.

- OME shows a Type B (flat) tympanogram
- Indicates reduced tympanic membrane mobility due to fluid

Why option D is wrong (Ad curve):

- Type Ad curve = hypermobile tympanic membrane (e.g., ossicular discontinuity)
- Not seen in OME

Clinical features:

- Commonly bilateral (especially in children)
- Associated with upper respiratory infections (cold)
- Often resolves spontaneously after resolution of infection

QUESTION

| Which of the following is not preferred in a child with bilateral SNHL?

A Cochlear implant

B Adenoidectomy with grommet insertion

CORRECT

C Speech therapy

D Hearing aid

RIGHT ANSWER

OK

B. Adenoidectomy with grommet insertion

WHY THIS IS RIGHT

In bilateral sensorineural hearing loss (SNHL), management focuses on amplification and auditory rehabilitation, not middle ear procedures.

- SNHL involves inner ear (cochlea) or auditory nerve damage
- Therefore, treatment should bypass or compensate for cochlear dysfunction

Appropriate management options:

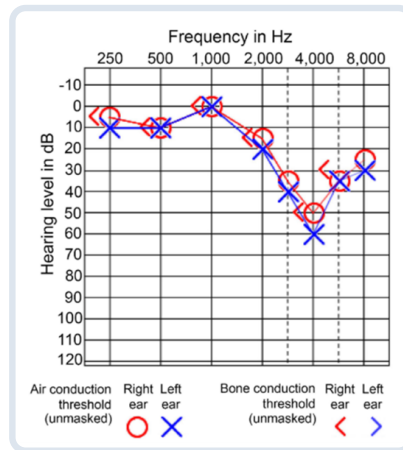
- Hearing aids -> first-line in mild to moderate SNHL
- Cochlear implant -> severe to profound SNHL
- Educational support -> e.g., front-row seating, speech therapy

Why adenoidectomy with grommet insertion is NOT preferred:

- Grommets treat conductive hearing loss (e.g., otitis media with effusion)
- They act on the middle ear, not the cochlea
- Hence, no benefit in SNHL

QUESTION

Identify the audiogram.



A Noise-induced hearing loss

CORRECT

B Otosclerosis

C Meniere's disease

D Acoustic neuroma

RIGHT ANSWER

OK A. Noise-induced hearing loss

WHY THIS IS RIGHT

Noise-induced hearing loss (NIHL) is characterized by a sensorineural hearing loss with a classic "4 kHz notch" on audiogram.

- Partial recovery at higher frequencies (6-8 kHz)
- Usually bilateral and symmetrical
- Damage to outer hair cells of the organ of Corti
- Most vulnerable region: basal turn of cochlea (high-frequency area)

Common causes:

- Chronic exposure to loud noise (industrial, machinery)
- Sudden acoustic trauma (blast injury)

Why other options are incorrect:

- Otosclerosis: Conductive loss with Carhart notch at 2 kHz
- Meniere's disease: Low-frequency SNHL
- Acoustic neuroma: Asymmetric SNHL without 4 kHz notch

QUESTION

| What is the instrument shown below used for?



A Stapedectomy

CORRECT

B Myringoplasty

C Ossiculoplasty

D Mastoidectomy

RIGHT ANSWER

OK A. Stapedectomy

WHY THIS IS RIGHT

Stapedotomy is a surgical procedure performed to treat conductive hearing loss in otosclerosis, where the stapes footplate becomes fixed.

Mechanism of hearing improvement:

- Restores sound transmission from ossicles to inner ear fluid
- Improves air conduction hearing

Clinical indications:

- Otosclerosis with stapes fixation
- Conductive hearing loss with normal tympanic membrane

Why other options are incorrect:

- Myringoplasty: Repair of tympanic membrane perforation
- Ossiculoplasty: Reconstruction of ossicular chain (not specifically stapes footplate)
- Mastoidectomy: Removal of mastoid air cells (infection/cholesteatoma)

QUESTION

Which of the following is the first investigation in newborn for audiological assessment?

A BERA

B PTA

C OAE (Otoacoustic Emissions)

CORRECT

D Impedance

RIGHT ANSWER

OK

C. OAE (Otoacoustic Emissions)

WHY THIS IS RIGHT

Otoacoustic Emissions (OAE) is the first-line screening test for hearing assessment in newborns.

- Measures sound waves generated by outer hair cells of cochlea
- A small probe in the ear canal records these emissions

Screening protocol:

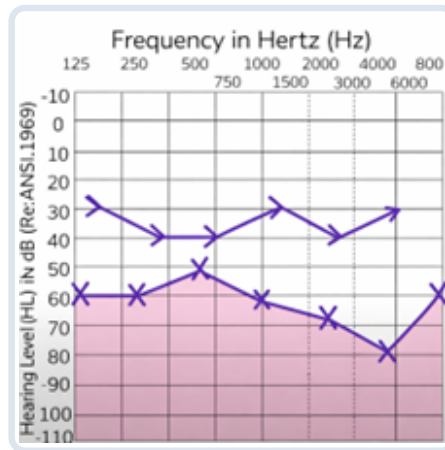
- Step 1: OAE screening
- Step 2 (if abnormal): BERA/ABR for confirmation

Why other options are incorrect:

- BERA: Confirmatory test, not initial screening
- PTA: Requires cooperation (not suitable for newborns)
- Impedance audiometry: Assesses middle ear, not primary screening

QUESTION

| Identify the PTA



A. CHL

B. SNHL

C. Mixed

CORRECT

D. None

RIGHT ANSWER

OK

C. C. Mixed

WHY THIS IS RIGHT

The audiogram shows:

- Elevated air conduction thresholds
- Elevated bone conduction thresholds
- Significant air-bone gap present

This combination is diagnostic of mixed hearing loss.

How to differentiate types:

- Conductive hearing loss (CHL): Normal BC, ↓ AC, air-bone gap present
- Sensorineural hearing loss (SNHL): ↓ AC & BC equally, no gap
- Mixed hearing loss: ↓ AC & BC + air-bone gap

Clinical relevance:

- Seen in conditions like:
 - o Chronic otitis media with inner ear involvement
 - o Otosclerosis with cochlear damage

QUESTION

A 32-year-old female presents with progressive hearing loss. Pure tone audiometry shows a dip in bone conduction at 2 kHz with relatively preserved air conduction. What is the most likely diagnosis?

A Presbycusis

B Otosclerosis

CORRECT

C Meniere's disease

D Acoustic neuroma

RIGHT ANSWER

OK

B. Otosclerosis

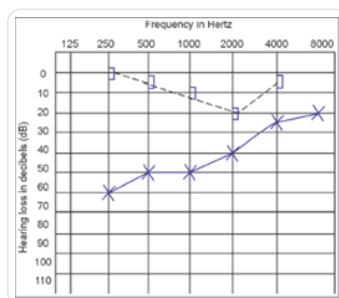
WHY THIS IS RIGHT

Carhart notch is a characteristic finding seen in otosclerosis, appearing as a dip in bone conduction threshold at 2000 Hz on audiometry.

- Otosclerosis causes fixation of the stapes footplate at the oval window
- This affects the resonance of the ossicular chain, especially around 2000 Hz
- Results in an artificial depression (notch) in bone conduction

Why other options are incorrect:

- Sudden SNHL: True sensorineural loss without specific notch
- Meniere's disease: Fluctuating low-frequency SNHL
- Acoustic neuroma: Retrocochlear SNHL, no Carhart notch



QUESTION

| What causes maximum hearing loss?

- A** Otitis media with effusion
- B** Partial fixation of footplate of stapes
- C** Ossicular discontinuity with intact TM
- D** Malleus-incus disruption with TM disruption

CORRECT

RIGHT ANSWER

- OK** **C. Ossicular discontinuity with intact TM**

WHY THIS IS RIGHT

Among conductive pathologies, ossicular discontinuity with an intact tympanic membrane (TM) causes the maximum hearing loss because the mechanical linkage between TM and inner ear is completely disrupted.

- Sound transmission depends on intact ossicular chain (malleus -> incus -> stapes)
- Discontinuity -> no effective transmission of sound vibrations to oval window
- Results in maximum conductive hearing loss (up to ~60 dB)

Degree of hearing loss

- TM perforation: 10-40 dB
- Complete obstruction of EAC / Headphones: ~40 dB
- Ossicular discontinuity:
 - With TM perforation
 - With intact TM: ~55 dB
- Complete stapes footplate fixation: ~60 dB

QUESTION

A patient presents with vertigo and vomiting that is consistently triggered by turning in bed or changing head position. What is the most likely diagnosis?

A BPPV

CORRECT

B Vestibular neuritis

C Ménière's disease

D Labyrinthitis

RIGHT ANSWER

OK A. BPPV

WHY THIS IS RIGHT

BPPV is caused by displaced otoliths (canaliths) in the semicircular canals, most commonly the posterior canal. These particles move with head position changes, stimulating the vestibular system and causing vertigo.

- Vertigo triggered by turning in bed or head movement
- Brief episodes (seconds)
- Associated nausea/vomiting
- No hearing loss

Why other options are incorrect:

B. Vestibular neuritis

- Causes sudden severe continuous vertigo lasting days
- Not triggered by position
- Often follows viral infection

C. Ménière's disease

- Episodic vertigo with hearing loss, tinnitus, and ear fullness

D. Labyrinthitis

- Vertigo with hearing loss (due to involvement of cochlea)

QUESTION

Cochlear implantation is not indicated in which of the following conditions?

- 1. Otosclerosis**
- 2. Congenital hearing loss**
- 3. Fixed malleus**
- 4. Ototoxicity induced hearing loss**

A 1 & 3

CORRECT

B 2 & 4

C 1 & 4

D 2 & 3

RIGHT ANSWER

OK A. 1 & 3

WHY THIS IS RIGHT

Cochlear implant bypasses damaged hair cells in the cochlea and directly stimulates the auditory nerve. Therefore, it is useful only when the problem lies in the cochlea (sensorineural loss), not in sound conduction.

Indicated conditions:

- Congenital sensorineural hearing loss
- Ototoxicity-induced sensorineural hearing loss

Not indicated conditions:

1. Otosclerosis

Primarily causes conductive hearing loss due to stapes fixation. Managed with stapedotomy or hearing aids, not cochlear implant (unless advanced with cochlear involvement, which is rare).

2. Fixed malleus

A conductive pathology affecting ossicular chain mobility. Treated with ossiculoplasty, not cochlear implant.

QUESTION

| Which of the following modalities is not used for hearing assessment in an infant?

A Brain stem evoked response audiometry (BEA)

B Otoacoustic emission

C Pure tone audiometry

CORRECT

D Freefield audiometry

RIGHT ANSWER

OK

C. Pure tone audiometry

WHY THIS IS RIGHT

Assessment of hearing in infants requires objective or behavioral methods because they are unable to cooperate with subjective tests. Early detection of hearing loss is essential for speech and language development.

Methods used in infants:

- Brainstem Evoked Response Audiometry (BERA/ABR): Objective, evaluates auditory pathway up to brainstem
- Otoacoustic Emissions (OAE): Screens cochlear (outer hair cell) function
- Free-field audiometry (Behavioral observation audiometry): Uses sound stimuli and observes infant response

Why pure tone audiometry is not used:

- Requires active participation and subjective response from the patient
- Infants cannot understand or respond reliably to tones

QUESTION

A 60-year-old man presents with gradual progressive hearing loss. On examination, he has difficulty perceiving high frequency sounds, but other findings are normal. Which structure is primarily affected in this condition?

A Stria vascularis

B Tectorial membrane

C Inner hair cell of basal turn

CORRECT

D Apex of cochlea

RIGHT ANSWER

OK

C. Inner hair cell of basal turn

WHY THIS IS RIGHT

High-frequency hearing loss in elderly patients (presbycusis) primarily involves damage to the inner hair cells at the basal turn of the cochlea.

- Base (basal turn) -> detects high-frequency sounds
- Apex -> detects low-frequency sounds

Pathophysiology:

- Age-related degeneration of hair cells (especially inner hair cells)
- Most pronounced at the basal turn -> early loss of high-frequency hearing

Why other options are incorrect:

- Stria vascularis: Affects endolymph production (metabolic hearing loss)
- Tectorial membrane: Structural role, not primary site here
- Outer hair cells: Amplify sound, but inner hair cells are primary sensory receptors

QUESTION

A patient presents with the complaint of inability to close the eye, drooling of saliva, and deviation of the angle of the mouth. Which of the following nerves is most likely to be affected?

A Facial nerve

CORRECT

B Trigeminal nerve

C Oculomotor nerve

D Glossopharyngeal nerve

RIGHT ANSWER

OK

A. Facial nerve

WHY THIS IS RIGHT

Facial nerve (CN VII) palsy causes ipsilateral lower motor neuron facial paralysis, leading to:

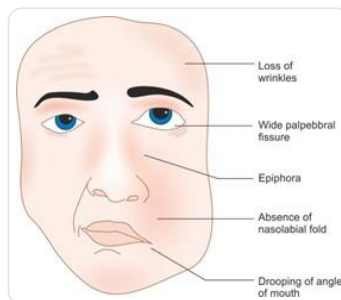
- Inability to close eye -> orbicularis oculi paralysis
- Drooling of saliva -> loss of buccinator tone
- Deviation of angle of mouth to opposite side -> unopposed normal side
- Loss of forehead wrinkling (LMN lesion)

Functions of facial nerve:

- Motor: Muscles of facial expression
- Parasympathetic: Lacrimal, submandibular, sublingual glands
- Sensory: Taste from anterior 2/3 of tongue

Why not others:

- Trigeminal nerve (CN V): Mastication, facial sensation (not facial expression)
- Oculomotor nerve (CN III): Eye movements, ptosis
- Glossopharyngeal nerve (CN IX): Taste posterior 1/3, swallowing



QUESTION

A 40-year-old patient presented with left facial weakness. Routine lab workup was normal. What is the next best step in management?

- A Acyclovir
- B Corticosteroids**

CORRECT

- C Antibiotics
- D Physiotherapy

RIGHT ANSWER

- B. Corticosteroids**

WHY THIS IS RIGHT

A patient with acute onset unilateral facial weakness and normal investigations is most likely having Bell's palsy (idiopathic facial nerve palsy).

First-line management:

- Corticosteroids (within 72 hours) -> reduce nerve inflammation and edema
- Significantly improve recovery outcomes
- Inflammation of facial nerve (CN VII) within facial canal
- Leads to compression -> demyelination -> weakness of facial muscles

Clinical features:

- Unilateral facial paralysis
- Inability to close eye (lagophthalmos)
- Loss of forehead wrinkling (LMN lesion)

Why other options are incorrect:

- Acyclovir: May be added in severe cases, but not first-line alone
- Antibiotics: No role (non-bacterial)
- Physiotherapy: Adjunct, not initial primary treatment

QUESTION

A diabetic patient presents with facial pain and a black eschar in the nasal cavity. What is the most probable diagnosis?

A Mucormycosis

CORRECT

B Acute sinusitis

C Allergic fungal rhinosinusitis

D Nasal polyposis

RIGHT ANSWER

OK A. Mucormycosis

WHY THIS IS RIGHT

Mucormycosis (rhino-orbito-cerebral form) is an aggressive angioinvasive fungal infection classically seen in uncontrolled diabetes, presenting with facial pain and black necrotic eschar in the nasal cavity.

- Causative organisms: Mucor, Rhizopus species
- Pathogenesis: Angioinvasion -> thrombosis -> tissue necrosis -> black eschar
- Predisposing factors:
 - o Diabetes (especially DKA)
 - o Immunocompromised states
- Rapid progression to orbit and brain if untreated

Why not other options:

- Acute sinusitis: No necrosis or black eschar
- Allergic fungal rhinosinusitis: Allergic mucin, not invasive or necrotic
- Nasal polyposis: Pale, non-necrotic masses

QUESTION

| The tip of the uncinate is attached superiorly to which of the following structures?

A Middle turbinate

CORRECT

B Middle meatus

C Inferior turbinate

D Ethmoid bulla

RIGHT ANSWER

OK A. Middle turbinate

WHY THIS IS RIGHT

The uncinate process is a key structure in the lateral nasal wall that forms part of the osteomeatal complex, and its superior attachment is most commonly to the middle turbinate.

- The uncinate process is a thin, curved bone of the ethmoid
- It helps form the medial wall of the infundibulum (drainage pathway of frontal, maxillary, and anterior ethmoid sinuses)
- Superior attachment variations exist (middle turbinate, lamina papyracea, skull base), but:
 - o Most common attachment = middle turbinate

Clinical significance:

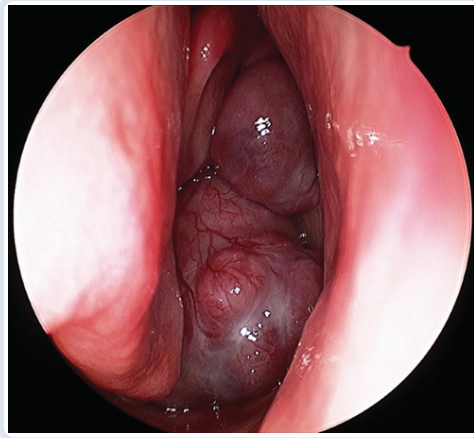
- Determines the drainage pathway of frontal sinus
- Important landmark in FESS (Functional Endoscopic Sinus Surgery)

Why not other options:

- Middle meatus: Space, not an attachment site
- Inferior turbinate: Not related to uncinate attachment
- Ethmoid bulla: Lies posterior to uncinate, not a superior attachment

QUESTION

A 20-year-old male patient presents with unilateral nasal obstruction and recurrent bleeding for the past 1 year. Transnasal endoscopic results are shown below. A contrast-enhanced CT revealed a mass extending from the posterior choana to the nasopharynx. What is the most likely diagnosis?



A Nasopharyngeal angiofibroma

CORRECT

B Antrochoanal polyp

C Rhinoscleroma

D Concha bullosa

RIGHT ANSWER

OK A. Nasopharyngeal angiofibroma

WHY THIS IS RIGHT

Juvenile nasopharyngeal angiofibroma (JNA) is a highly vascular benign tumor seen in adolescent/young males, presenting with unilateral nasal obstruction and recurrent epistaxis.

- Origin: Sphenopalatine foramen (posterior nasal cavity)
- Presentation:
 - Recurrent severe epistaxis
 - Unilateral nasal obstruction
- Endoscopy: Smooth, reddish vascular mass
- Imaging (CECT):
 - Intense enhancement
 - Holman-Miller sign (anterior bowing of posterior maxillary wall)

Biopsy is contraindicated due to risk of profuse bleeding.

Why not other options:

- Antrochoanal polyp: Pale, non-vascular, no epistaxis
- Rhinoscleroma: Chronic granulomatous disease, not vascular tumor
- Concha bullosa: Pneumatized turbinate, not a mass lesion

QUESTION

A patient comes with a history of asthma and sinusitis. On looking into his medical records, you notice this has been attributed to Samter's triad. Which drug should be avoided in this patient?

- A Cotrimoxazole
- B Co-amoxiclav
- C Aspirin**
- D Chloramphenicol

CORRECT

RIGHT ANSWER

OK
C. Aspirin

WHY THIS IS RIGHT

Samter's triad (Aspirin-Exacerbated Respiratory Disease, AERD) consists of:

- Asthma
- Chronic rhinosinusitis with nasal polyps
- Sensitivity to aspirin/NSAIDs

Key concepts:

- Aspirin and other COX-1 inhibitors trigger:
- ↑ Leukotriene production → bronchospasm, nasal congestion
- Pathophysiology:
- Shunting of arachidonic acid pathway → leukotrienes (LTC₄, LTD₄, LTE₄)
- Patients develop severe bronchospasm after NSAID intake
- Avoid aspirin and NSAIDs (e.g., ibuprofen, diclofenac)
- Safe alternatives:
- Paracetamol (low dose)
- Selective COX-2 inhibitors

QUESTION

A post-COVID patient, who is a known diabetic, develops unilateral facial pain and loosening of teeth. Which investigation would you do to confirm the diagnosis on this patient?

A MRI

B Biopsy with histopathologic examination

CORRECT

C Serum ferritin

D HbA1c

RIGHT ANSWER

OK

B. Biopsy with histopathologic examination

WHY THIS IS RIGHT

In a post-COVID diabetic patient with facial pain and loosening of teeth, suspect rhino-orbito-cerebral mucormycosis.

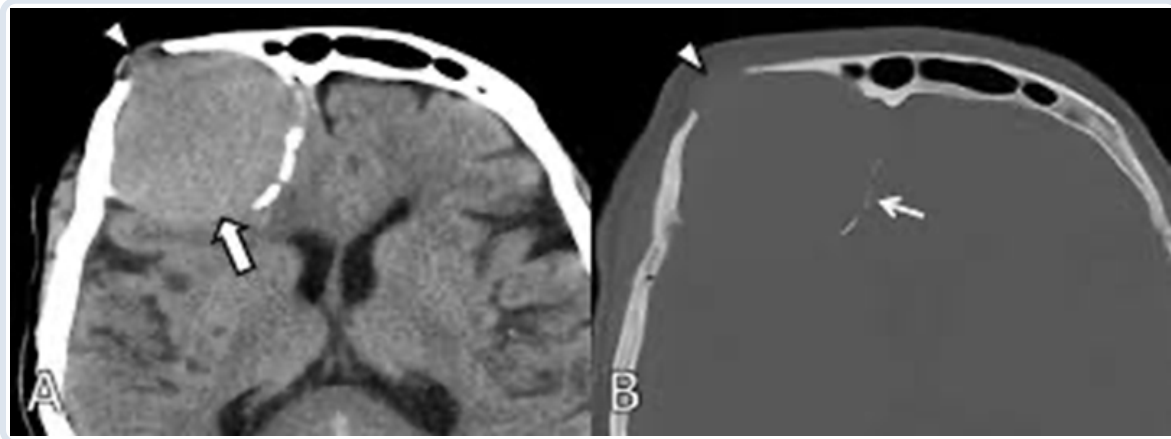
- Definitive diagnosis = Biopsy with histopathology
- Shows broad, aseptate, ribbon-like hyphae with right-angle branching
- Confirms fungal invasion of tissue (angioinvasion)
- Differentiates mucormycosis from other fungal infections (e.g., aspergillosis)

Role of other options:

- MRI: Assesses extent (orbit/brain involvement), not confirmatory
- Serum ferritin: Marker of inflammation, not diagnostic
- HbA1c: Indicates glycemic control, risk factor only

QUESTION

A 30-year-old male presents with nonaxial proptosis of the left eye. The patient gives a history of a road traffic accident 15 years back. The CT image is given below. What is the most likely diagnosis?



A Frontal mucocele

CORRECT

B Frontal meningioma

C Juvenile nasopharyngeal angiofibroma

D Pseudotumor of orbit

RIGHT ANSWER

A. Frontal mucocele

WHY THIS IS RIGHT

A frontal mucocele is a slow-growing, mucus-filled expansile lesion of the paranasal sinus that can cause non-axial proptosis due to orbital displacement.

- Cause: Obstruction of sinus drainage (often post-trauma or surgery)
- Leads to progressive expansion -> bone erosion -> orbital extension
- Presents with painless, non-axial proptosis (eye displaced downward/outward)

Imaging features (CT):

- Homogeneous expansile lesion in frontal sinus
- Thinning/erosion of sinus walls
- Displacement of orbit and surrounding structures

Why not other options:

- Frontal meningioma: Intracranial, not sinus-based expansile lesion
- JNA: Nasopharyngeal vascular tumor in adolescent males
- Orbital pseudotumor: Inflammatory, painful, no sinus expansion

QUESTION

1. Identify the structure marked in the image?

**A Fossa of Rosenmüller**

CORRECT

B Tubal tonsil**C** Opening of eustachian tube**D** Adenoid

RIGHT ANSWER

OK

A. Fossa of Rosenmüller

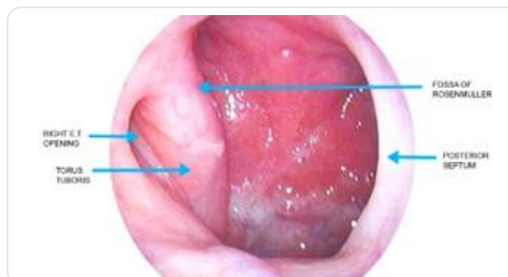
WHY THIS IS RIGHT

The image represented is the endoscopic view of lateral wall of the nasopharynx. Structure marked is Fossa of Rosenmüller.

The fossa of Rosenmüller is a deep recess located posterior to the torus tubarius in the nasopharynx.

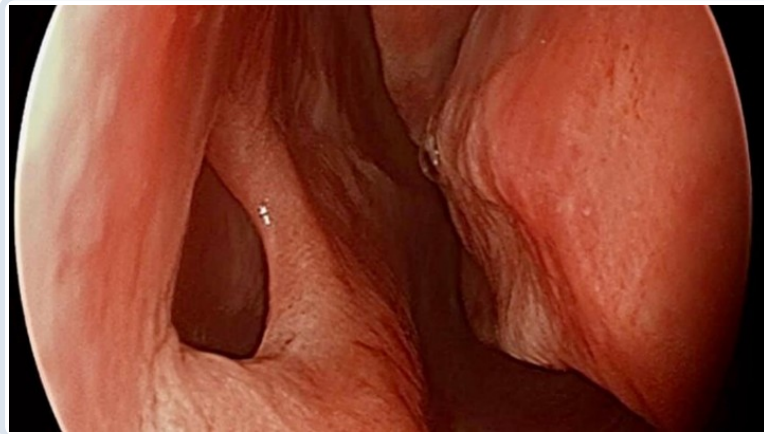
It is clinically important as the most common site for nasopharyngeal carcinoma.

Its position posterior to the Eustachian tube opening distinguishes it from adenoid and tubal tonsil.



QUESTION

| Septal perforation is more commonly associated with which of the following?



A FESS

B SMR

CORRECT

C Septoplasty

D None of the above

RIGHT ANSWER

OK

B. SMR

WHY THIS IS RIGHT

Septal perforation is a known complication of Submucous Resection (SMR) due to bilateral mucoperichondrial flap damage leading to ischemia and necrosis of septal cartilage.

- Septal cartilage is avascular -> depends on mucoperichondrium for nutrition
- Injury to both sides -> cartilage necrosis -> perforation
- More common with SMR (aggressive cartilage removal)

Why not other options:

- FESS: Sinus surgery, not septal cartilage
- Septoplasty: More conservative, lower risk of perforation
- SMR: Higher risk due to extensive resection

Clinical features of septal perforation:

- Whistling sound during breathing
- Crusting, epistaxis
- Nasal obstruction

QUESTION

| Indication for this incision:



A Caldwell luc

B Midfacial degloving

C Open rhinoplasty

CORRECT

D None of the above

RIGHT ANSWER

OK

C. Open rhinoplasty

WHY THIS IS RIGHT

A transcolumnellar (inverted V / stair-step) incision is characteristic of open rhinoplasty, providing direct visualization of nasal tip structures.

- Incision placed on columella connecting bilateral marginal incisions
- Allows wide exposure of lower lateral cartilages and nasal framework
- Used for precise structural correction (deformities, revision surgery)

Why not other options:

- Caldwell-Luc: Intraoral incision for maxillary sinus
- Midfacial degloving: Intranasal + sublabial incisions, no external scar
- Open rhinoplasty: Only approach with visible columellar incision

QUESTION

Identify the blocked structure.



A Maxillary sinus

CORRECT

B Ethmoid sinus

C Frontal sinus

D Sphenoid sinus

RIGHT ANSWER

OK A. Maxillary sinus

WHY THIS IS RIGHT

The maxillary sinus is the largest paranasal sinus and appears on coronal CT as a large air-filled cavity below the orbit. Opacification indicates blockage or sinusitis.

- Location: Inferior to orbit, lateral to nasal cavity
- Drainage: Via osteomeatal complex (middle meatus)
- Most commonly involved sinus in sinusitis

Radiological identification:

- Maxillary sinus: Large, pyramid-shaped cavity below orbit
- Ethmoid sinus: Multiple small air cells between orbit and nasal cavity
- Frontal sinus: Above orbit
- Sphenoid sinus: Posterior, midline (not seen well in this coronal anterior cut)

QUESTION

A 16-year-old boy presents with recurrent profuse epistaxis and nasal obstruction. On examination, a reddish mass is seen in the nasopharynx. What is the investigation of choice?

A MRI

B Diagnostic nasal endoscopy

C Biopsy

D Contrast-enhanced CT

CORRECT

RIGHT ANSWER

OK

D. Contrast-enhanced CT

WHY THIS IS RIGHT

The investigation of choice for Juvenile Nasopharyngeal Angiofibroma (JNA) is Contrast-Enhanced CT (CECT) because it best demonstrates bony anatomy and tumor extent.

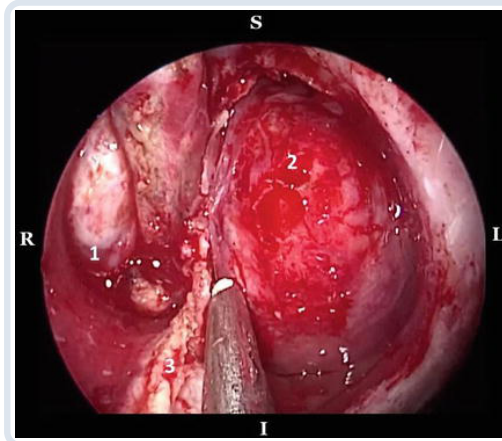
- CECT findings:
- Intense contrast enhancement (high vascularity)
- Bony remodeling/destruction
- Holman-Miller sign (anterior bowing of posterior wall of maxillary sinus)

Why not other options:

- MRI: Better for soft tissue and intracranial extension, but not first-line
- DNE (Diagnostic nasal endoscopy): Helps visualize mass, but not definitive imaging
- Biopsy: Contraindicated due to risk of severe hemorrhage (highly vascular tumor)

QUESTION

A 20-year-old male presents with a history of recurrent epistaxis. Diagnostic nasal endoscopy (DNE) and imaging are performed, and the findings are shown below. What is the most likely diagnosis?



- A** Nasopharyngeal carcinoma (NPC)
- B** Juvenile nasopharyngeal angiofibroma (JNA) CORRECT
- C** Inverted papilloma
- D** Nasal polyposis

RIGHT ANSWER

- OK** **B. Juvenile nasopharyngeal angiofibroma (JNA)**

WHY THIS IS RIGHT

Juvenile nasopharyngeal angiofibroma (JNA) is a highly vascular, benign tumor that typically occurs in adolescent males and presents with recurrent epistaxis and nasal obstruction.

- Origin: Posterolateral nasal wall (sphenopalatine foramen)
- Hallmark: Profuse recurrent epistaxis + nasal mass in young male
- Imaging: Anterior bowing of posterior wall of maxillary sinus (Holman-Miller sign)
- Biopsy is contraindicated due to risk of severe bleeding

Why not other options:

- Nasopharyngeal carcinoma: Older patients, associated with neck nodes, not highly vascular mass
- Inverted papilloma: Unilateral mass, less vascular, risk of malignancy but not severe epistaxis
- Nasal polyposis: Pale, non-bleeding, bilateral masses

QUESTION

A 60-year-old hypertensive patient presents with epistaxis unresponsive to nasal packing. Which artery should be ablated for relief?

A Sphenopalatine artery

CORRECT

B Greater palatine artery

C Maxillary artery

D External carotid artery

RIGHT ANSWER

OK A. Sphenopalatine artery

WHY THIS IS RIGHT

The source quiz contains the placeholder “\$2” here and does not include a written explanation for this item.

QUESTION

A patient presents with a displaced nasal bone fracture after a road traffic accident (RTA). Which instrument is used for nasal bone reduction?

A Walsham forceps

CORRECT

B Thudiculum

C Luc forceps

D Killian forceps

RIGHT ANSWER

OK A. Walsham forceps

WHY THIS IS RIGHT

Walsham forceps are specifically designed for closed reduction of displaced nasal bone fractures.

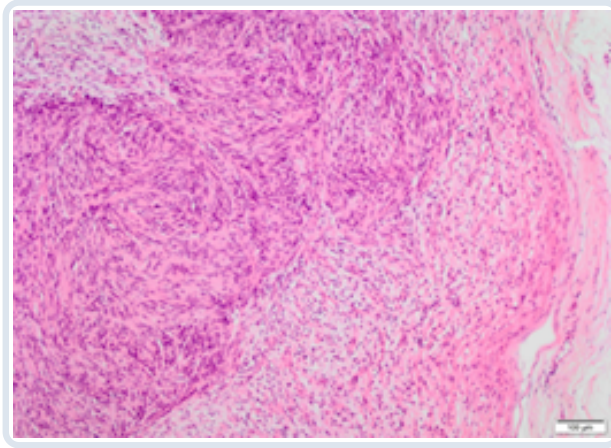
They allow controlled elevation and repositioning of the nasal bones with minimal trauma.

Other options:

- Asch forceps: used for reduction of nasal septal fractures
- Luc forceps: used for removing tissue (e.g., polyps)
- Thudiculum/ Killian forceps/speculum: used for nasal examination and septal procedures

QUESTION

A 50-year-old patient is diagnosed with a cerebellopontine (CP) angle tumour. On histopathological examination (HPE), the image is shown below. What is the most likely diagnosis?



A Schwannoma

CORRECT

B Meningioma

C Ependymoma

D Oligodendroglioma

RIGHT ANSWER

OK A. Schwannoma

WHY THIS IS RIGHT

A tumor in the cerebellopontine angle showing Verocay bodies with Antoni A and Antoni B areas on histopathology is characteristic of a schwannoma, most commonly a vestibular schwannoma (acoustic neuroma).

- Antoni A areas: densely packed spindle cells with nuclear palisading
 - Verocay bodies: rows of aligned nuclei separated by acellular zones
 - Antoni B areas: loosely arranged, myxoid tissue
- Arises from Schwann cells of the vestibular division of cranial nerve VIII

Clinical features:

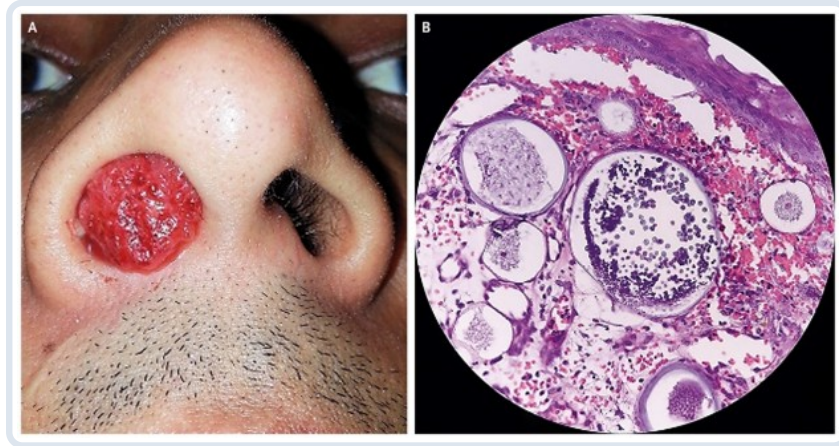
- Progressive unilateral sensorineural hearing loss
- Tinnitus
- Imbalance
- Large tumors may compress adjacent cranial nerves (V, VII) and cerebellum

Why other options are incorrect:

- Meningioma: shows whorls and psammoma bodies
- Ependymoma: perivascular pseudorosettes
- Oligodendroglioma: fried-egg appearance cells

QUESTION

A patient presents to the OPD with complaints of bleeding from the nose, nasal obstruction and difficulty in breathing. He gave the history of bathing in the local pool near his house.. Based on the history, examination and given histopathological image what would be the diagnosis of this patient?



A Rhinosporidiosis

CORRECT

B Basal cell carcinoma

C Rhinoscleroma

D Lupus vulgaris

RIGHT ANSWER

OK A. Rhinosporidiosis

WHY THIS IS RIGHT

Rhinosporidiosis is a chronic granulomatous infection caused by *Rhinosporidium seeberi*, commonly associated with bathing in stagnant water.

- Red, friable polypoidal mass (strawberry-like)
- Whitish dots on surface -> represent sporangia
- Recurrent epistaxis
- Nasal obstruction

Histopathology hallmark: Large thick-walled sporangia filled with endospores

Mode of transmission:

- Exposure to contaminated water (ponds, pools)
- Entry via traumatized epithelium

Why other options are incorrect:

- Basal cell carcinoma: Ulcerative lesion, not polypoidal with spores
- Rhinoscleroma: Caused by *Klebsiella*, shows Mikulicz cells
- Lupus vulgaris: Tubercular lesion, not polypoid with white dots

QUESTION

A 13-year-old boy presents with right-sided nasal obstruction and recurrent epistaxis for the past 6 months. What is the most likely diagnosis?

A JNA

CORRECT

B Allergic rhinitis

C Coagulation disorder

D Antrochoanal polyp

RIGHT ANSWER

OK
A. JNA

WHY THIS IS RIGHT

A teenage boy with unilateral nasal obstruction and recurrent epistaxis is classic for Juvenile Nasopharyngeal Angiofibroma (JNA).

- Occurs in adolescent males
- Highly vascular benign tumor arising from nasopharynx (sphenopalatine foramen area)
- Presents with:
 - o Recurrent epistaxis
 - o Progressive unilateral nasal obstruction

Pathophysiology:

- Tumor is fibrovascular -> prone to profuse bleeding
 - Locally aggressive -> can extend to pterygopalatine fossa, orbit, intracranial space
- Biopsy is contraindicated due to risk of severe bleeding

Why other options are incorrect:

- Allergic rhinitis: Bilateral symptoms, no epistaxis
- Coagulation disorder: Generalized bleeding, not localized obstruction
- Antrochoanal polyp: Nasal obstruction but no recurrent epistaxis

QUESTION

| Which of the following signs is not typically seen in allergic rhinitis?

A Allergic shiners

B Allergic salute

C Otto veraguth folds

CORRECT

D Dennis Morgan lines

RIGHT ANSWER

OK C. Otto veraguth folds

WHY THIS IS RIGHT

Allergic rhinitis has characteristic facial signs due to chronic nasal obstruction and itching.

Typical signs:

- Allergic shiners -> dark infraorbital discoloration (venous stasis)
- Allergic salute -> upward rubbing of nose -> transverse nasal crease
- Dennie-Morgan lines -> infraorbital skin folds

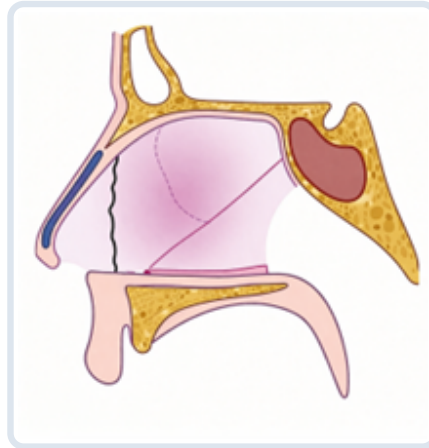
Otto-Veraguth folds :

- Seen in psychiatric conditions (e.g., depression)
- Not associated with allergic rhinitis



QUESTION

Identify the fracture shown in the image below



A Chevallet fracture

CORRECT

B Jarjaway fracture

C C-shaped fracture

D None of the above

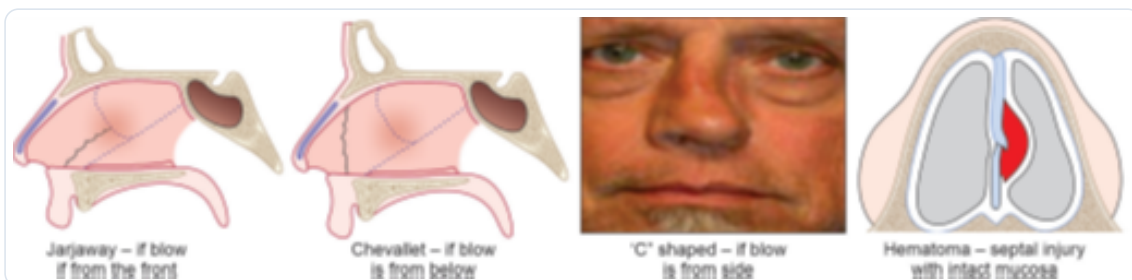
RIGHT ANSWER

OK A. Chevallet fracture

WHY THIS IS RIGHT

Chevallet fracture is a longitudinal fracture of the nasal septum involving the cartilaginous septum with displacement.

It causes overriding or buckling of septal cartilage, leading to septal deviation and nasal obstruction following trauma. This appearance distinguishes it from transverse or comminuted nasal fractures.



QUESTION

Which of the following statements about Juvenile Nasopharyngeal Angiofibroma (JNA) is incorrect?

- A Recurrent epistaxis
- B Unilateral nasal obstruction
- C Exclusively adolescent male

D Biopsy done under L/A

CORRECT

RIGHT ANSWER

D. Biopsy done under L/A

WHY THIS IS RIGHT

JNA is a benign but locally aggressive vascular tumor arising near the sphenopalatine foramen. It is classically seen in adolescent males due to androgen dependence.

- Recurrent, profuse epistaxis due to high vascularity
- Progressive unilateral nasal obstruction
- May extend to pterygopalatine fossa, orbit, or intracranial cavity

Biopsy is not performed in suspected JNA because:

- Tumor is highly vascular
- Attempting biopsy can cause life-threatening hemorrhage

Diagnosis is made by:

- Clinical presentation
- Imaging (contrast CT/MRI)
- Angiography showing feeding vessels

Management principle: Preoperative embolization followed by surgical excision is the standard treatment.

QUESTION

Arrange the following steps of functional endoscopic sinus surgery (FESS) in the correct order

- I. Visualization of the maxillary sinus ostium
- II. Bullectomy
- III. Uncinectomy
- IV. Removal of postethmoid cells
- V. Penetration of basal lamella

A III -> I -> II -> V -> IV

CORRECT

B III -> II -> I -> V -> IV

C I -> III -> II -> V -> IV

D III -> I -> V -> II -> IV

RIGHT ANSWER

OK A. III -> I -> II -> V -> IV

WHY THIS IS RIGHT

Functional Endoscopic Sinus Surgery (FESS) follows a systematic, anatomical, and physiological sequence to restore normal sinus drainage by proceeding from anterior to posterior structures.

Stepwise concept:

1. Uncinectomy: This is the first and most essential step. Removal of the uncinate process exposes the middle meatus and allows access to the natural sinus ostia.
2. Visualization of maxillary sinus ostium: After uncinectomy, the natural ostium of the maxillary sinus becomes visible. Identification of the natural ostium is crucial to avoid creating false passages.
3. Bullectomy: The ethmoid bulla, which is the largest anterior ethmoid air cell, is removed. This clears anterior ethmoid disease.
4. Penetration of basal lamella: The basal lamella separates anterior and posterior ethmoid air cells. Crossing it provides access to posterior ethmoid sinuses.
5. Removal of posterior ethmoid cells: Posterior ethmoidectomy is performed as the final step.

QUESTION

Examine the image provided. The finding indicated by the arrow represents which of the following signs?



CORRECT

A Blow out fracture**B** Thumb sign**C** Steeple sign**D** Phelps sign

RIGHT ANSWER

OK A. Blow out fracture

WHY THIS IS RIGHT

A blow-out fracture involves a fracture of the orbital floor (usually maxillary bone) leading to herniation of orbital contents into the maxillary sinus.

- Mechanism: Blunt trauma -> increased intraorbital pressure -> floor fractures
- CT finding:
 - "Teardrop sign" -> herniated orbital fat/muscle into maxillary sinus
 - Most commonly affected: Inferior orbital wall

Clinical features:

- Diplopia (due to inferior rectus entrapment)
- Restricted upward gaze
- Enophthalmos (sunken eye)
- Infraorbital nerve anesthesia (cheek numbness)

Why not other options:

- Thumb sign: Epiglottitis (lateral neck X-ray)
- Steeple sign: Croup (subglottic narrowing)
- Phelps sign: Not related to orbit

QUESTION

A patient presents with bleeding from the ear following a fall. What is the investigation of choice in this scenario?

A CT temporal bone

CORRECT

B MRI brain

C CBP

D X ray skull

RIGHT ANSWER

OK A. CT temporal bone

WHY THIS IS RIGHT

In a patient with ear bleeding following trauma, the investigation of choice is CT temporal bone, as it is the best modality to detect temporal bone fractures.

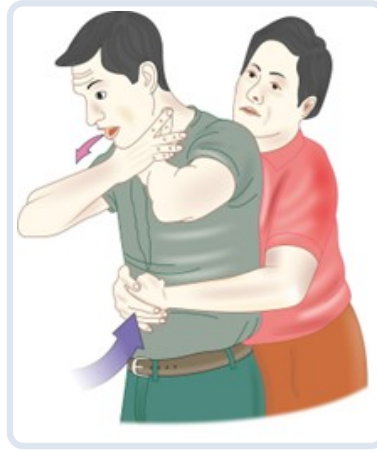
- CT temporal bone (HRCT) provides detailed visualization of:
 - o Bony structures of ear (external, middle, inner ear)
 - o Fracture lines (longitudinal/transverse)
 - o Ossicular disruption, facial canal involvement
- Helps classify fractures and identify complications such as:
 - o CSF leak
 - o Facial nerve injury
 - o Hearing loss

Why not other options:

- MRI brain: Better for soft tissue and intracranial complications, not first-line for fractures
- CBP: Irrelevant
- X-ray skull: Low sensitivity, largely obsolete

QUESTION

An adult man in a restaurant suddenly begins choking on his food. He is conscious. The following procedure was performed. Identify the procedure:



A Heimlich's maneuver

CORRECT

B Back slap

C Chest thrust

D Blind insertion of finger

RIGHT ANSWER

OK

A. Heimlich's maneuver

WHY THIS IS RIGHT

The Heimlich maneuver (abdominal thrusts) is the first-line emergency intervention for conscious adults with complete airway obstruction (choking).

- Sudden choking -> inability to speak, cough, or breathe
- Perform forceful upward abdominal thrusts just above the umbilicus
- Mechanism:
 - ↑ Intra-abdominal -> ↑ intrathoracic pressure -> expels foreign body from airway

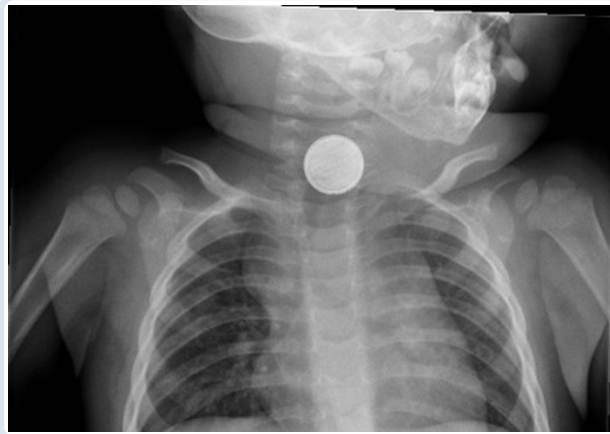
Indications: Conscious adult or child (>1 year) with severe airway obstruction

Why not other options:

- Back slaps: Preferred in infants, not adults
- Chest thrusts: Used in infants, pregnant, or obese patients
- Blind finger sweep: Contraindicated (pushes object deeper)

QUESTION

Identify the sign shown on x-ray.



A String sign

B Double ring sign

CORRECT

C Steeple sign

D Thumb sign

RIGHT ANSWER

OK

B. Double ring sign

WHY THIS IS RIGHT

The double ring (double halo) sign on X-ray indicates a button battery lodged in the esophagus, not a simple coin.

- Double rim/halo appearance -> characteristic of button battery
- Caused by bilaminar structure of battery
- Medical emergency due to rapid mucosal injury (alkali burn, necrosis, perforation)

Clinical importance:

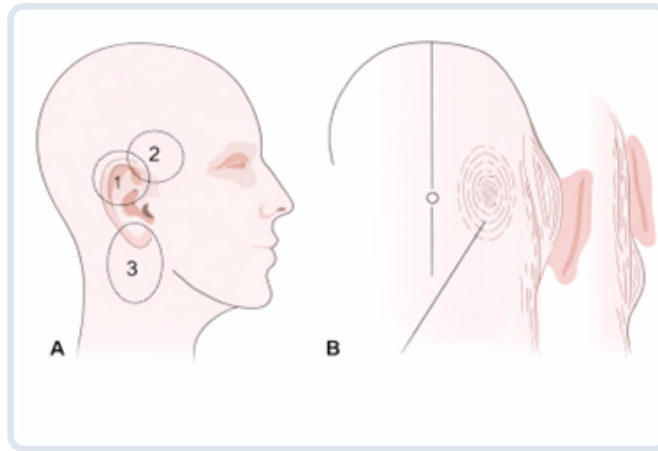
- Must be removed urgently (within hours)
- Can cause tracheoesophageal fistula, perforation, mediastinitis

Differentiation:

- Coin: Single uniform circular opacity (no double rim)
- Button battery: Double ring sign + step-off on lateral view

QUESTION

An abscess has developed in area (2) as a complication of chronic suppurative otitis media (CSOM). Which abscess is this most likely to represent?



A Zygomatic

CORRECT

B Bezold

C Luc

D Citelli

RIGHT ANSWER

OK A. Zygomatic

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$3" here and does not include a written explanation for this item.

QUESTION

A patient presents with a firm, tender, slow-growing mass below the ear as shown in the image below. What could be the diagnosis?



A Bezold abscess

B Parotid abscess

CORRECT

C Upper cervical lymphadenopathy

D Osteoma of the mandible

RIGHT ANSWER

OK

B. Parotid abscess

WHY THIS IS RIGHT

A parotid abscess presents as a painful, tender, erythematous swelling below and in front of the ear, typically over the parotid region.

- Acute onset pain and tenderness
- Swelling in parotid area (preauricular + angle of mandible)
- Redness and fluctuation (abscess formation)
- May have fever and purulent discharge from Stensen's duct

Pathogenesis:

- Usually due to ascending bacterial infection (commonly *Staphylococcus aureus*)
- Predisposing factors:
 - Dehydration
 - Poor oral hygiene
 - Post-operative state
 - Diabetes

Why not others:

- Bezold abscess: Deep neck swelling (below SCM), secondary to mastoiditis
- Upper cervical lymphadenopathy: Firm, not acutely inflamed or fluctuant
- Osteoma of mandible: Hard, non-tender bony swelling

QUESTION

A 10-year-old child presents with throat pain, fever, and ear pain. He is diagnosed with recurrent tonsillitis. Which nerve is responsible for the ear pain in this patient

A Tympanic branch of glossopharyngeal nerve

CORRECT

B Greater auricular nerve

C Auriculotemporal nerve

D Auricular branch of vagus nerve

RIGHT ANSWER

OK **A. Tympanic branch of glossopharyngeal nerve**

WHY THIS IS RIGHT

In tonsillitis, referred ear pain (otalgia) occurs due to shared sensory innervation by the glossopharyngeal nerve (CN IX).

- Palatine tonsil is supplied by glossopharyngeal nerve (CN IX)
- The tympanic branch of CN IX (Jacobson's nerve) supplies the middle ear
- Irritation of tonsil -> pain referred to ear via common nerve pathway

Why not other options:

- Greater auricular nerve (C2-C3): Supplies skin over parotid/ear, not tonsil
- Auriculotemporal nerve (V3): Supplies TMJ, external ear
- Auricular branch of vagus (Arnold's nerve): External auditory canal, not tonsil

QUESTION

A child presents with trismus and painful limb spasms following a recent untreated ear infection. What is the most likely diagnosis?

A Tetanus

CORRECT

B Meningitis

C Sigmoid sinus thrombosis

D Bezold's abscess

RIGHT ANSWER

OK A. Tetanus

WHY THIS IS RIGHT

A child with trismus (lockjaw) and painful generalized muscle spasms following an untreated infection is most consistent with tetanus, caused by *Clostridium tetani*.

- *C. tetani* produces tetanospasmin toxin
- Toxin blocks release of inhibitory neurotransmitters (GABA and glycine) in the CNS
- Leads to unopposed muscle contraction -> rigidity and spasms

Clinical features:

- Trismus (lockjaw) - earliest sign
- Painful muscle spasms
- Risus sardonicus (facial grimace)
- Opisthotonus (arching of back)

Why other options are incorrect:

- Meningitis: Fever, neck stiffness, altered sensorium (no trismus/spasms)
- Sigmoid sinus thrombosis: Headache, papilledema, sepsis features
- Bezold's abscess: Neck swelling due to mastoiditis

QUESTION

| Which structures pass between superior and middle constrictor?

- A Eustachian tube
- B IX nerve (Glossopharyngeal Nerve)**
- C Superior laryngeal nerve
- D Recurrent laryngeal nerve

CORRECT

RIGHT ANSWER

- OK B. IX nerve (Glossopharyngeal Nerve)**

WHY THIS IS RIGHT

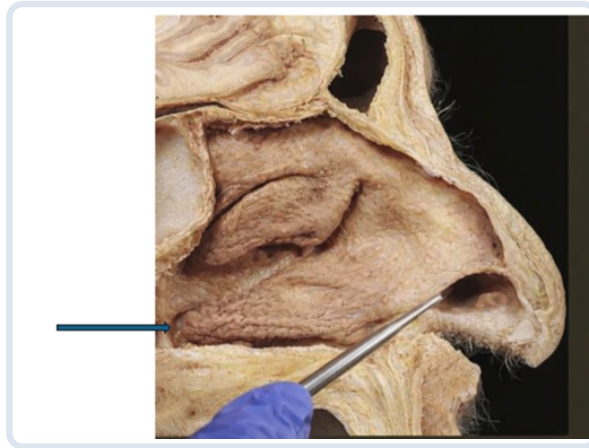
The glossopharyngeal nerve (CN IX) passes between the superior and middle pharyngeal constrictor muscles along with the stylopharyngeus muscle.

Key anatomical concept (gaps of constrictors):

1. Above superior constrictor:
 - o Levator veli palatini
 - o Auditory (Eustachian) tube
 - o Tensor velu palatini
 - o Ascending pharyngeal artery
2. Between superior & middle constrictor:
 - o Glossopharyngeal nerve (CN IX)
 - o Stylopharyngeus muscle
3. Between middle & inferior constrictor:
 - o Internal laryngeal nerve
 - o Superior laryngeal vessels
4. Below inferior constrictor:
 - o Recurrent laryngeal nerve
 - o Inferior laryngeal vessels

QUESTION

Which opening is present posterior to the marked structure in the image?



A Eustachian tube

CORRECT

B Onodi cell

C Sphenopalatine foramen

D Sphenoid sinus

RIGHT ANSWER

OK A. Eustachian tube

WHY THIS IS RIGHT

The source quiz contains the placeholder "\$4" here and does not include a written explanation for this item.

QUESTION

A patient presents with stridor, and endotracheal intubation is unsuccessful. Which of the following is the best alternative method for airway management in this situation?

A Cricothyrotomy

CORRECT

B Nasotracheal intubation

C Bronchoscopy

D LMA

RIGHT ANSWER

OK

A. Cricothyrotomy

WHY THIS IS RIGHT

In a cannot intubate, cannot ventilate (CICV) situation with stridor, the preferred emergency airway is cricothyrotomy, which provides rapid access to the airway through the cricothyroid membrane.

- Indication: Failed intubation with impending airway obstruction
- Site: Cricothyroid membrane (between thyroid and cricoid cartilage)
- Advantage: Quick, life-saving, minimal dissection compared to tracheostomy
- Considered a temporary airway until a definitive airway (tracheostomy) is established

Why not other options:

- Nasotracheal intubation: Difficult/impossible in obstructed airway
- Bronchoscopy: Time-consuming, not suitable in emergency
- LMA: May not bypass severe upper airway obstruction

QUESTION

A professional singer presents with difficulty in raising the pitch of her voice. Which nerve is most likely injured?

A ELN

CORRECT

B ILN

C RLN

D None

RIGHT ANSWER

OK
A. ELN

WHY THIS IS RIGHT

Inability to raise the pitch of voice indicates dysfunction of the cricothyroid muscle, which is supplied by the external laryngeal nerve (ELN).

- Cricothyroid muscle:
 - o Tenses and elongates vocal cords -> produces high-pitched sounds
- External laryngeal nerve (branch of superior laryngeal nerve):
 - o Supplies cricothyroid muscle
- Injury leads to:
 - o Monotonous voice
 - o Inability to sing high notes (important in professional voice users)

Why not other options:

- Internal laryngeal nerve (ILN): Sensory above vocal cords, no role in pitch
- Recurrent laryngeal nerve (RLN): Supplies all other intrinsic muscles -> causes hoarseness, not specifically loss of high pitch

QUESTION

A patient presents with a fish bone lodged in the pyriform sinus. During attempted removal, which nerve is most at risk of injury?

A Internal laryngeal nerve (ILN)

CORRECT

B External laryngeal nerve (ELN)

C Recurrent laryngeal nerve (RLN)

D None

RIGHT ANSWER

OK

A. Internal laryngeal nerve (ILN)

WHY THIS IS RIGHT

A fish bone in the pyriform sinus puts the internal laryngeal nerve (ILN) at risk during removal because it provides sensory innervation to the supraglottic larynx and pyriform fossa.

- Internal laryngeal nerve (branch of superior laryngeal nerve):
- Purely sensory above the vocal cords
- Supplies pyriform sinus, epiglottis, laryngeal inlet
- It pierces the thyrohyoid membrane -> lies close to the pyriform fossa
- Injury leads to:
- Loss of protective cough reflex
- Risk of silent aspiration

Why not other options:

- External laryngeal nerve (ELN): Motor to cricothyroid, not in pyriform sinus
- Recurrent laryngeal nerve (RLN): Supplies below vocal cords, deeper course

QUESTION

| Which of the following is the narrowest part of the airway in the adult larynx?

A Glottis

CORRECT

B Subglottis

C Supraglottis

D Trachea

RIGHT ANSWER

OK A. Glottis

WHY THIS IS RIGHT

In adults, the glottis (rima glottidis) is the narrowest part of the airway, formed by the space between the true vocal cords.

- The glottis is the most critical site for airway resistance in adults.
- It is the narrowest functional segment during normal respiration and phonation.
- Any pathology at this level (edema, tumor, vocal cord paralysis) can significantly compromise the airway.

Clinical importance:

- In intubation, the endotracheal tube size is determined based on the glottic opening.
- Conditions like laryngeal edema or vocal cord lesions can rapidly lead to airway obstruction.

Contrast with pediatrics:

- In children, the narrowest part is the subglottis (cricoid cartilage level), not the glottis.

QUESTION

A 55-year-old patient comes with hoarseness of voice and difficulty swallowing. The patient was diagnosed with laryngeal carcinoma and surgical management was done. The post-operative image of the patient is given below. Which of the following surgery was done on this patient?



A Partial laryngectomy

B Percutaneous tracheostomy

C Standard tracheostomy

D Total laryngectomy

CORRECT

RIGHT ANSWER

OK D. Total laryngectomy

WHY THIS IS RIGHT

A permanent tracheostoma without a tube indicates a total laryngectomy, where the larynx is completely removed and the trachea is brought out to the skin.

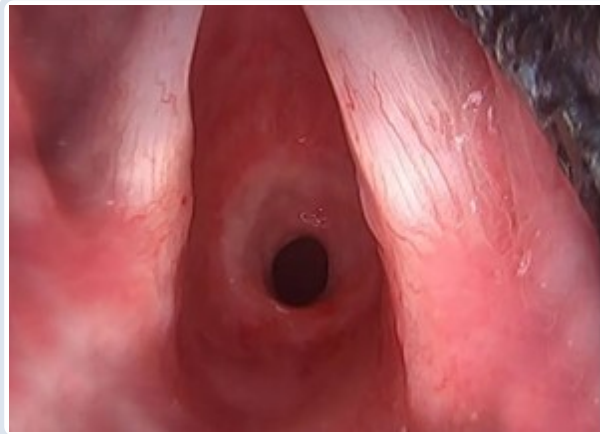
- Airway is permanently separated from nose and mouth
- Patient breathes only through the stoma
- No normal voice production -> requires alternative speech (e.g., electrolarynx)

How to differentiate:

- Total laryngectomy: Permanent stoma, no connection to upper airway
- Tracheostomy (standard/percutaneous): Temporary opening with tube, airway continuity maintained
- Partial laryngectomy: No permanent stoma

QUESTION

In a prolonged intubation patient, the following is seen. Staging for this is given by:



A Cotton Meyer

CORRECT

B Radkowski

C AJCC

D TNM

RIGHT ANSWER

OK A. Cotton Meyer

WHY THIS IS RIGHT

Subglottic stenosis is a common complication of prolonged endotracheal intubation, and its severity is graded using the Cotton-Meyer classification.

- Cause: Pressure necrosis from endotracheal tube → fibrosis → airway narrowing
- Site: Subglottis (narrowest part of pediatric airway)

Cotton-Meyer grading (based on % obstruction):

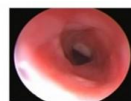
- Grade I: < 50% obstruction
- Grade II: 51-70%
- Grade III: 71-99%
- Grade IV: No detectable lumen

Why not other options:

- Radkowski: Used for JNA staging
- AJCC / TNM: Used for malignancy staging, not airway stenosis



Grade 1
Stenosis 0-50%



Grade 2
Stenosis 51-70%



Grade 3
Stenosis 71-99%



Grade 4
Stenosis 100%

QUESTION

| Tracheal deviation is given on the chest X-ray. Which is difficult?



A Tracheostomy

CORRECT

B Laryngeal airway

C Endotracheal intubation

D Cricothyroidotomy

RIGHT ANSWER

OK A. Tracheostomy

WHY THIS IS RIGHT

Tracheal deviation indicates mediastinal shift due to underlying pathology (e.g., mass, collapse, pleural effusion), which can distort normal neck anatomy and make tracheostomy difficult.

- Tracheostomy requires midline tracheal access
- In deviation -> trachea is shifted laterally -> difficult to locate and cannulate
- Risk of false passage, bleeding, or injury to adjacent structures

Why not other options:

- Laryngeal airway: Inserted blindly via mouth -> not affected by tracheal position
- Endotracheal intubation: Done via larynx -> tracheal deviation usually doesn't prevent tube placement
- Cricothyroidotomy: Landmark-based at cricothyroid membrane -> less affected by tracheal shift

QUESTION

| Which is the best stain for biopsy during laryngoscopy for vocal cord examination?

A Supravital

CORRECT

B Silver nitrate

C H&E

D Congo red

RIGHT ANSWER

OK

A. Supravital

WHY THIS IS RIGHT

Supravital staining is used during laryngoscopy for vocal cord examination to assess epithelial cell viability and early malignant changes in real time.

- Supravital stains (e.g., toluidine blue) are applied in vivo on mucosa
- They preferentially stain areas of high nucleic acid content -> suspicious for dysplasia/malignancy
- Help in targeted biopsy by highlighting abnormal epithelium

Why not other options:

- H&E: Standard histopathological stain, used after biopsy, not during procedure
- Silver nitrate: Cauterizing agent, not a diagnostic stain
- Congo red: Used for amyloidosis, not for vocal cord lesions

QUESTION

A female singer with hoarseness of voice, unable to sing higher frequency notes. Bowed and depressed unilateral vocal cord is seen. Which muscle is involved?

A Posterior cricoarytenoid

B Thyroarytenoid

C Cricothyroid

CORRECT

D Interarytenoid

RIGHT ANSWER

OK C. Cricothyroid

WHY THIS IS RIGHT

The cricothyroid muscle is the primary tensor of the vocal cords, responsible for increasing pitch (high-frequency sound production).

- Action: Tilts thyroid cartilage forward -> stretches & tenses vocal cords
- Function: Enables high-pitched sounds (singing high notes)
- Nerve supply: External branch of superior laryngeal nerve (SLN)
- Hoarseness + inability to sing high notes -> loss of vocal cord tension

Suggests cricothyroid muscle paralysis

Why not other options:

- Posterior cricoarytenoid: Only abductor of vocal cords -> affects airway, not pitch
- Thyroarytenoid: Relaxes vocal cords -> affects low pitch, not high pitch loss
- Interarytenoid: Adducts vocal cords -> affects closure, not tension

QUESTION

A 2-year-old child is brought to the emergency department with a complaint of choking due to peanut ingestion. On arrival, the child is found to be unresponsive. What is the next step in management?

- A 5 back slaps
- B Abdominal thrusts
- C Endotracheal intubation

D Chest compressions

CORRECT

RIGHT ANSWER

OK

D. Chest compressions

WHY THIS IS RIGHT

In a child with foreign body airway obstruction (e.g., peanut) who becomes unresponsive, the next step is to start chest compressions (CPR).

- Once the child is unconscious, management shifts from choking maneuvers to CPR protocol
- Chest compressions help dislodge the foreign body by generating artificial airflow and also maintain circulation

Stepwise approach

- Conscious child (<1 yr): Back slaps + chest thrusts
- Conscious child (>1 yr): Abdominal thrusts (Heimlich maneuver)
- Unconscious child (any age):

- > Start chest compressions immediately
- > Open airway and look for visible object (remove if seen)
- > Attempt ventilation

Why not other options:

- A) Back slaps: Only for conscious infants
- B) Abdominal thrusts: Only for conscious children >1 yr
- C) Endotracheal intubation: Not the immediate first step; attempted after initiating CPR if trained

QUESTION

A construction worker is brought to the emergency department after a fall from a building. He has unstable vital signs and his upper airway is injured with stones, making bag-mask ventilation and intubation difficult. The doctor performs a procedure as shown in the image below. Which of the following statements is correct regarding this procedure?



- A** It is used to measure central venous pressure
- B** It has increased respiratory efforts compared to bag and mask ventilation in this case
- C** It can be used safely for 6 hours
- D** It should be followed by a tracheostomy

CORRECT

RIGHT ANSWER

- OK** **D. It should be followed by a tracheostomy**

WHY THIS IS RIGHT

Cricothyroidotomy is an emergency airway procedure performed when intubation and bag-mask ventilation are not possible (cannot intubate, cannot ventilate situation).

- Done through the cricothyroid membrane for rapid airway access
- Temporary life-saving measure
- Provides oxygenation but is not a definitive airway

Cricothyroidotomy must be followed by a tracheostomy for long-term airway management

Why not other options:

- A) Central venous pressure: This is for central line placement, not airway
- B) Increased respiratory effort: This procedure reduces respiratory distress by securing airway
- C) Safe for 6 hours: Cricothyroidotomy is only for short duration, risk of complications if prolonged

QUESTION

A patient with a history of smoking presents with hoarseness of voice and undergoes a surgical procedure. The postoperative image is shown below. What is the surgical procedure performed?



A Total laryngectomy

CORRECT

B Partial laryngectomy

C Tracheostomy

D Cricothyroidotomy

RIGHT ANSWER

OK A. Total laryngectomy

WHY THIS IS RIGHT

Total laryngectomy is characterized by a permanent tracheostoma in the anterior neck, indicating complete removal of the larynx with permanent separation of airway from the upper respiratory tract.

- Patient breathes only through the stoma (not through nose or mouth)
- Loss of normal voice (requires alternative speech methods)
- Typically done for advanced laryngeal carcinoma, especially in smokers with hoarseness

Differentiation points:

- Partial laryngectomy: No permanent stoma; airway continuity maintained
- Tracheostomy: Temporary opening with tube; larynx intact
- Cricothyroidotomy: Emergency airway; high level (cricothyroid membrane), not permanent

QUESTION

Identify marked structure (white arrow) in the image shown below?



A Pyriform fossa

CORRECT

B Thyroid cartilage

C Epiglottis

D Vallecula

RIGHT ANSWER

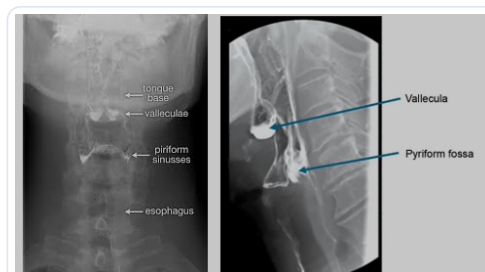
OK A. Pyriform fossa

WHY THIS IS RIGHT

The white arrow indicates the pyriform fossa, seen as a lateral recess on either side of the laryngeal inlet in contrast studies.

It lies lateral to the larynx and directs food toward the esophagus during swallowing.

This location distinguishes it from the vallecula (midline) and laryngeal cartilages.



QUESTION

| Which of the following has the worst prognosis?

- A** A. Partial U/L RLN palsy
- B** B. Partial B/L RLN palsy
- C** C. Complete U/L RLN palsy
- D** D. Complete B/L RLN palsy

CORRECT

RIGHT ANSWER

- OK** D. D. Complete B/L RLN palsy

WHY THIS IS RIGHT

Complete bilateral recurrent laryngeal nerve (RLN) palsy has the worst prognosis due to its life-threatening effect on the airway.

- RLN supplies all intrinsic laryngeal muscles except cricothyroid
- Bilateral complete palsy -> vocal cords fixed in paramedian position
- Leads to severe airway obstruction

Clinical implications:

- Stridor and respiratory distress
- May require emergency tracheostomy
- Voice may be relatively preserved, but airway is critically compromised

Comparison:

- Unilateral palsy: Hoarseness, but airway usually adequate
- Partial palsy: Some function preserved -> better prognosis
- Bilateral complete palsy: Airway emergency -> worst prognosis

QUESTION

While attempting to remove a fish bone lodged in the pyriform fossa, injury to which of the following nerves is most likely?

A Vagus

B Internal laryngeal

CORRECT

C Recurrent laryngeal

D Glossopharyngeal

RIGHT ANSWER

OK B. Internal laryngeal

WHY THIS IS RIGHT

The pyriform fossa lies on either side of the laryngeal inlet and is a common site for lodgment of foreign bodies such as fish bones. Just beneath its mucosa runs the internal laryngeal nerve along with the superior laryngeal vessels.

- Internal laryngeal nerve supplies sensation above the vocal cords
- It is responsible for the cough reflex when foreign material enters the laryngeal inlet
- Injury can lead to loss of protective cough reflex -> increased risk of aspiration

Why other options are incorrect:

- A. Vagus nerve: Main trunk lies deeper in the carotid sheath and is not directly exposed in the pyriform fossa
- B. Recurrent laryngeal nerve: Supplies intrinsic muscles of larynx and lies in tracheoesophageal groove, not in pyriform fossa
- C. Glossopharyngeal nerve: Supplies oropharynx and posterior tongue, not the pyriform fossa

QUESTION

Which of the following conditions are potential causes of stridor in a newborn?

1. Laryngomalacia
2. Subglottic stenosis
3. Papilloma
4. Hemorrhagic polyp

A 1 & 2

CORRECT

B 3 & 4

C 1 & 4

D 2 & 3

RIGHT ANSWER

OK A. 1 & 2

WHY THIS IS RIGHT

Stridor is a high-pitched sound caused by turbulent airflow due to airway obstruction. In newborns, causes are usually congenital.

Correct causes:

1. Laryngomalacia:

Most common cause of stridor in newborns

Due to collapse of supraglottic structures during inspiration

Typically presents with inspiratory stridor that improves in prone position

2. Subglottic stenosis:

Narrowing of subglottic airway (can be congenital or acquired)

Causes biphasic stridor and respiratory distress

Why other options are incorrect:

3. Papilloma:

Caused by HPV (recurrent respiratory papillomatosis)

Seen in infants/children but not typically presenting at birth (newborn period)

4. Hemorrhagic polyp:

Not a recognized cause of neonatal stridor

More related to vocal cord lesions in older individuals