🎧 GLOMUS TUMOR

🧾 Example Case Scenarios

Case 1

A 55 year old female presented with left-sided progressive deafness and pulsatile tinnitus for the last 3 years. PTA showed air-bone gap and tympanometry was normal. Otoscopy revealed red hue through the tympanic membrane, especially inferiorly.

Case 2

A 35 year old female developed difficulty swallowing and regurgitating food through the nose for the last one month. She had been ignoring her left-sided deafness and pulsatile tinnitus for the last year.

Case 3

A 35 year old female developed difficulty swallowing and regurgitating food through the nose (cranial nerves VII,

IX-X affected). She had ignored left-sided deafness and pulsatile tinnitus (bruit) for the last year.

Case 4

A 40 year old female presents with right-sided hearing loss and pulsatile tinnitus. On examination, Rising Sun sign of tympanic membrane is seen.

🧠 Most Probable Diagnosis

Glomus Tumor

> A highly vascular, slow-growing tumor of the middle ear or jugular foramen presenting with pulsatile tinnitus, hearing loss, and vascular mass.

🧬 Histopathology & Spread

🧪 Histopathology

- Sheets of epithelial-like cells with large nuclei and granular cytoplasm
- Abundant thin-walled blood sinusoids → accounts for profuse bleeding
- Highly vascular tumor, lacks contractile muscle coat

🌍 Spread

- Initially fills middle ear, may perforate TM → vascular polyp
- Invades:
  - Labyrinth & petrous pyramid
  - Mastoid
  - Jugular foramen & base of skull → IX-XII cranial nerve palsies
  - Eustachian tube → nasopharynx
  - Intracranial → posterior & middle cranial fossae
- Rare metastatic spread:
  - Lungs, bones (~4%)
  - Lymph nodes

📖 History Features

📣 Tumor Intratympanic

- Slowly progressive hearing loss (conductive)
- Pulsatile tinnitus

🔴 Tumor as Polyp

- Facial paralysis
- Dizziness / vertigo
- Hearing loss + pulsatile tinnitus
- Otorrhea (secondary infection)
- Profuse bleeding on manipulation

🤦 Mass Effect

- Mass over mastoid or nasopharynx
- Audible bruit

🧠 Cranial Nerve Palsies (Late Feature)

CN	Feature
IX-X	Dysphagia, hoarseness, soft palate paralysis
X	Vocal cord paralysis
XI	Weakness of trapezius & sternocleidomastoid
XII	Half tongue atrophy

🔎 Examination

🎯 Signs

- Brown sign / Pulsation sign → tumor blanches on pressure
- Rising Sun sign → TM appears like a sun rising behind drum
- Otoscopy:
  - Red reflex

    - Intact TM
    - Bluish / bulging TM
- Red vascular polyp may fill external auditory canal
- Profuse bleeding on manipulation

🧪 Investigations

- CT & MRI → define tumor extent & differentiate from other lesions
- CT Head → distinguish glomus tympanicum vs glomus jugulare; rule out aberrant carotid artery / dehiscent jugular bulb
- Biopsy → contraindicated (risk of bleeding)
- Brain perfusion / flow studies → if tumor compressing ICA
- Four-vessel angiography → pre-op planning, identify feeding vessels, possible embolization
- Embolization → 1–2 days pre-op for large tumors → reduce blood loss

- MRI → soft tissue extent
- Serum catecholamines / urine VMA / metanephrines → rule out secretory tumor

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🗂️ Investigations Flowchart

Patient with pulsatile tinnitus & hearing loss → Otoscopy (Red hue / Rising Sun / Polyp) → Tuning fork (Conductive hearing loss) → PTA (Air-bone gap) → Tympanometry (Usually normal) → CT & MRI (Evaluate tumor extent & differential) → Four-vessel angiography (if jugular / ICA involved) → Pre-op embolization (if needed) → Diagnosis: Glomus Tumor

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💊 Management

🔪 Surgical Approaches

- Transcanal approach → small intratympanic tumors
- Hypotympanic approach → tympanic cavity lesions

- Extended facial recess approach → wider exposure
- Mastoid-neck approach → jugular extension
- Infratemporal fossa approach (Fisch) → advanced tumors
- Transcondylar approach → skull base tumors

🩺 Non-Surgical / Adjunct

- Stereotactic radiosurgery → for unresectable tumors or poor surgical candidates
- Radiation therapy → reduces vascularity, arrests growth (not curative)
- Embolization → reduces intraoperative bleeding

🗂️ Management Flowchart

Confirmed Glomus Tumor → Assess size & extent

- Small, intratympanic → Transcanal / Hypotympanic excision
- Larger / Jugular foramen → Mastoid-neck / Infratemporal approaches

→ Pre-op embolization if highly vascular → Radiosurgery or radiation → adjunct or inoperable cases

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🎯 Exam Pearls

⭐ Pulsatile tinnitus + conductive hearing loss = always think glomus tumor
⭐ Rising Sun sign and red TM / vascular polyp
⭐ Brown sign → tumor blanches with pressure
⭐ Cranial nerve IX–XII palsies indicate late-stage / jugular involvement
⭐ Biopsy contraindicated → risk of catastrophic bleeding
⭐ Pre-op embolization reduces blood loss in large tumors
⭐ Imaging crucial for surgical planning

-> The End <-