Deafness and Tinnitus

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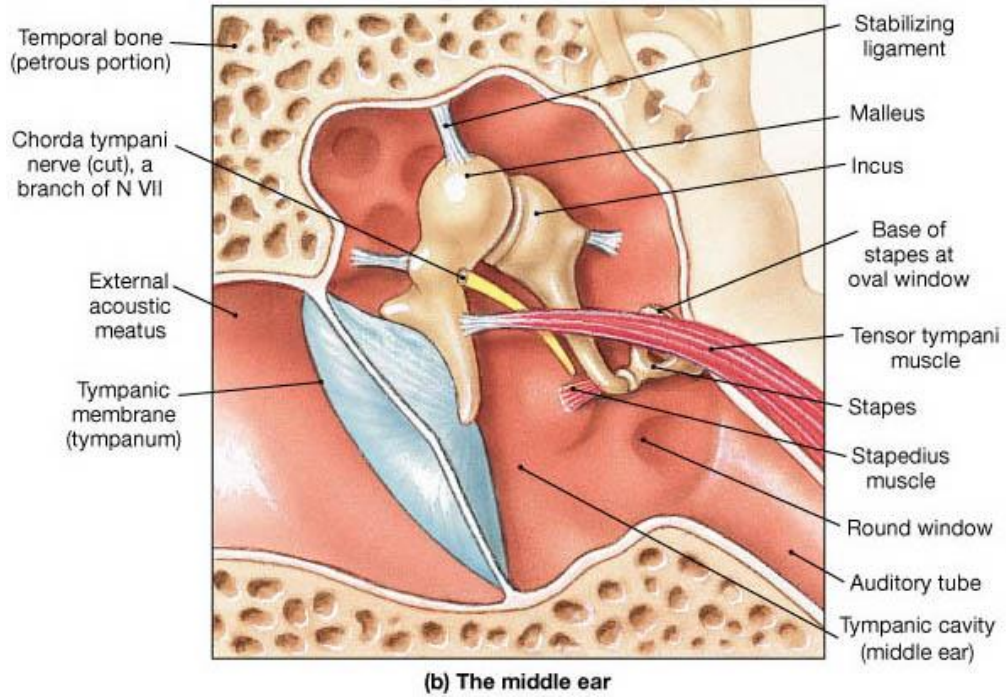
Deafness & Tinnitus

- The two symptoms
  - Commonly occur together
- Determinants
  - Type of hearing loss
  - Type of tinnitus

Deafness (*Hearing loss*)

Hearing Loss - Classification

- According to Involved subsite
  - Unilateral or bilateral
- Conductive Hearing Loss
  - Outer ear pathology
  - Middle ear pathology
- Sensorineural
  - Inner ear pathology
- Mixed
  - Involvement of both systems



(b) The middle ear

Conductive Hearing Loss (CHL)

Presentation

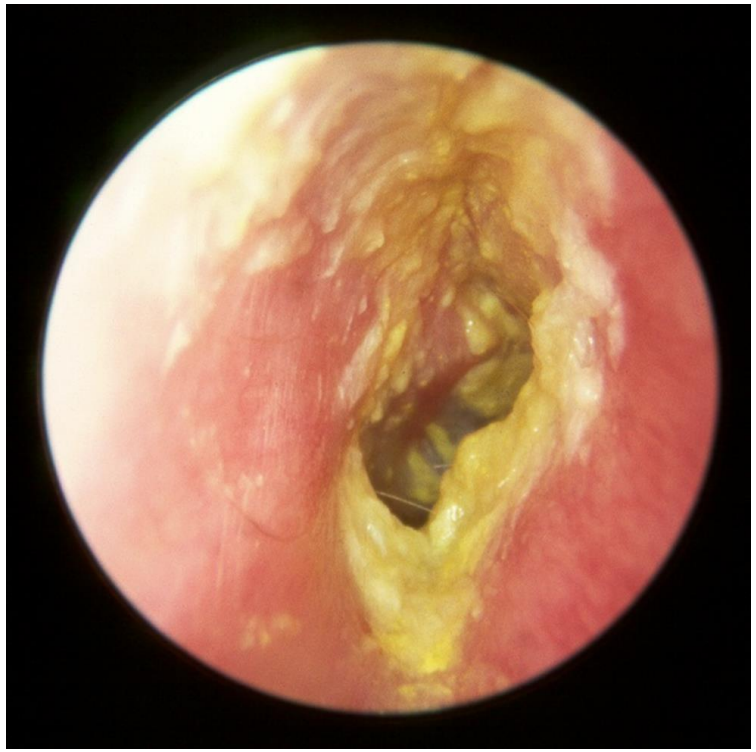
- Hearing loss
  - May be acute or chronic
- Possible associated Symptoms
  - Otorrhoea
  - Tinnitus
  - Vertigo
  - Pain
  - Facial nerve palsy

Differential Diagnosis

- Outer Ear
  - Infection
  - Trauma
  - Tumor
  - Systemic Disease
  - Dermatologic
  - Congenital
  - Cerumen Impation

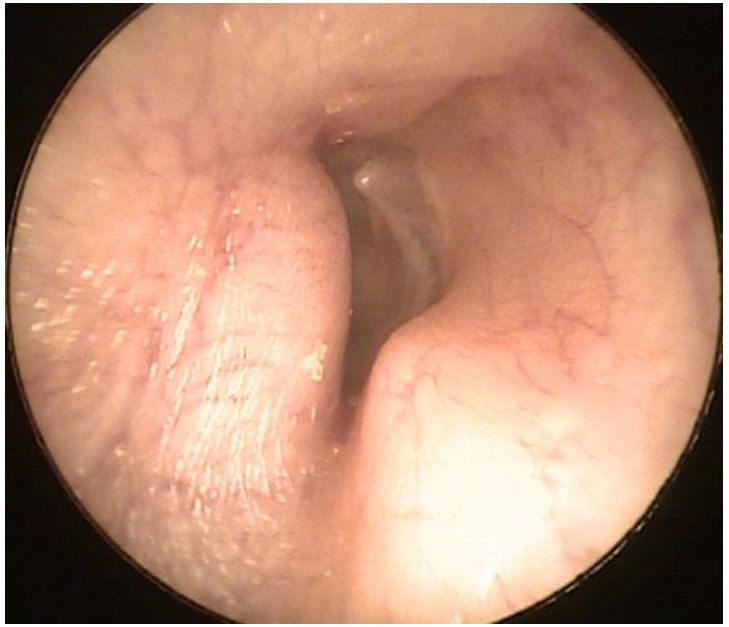
Outer Ear

- Infection
  - Otitis externa
  - Inflammation and blockage of EAC
  - Pain &/or otorrhoea &/or pruritus
- Trauma
  - Lacerations and fractures of the EAC
  - Stenosis results if not adequately treated
  - Conductive hearing loss and discharge



Outer ear

- Tumors
  - Chronic hearing loss
  - Most common is Squamous cell carcinoma
  - Watery to bloody otorrhoea
  - Red fleshy mass or ulcer in external ear
  - Biopsy mandatory
  - Refer for definitive treatment
- Exostosis
  - Benign bony outgrowths in EAC
  - Cold water exposure
  - Obstruction and recurrent infection (swimmers ear)
  - Surgery indicated when infections reduce quality of life



Outer Ear

- Benign Polyps
  - Refer to specialist
  - Glomus tumors
  - Chronic infections (granulation)
  - Meningocoele
  - CT scan mandatory before biopsy and definitive treatment
- Cerumen Impaction
  - Usually managed in the rooms

Outer Ear

- Systemic disease
  - Tuberculosis
  - Other granulomatous diseases
- Dermatologic
  - Chronic otitis externa (eczema)
  - Psoriasis

Middle Ear

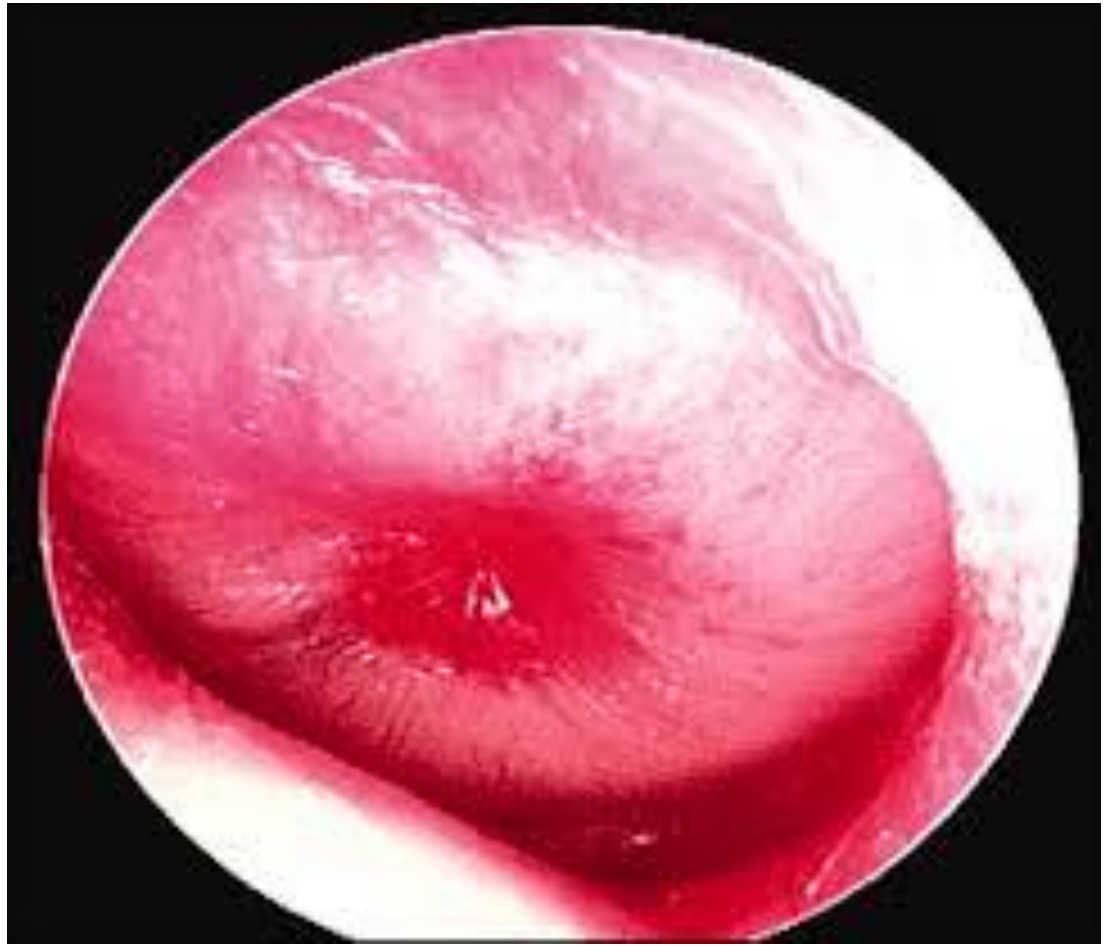
- Eustachian tube dysfunction
- Infection
- Tumors
- Trauma
- Chronic otitis media with or without Choleateatoma
- Ossicular pathology

Middle Ear

- Eustachian tube dysfunction
  - Aural fullness
  - Perceived hearing loss
  - Usually follows URTI, allergic rhinitis
  - Toynbee maneuver

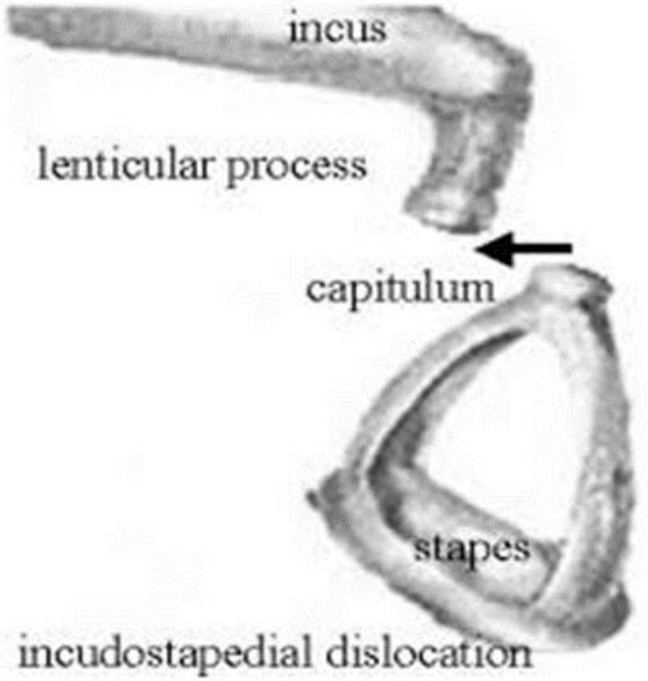
Middle Ear

- Infection
  - Acute otitis media
  - Hearing loss (less than 3 weeks)
  - Pain, fever, purulent otorrhoea
  - Irritability in children
  - Inflammed bulging tympanic membrane
  - Analgesia
  - Antibiotics for severe cases



Middle Ear

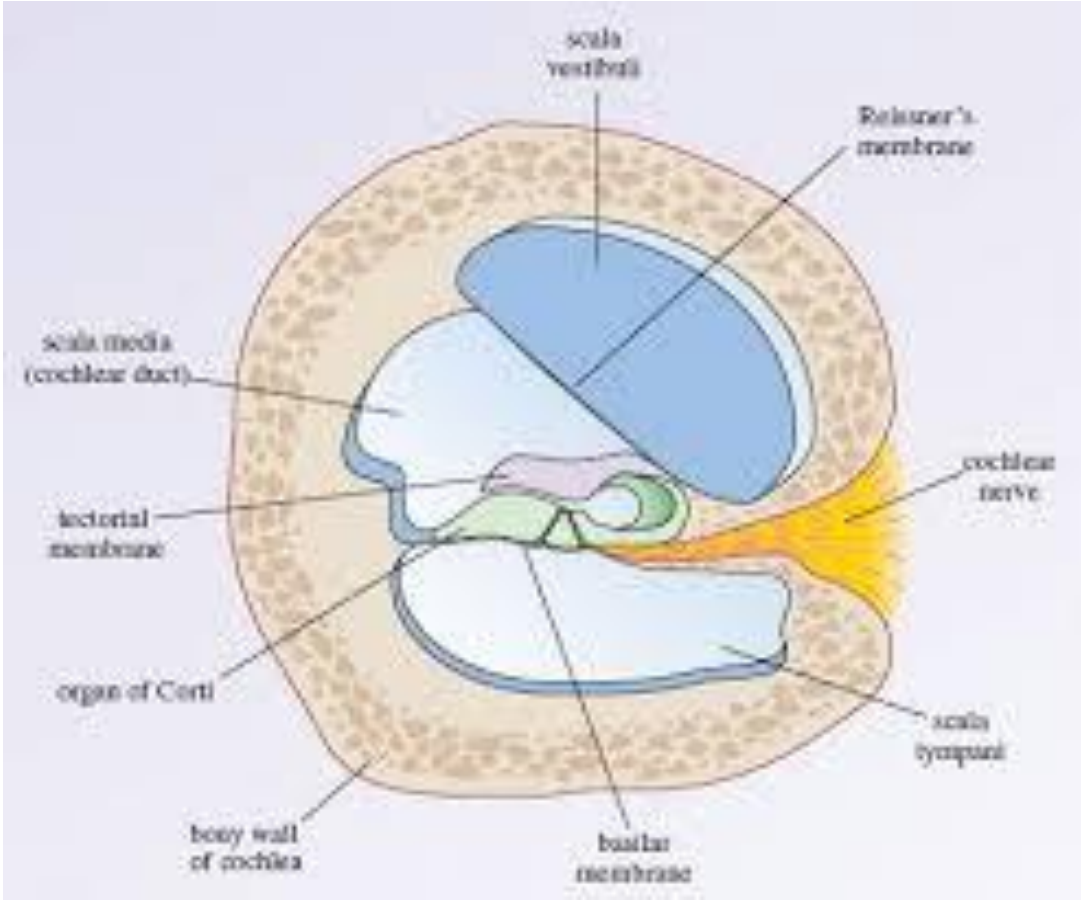
- Infection
  - Chronic Otitis Media
- Ossicular Pathology
  - Ossiclar fixation or discontinuity
  - Requires ossiculoplasty
- Tumors
  - Glomus Tumors



Sensorineural Hearing Loss

Sensorineural Hearing Loss

- Unilateral or Bilateral
- Acute or Chronic



Pathology

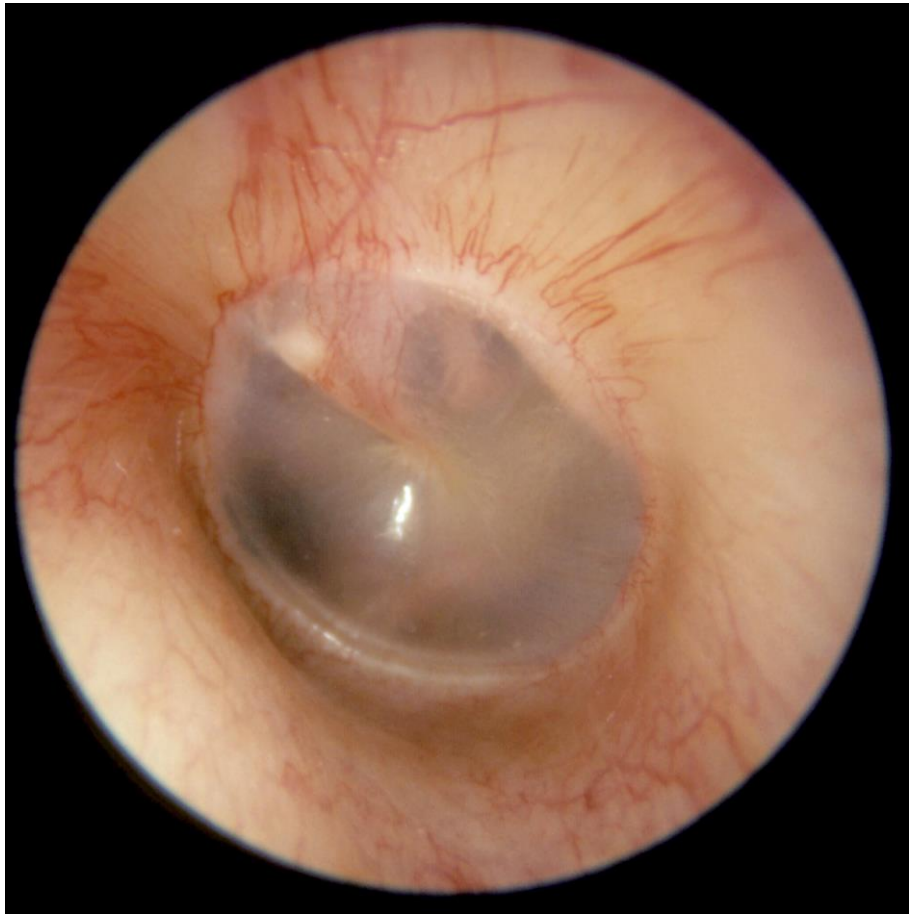
- Genetic
- Infectious
- Vascular
- Neoplastic
- Traumatic
- Ototoxic
- Immunologic and Inflammatory

Presentation

- Hearing loss
  - Acute or chronic
  - May be fluctuating, progressive or stable
- Tinnitus (usually non pulsatile & subjective)
- Vertigo
- Otorrhoea
- Headache
- Aural fullness

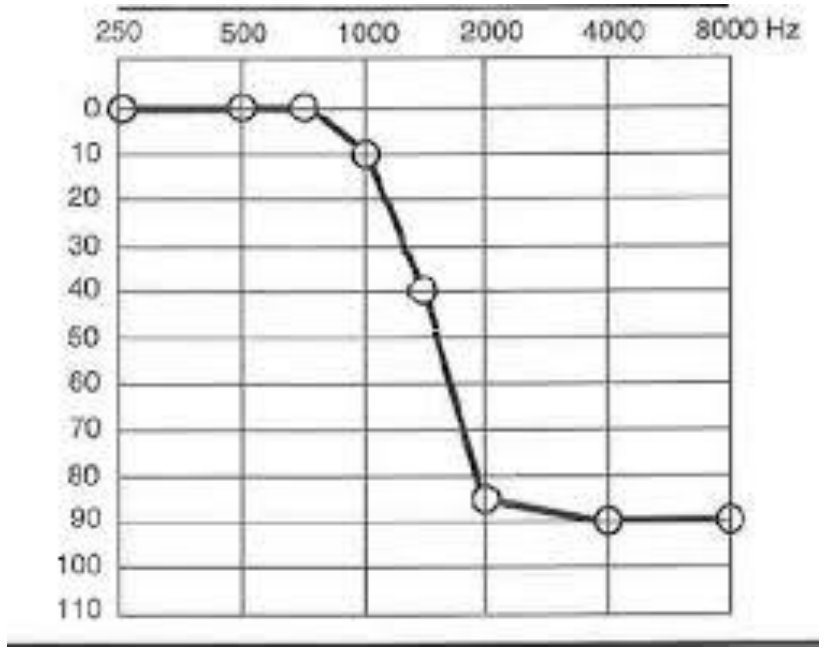
Physical Examination

- Normal outer ear
- Otoscopy usually normal
- Cranial nerve deficits are rare
- Audiology
- Further Investigations tailored to pathology



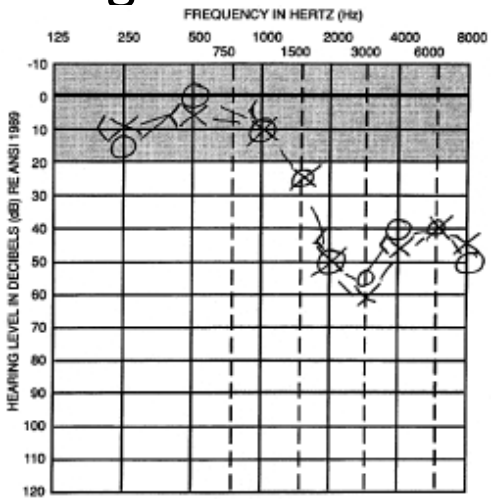
Bilateral Sensorineural Hearing Loss

- Age Related Hearing Loss (Presbyacusis)
  - Irreversible degeneration of the cochlear
  - Non-pulsatile subjective tinnitus
  - Usually after age 60
  - Bilateral and progressive
  - Normal otoscopic findings
  - Weber central & Rinne (+) bilaterally
  - Audiogram (ski slope curve)
  - Hearing aid is treatment mainstay



Bilateral Sensori-neural Hearing Loss

- Noise-Induced Hearing Loss
  - Loud noise (>85dB, vacuum cleaner) over many years
  - Ussually occupation related
  - Bilateral symmetrical sensori-neural loss
  - Usually associated with tinnitus
  - Weber central, Rinne (+) bilaterally
  - Normal otoscopy
  - Audiogram
- Management
- Prophylaxis
  - Health and safety gear
- Established cases
  - Hearing aid
  - Compensation may be sought



Bilateral Sensorineural Hearing Loss

- Ototoxixity
  - Drug related damage to cochlear
  - Often a genetic predisposition
  - Hearing loss & tinnitus 3 – 4 days after starting drug
  - Ototoxic agents
    - Aminoglycosides, erythromycin, loop diuretics,salicylates, anti-depressants
  - Damage is irreversible
  - Prevention by monitoring serum levels
  - Treatment is by Hearing aid

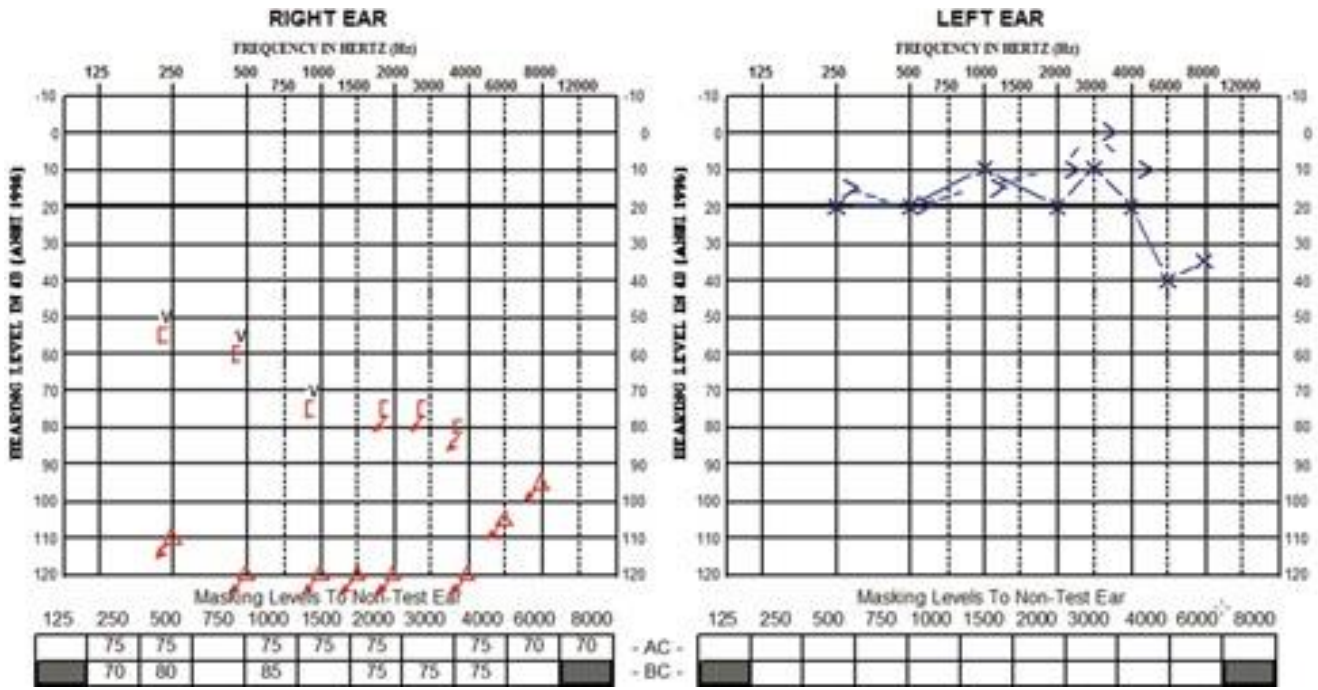
Bilateral Sensori-neural Hearing Loss

- Meniere's Disease
  - Fluctuating sensori-neural hearing loss
  - Tinnitus, aural fullness, vertigo
  - Progressive hearing loss over many years
  - Vertigo is
    - Episodic & debilitating
    - Lasts for longer than 20min to hours
    - Comes in bouts
  - Treatment is complex
    - Conservative Management
    - Surgery for intractable cases

Sensori-neural Hearing Loss

- Other causes
  - Autoimmune inner ear disease

Unilateral Senorineural Hearing Loss

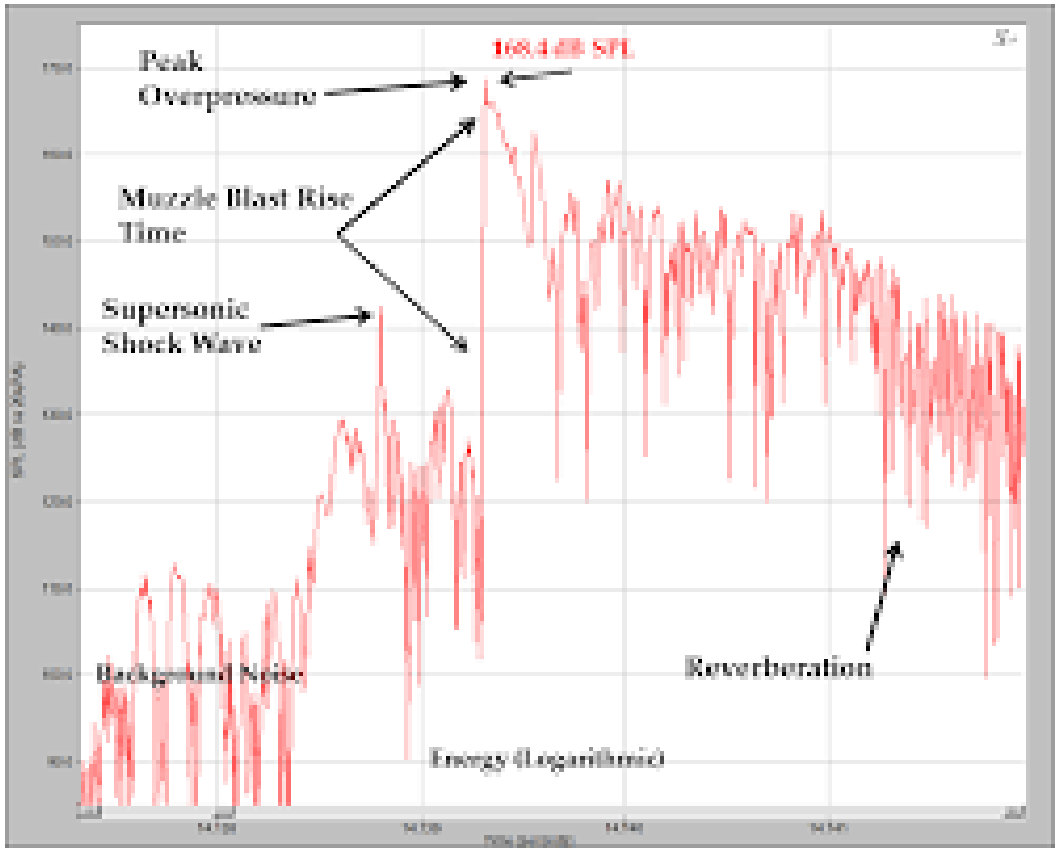


Unilateral Sensorineural Hearing Loss

- Sudden Onset Sensorineural Hearing Loss
  - An emergency
  - Onset of hours
  - Presentation is often delayed
  - Aetiology
    - Ototoxicity
    - Infection (HIV, mumps, VZV, Meningitis)
    - Tumors (eg. acoustic neuroma)
    - Neurological (brainstem CVA, Multiple sclerosis)
    - Temporal bone trauma
  - Refer urgently to appropriate speciality including ENT

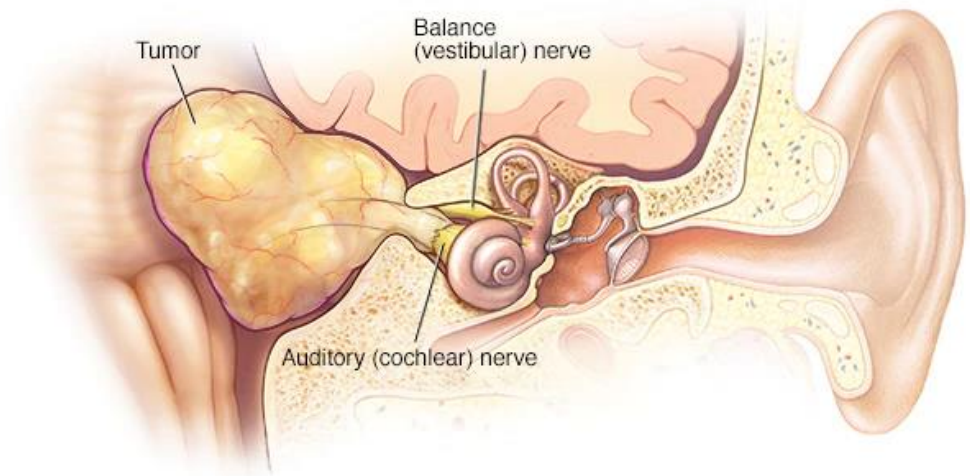
Sensorineural Hearing Loss

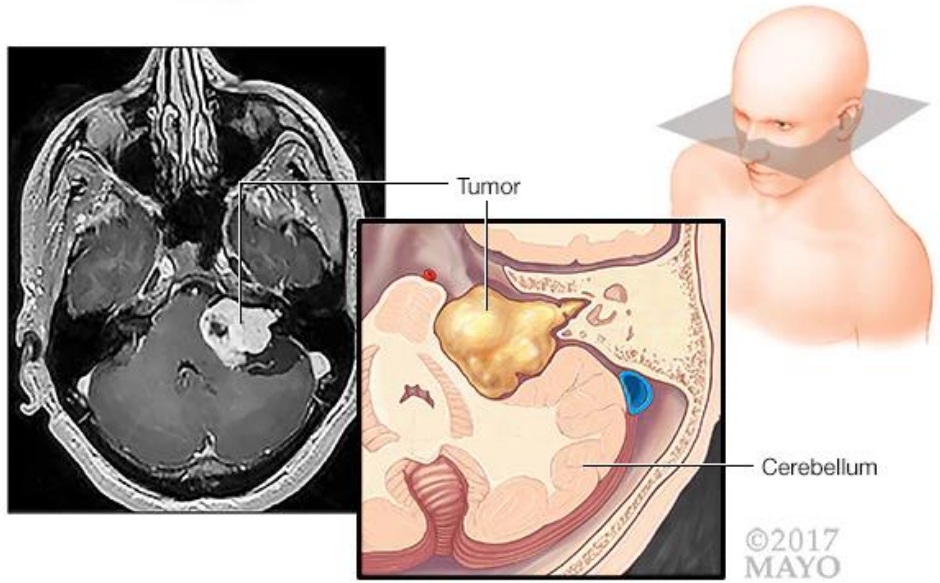
- Acoustic Trauma
  - Louder than (180dB, rifle) = acoustic trauma
  - Acute injury
  - Prevetion is mainstay
  - Hearing rehabilitation



Unilateral Sensorineural Hearing Loss

- Other causes
  - Autoimmune inner ear disease
  - Tuberculosis
  - Tumors
    - Acoutic Neuromas





Tinnitus

Tinnitus

- Auditory perception of sound in the ear or head
- From the Latin “Tinnre” (ring or tinkle)
- Up to 18% of the population
- Usually after the 4th decade
- Reduces Quality of life
  - Poor sleep, anxiety, depression
- Classification
  - Subjective & Objective
  - Pulsatile & Non-pulsatile

Tinnitus

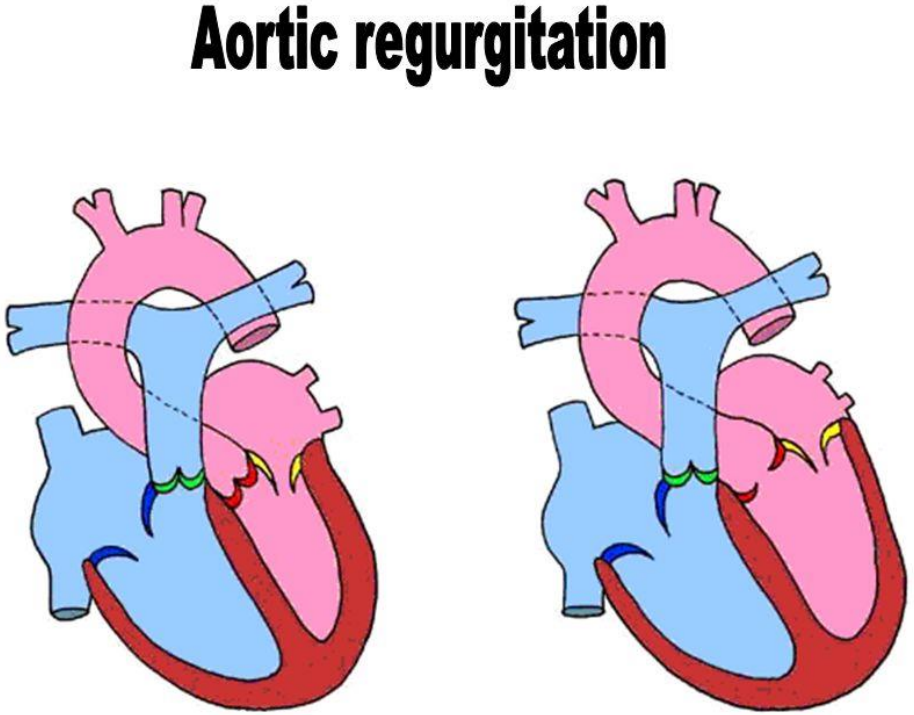
- Subjective / Non-pulsatible
  - Usually bilateral

- Aetiology
  - Bilateral (non life threatening)
    - Most causes of sensori-neural hearing loss
    - Age Related Hearing loss, Noise Induced hearing loss etc
    - Hearing aid, Tinnitus masking, Pharmacology, cognitive behavioural therapy
  - Unilateral
    - Meniere’s disease, otosclerosis, acoustic neuromas
    - Sudden onset sensori-neural hearing loss (acoustic neuroma)

Tinnitus

- Unilateral Pulsatile / Objective
- Potential life threatening
  - Inflammation in middle ear (eg. Chronic Otitis Media)
  - Tumors (glomus tumors)
  - Vascular (Carotid aneurysms, High Jugular bulb, Jugular Diverticulum)
  - Myoclonus (Tensor tympani syndrome, rectus muscle myoclonus)

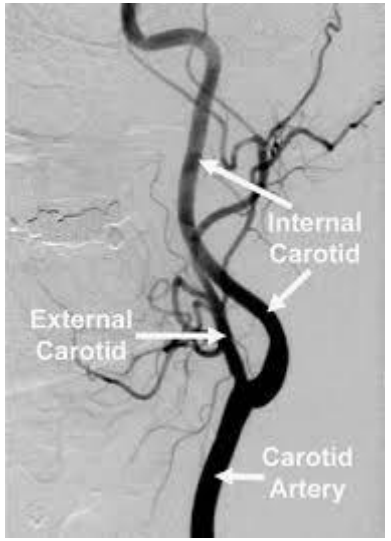
Tinnitus

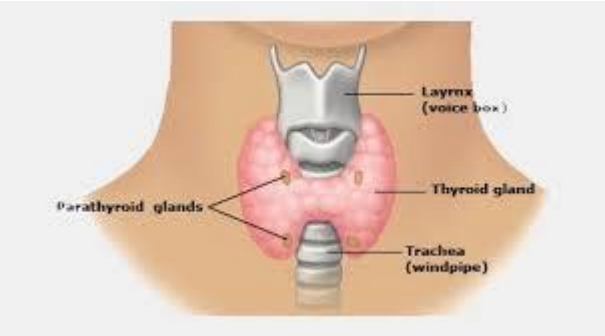


- Bilateral Pulsatile / Objective
- Potentially life threatening
- usually systemic causes
  - Cardiac (Aortic valve Regurgitation)
  - Endocrine (thyrotoxicosis)
  - Haematological (anaemia)
  - Neurological (migraine, multiple sclerosis, AV malformations, Benign Intranial hypertension)
  - Nutritional (Vit B1 deficiency)

Tinnitus

- Work up can be comlplex
- Referral to specialist is appropriate





Questions

Thank You