Deafness

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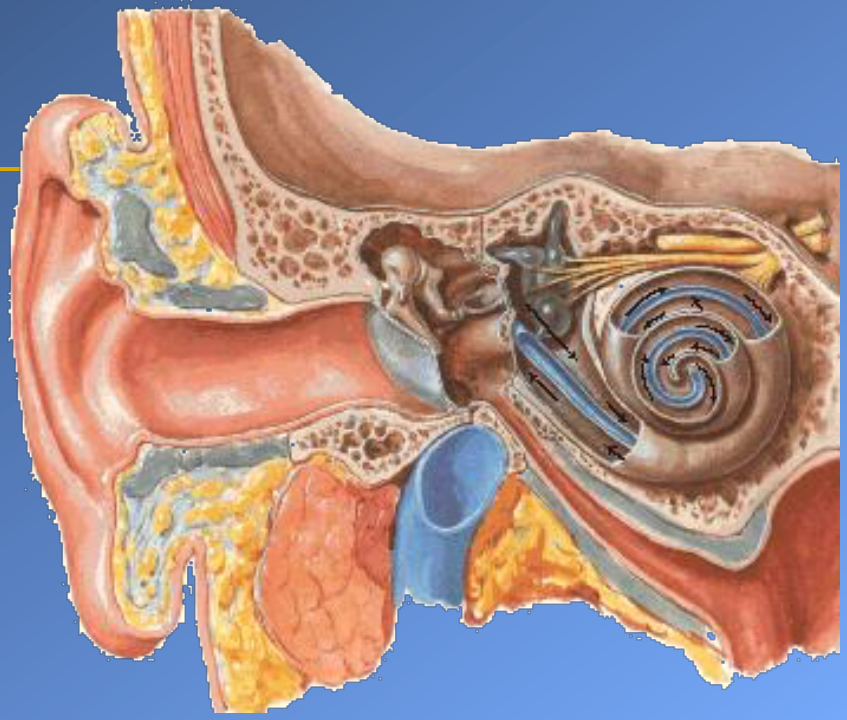
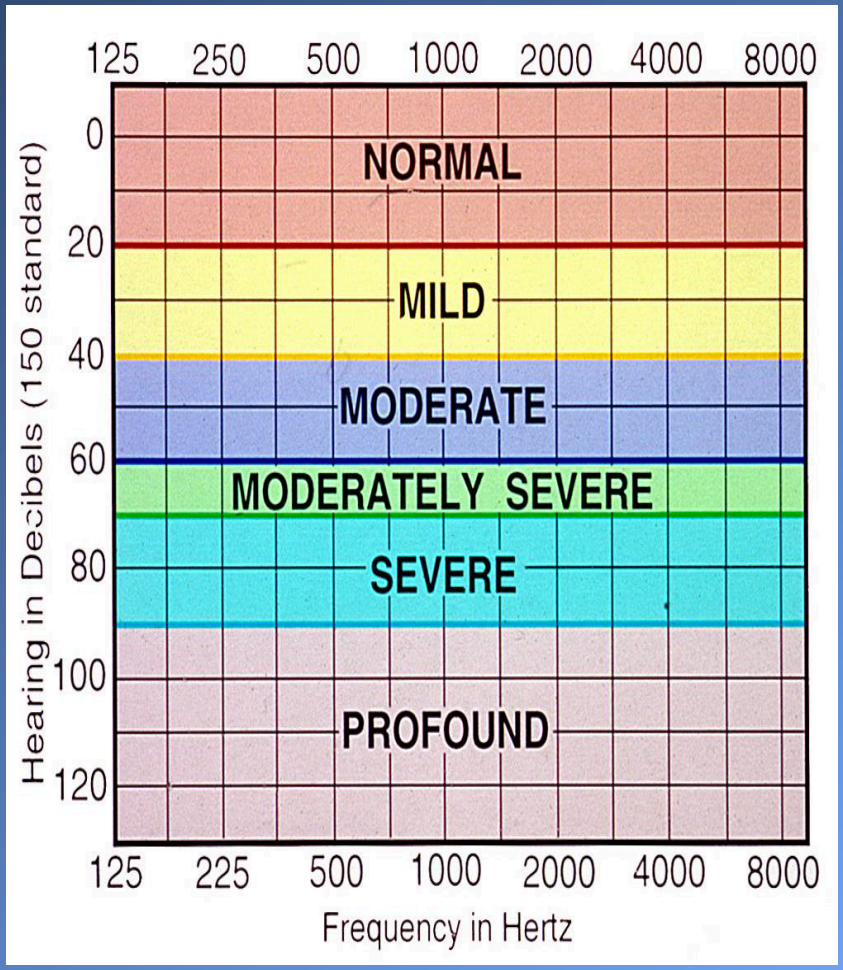


Introduction

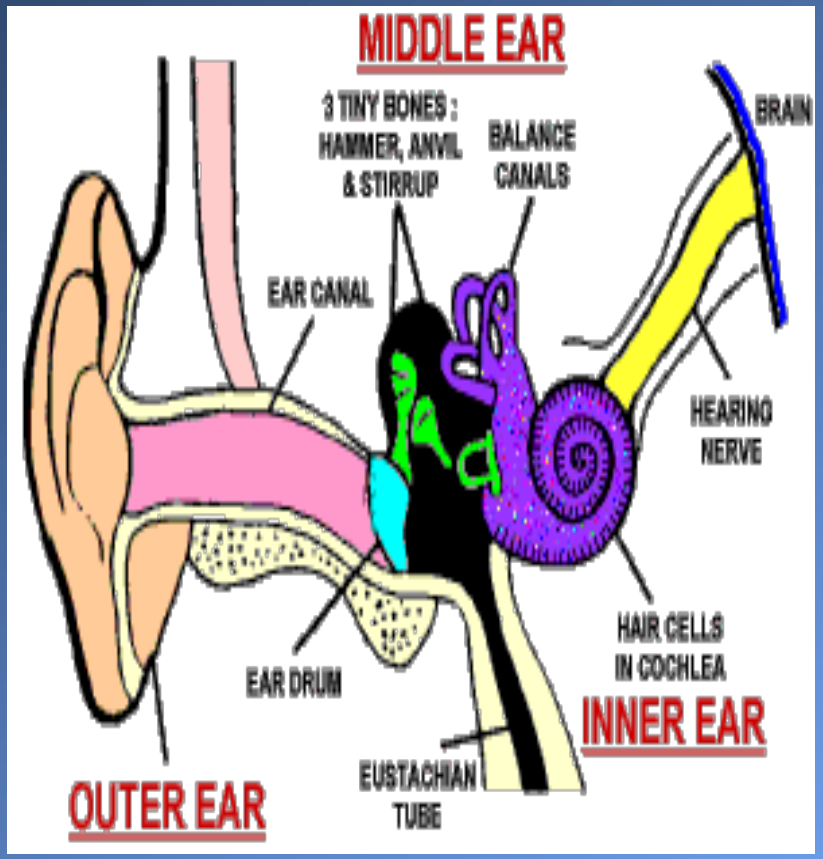
Hearing loss : is define by the World Health Organization (WHO) as a hearing loss with thresholds ≥ 25 dB on one or both ear .



Hearing Loss

Types:

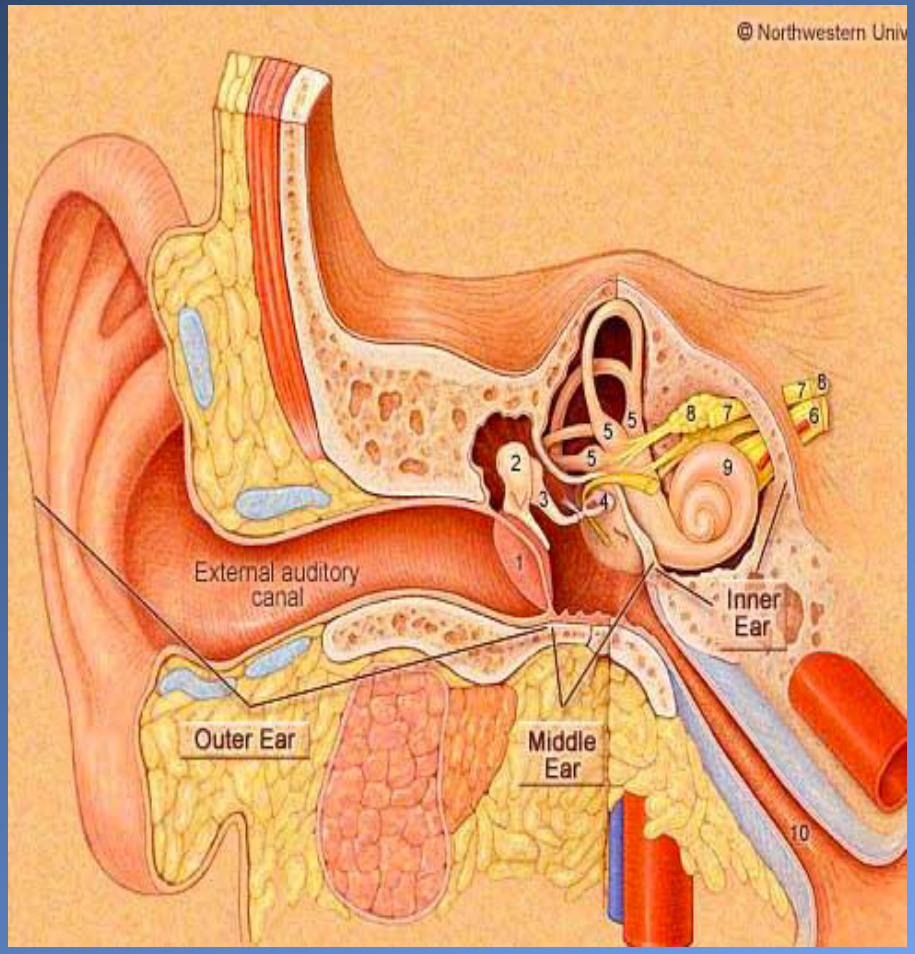
- **Conductive hearing loss**
- **Sensory Neural hearing loss**



Hearing Loss

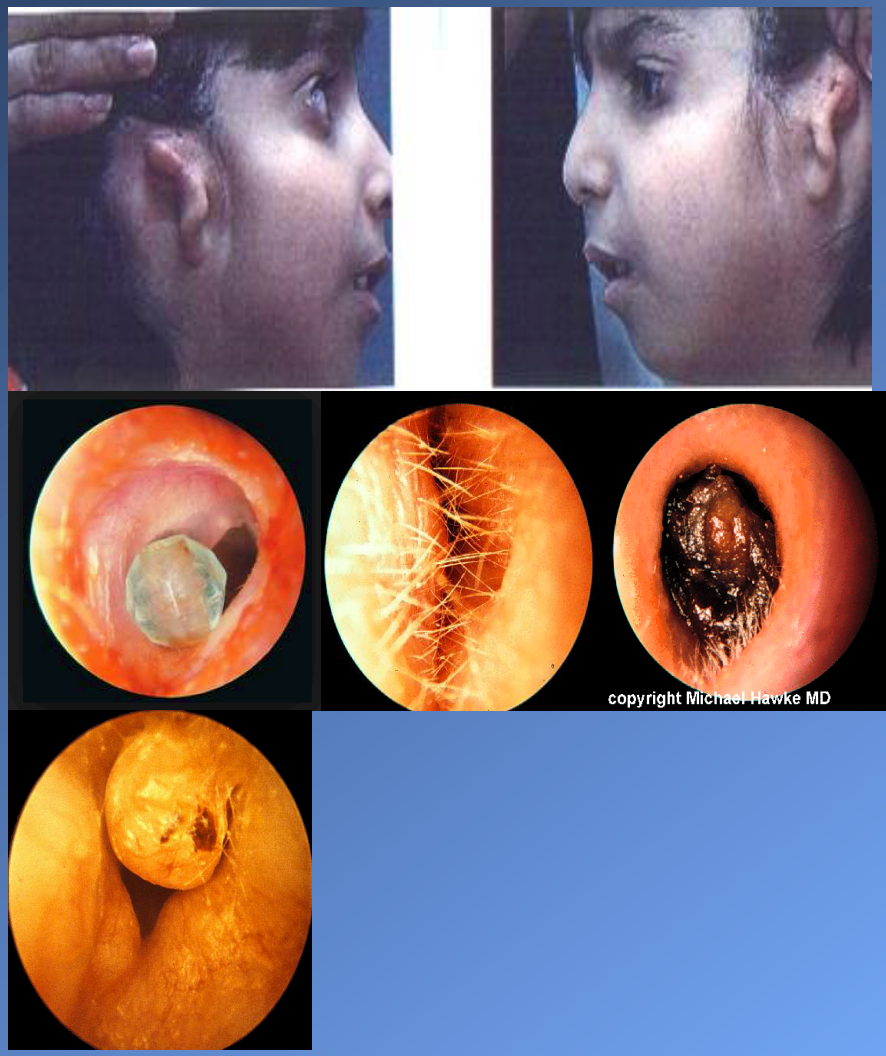
Types:

- Conductive hearing loss
  1. Concha
  2. Ear Canal
  3. Drum
  4. Ossicular Chain
  5. Eustachian Tube



Conductive hearing loss

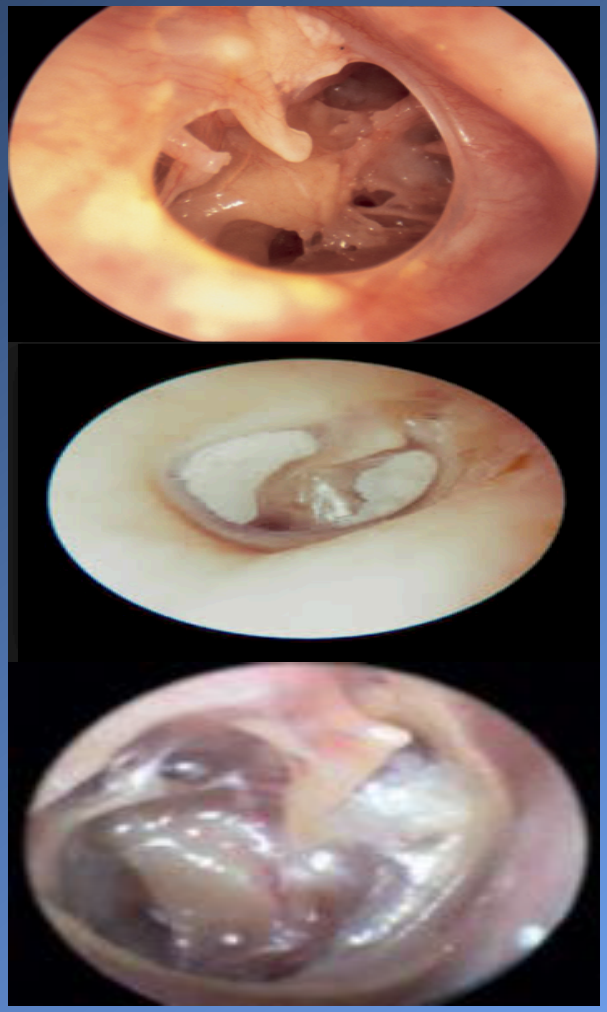
- **External canal pathology :**
  - Congenital : Artesia
  - Inflammatory: acute otitis externa
  - Wax
  - Foreign body
  - Osteoma or Exostosis



Conductive hearing loss

Tympanic membrane:

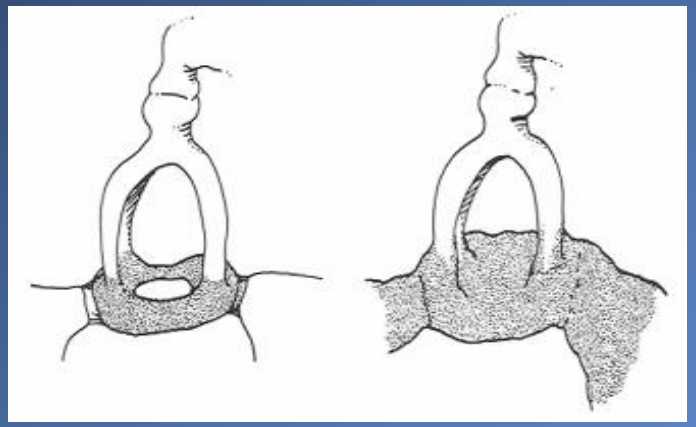
- Absent Perforated
- Too thick : Myringosclerosis
- Too thin



Conductive hearing loss

Ossicular chains :

- Absent & Erosion



- Osscicular Fixation (otosclerosis)

- Disrupted trauma

Conductive hearing loss

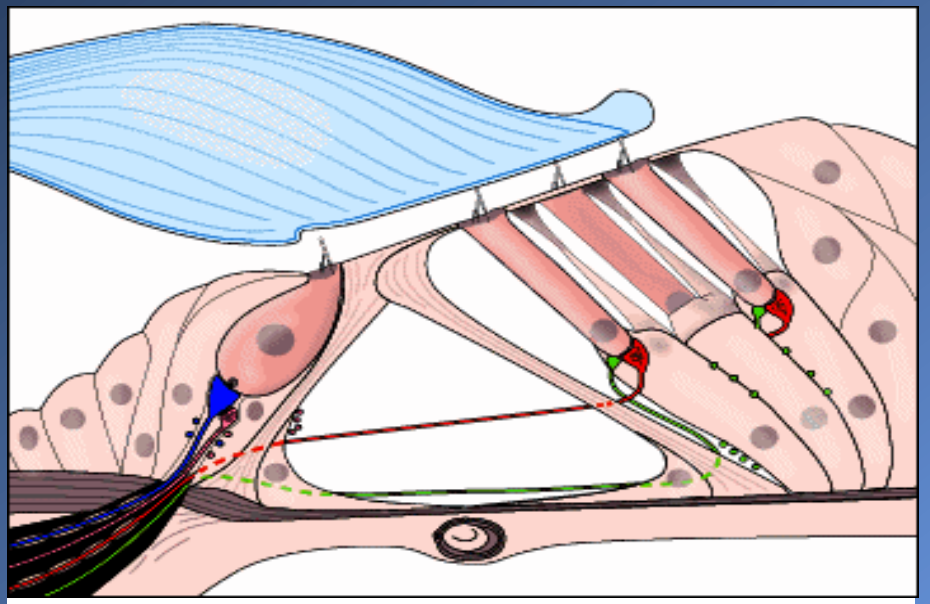
Eustachian Tube Dysfunction:

- **Retraction**

- **Effusion**

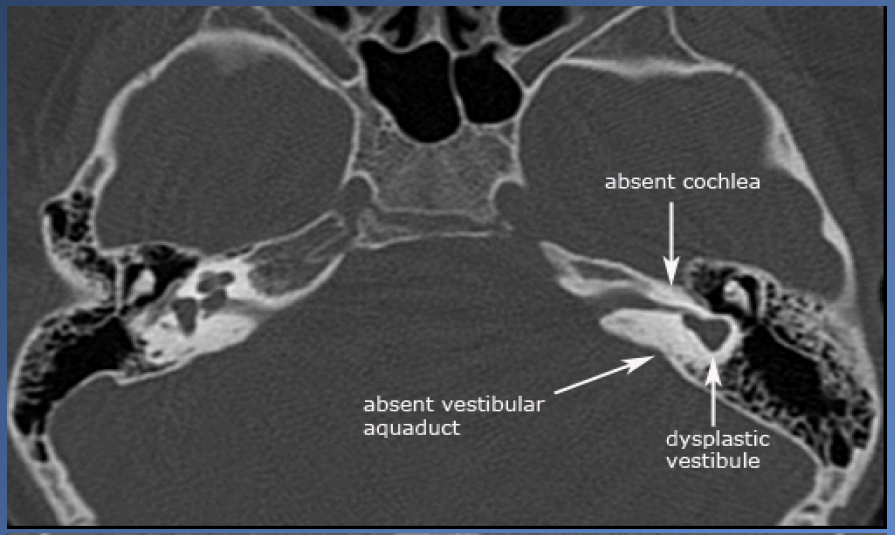
Sensorineural Hearing Loss

- **Sensory :** pathology is within hair cells in cochlea.
- **Neural :** pathology is with in the auditory nerve and it's connection.



Sensorineural Hearing Loss

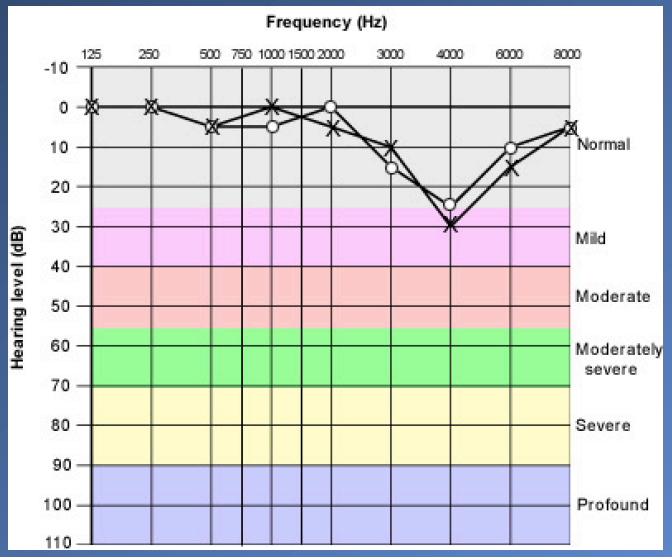
- Congenital :
  - Michel deformity (complete labyrinthine aplasia)
- Acquired :
  - Inflammatory
    - Meningitis lead to labyrinthine ossificans: membranous labyrinth replaced by fibrous or osseous tissue

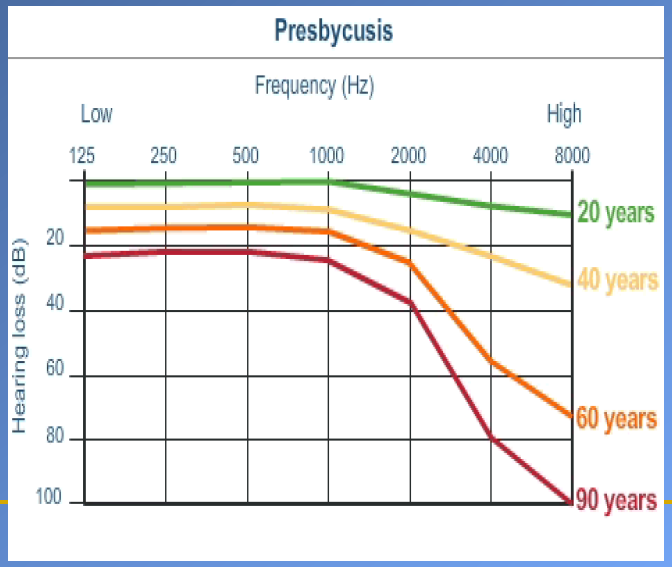


Sensorineural Hearing Loss

- Noise exposure : hearing loss on 4000 Hz
- **Presbycusis:** most common type of SNHL caused by natural aging of the auditory system.

- Autoimmune
- Cogan syndrome
- Ototoxic drugs
- Aminoglycosides groups ,….

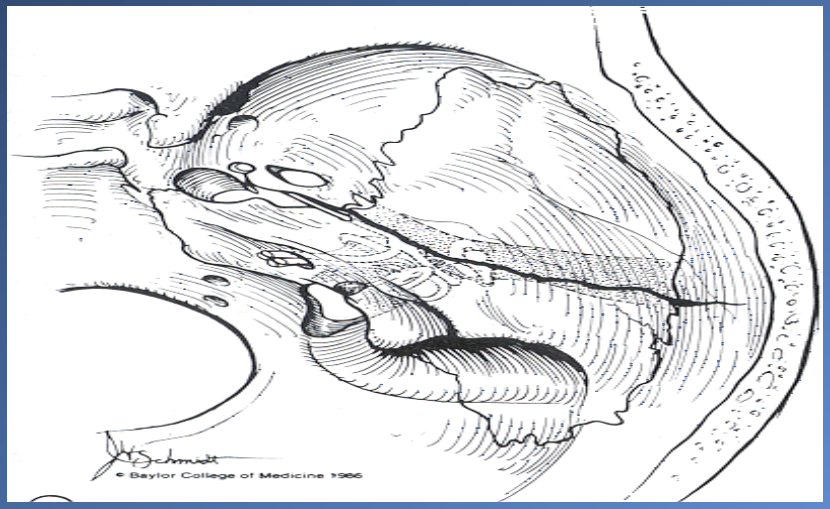


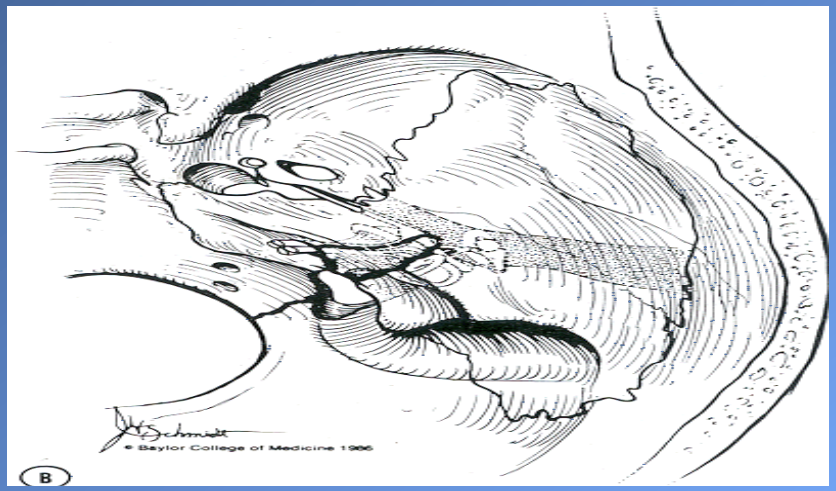


Sensorineural Hearing Loss

Trauma

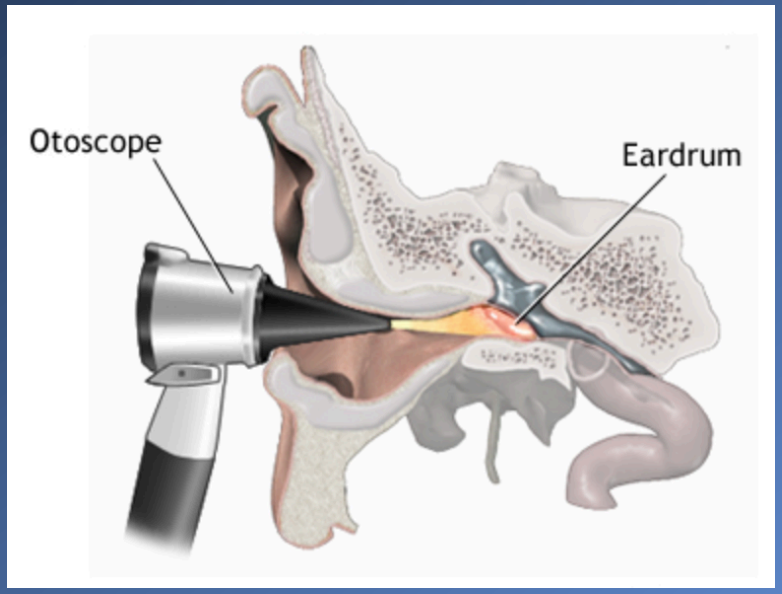
- Temporal bone fracture
  - Longitudinal fracture (mainly conductive hearing loss)
  - Transverse fracture (profound SNHL)



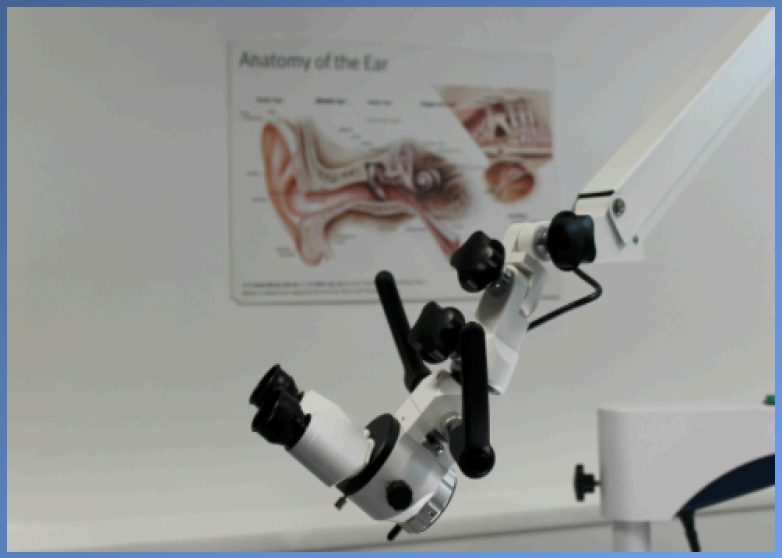


Examination

- Otoscopic



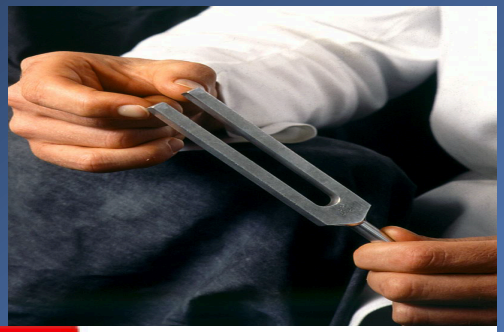
- Microscopic



Clinical testing of hearing

- Tuning forks
- Audiogram:
  - Pure tone audiogram
  - Speech audiogram
- Impedance
  - Acoustic reflex
- Tympanogram
  - Volume
  - Acoustic reflex decay

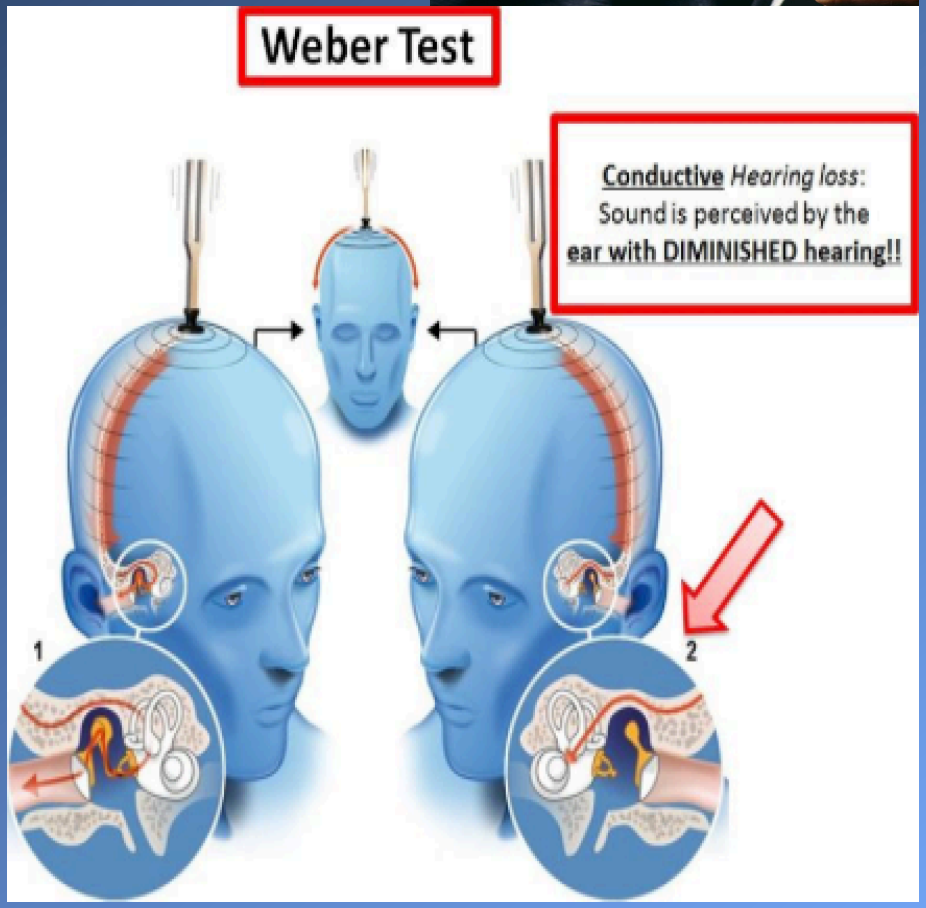
Tuning forks



- Weber test: is a quick screening test for hearing.

- It can detect:
  - Unilateral **conductive hearing** loss (middle ear hearing loss) **deviated to affected ear**.

  - Unilateral **sensorineural hearing** loss (inner ear hearing loss) **deviated to better ear**.

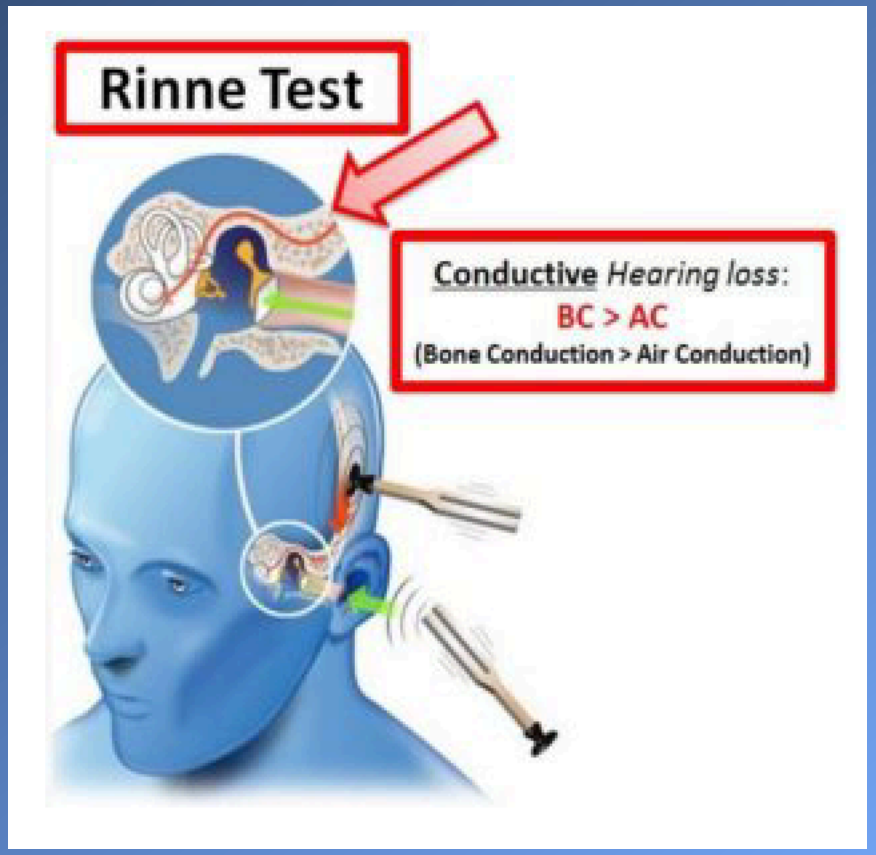


Tuning forks

- Rinne test: evaluate hearing loss in one ear.
- It compares perception of sounds transmitted by air conduction to those transmitted by bone conduction through mastoid.

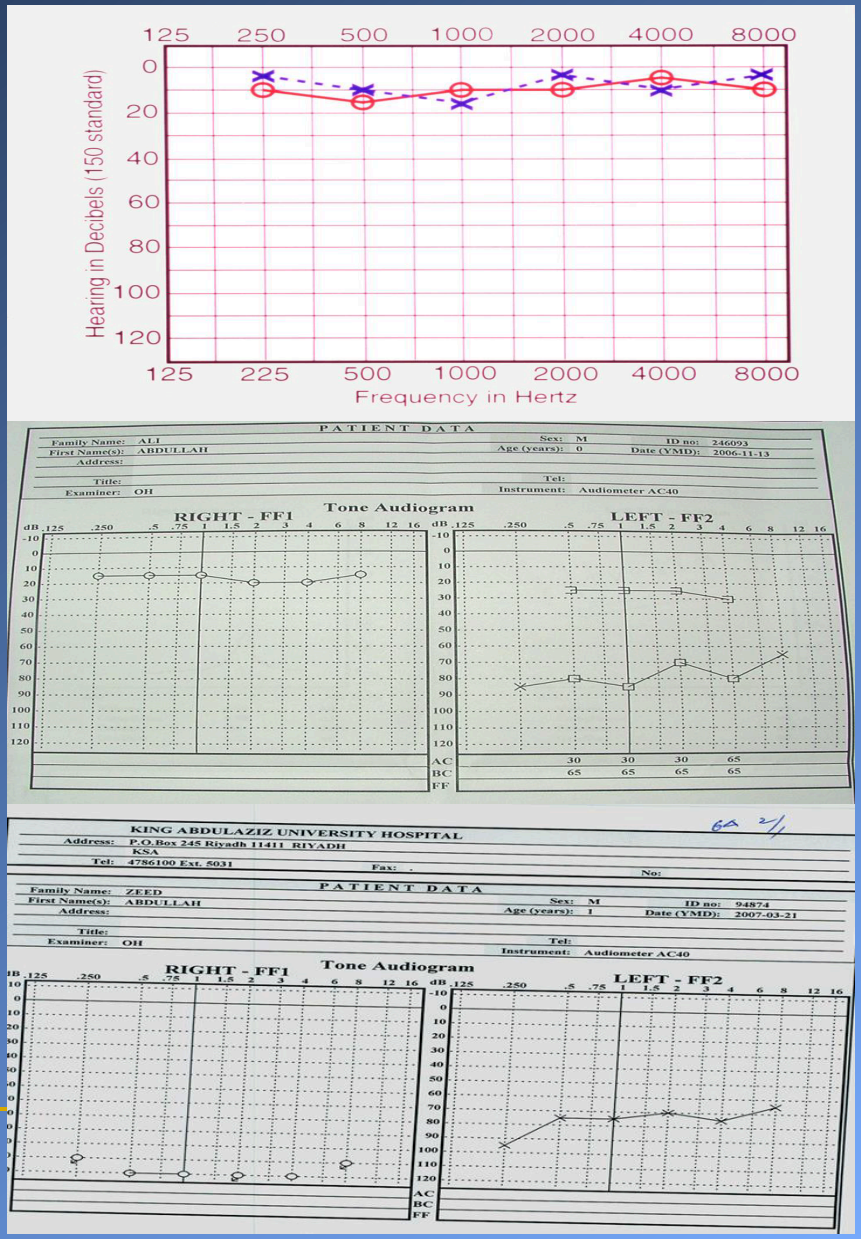
A C > BC (POSITIVE)

AC < BC (NEGATIVE)



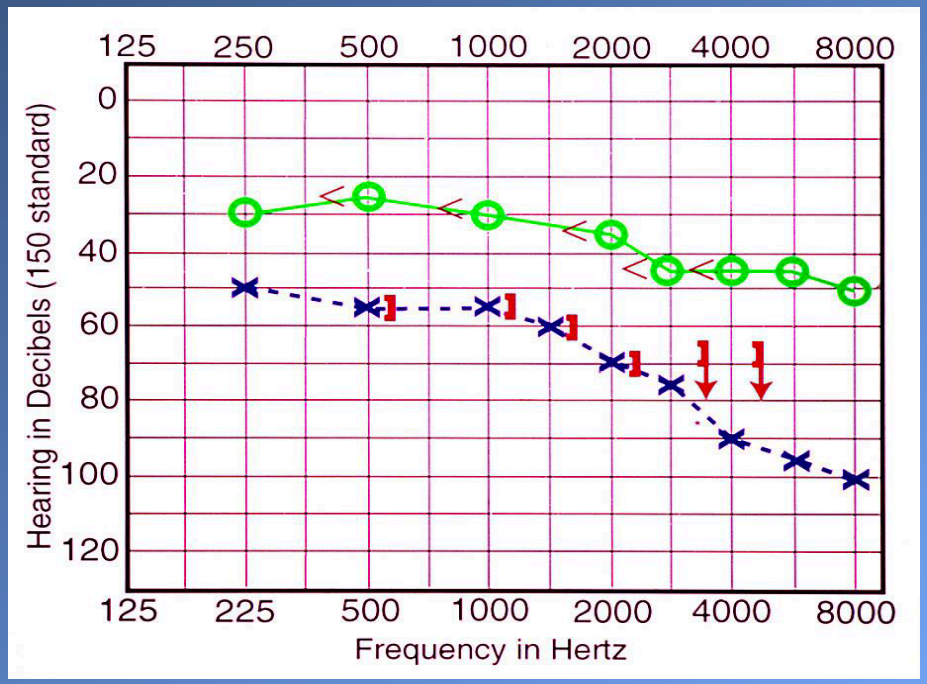
Pure Tone Audiogram

- Normal Hearing
- Conductive Hearing Loss
- Sensory Neural Hearing Loss

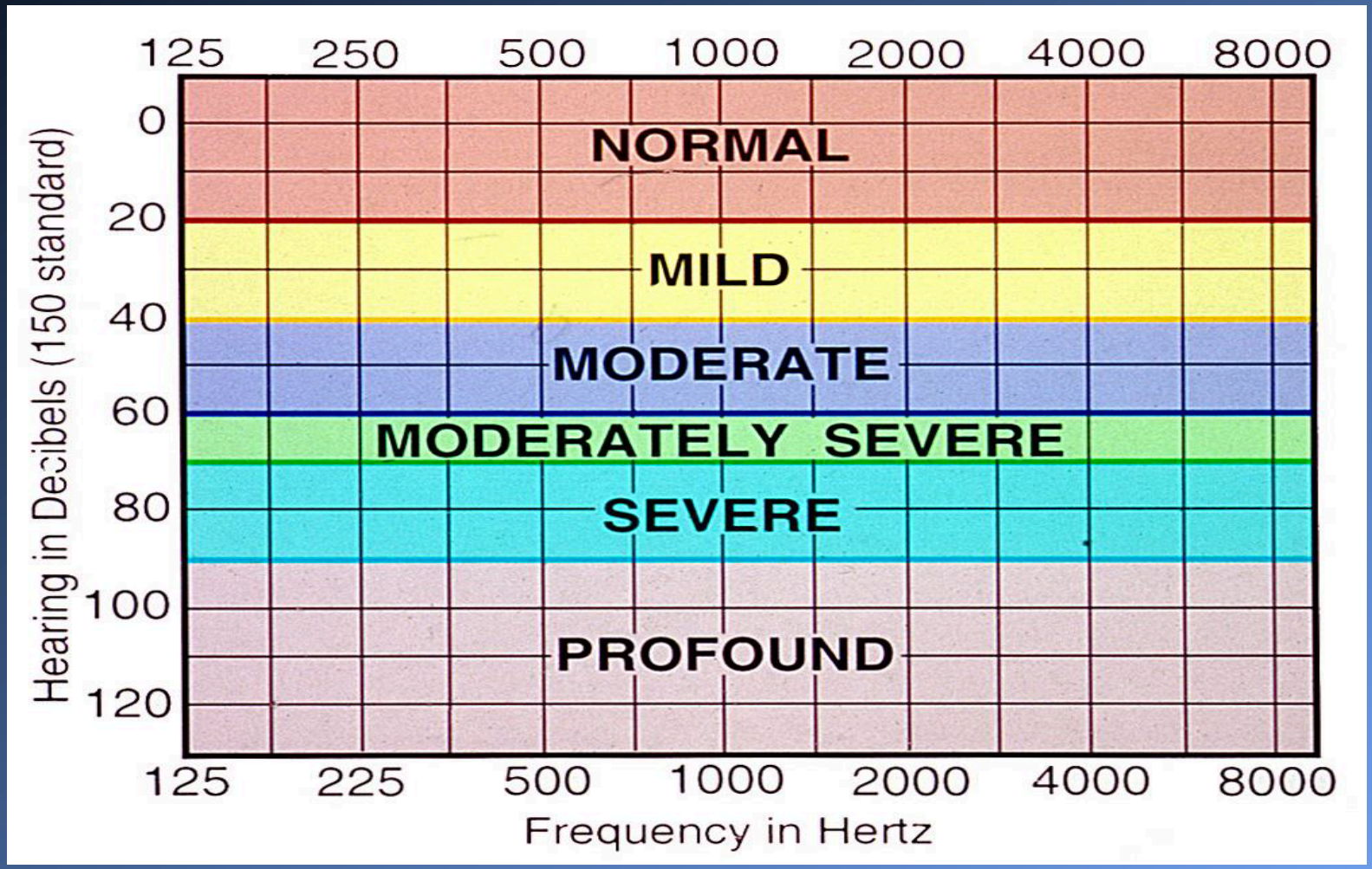


Pure Tone Audiogram

- Mixed Hearing Loss

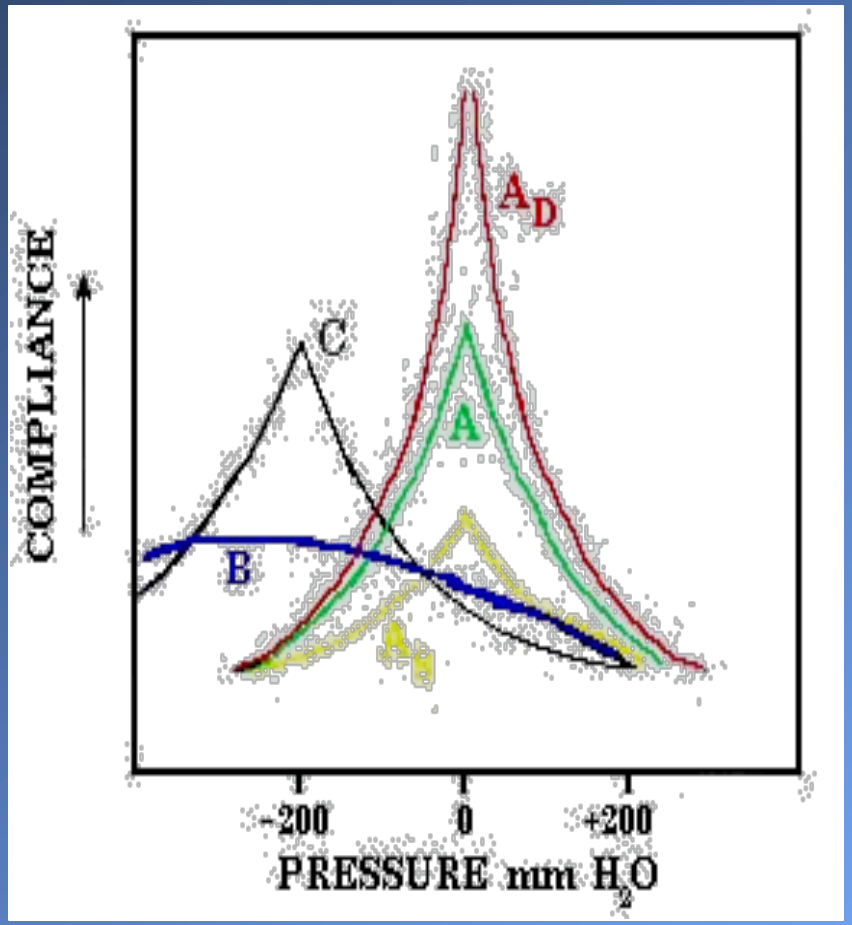


Degree of hearing impairment



Tympanogram

- Is graphic representation of the relationship between the air pressure in the ear canal and the movement of the tympanic membrane.
  - Type A: normal
  - Type B : fluid or perforated tympanic membrane
  - Type C : negative pressure in the middle ear
  - Type Ad : ossicular disruption with normal TM
  - Type As : ossicular fixation



Management of deafness

- Medical management
- Hearing aids

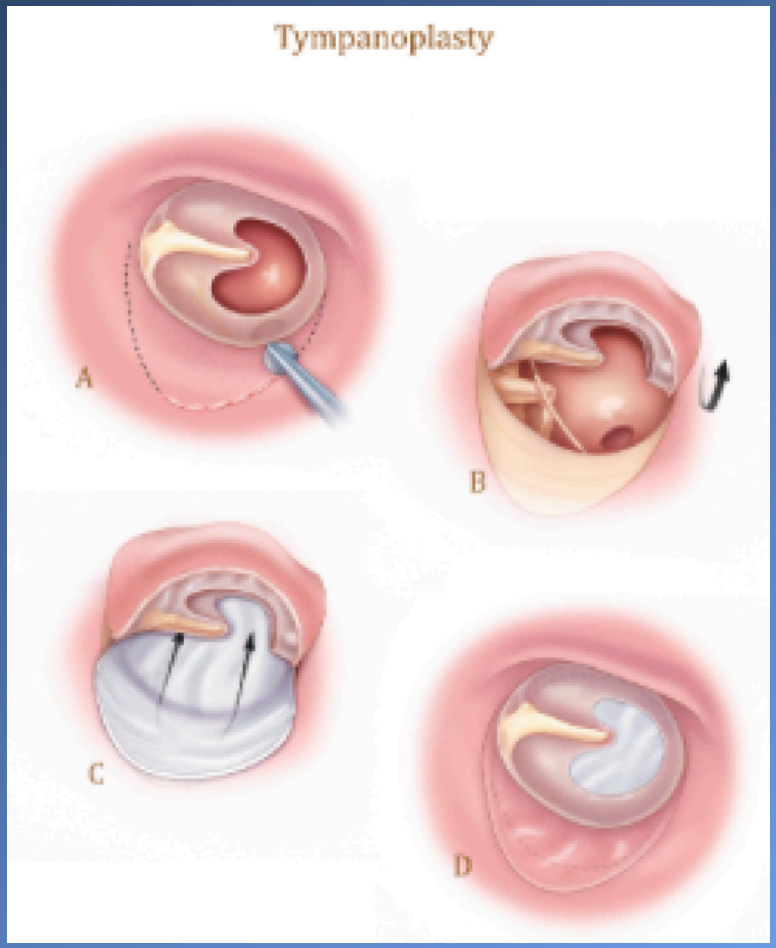



Management of deafness

- Myringotomy and ventilation tube Otitis media with effusion

Management of deafness

- Myringplasty
- Tympanoplasty in case of CSOM



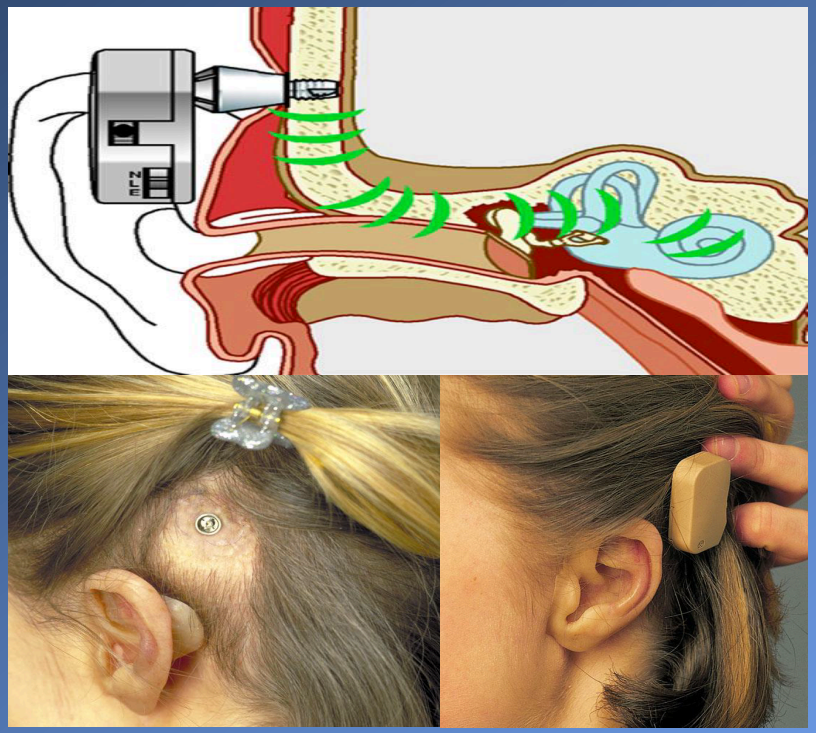
Management of deafness

- Ossiculoplasty

Management of deafness

BAHA (Bone anchored hearing aid)

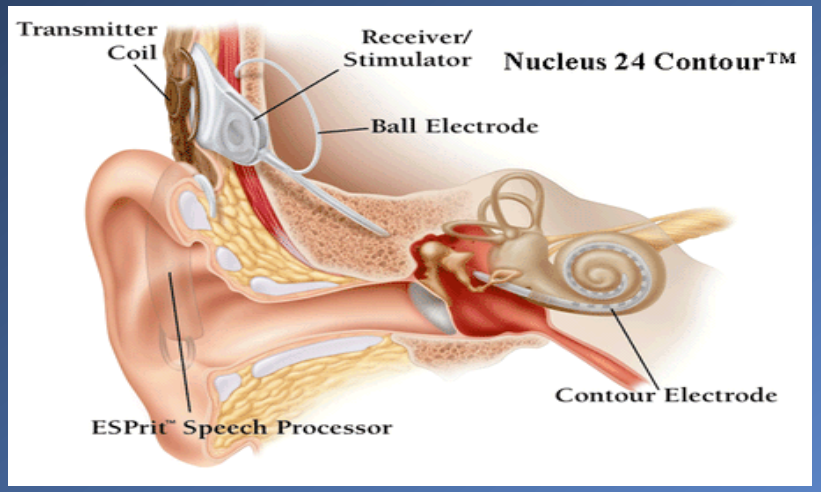
- Atersia of external canal
- Chronic drainage ear not responding to surgery



Management of deafness

- Cochlear implant
  - Pre-lingual children
  - post-lingual adult

- It pass by the external ,middle and inner ear to stimulate auditory nerve directly



Thank you