

HEARING LOSS: ADULTS

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ADULT HEARING LOSS: CAUSES

● CONDUCTIVE

● EAC: eg

- Wax
- Exostoses

● TM: eg

- Perfs
- CSOM

● Middle ear:

- MEE/OME
- Ossic.Chain
- Otosclerosis

● SENSORINEURAL

(Cochlea/CN VII/Central)

● GRADUAL: Age

Noise

Ototoxicity

Syphilis

Ac. Neuroma

Genetic

● SUDDEN:

Vascular

Labyrinthitis

Perilymph fistula

Idiopathic S.SN

H.Loss

ADULT H. LOSS: APPROACH:

- **HISTORY:**

- ONSET: Age; rate.

- CAUSES: Elicit the obvious

Conduct systematic enquiry:

Noise; Ototoxicity; CVS; Fam.H.

- INNER EAR ASSOCIATIONS:

(Tinnitus / dysequilibrium)

- MIDDLE EAR / E.T. ASSOCIATIONS:

(Awareness E.T. dysfn., URTI / Sinusitis / etc)

ADULT H. LOSS: APPROACH:

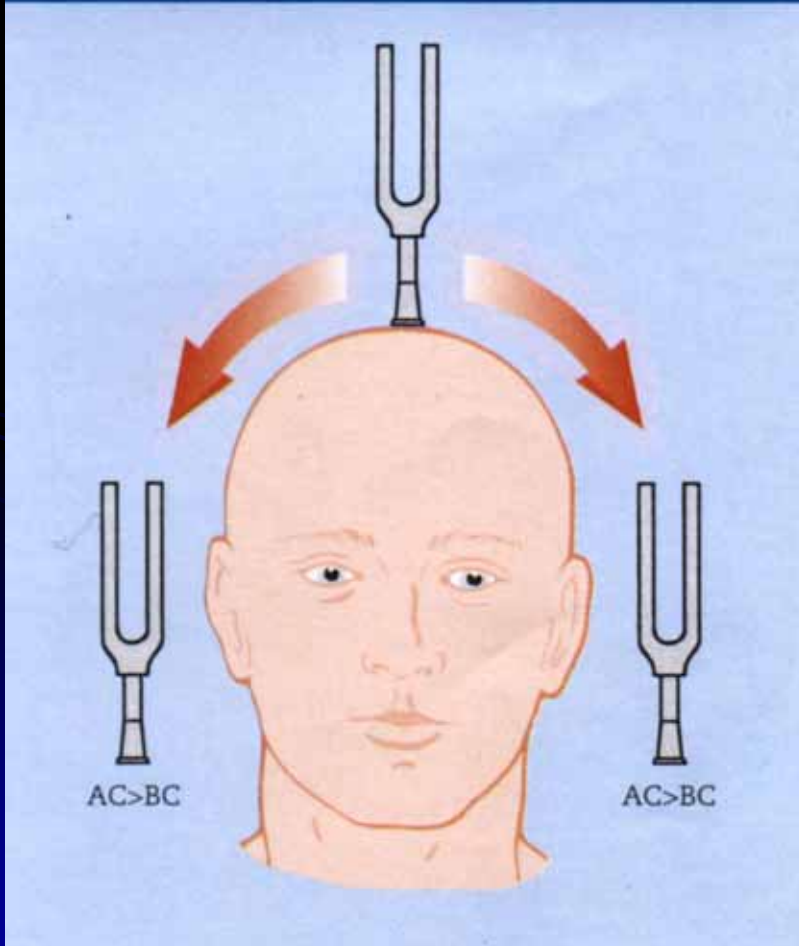
- **EXAMINATION:**
- Ext. Aud. Canal

- T. M.

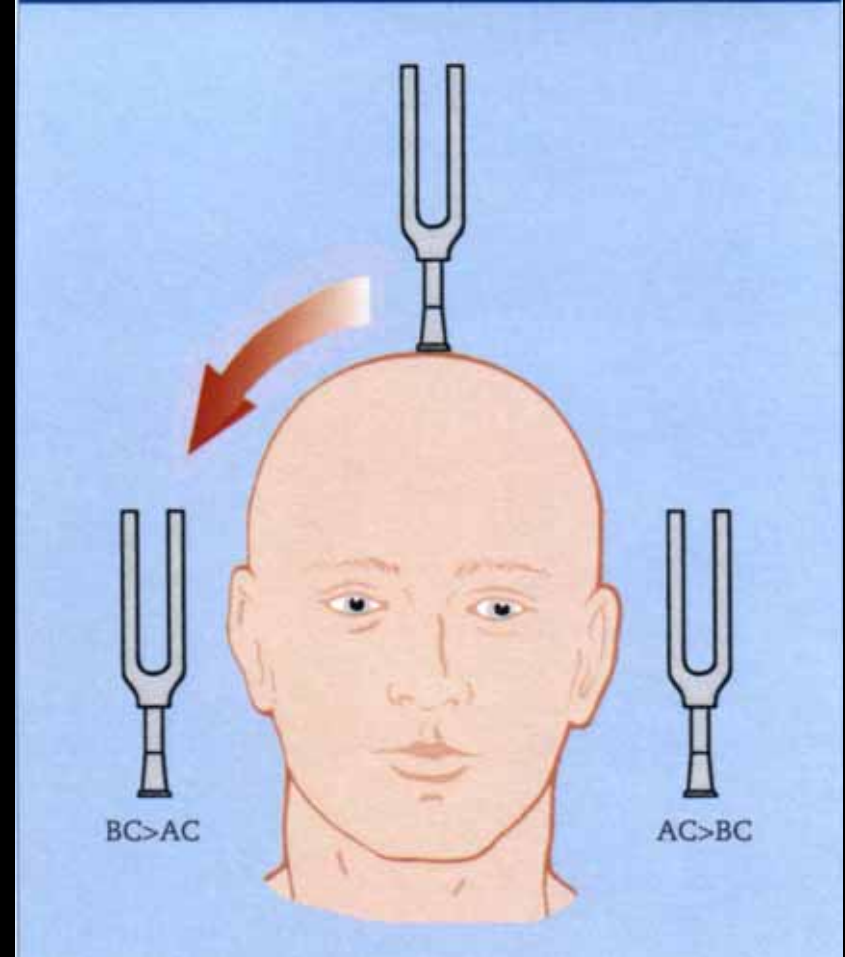
- Clinical tests of hearing:
 - Voice tests
 - Tuning fork tests:
 - The “Loock” TFT
 - Rinne
 - Weber

Tuning fork tests:

SYMMETRICAL HEARING IN BOTH EARS

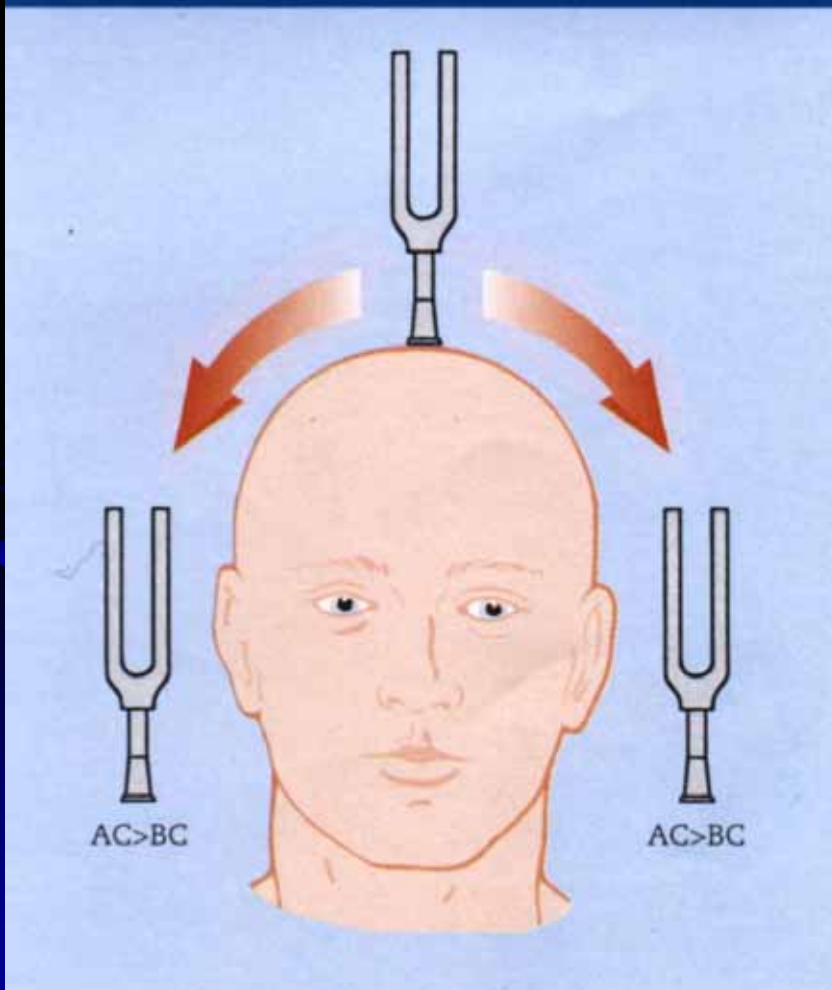


CONDUCTIVE DEAFNESS IN RIGHT EAR

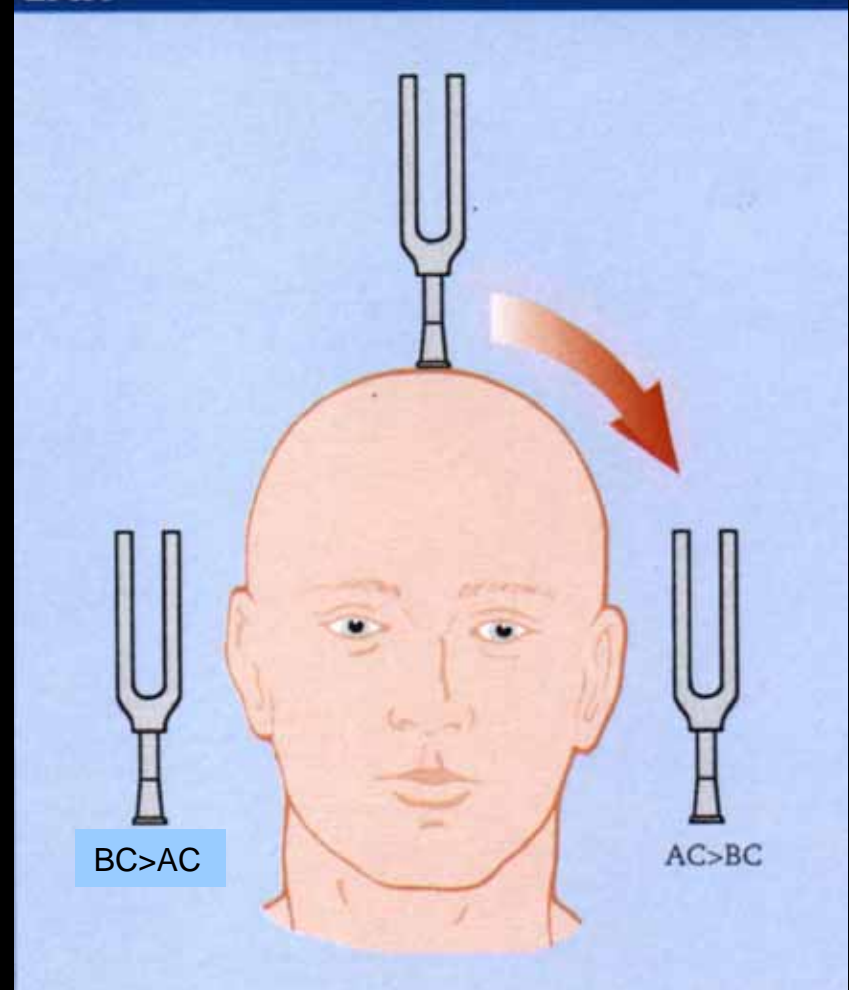


Tuning fork tests:

SYMMETRICAL HEARING IN BOTH EARS



SENSORINEURAL DEAFNESS IN RIGHT EAR



ADULT H. LOSS: APPROACH:

● SPECIAL INVESTIGATIONS:

- AUDIOMETRY
 - SPEECH AUDIOMETRY
- } Subjective tests,
requiring pt's response

- TYMPANOMETRY

- ABR / BAER (Brainstem audiometry)
 - OAEs / Oto-acoustic emissions
- } Objective tests, record
evoked impulses

- MRI

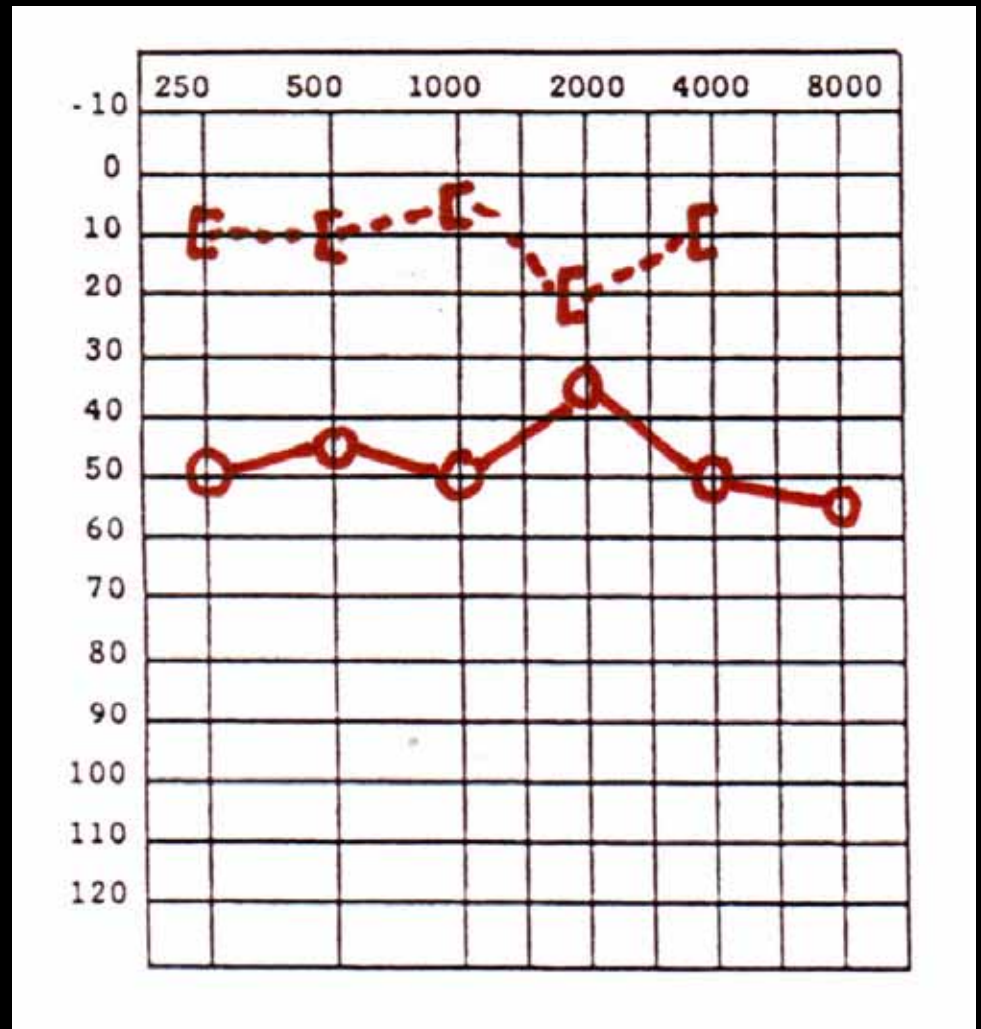
AUDIOMETRY

- Frequency (Hz)
- Intensity (dB)
- Threshold
- Air conduction
- Bone conduction
- Right/Left

Audiogram R Ear:

“Red Rings on the Right”

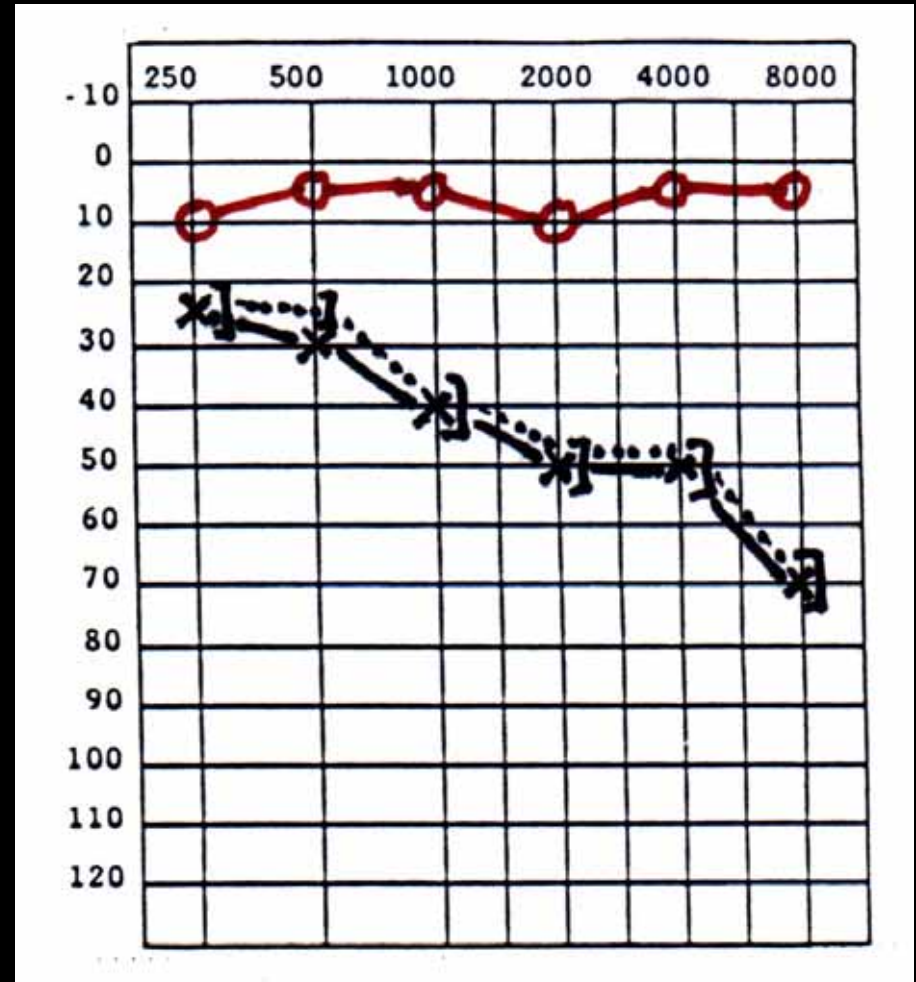
Conductive Hearing Loss R



AUDIOMETRY

- Frequency (Hz)
- Intensity (dB)
- Threshold
- Air conduction
- Bone conduction
- Right/Left

Audiogram Both Ears:
Left Sensorineural Hearing Loss
Normal Hearing Right (RRR)



AUDIOMETRY

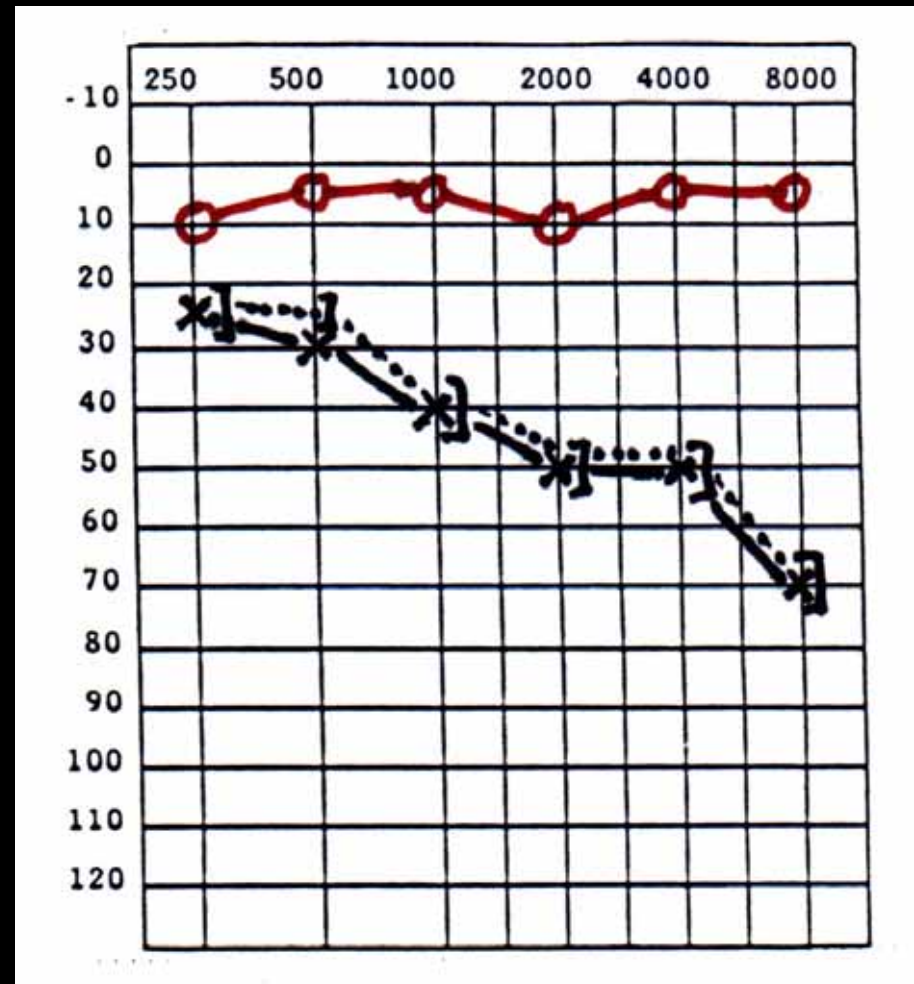
HEARING LOSS:

LEVELS: (simplified)

- “Mild”: 25-40 dB
- “Moderate”: 40-60
- “Severe”: 60-90
- “Profound”: >90 dB

- Note:

- Subcategories
- Other factors eg speech discrimination



ADULT H. LOSS: SP. CASES:

- **OBSTRUCTIVE EARWAX**

- Causes: narrow canals

some wax consistencies

elderly

?earbuds

- Removal: Syringing: Not if known perf. and uninfected

Softens & mechanical action

Correct equipment

Body temperature

Fill EAC with water gently 1st

Be patient! Take breaks!

ADULT H. LOSS: SP. CASES:

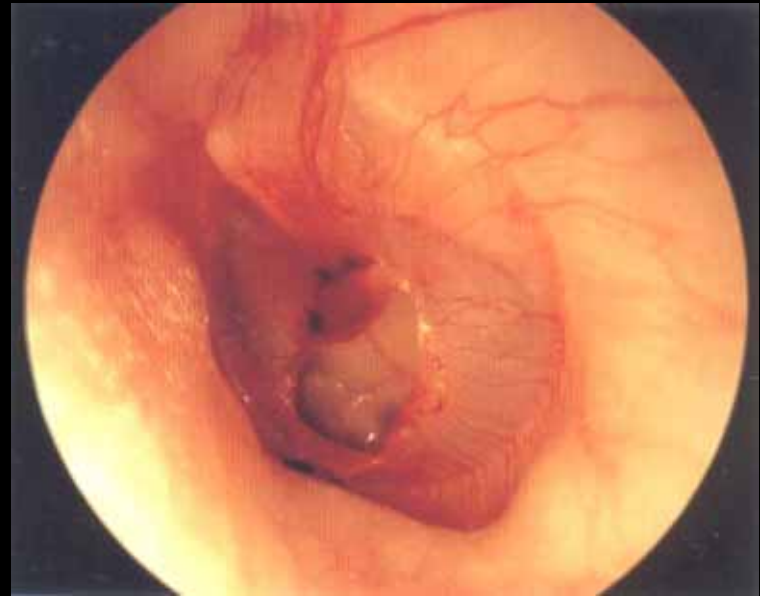
- EXOSTOSES OF EXT. AUD. CANAL
- “Surfer’s ear”
- Usu need no treatment
- Complications: obstruction → hearing loss
infections



↓
?Surgery

ADULT H. LOSS: SP. CASES:

- TRAUMATIC PERFORATIONS:
- DRY:
 - ~ 100% spontaneous healing if uninfected
 - DON'T MEDDLE! → may introduce infection (ENT may)
 - NO EARDROPS!



- WET:
 - Aggressively control infection & get dry

ADULT H. LOSS: SP. CASES:

- CHRONIC SUPPURATIVE OTITIS MEDIA & CONSEQUENCES:

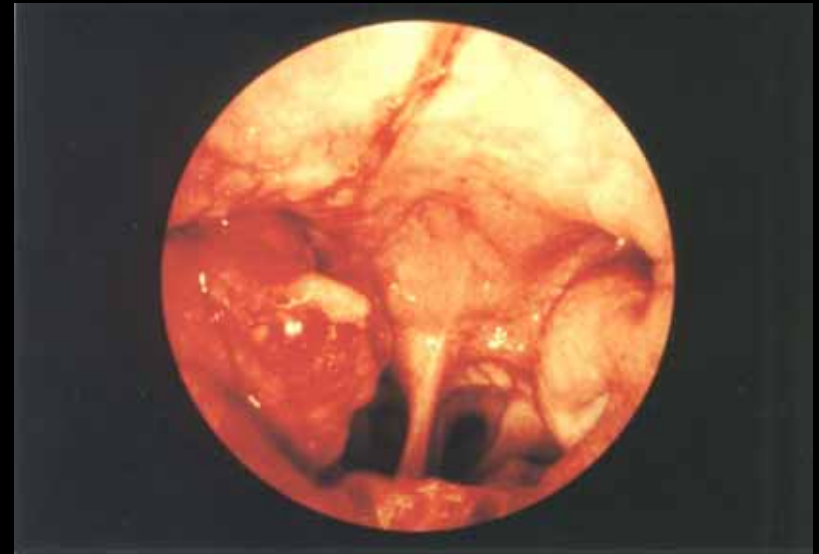
- Without cholesteatoma
 - With cholesteatoma
 - TB
-
- TM perforations
 - +/- Ossic. Chain damage
 - Conductive H. Loss
 - (rarely SN HLoss (labyrinthitis))



ADULT H. LOSS: SP. CASES:

MIDDLE EAR EFFUSIONS / GLUE EAR / OME

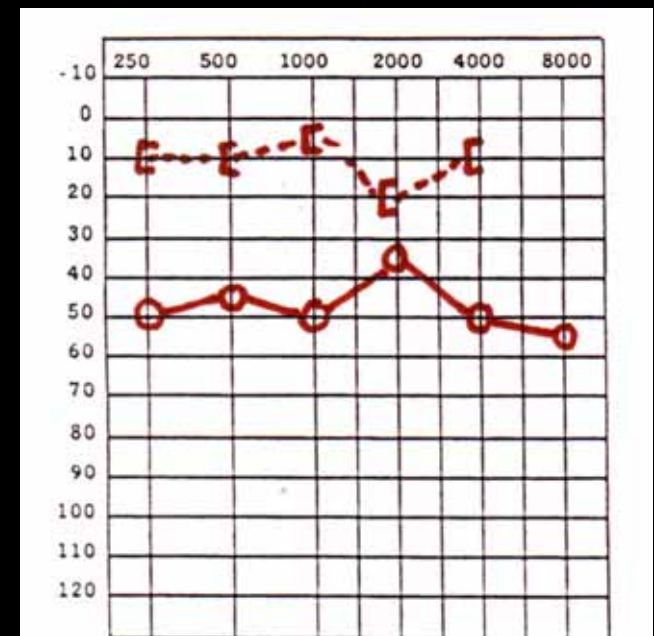
- Unusual in adults:
 - ?URTI / LRTI / Bronchitis / Sinusitis?
 - If persists ~ 3/52, must exclude: Chronic Sinusitis
Nasopharyngeal Ca



ADULT H. LOSS: SP. CASES:

● OTOSCLEROSIS

- Abn. bone fixes stapes footplate
- Familial/spontaneous
- Conductive hearing loss, usu bilat., with no cause
 - No trauma
 - No PMH ear infections
 - Normal “virgin” eardrum
- *R*: hearing aid / stapedectomy



ADULT H. LOSS: SP. CASES:

- TYMPANOSCLEROSIS
- V. SELDOM causes H.Loss-
cf. otosclerosis
- Scar tissue in T.M.>M.E.
- *R*: Usu nil- reassure



ADULT H. LOSS: SP. CASES:

- SUDDEN SENSORINEURAL HEARING LOSS

- ENT emergency
- Sudden unilateral/bilateral Cochlear failure
- May / may not be tinnitus / vertigo
- Exclude clear causes: trauma, barotrauma, etc...
then idiopathic...

- Cause? postulate:

∴ R:

-?viral

{ -steroids, high dose
-antivirals(acyclovir etc)

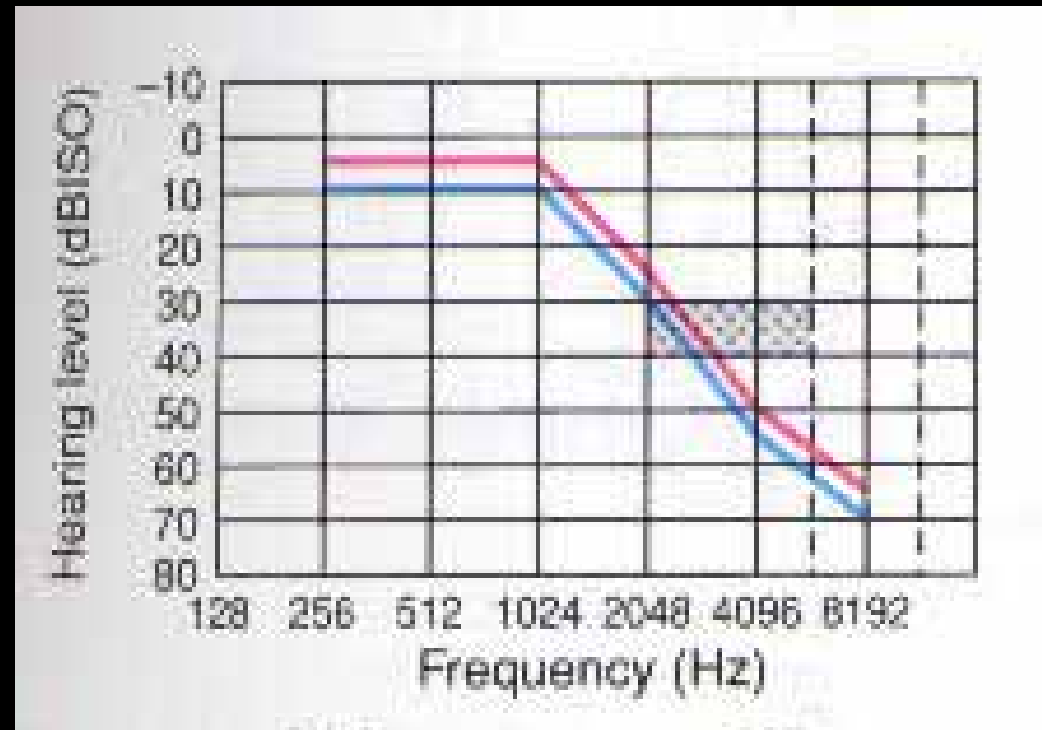
-?vascular ischaemia

{ -vasodilators

Admit, investigate, serial audiometry

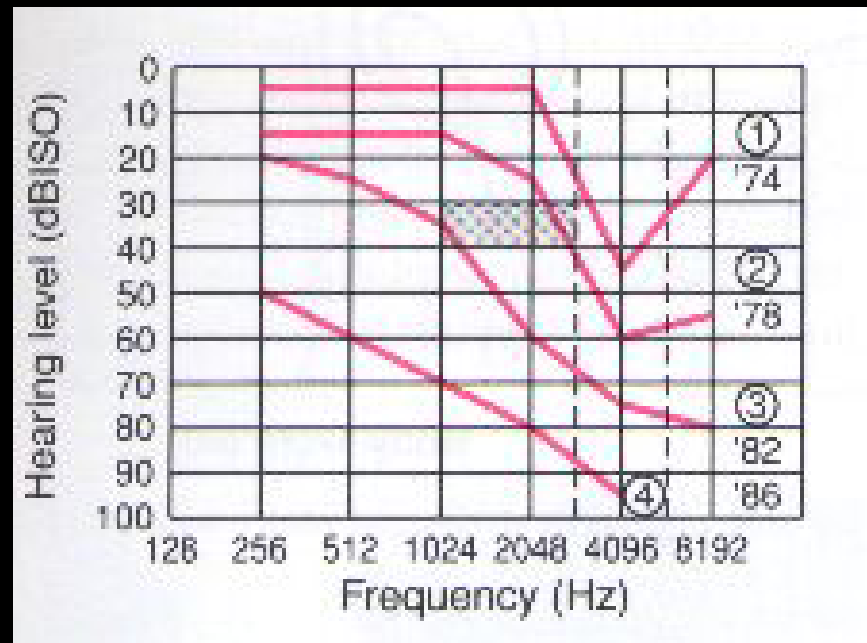
ADULT H. LOSS: SP. CASES:

- AGE-ASSOCIATED HEARING LOSS / Presbycusis
- Progressive loss of cochlear hair cells
- Reasonable to expect > 60yrs
- Characteristically:
 - high tone > low tone
 - ↓ speech discrimination
 - recruitment → ↓ dynamic range
- *R*:? Hearing aid



ADULT H. LOSS: SP. CASES:

- NOISE-INDUCED HEARING LOSS
- Prolonged noise exposure:
 - ≥ 80 -90 dB requires protection (factories, industry)
 - Individual variation in susceptibility
- Sudden impact / blast / gunshot
- Characteristic loss: 4 kHz
- Often associated tinnitus
- *R*: Avoid
H.Aid
Compensation



ADULT H. LOSS: SP. CASES:

- OTOTOXICITY

- Ear (w. kidney) sensitive to many drugs: esp

- Aminoglycosides (high dose, IV, ICUs, renal failure)
- Streptomycin
- Cytotoxics

- Can affect cochlea / labyrinth (balance) / both

- Avoid where possible

- Care with doses

- Consent & warn patients

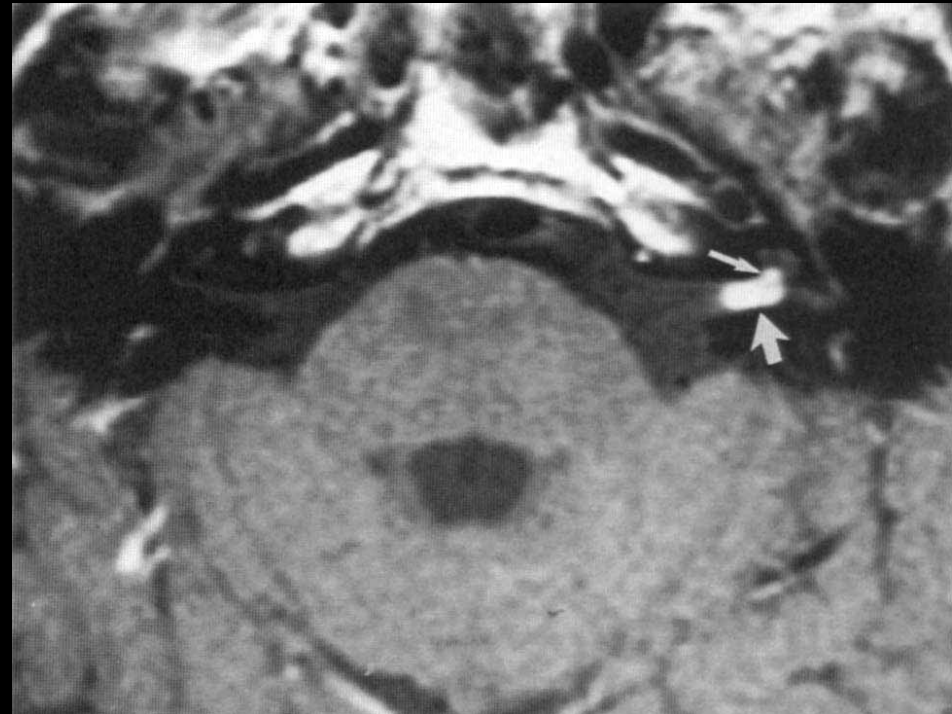
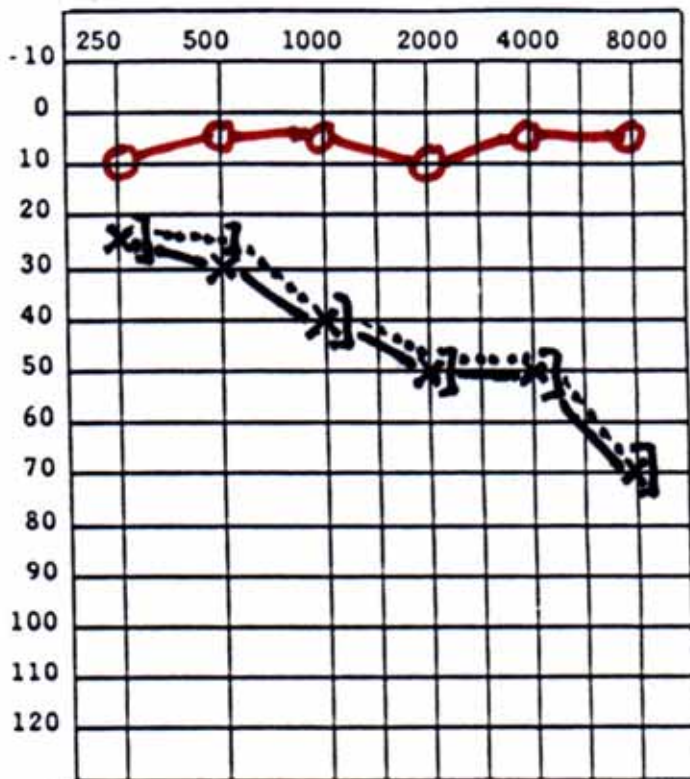
- Audiometric monitoring, & pt. to report earliest symptoms

ADULT H. LOSS: SP. CASES:

- **SYPHILIS**
- Can cause bilateral S-N H Loss
- A treatable cause of SNHL
- Exclude in premature H.Loss w. no obvious cause
- “Central” form of Syphilis, i.e.:
 - VDRL / RPR (acute phase markers) may be –ve (*Rd*)
 - FTA / TPHA +ve: persistent central / protected disease
- *R*: Long course high dose Penicillin & steroids

ADULT H. LOSS: SP. CASES

- Asymmetric S-N. H.Loss suggests local pathology: exclude Acoustic Neuroma



ADULT H. LOSS: INSIGHTS:

- Sudden S-N. H.Loss is a medical emergency
- Symmetric S-N. H.Loss suggests a systemic cause.

Commonest: Age

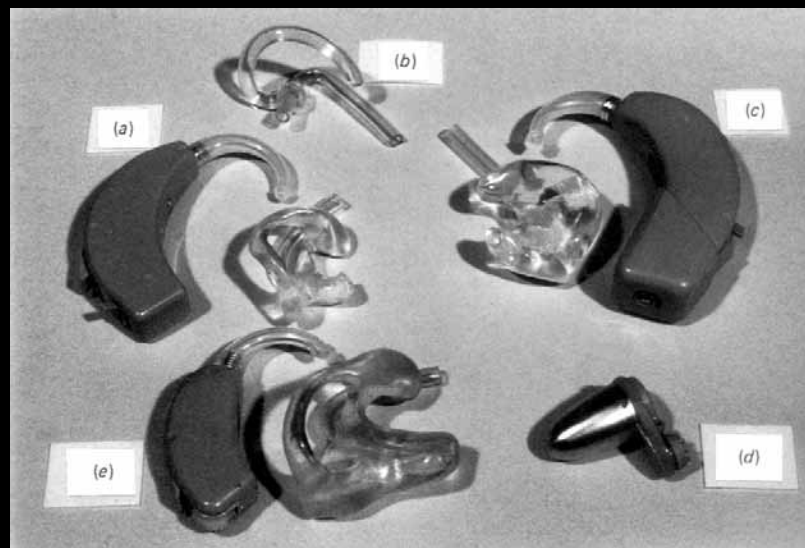
Noise

When neither apply, exclude systemic diseases eg syphilis, microvascular

- Asymmetric S-N. H.Loss suggests local pathology: exclude Acoustic Neuroma
- Conductive H.Loss d.t. M.E.E. i.e. Eust. Tube dysfn. in adults may indicate a nasopharyngeal carcinoma esp if no URTI/Sinusitis and > 3 weeks.

H. LOSS: AIDS TO COMMUNICATION:

- (Electronic) hearing aids
 - “In the ear”
 - “Behind the ear”
 - Bone conductors (Alice-band type)
 - Bone anchored (BAHA)=osseo-integrated
- Environmental devices
 - Flashing lights
 - Telephones
- Lipreading
- Sign language
- Cochlear Implants



H. LOSS: AIDS TO COMMUNICATION:

- (Electronic) hearing aids
 - “In the ear”



- “Behind the ear”



VIP FACTS ABOUT HEARING AIDS:

- Unlike surgery, no risk
- Are limited in the “gain” they can provide
- Do NOT produce normal hearing
- Work better for conductive > SN, d.t. recruitment
- Require pt. adaptation, commitment, willingness
- Manual dexterity for insertion
- Problems:
 - Feedback
 - Otitis externa

Cochlear Implants

- Remarkable: can transform totally deaf into being able to hear over telephone without visual clues
- Not “normal” hearing
- Only for bilaterally severe or profoundly hearing-impaired
- Very expensive
- Need longterm commitment to care
- Pt does not just put it on and go!
- Need highly professional cochlear implant team to give patients optimal benefit

