

Early Detection and Prevention of Hearing Disorders in Older People

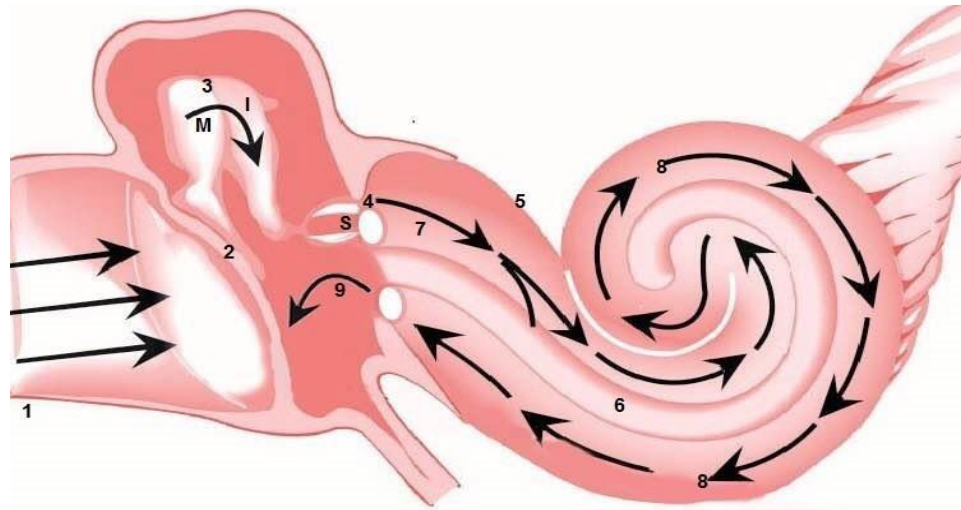
**Dr Chandra Jayasuriya
Consultant ENT Surgeon**



DEAFNESS IN ELDERLY



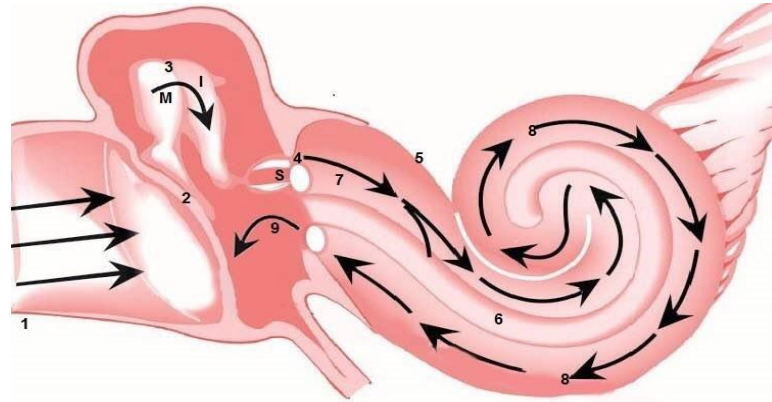
HEARING MECHANISM



1. Sound waves travel along the ear canal.
2. When sound waves lift the tympanic membrane , it starts vibrating.
3. Handle of malleus is attached to the drum. When the drum vibrates malleus and the adjoining ossicles, incus and stapes vibrate.
4. The foot plate of stapes is connected to the oval window.
5. Bony cochlea has three chambers.



HEARING MECHANISM cont...



6. Inner most membranous chamber contains endolymph.

7. Two perilymph chambers are found between the bone bordering the cochlea and the inner membraneous chamber.

8. The mechanical vibration of the stapes is transmitted to the perilymph via oval window at the foot plate.

9. The round window releases the sound and mechanical energy from perilymph into the middle ear. The oval and the round window work together to regulate hearing and balance.

CAUSES OF DEAFNESS

Outer ear

1. Impacted Wax
2. Otitis Externa
3. Foreign Bodies
4. Malignancies

Middle Ear

1. Otosclerosis
2. Chronic Suppurative Otitis Media
3. Cholesteatoma

Inner Ear

1. Presbycusis
2. Labyrinthitis
3. Meniere's



IMPACTED WAX



FOREIGN BODIES



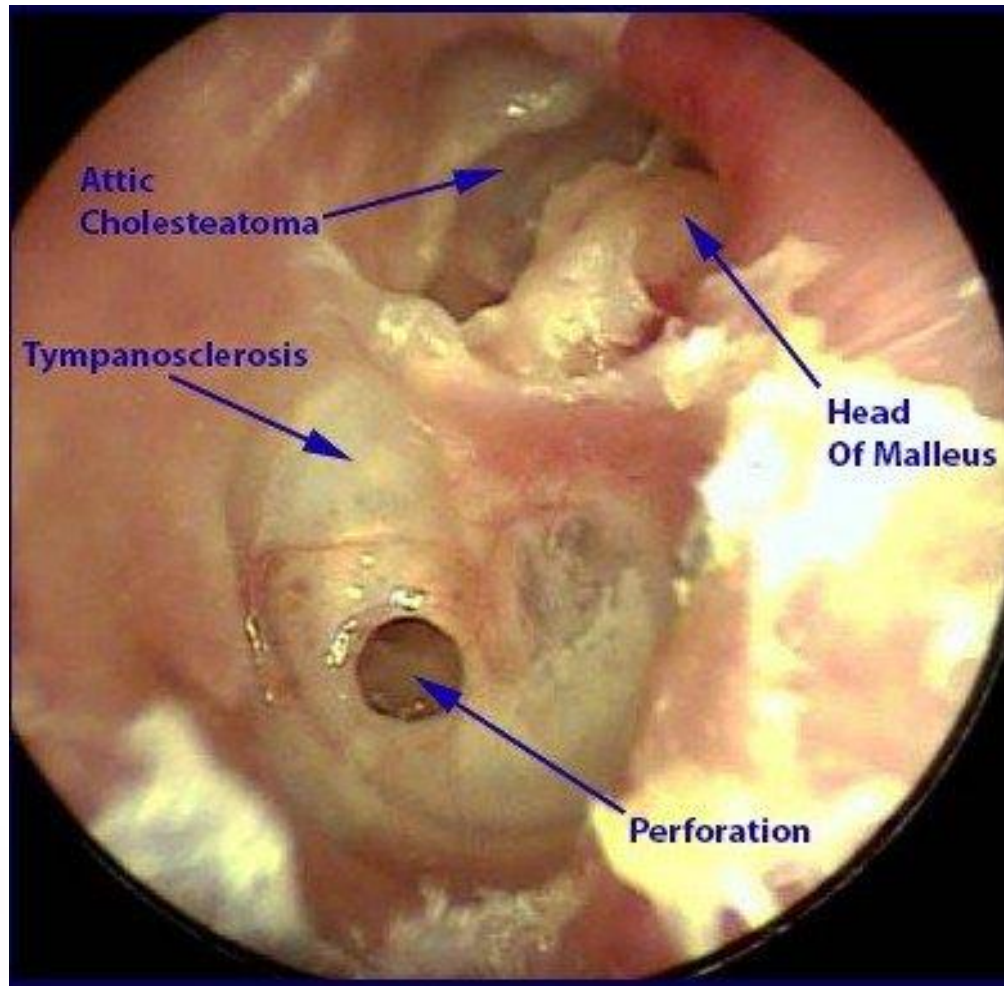
DIFFUSE OTITIS EXTERNA



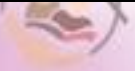
OTOMYCOSIS



CHOLESTEATOMA



CSOM



ATTIC AND POSTERIOR MARGINAL PERFORATIONS



- Have trouble hearing over the telephone.
- Find it hard to follow conversations when two or more people are talking.

SIGNS OF HEARING LOSS

- Often ask people to repeat what they are saying.
- Need to turn up the TV volume so loud that others complain.
- Have a problem hearing because of background noise.
- Think that others seem to mumble.
- Can't understand when women and children speak to you.



AGE RELATED HEARING LOSS (Presbycusis)

- Comes on gradually as a person gets older. Therefore may not detect at early stages
- Seems to run in families
- may occur because of changes in the inner ear and auditory nerve.
- May make it hard for a person to tolerate loud sounds or to hear what others are saying.
- Usually occurs in both ears, affecting them equally.



- Conversations difficult to understand, especially when there is background noise.
- A man's voice is easier to hear than the higher pitches of a woman's voice.
- Certain sounds seem annoying or overly loud.
- Presbycusis makes tinnitus to occur.



EARLY DETECTION OF DEAFNESS

- Check for impacted wax in external ear canal.
- Whispered voice test.
- Audiometry.



• *Deafness is definitely diagnosed by Audiometry*

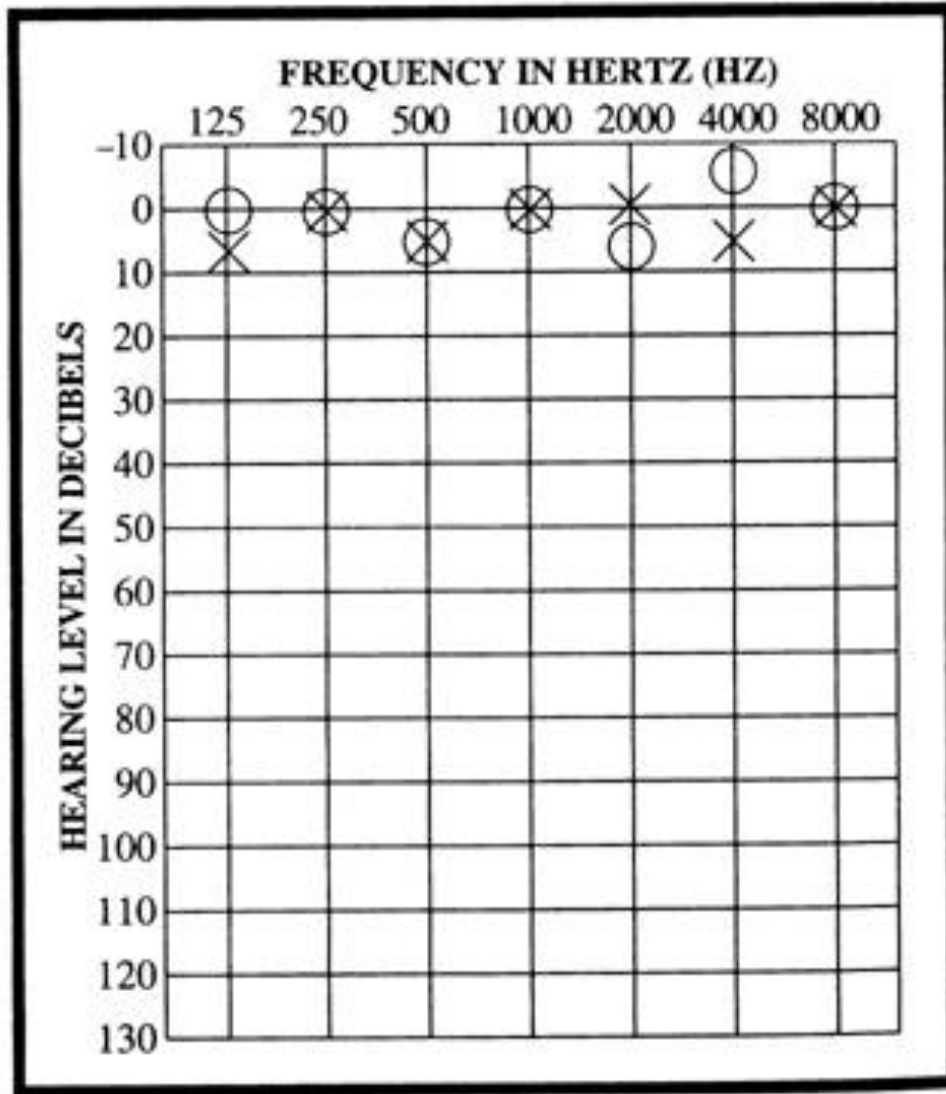
Average hearing thresholds at 0.5, 1, 2, and 4 kHz of over 25dB can be considered to be deafness.

The degrees of deafness are;

1. Normal <25
 2. Mild < 25-40dB
 3. Moderate < 40-60 dB
 4. Severe <60-80dB
 5. Profound > 80 dB
- A disabling deafness for an adult > 39 dB



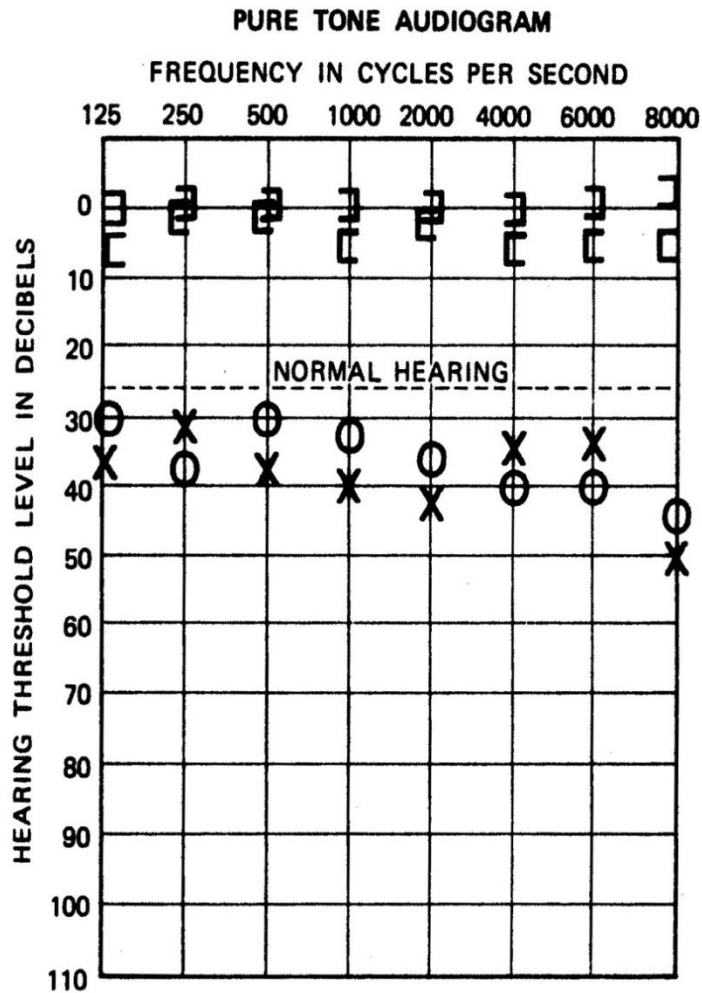
Normal Audiogram



1. Subjective
2. Above 4 years
3. Air and Bone conduction
4. Pure tones used



Conductive Deafness



AUDIÓGRAM SYMBOLS

EAR	AIR	BONE
Right	O	⌈
Left	X	⌋

SPEECH AUDIOMETRY

	Right	Left
SRT	30	35
Discrim.	100	92

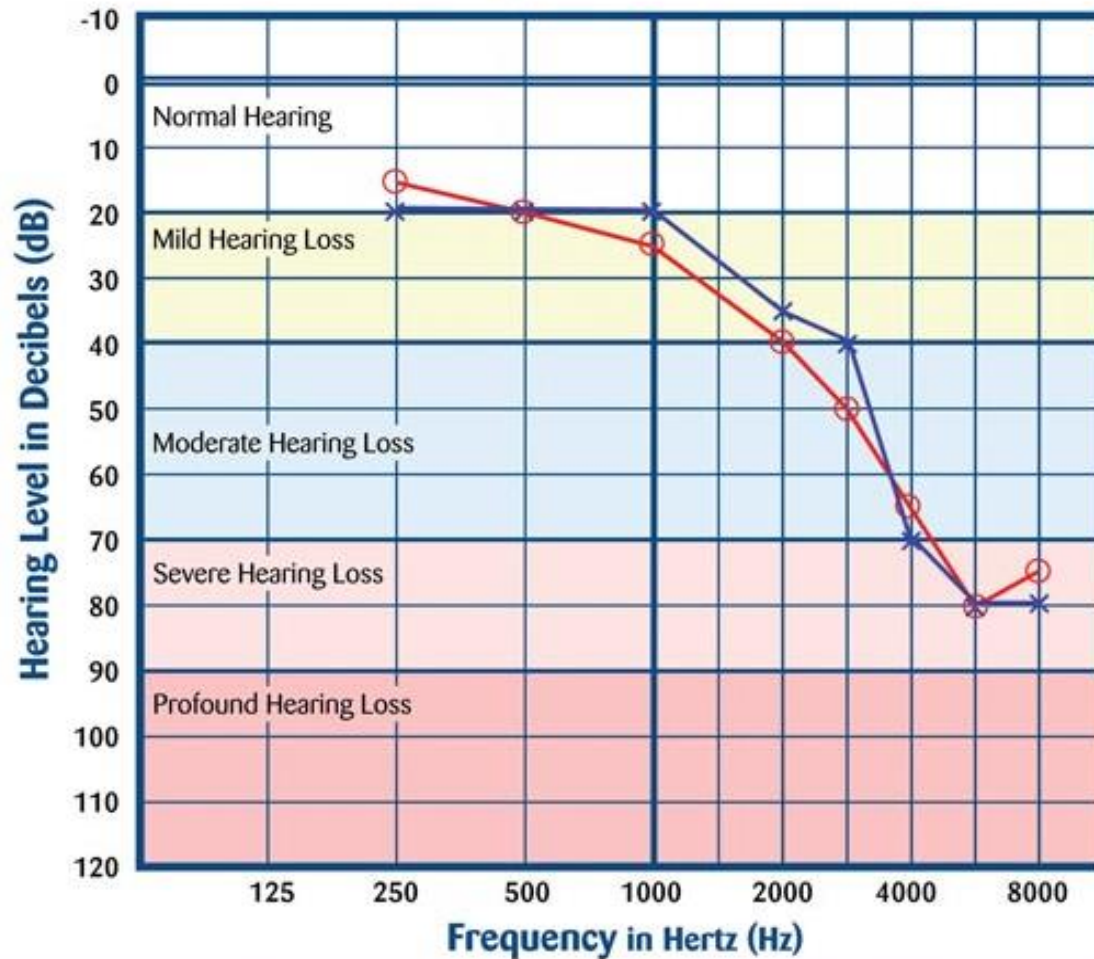
IMPRESSION:

BILATERAL CONDUCTIVE
HEARING LOSS
NORMAL DISCRIMINATION



AUDIOGRAM

Left Ear × Right Ear ○



* An example presbycusis (sloping high-frequency hearing loss) synonymous with the ageing process.



HOW TO COPE WITH HEARING LOSS

- Let people know you have a hearing problem.
- Ask people to face you and to speak more slowly and clearly. Also, ask them to speak louder without shouting.
- Pay attention to what is being said and to facial expressions or gestures.
- Ask the person speaking to reword a sentence and try again.
- Find a good location to listen.



PROBLEMS AMONG ELDERLY DUE TO HEARING IMPAIRMENT

- Isolation.
- Frustration.
- Communication problems.
- Depression.
- Dementia.



HOW TO TALK WITH SOMEONE WITH HEARING LOSS

- In a group, include people with hearing loss in the conversation.
- Find a quiet place to talk to help reduce background noise, especially in restaurants and at social gatherings.
- Stand in good lighting and use facial expressions or gestures to give clues.
- Face the person and speak clearly. Maintain eye contact.
- Be patient. Stay positive and relaxed.



- Do not hide your mouth, eat, or chew gum while speaking.
- Repeat yourself if necessary, using different words.
- Try to make sure only one person talks at a time.
- Speak a little more loudly than normal, but don't shout. Try to speak slowly, but naturally.
- Ask how you can help.
- Speak at a reasonable speed.

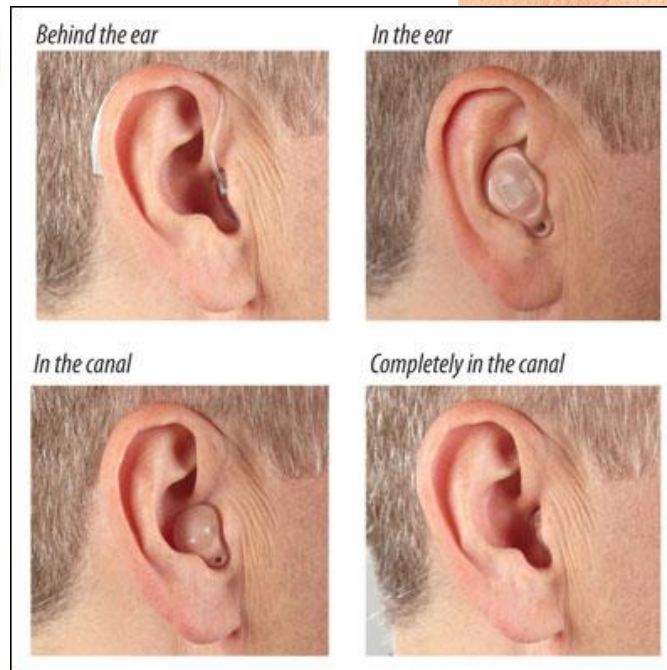


SOLUTIONS

1. Hearing aids
2. Surgery
3. Cochlear implant



HEARING AIDS



TAKE HOME MESSAGE

- Hearing loss is inevitable when you age and this can't be cured by medication.
- Hearing loss in elderly frequently leads to depression, social isolation and frustration. Therefore check the loss of hearing.
- Hearing loss can be detected by simple voice tests and it's important that all the society members should be aware of these.
- Simple reasons like wax, foreign bodies (cotton plugs) and ear infections can also cause hearing loss. Therefore it's important to see a ENT surgeon as soon as possible.



TAKE HOME MESSAGE cont..

- We have to be patient with elderly people who have hearing loss and society needs to be aware of this issue.
- Impaired hearing need to be suspected , hence need to be alert and should do necessary referral.
- Correct hearing loss with aids and environmental modifications are main mode of management and surgery is needed rarely. But age is not a contraindication for the surgery.
- Hearing aid doesn't give you normal hearing , it amplifies the background noises and you must learn to ignore them.



TAKE HOME MESSAGE cont..

- Hearing aids should be worn all the time, usually even in the night. Don't keep them in the drawer.
- Hearing aid is a machine (not like your spectacles). You have to look after it and regular service by audiologist is required.
- Batteries need to be changed when they are worn off and your aid needs protection from moisture.
- Tight fitting ear mould has to be made according to your measurements.



THANK YOU !

