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PRACTICE

10-MINUTE CONSULTATION

Hearing loss in adults

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This is part of a series of occasional articles on common problems in primary care. The *BMJ* welcomes contributions from GPs.

A 60 year old former steelworker mentions to his general practitioner that his family is complaining that the television is too loud.

What you should cover

Hearing difficulties

- Onset of symptoms: acute, chronic, fluctuating, or recurrent?
- Unilateral v bilateral?
- What impact is there on day to day communication (for example, hearing in groups or one to one)?

Associated ear, nose, and throat (ENT) symptoms

- Vertigo: described as a sensation of dizziness likened to “room spin” associated with or without nausea
- Otorrhoea: is it purulent or clear?
- Tinnitus
- Otalgia: otitis media or externa (is there any associated itching or discharge?)
- Head and neck: localised pain, swelling, lump
- Nasal obstruction
- Epistaxis

Risk factors for otological disease

- Infection (adult or childhood), trauma, or previous surgery
- History of exposure to noise (including occupational)
- Use of ototoxic drugs: permanent damage from aminoglycosides (such as gentamicin) or chemotherapy drugs (particularly platinum based treatments such as cisplatin); reversible damage from salicylates (most

common in older people); quinine toxicity; and very high dose loop diuretics.

- Medical history: diabetes (doubles the risk of hearing loss); vasculitis; autoimmune inner ear disease; stroke (can lead to central loss of hearing).
- Family history: common for otosclerosis, owing to autosomal dominant inheritance.

Red flags

- Be aware of the red flag symptoms and signs (box 1)

What you should do

Examination

Examine for external ear changes, discharge, wax, or anomalies in the tympanic membrane. If wax, discharge, or debris obscure complete visualisation of the membrane, removal of wax or aural toilet will be necessary. For impacted wax, advise the patient to use olive oil drops for one week and arrange ear canal irrigation (provided that there is no perforation of the tympanic membrane or history of mastoid surgery). Reassess after irrigation.

Look out for a retracted tympanic membrane, which often results from repeated infections and may lead to ossicle erosion, perforation, and formation of cholesteatoma. If a retracted tympanic membrane is associated with hearing loss or persistent otorrhoea refer for further assessment.

Assess hearing using the whisper test to help gauge the level of hearing loss, and perform the 512 Hz tuning fork tests (box 2). These tests are not 100% reliable² but are helpful to guide diagnosis.

Perform a focused cranial nerve examination to exclude a central cause. A lesion on cranial nerve VIII may also affect cranial nerves V and VII, leading to altered facial sensation, facial muscle weakness, and altered taste sensation.

Examine the head and neck for lumps and lymph nodes.

Box 1 Red flags*Sudden onset or rapidly progressive hearing loss*

A rapid onset (over a 72 hour period) of a sensation of hearing impairment in one or both ears is a medical emergency and requires urgent referral to exclude acoustic neuroma¹

Asymmetric hearing loss (with or without tinnitus)

Exclude acoustic neuroma

History of pain or bleeding from the ear

History of head trauma: exclude temporal bone fracture or ossicular discontinuity

Referred otalgia: occurs commonly with head and neck malignancies

History of Paget's disease

Early treatment of disease can reduce degree of hearing loss

Box 2 How to do an initial hearing assessment*Whispered voice test⁸*

- Stand at arm's length (0.6 m) behind the patient and whisper a combination of numbers and letters (for example, 7 F 9). Ask the patient to repeat these
- If a correct response is given, hearing is considered normal; if incorrect, repeat the test with a different letter and number combination
- The patient is considered to have passed the screening test if they repeat at least three out of a possible six letter and number combinations correctly
- Test each ear individually while gently occluding the contralateral ear. The examiner should exhale completely before testing to ensure as quiet a voice as possible

Tuning fork tests: 512 Hz

- Rinne test
 - Air conduction is heard better than bone conduction ("Rinne positive") = sensorineural deafness or normal hearing
 - Bone conduction is heard better than air conduction ("Rinne negative") = conductive deafness
 - Use masking of untested ear to prevent false negatives
- Weber test
 - Conductive deafness: sound lateralises to the affected ear
 - Sensorineural deafness: sound lateralises to the unaffected ear

Referrals

Urgent referral to ENT—Sudden sensorineural hearing loss, middle ear effusion, focal neurology with cholesteatoma, malignant otitis externa

Routine referral to ENT—Unilateral hearing loss, asymmetrical hearing loss, discharging ears, cholesteatoma, disabling Meniere's, otosclerosis or persistent perforations.

Referral to audiology—Presbycusis or noise induced hearing loss

Referral for "assess and fit" appointment⁴—Patients aged 50–80 years with no otological disease if they would consider using hearing aids

Conductive loss (bilateral)

Otosclerosis commonly presents with gradual deafness with or without tinnitus. The tympanic membrane may be normal.

Sensorineural loss (bilateral and gradual)

Bilateral and gradual sensorineural hearing loss is often associated with a normal tympanic membrane.

Age related presbycusis is the commonest type of sensorineural hearing loss in older adults (audiogram shows symmetrical bilateral loss at high frequencies). With a history of noise exposure consider noise induced hearing loss, which shows on an audiogram as a classic "notch" at around 4000 Hz.

Sensorineural loss (unilateral)

Meniere's disease presents with fluctuating hearing loss associated with episodic vertigo, tinnitus, and a sensation of pressure in the ear (aural fullness).

Always consider acoustic neuroma with unilateral sensorineural hearing loss. Commonly the hearing loss is progressive with associated tinnitus; rarely acoustic neuromas may be bilateral.

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Pointers to diagnosis of hearing loss**Conductive loss (unilateral)**

- External auditory canal: wax or debris
- Perforation of tympanic membrane—Marginal perforations are "unsafe" and associated with a high risk of cholesteatoma; traumatic perforations usually heal spontaneously (keep the ear dry); perforation owing to chronic suppurative otitis media often requires surgical repair (referral required if cholesteatoma is present (symptom: persistent otorrhoea)
- Middle ear effusion (tympanic membrane dull with a yellow tinge)—Effusion is rare in adults; rule out sinusitis and refer for nasoendoscopy to exclude obstruction of the eustachian tube with a nasopharyngeal tumour

Useful resources*For patients*

www.earcarecentre.com—This website of Rotherham Primary Ear Care and Audiology Services (part of the Rotherham NHS Foundation Trust) provides tips on ear care and use of hearing aids and also gives useful links

www.deafnessresearch.org.uk—Deafness Research (now merged with Action on Hearing Loss) gives excellent patient resources on common conditions and treatments

For professionals

www.patient.co.uk/doctor/Deafness-in-Adults.htm—Offers useful tips for diagnosis, management, and referral guidance

Hearing loss and tinnitus in adults: a guide for GPs. BMJ Learning. (http://learning.bmj.com/learning/module-intro/hearing-loss-and-tinnitus-in-adults--a-guide-for-gps-.html?locale=en_GB&moduleId=10029379)

www.patient.co.uk/doctor/Hearing-Tests.htm—A useful resource clarifying hearing tests including hearing thresholds and the whisper test.

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