Deafness

The most common causes of hearing loss are ear wax, otitis media and otitis externa. The table below details some of the characteristic features of other causes:

Presbycusis	Presbycusis describes age-related sensorineural hearing loss. Patients may describe difficulty following conversations Audiometry shows bilateral high-frequency hearing loss
Otosclerosis	Autosomal dominant, replacement of normal bone by vascular spongy bone. Onset is usually at 20-40 years - features include: • conductive deafness • tinnitus • tympanic membrane - 10% of patients may have a 'flamingo tinge', caused by hyperaemia • positive family history
Glue ear	Also known as otitis media with effusion • peaks at 2 years of age • hearing loss is usually the presenting feature (glue ear is the commonest cause of conductive hearing loss and elective surgery in childhood) • secondary problems such as speech and language delay, behavioural or balance problems may also be seen
Meniere's disease	More common in middle-aged adults • recurrent episodes of vertigo, tinnitus and hearing loss (sensorineural). Vertigo is usually the prominent symptom • a sensation of aural fullness or pressure is now recognised as being common • other features include nystagmus and a positive Romberg test • episodes last minutes to hours
Drug ototoxicity	Examples include aminoglycosides (e.g. Gentamicin), furosemide, aspirin and a number of cytotoxic agents
Noise damage	Workers in heavy industry are particularly at risk Hearing loss is bilateral and typically is worse at frequencies of 3000-6000 Hz
Acoustic neuroma (more correctly called vestibular schwannomas)	Features can be predicted by the affected cranial nerves • cranial nerve VIII: hearing loss, vertigo, tinnitus • cranial nerve V: absent corneal reflex • cranial nerve VII: facial palsy

	Bilateral acoustic neuromas are seen in neurofibromatosis type 2

Cholesteatoma

A cholesteatoma consists of squamous epithelium that is 'trapped' within the skull base

Main features
- foul smelling discharge
- hearing loss

Other features are determined by local invasion:
- vertigo
- facial nerve palsy
- cerebellopontine angle syndrome

Otoscopy
- 'attic crust' - seen in the uppermost part of the ear drum

Otitis externa

Otitis externa is a common reason for primary care attendance in the UK.

Causes of otitis externa include:
- infection: bacterial (*Staphylococcus aureus*, *Pseudomonas aeruginosa*) or fungal
- seborrhoeic dermatitis
- contact dermatitis (allergic and irritant)

Features
- ear pain, itch, discharge
- otoscopy: red, swollen, or eczematous canal

The recommend initial management of otitis externa is:
- topical antibiotic or a combined topical antibiotic with steroid
- if the tympanic membrane is perforated aminoglycosides are traditionally not used*
- if there is canal debris then consider removal
- if the canal is extensively swollen then an ear wick is sometimes inserted

Second line options include
- consider contact dermatitis secondary to neomycin
- oral antibiotics if the infection is spreading
- taking a swab inside the ear canal
- empirical use of an antifungal agent

Malignant otitis externa is more common in elderly diabetics. In this condition there is extension of infection into the bony ear canal and the soft tissues deep to the bony canal. Intravenous antibiotics may be required.

*many ENT doctors disagree with this and feel that concerns about ototoxicity are unfounded

Nasal polyps

Around in 1% of adults in the UK have nasal polyps. They are around 2-4 times more common in men and are not commonly seen in children or the elderly.

Associations

- asthma* (particularly late-onset asthma)
- aspirin sensitivity*
- infective sinusitis
- cystic fibrosis
- Kartagener's syndrome
- Churg-Strauss syndrome

Features
- nasal obstruction
- rhinorrhoea, sneezing
- poor sense of taste and smell

Unusual features which always require further investigation include unilateral symptoms or bleeding.

Management
- all patients with suspected nasal polyps should be referred to ENT for a full examination
- topical corticosteroids shrink polyp size in around 80% of patients

***the association of asthma, aspirin sensitivity and nasal polyposis is known as Samter's triad**

Vertigo

The table below lists the main characteristics of the most important causes of vertigo

Viral labyrinthitis	• Recent viral infection • Sudden onset • Nausea and vomiting • Hearing may be affected
Vestibular neuritis	• Recent viral infection • Recurrent vertigo attacks lasting hours or days • No hearing loss
Benign paroxysmal positional vertigo	• Gradual onset • Triggered by change in head position • Each episode lasts 10-20 seconds
Meniere's disease	• Associated with hearing loss, tinnitus and sensation of fullness or pressure in one or both ears
Vertebrobasilar ischaemia	• Elderly patient • Dizziness on extension of neck
Acoustic neuroma	• Hearing loss, vertigo, tinnitus • Absent corneal reflex is important sign • Associated with neurofibromatosis type 2

Rinne's and Weber's test

Performing both Rinne's and Weber's test allows differentiation of conductive and sensorineural deafness.

Rinne's test
- tuning fork is placed over the mastoid process until the sound is no longer heard, followed by repositioning just over external acoustic meatus
- air conduction (AC) is normally better than bone conduction (BC)
- if BC > AC then conductive deafness

Weber's test
- tuning fork is placed in the middle of the forehead equidistant from the patient's ears
- the patient is then asked which side is loudest
- in unilateral sensorineural deafness, sound is localised to the unaffected side
- in unilateral conductive deafness, sound is localised to the affected side

Allergic rhinitis

Allergic rhinitis is an inflammatory disorder of the nose where the nose become sensitized to allergens such as house dust mites and grass, tree and weed pollens. It may be classified as follows, although the clinical usefulness of such classifications remains doubtful:
- seasonal: symptoms occur around the same time every year. Seasonal rhinitis which occurs secondary to pollens is known as hay fever
- perennial: symptoms occur throughout the year
- occupational: symptoms follow exposure to particular allergens within the work place

Features
- sneezing
- bilateral nasal obstruction
- clear nasal discharge
- post-nasal drip
- nasal pruritus

Management of allergic rhinitis
- allergen avoidance
- oral or intranasal antihistamines are first line
- intranasal corticosteroids
- course of oral corticosteroids are occasionally needed
- there may be a role for short courses of topical nasal decongestants (e.g. oxymetazoline). They should not be used for prolonged periods as increasing doses are required to achieve the same effect (tachyphylaxis) and rebound hypertrophy of the nasal mucosa may occur upon withdrawal

Meniere's disease

Meniere's disease is a disorder of the inner ear of unknown cause. It is characterised by excessive pressure and progressive dilation of the endolymphatic system. It is more common in middle-aged adults but may be seen at any age. Meniere's disease has a similar prevalence in both men and women.

Features
- recurrent episodes of vertigo, tinnitus and hearing loss (sensorineural). Vertigo is usually the prominent symptom
- a sensation of aural fullness or pressure is now recognised as being common

- other features include nystagmus and a positive Romberg test
- episodes last minutes to hours
- typically symptoms are unilateral but bilateral symptoms may develop after a number of years

Natural history
- symptoms resolve in the majority of patients after 5-10 years
- some patients may be left with hearing loss
- psychological distress is common

Management
- ENT assessment is required to confirm the diagnosis
- patients should inform the DVLA. The current advice is to cease driving until satisfactory control of symptoms is achieved
- acute attacks: buccal or intramuscular prochlorperazine. Admission is sometimes required
- prevention: betahistine may be of benefit

Benign paroxysmal positional vertigo

Benign paroxysmal positional vertigo (BPPV) is one of the most common causes of vertigo encountered. It is characterised by the sudden onset of dizziness and vertigo triggered by changes in head position

Features
- vertigo triggered by change in head position (e.g. rolling over in bed or gazing upwards)
- may be associated with nausea
- each episode typically lasts 10-20 seconds
- positive Halpike manoeuvre

BPPV has a good prognosis and usually resolves spontaneously after a few weeks to months. Symptomatic relief may be gained by:
- Epley manoeuvre (successful in around 80% of cases)
- teaching the patient exercises they can do themselves at home, for example Brandt-Daroff exercises

Medication is often prescribed (e.g. Betahistine) but it tends to be of limited value

Bell's palsy

Bell's palsy may be defined as an acute, unilateral, idiopathic, facial nerve paralysis. The aetiology is unknown although the role of the herpes simplex virus has been investigated previously.

Features
- lower motor neuron facial nerve palsy - forehead affected*
- patients may also notice post-auricular pain (may precede paralysis), altered taste, dry eyes, hyperacusis

Management
- in the past a variety of treatment options have been proposed including no treatment, prednisolone only and a combination of aciclovir and prednisolone
- following a National Institute for Health randomised controlled trial it is now recommended that prednisolone 25mg bd for 10 days should be prescribed for patients within 72 hours of onset of Bell's palsy. Adding in aciclovir gives no additional benefit

- eye care is important - prescription of artificial tears and eye lubricants should be considered

Prognosis
- if untreated around 15% of patients have permanent moderate to severe weakness

*upper motor neuron lesion 'spares' upper face

Tinnitus

Causes of tinnitus include:

Meniere's disease	Associated with hearing loss, vertigo, tinnitus and sensation of fullness or pressure in one or both ears
Otosclerosis	Onset is usually at 20-40 years Conductive deafness Tinnitus Normal tympanic membrane* Positive family history
Acoustic neuroma	Hearing loss, vertigo, tinnitus Absent corneal reflex is important sign Associated with neurofibromatosis type 2
Hearing loss	Causes include excessive loud noise and presbycusis
Drugs	Aspirin Aminoglycosides Loop diuretics Quinine

Other causes include

- impacted ear wax
- chronic suppurative otitis media

Perforated tympanic membrane

The most common cause of a perforated tympanic membrane is infection. Other causes include barotrauma or direct trauma.

A perforated tympanic membrane may lead to hearing loss depending on the size and also increase the risk of otitis media.

Management
- no treatment is needed in the majority of cases as the tympanic membrane will usually heal after 6-8 weeks. It is advisable to avoid getting water in the ear during this time

- it is common practice to prescribe antibiotics to perforations which occur following an episode of acute otitis media. NICE support this approach in the 2008 Respiratory tract infection guidelines
- myringoplasty may be performed if the tympanic membrane does not heal by itself

Hereditary haemorrhagic telangiectasia

Also known as Osler-Weber-Rendu syndrome, hereditary haemorrhagic telangiectasia (HHT) is an autosomal dominant condition characterised by (as the name suggests) multiple telangiectasia over the skin and mucous membranes. Twenty percent of cases occur spontaneously without prior family history.

There are 4 main diagnostic criteria. If the patient has 2 then they are said to have a possible diagnosis of HHT. If they meet 3 or more of the criteria they are said to have a definite diagnosis of HHT:

- epistaxis : spontaneous, recurrent nosebleeds
- telangiectases: multiple at characteristic sites (lips, oral cavity, fingers, nose)
- visceral lesions: for example gastrointestinal telangiectasia (with or without bleeding), pulmonary arteriovenous malformations (AVM), hepatic AVM, cerebral AVM, spinal AVM
- family history: a first-degree relative with HHT