Examination of the ear

Otoscopy
Anatomy of the ear

Eustachian tube = auditory tube
Examining the ear

- Wash your hands
- GRIP
  - Greet, Rapport, Introduce and Identify, explain Procedure, ensure Privacy
- Equipment
  - Otoscope
  - Otoscope speculum
  - 512Hz Tuning fork
- Position patient
  - Seated at same level as you
  - Access to both ears
Anatomy of the external ear

- Tragus
- Helix
- Antihelix
- Orifice of external auditory meatus
- Concha
- Antitragus
- Lobule
The external ear

- External ear = external auditory meatus (EAM) + pinna (mobile part of external ear a.k.a. auricle)
- Begin with the pinna.
- Examine for any deformity or skin changes.
- Look for scars or pits in front of, or behind ear.
- Hearing aids should be noted then removed.
- Tug the pinna gently for any tenderness.
Congenital abnormalities

- Skin tag / accessory auricle
- Preauricular pit
Acquired abnormalities

Mastoiditis
Perichondral haematoma
Erysipelas
more info
Palpate for pre/post-auricular lymph nodes
**Otoscope**

- Otoscope is an instrument which is used to view the ear.
- Ensure the batteries are working.
- Use a clean speculum for each patient.
- Use the largest speculum that will comfortably fit in EAM.
Examination with an otoscope

- Turn on the light
- Grip the otoscope like a pencil
- For right ear, hold in your right hand, handle pointing forwards
- For left ear, hold in your left hand, handle pointing forwards
- Pull the pinna up and back to straighten EAM
Examination with an otoscope

- Look in the ‘good’ ear first

- That way, if there is infection present in the ‘bad’ ear you will not transfer it to the other side
Look inside!

- Insert speculum tip into EAM
- Gradually move the speculum into EAM under direct vision through the instrument
- Look at
  - External auditory meatus
    - FB, wax, skin, shape
  - Tympanic membrane (TM)
  - ‘Behind’ TM
External auditory meatus

Zoster

Foreign body
External auditory meatus

Otitis externa

Fungal otitis externa

Chronic otitis externa
Wax or cerumen

- Secreted from the ceruminous glands.
- Varies in colour and consistency.
- May obscure EAM and tympanic membrane.
- Removal by ring probe / wax hook or syringing of the ear.
- Soften the wax by olive oil.
Anatomy of tympanic membrane

- Umbo
- Chorda tympani
- Short process/handle - Malleus
- Incus
- Round window
- Umbo
- Auditory tube
- Light cone
- Promontory

Pars tensa

Pars flaccida

Features behind TM not always visible
Anatomy of the ear
The Tympanic Membrane.

Anatomical features sought and noted

- Pars tensa
- Pars flaccida
- Handle of malleus
- Short process of malleus
- Umbo
- Cone of light
- Anterior and posterior malleolar folds
TM disease

Otitis media  Cholesteatoma  Tympanosclerosis
TM perforation
Tympanostomy tube

- Ventilates middle ear
- Does not drain “glue”
Tuning fork tests

- Rinné and Weber tests
- Detect and differentiate conductive and sensorineural hearing loss
- Give you something to do whilst waiting for the pure tone audiogram (PTA)
Rinné test

- Tap 512Hz tuning fork against bony part, or heel of Gucci loafers
- Place base **firmly** on mastoid process
- Ask patient to tell you when sound disappears
- Hold fork tips 2cm from EAM
  - Can the patient hear it now?
Interpreting Rinné test

- Tests whether bone (BC) or air conduction (AC) is better
- If can be heard in front of ear, AC>BC
  - Normal
  - Rinné positive
- If cannot be heard in front of ear, AC<BC
  - Indicates conductive deafness
  - Rinné negative
Weber test

- Strike tuning fork again
- Hold somewhere on the head in the midline (firmly)
  - Usually vertex or forehead
  - Can use upper incisors
- Which side is louder?
Interpreting Weber test

- Conductive deafness
  - localises to abnormal ear

- Sensorineural deafness
  - localises to normal ear

- Try it on yourself with a finger in an ear
  - Where does the sound localise?
  - Have you caused conductive or sensorineural deafness?
Practical

- Inspect external ear
- Look at
  - External auditory meatus
    - FB, wax, skin, shape
  - Tympanic membrane (TM)
  - ‘Behind’ TM
- Anatomical features sought and noted
  - Pars tensa
  - Pars flaccida
  - Handle of malleus
  - Short process of malleus
  - Umbo
  - Cone of light
  - Anterior and posterior malleolar folds