BMA 3\textsuperscript{rd} year revision day 2016
Topic: ENT

Andrew Steele
Final year medical student
QUB Study guide: Otology

- Core topics
- Conductive and sensorineural hearing loss
- Audiometry
- Vertigo
- Tinnitus
- Otalgia
- Otorrhea
Hearing loss

- **Conductive deafness** - problem with transmission of sound waves from external ear or middle ear

Examples:
- Cerumen
- Otitis externa
- Foreign body
- Exostoses
- Cholesteatoma
- Otosclerosis
- Middle ear tumour
- Tympanic membrane perforation
Hearing loss

Sensorineural hearing loss
• Caused by problems with cochlea, cochlear nerve or brain stem
• More common in adults

Aetiology
• age (presbyacusis),
• noise-induced hearing loss (NIHL)
• Ototoxic hearing loss
Hearing loss

- Conductive
- Sensorineural
Testing hearing

**Whispered voice test**
- Stand arm’s length (0.6m) behind patient
- Ask patient to place finger in opposite ear

- Whisper combo numbers, eg ‘66’, ‘62’ (tests high frequency) and ‘100’, ‘200’- tests low frequency

- Quietly exhale prior to whispering to ensure voice is low

- Patient passes if they repeat at least 3 out of 6 numbers/letters correctly

- Test ear with better hearing first
Weber’s test

- Uses 512 Hz tuning fork
- Place vibrating fork in middle of forehead
- If sound louder on one side, this suggests:
  1. Conductive hearing deficit on this side
  OR
  2. Sensorineural hearing loss on the other side
Rinne’s test

• Use 512 Hz fork
• Hold fork in line with ex. auditory meatus to tests air conduction
• Holding fork on mastoid process tests bone conduction
• Bone louder than air= Rinne-positive
Rinne test and Weber test

<table>
<thead>
<tr>
<th>Hearing loss</th>
<th>Rinne test (Conduction)</th>
<th>Weber test (Localization)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Air &gt; bone</td>
<td>Midline</td>
</tr>
<tr>
<td>Sensorineural</td>
<td>Air &gt; bone</td>
<td>Normal ear</td>
</tr>
<tr>
<td>Conductive</td>
<td>Bone &gt; air</td>
<td>Affected ear</td>
</tr>
</tbody>
</table>
Pure-tone audiometry

• Hearing measured over a range of pure tones in each ear
• Measures threshold of air and bone conduction- determines whether conductive, sensorineural or mixed hearing loss
• Recorded on a pure-tone audiogram
Pure-tone audiometry

• Normal hearing
Pure tone audiometry

- Left sensorineural hearing loss
Pure tone audiometry

- Right ear, conductive hearing loss - occlusion of external auditory meatus
Pure tone audiometry

Bilateral, noise-induced sensorineural hearing loss.
Treatment of hearing loss

• Externally worn hearing aids

• Implantable hearing aids- cochlear implants, bone-anchored hearing aids, auditory brainstem implants

• Additional hearing aids- eg hearing loops, vibrating pagers, alarm clocks, telephones

• Support groups
Vertigo

- False sensation that ones surroundings are spinning or moving (usually with nausea and loss of balance)

<table>
<thead>
<tr>
<th>Causes</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central (cerebral cortex, cerebellum, brainstem)</td>
<td>CVA, migraine, MS, acoustic neuroma, alcohol</td>
</tr>
<tr>
<td>Peripheral (vestibular labyrinth, semicircular canals, vestibular nerve)</td>
<td>Viral labrynthitis, vestibular neuritis, ototoxicity, Ramsey-Hunt Syndrome, BPPV</td>
</tr>
</tbody>
</table>
Vertigo

Examination

• Neurological examination
  gait
cranial nerves
cerebellar function
PNS

• Ear examination
  Infection
  Discharge
  cholesteatoma

• Eye examination
  Nystagmus
  fundoscopy
Benign paroxysmal positional vertigo

Most common cause of vertigo
Inner ear dysfunction - detached otoliths from macula
Vertigo provoked by head movements - eg tilting, rolling
Attacks last 20-30 seconds

Dix Hallpike maneuvre can be helpful in diagnosis - look for 30s for nystagmus and vertigo

Causes:-
- head injury
- Spontaneous degeneration of labyrinth
- Post-viral
- Middle ear disease

Management:-
- Conservative
- Epley’s manoeuvre
- Anti-emetics
- Rarely - surgery
- Inform DVLA
The Epley manoeuvre

Posterior semicircular canal

Epley manoeuvre aims to use gravity to move debris here

Fragments of debris (otoconia) often collect at the bottom of the posterior semicircular canal

THE EPLEY MANEUVER

1. Redistributed particles
2. Patient is returned to the supine position, and the head is rolled back to normal
3. The clinician rotates the patient’s head toward the affected ear, then lowers the patient backward to the supine position with the head hanging over the table’s edge.
4. The head is turned further, so that the ear is parallel to the floor.
5. The head is turned to the other side.
Ménière's syndrome

- **Core symptoms:-**
  - Vertigo
  - Tinnitus
  - Fluctuating hearing loss

Caused by distension of membranous labyrinth

**Aetiology:**
- Allergies
- Autoimmunity- SLE, RA, antiphos abs
- Metabolic- Na, K balance
- Vascular factors
- Viral infection, syphilis, Cogans syndrome
Ménière's syndrome

Treatment

• Anti-emetics
• Lifestyle changes- low salt diet, avoid alcohol/tobacco/fatigue
• Mobility aids
• Hearing aids
• Local gentamicin injection
• Local Steroid injection
• Surgical treatments
• Inform DVLA
Ménière's syndrome
Tinnitus

• Perception of non-verbal sound without an external stimulus
• 1:10 people
• Peak onset 50-60 years

Causes divided into:-
- Objective
- Subjective
<table>
<thead>
<tr>
<th>SUBJECTIVE TINNITUS</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no physical oscillation)</td>
<td></td>
</tr>
<tr>
<td>Causes</td>
<td></td>
</tr>
<tr>
<td>Otological</td>
<td>Hearing loss</td>
</tr>
<tr>
<td></td>
<td>Presbyacusis</td>
</tr>
<tr>
<td></td>
<td>Otosclerosis</td>
</tr>
<tr>
<td></td>
<td>Impacted cerumen</td>
</tr>
<tr>
<td></td>
<td>Ear Infection</td>
</tr>
<tr>
<td></td>
<td>Menieres’ disease</td>
</tr>
<tr>
<td>Neurological</td>
<td>Head injury</td>
</tr>
<tr>
<td></td>
<td>MS</td>
</tr>
<tr>
<td></td>
<td>Acoustic neuroma</td>
</tr>
<tr>
<td>Infectious</td>
<td>Meningitis</td>
</tr>
<tr>
<td></td>
<td>Syphilis</td>
</tr>
<tr>
<td>Drug-related</td>
<td>Salicylates</td>
</tr>
<tr>
<td></td>
<td>NSAIDs</td>
</tr>
<tr>
<td></td>
<td>Aminglycosides</td>
</tr>
<tr>
<td></td>
<td>Loop diuretics</td>
</tr>
<tr>
<td>Jaw disorders</td>
<td>Temporomandibular joint dysfunction</td>
</tr>
<tr>
<td>OBJECTIVE TINNITUS</td>
<td>Causes</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------</td>
</tr>
</tbody>
</table>
| (oscillation within ear) | Puslatile: Movement of blood | Carotid stenosis  
Vascular anomalies/tumours  
Vavular heart disease  
High cardiac output |
| Muscular or anatomical | Palatal myoclonus  
Tympanic muscle spasm  
Patulous eustachian tube |
Tinnitus

History
• ‘SOCRATES’
• Unilateral in 22%- exclude acoustic neuroma
• Drug history
• Psychological factors
• Affect on life style- Sleep, work

Examination
• Otoscopy
• Hearing tests
• BP, pulse

Management
• Reassurance
• Relaxation therapy
• Retraining therapy
• Masking devices
QUB Study guide: Rhinology

- **Core topics:**
  - Nasal obstruction
  - Rhinorrhoea/post nasal drip
  - Smell and taste disturbance
  - Allergy
  - Facial pain/frontal headache
  - Sinusitis
  - Epistaxis
  - Nasal trauma
### Nasal obstruction

<table>
<thead>
<tr>
<th>Causes</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhinitis</td>
<td>Infective</td>
</tr>
<tr>
<td></td>
<td>Allergic</td>
</tr>
<tr>
<td></td>
<td>Non-allergic</td>
</tr>
<tr>
<td>Foreign bodies</td>
<td>6months-5 years</td>
</tr>
<tr>
<td></td>
<td>- nasal discharge, odour, unilateral obstruction, serous otitis media</td>
</tr>
<tr>
<td>Nasal septum abnormalities</td>
<td>Septal deviation- congenital/acquired</td>
</tr>
<tr>
<td></td>
<td>Haematoma (trauma)</td>
</tr>
<tr>
<td></td>
<td>Perforation- cocaine, nose picking, cocaine abuse</td>
</tr>
</tbody>
</table>
Nasal obstruction

<table>
<thead>
<tr>
<th>Causes</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbinate hypertrophy</td>
<td>Idiopathic</td>
</tr>
<tr>
<td></td>
<td>Long-standing allergic rhinitis</td>
</tr>
<tr>
<td>Adenoid hypertrophy</td>
<td>Kids&gt; adults</td>
</tr>
<tr>
<td></td>
<td>Snoring, nasal obstruction, postnasal drip</td>
</tr>
<tr>
<td>Nasal polyps</td>
<td>Common with chronic allergic rhinitis</td>
</tr>
<tr>
<td>Rhinosinusitis</td>
<td></td>
</tr>
<tr>
<td>Neoplasmia</td>
<td>SSC, lymphoma, juvenile nasopharyngeal angiofibroma</td>
</tr>
</tbody>
</table>
Infective Rhinitis

Common condition - more common with age

Causes:
- **Viral** - parainfluenza virus, influenza virus
- **Bacterial** - Strep pneumoniae, group A strep, H. Influenza
- **Fungal** - rare - immunocompromised
Infective Rhinitis

• Avoid antibiotics if possible- 80% improve within 14 days
• Treat with paracetamol, NSAIDs, oral fluids,

If purulent discharge, consider:-
• 7 day course of amoxicillin 500mg TDS
• Doxycycline 200mg stat then 100mg OD
**Allergic Rhinitis**

- Affects 20% population
- Onset typically under 30 years of age
- Types:
  - Seasonal (hayfever)- pollen
  - Perennial (persistent)- mites/dander
- Associated with:
  - Conjunctivitis
  - Atopy
  - Sinusitis/nasal polyps

Particles in air (allergens):
- Pollen
- Dust mite debris
- Animal dander

Allergic symptoms:
- Watery eyes
- Runny nose
- Itchy throat
# Allergic Rhinitis

## Management

<table>
<thead>
<tr>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topical decongestants (for &lt; 2 weeks)</strong></td>
</tr>
<tr>
<td><strong>Patch test to ID and avoid allergens</strong></td>
</tr>
<tr>
<td><strong>Topical treatments:</strong> Nasal antihistamines, Topical decongestants (for &lt;2 weeks), Topical intranasal steroids</td>
</tr>
<tr>
<td><strong>Oral antihistamines</strong></td>
</tr>
</tbody>
</table>

## Weird and wonderful ‘House’ Differentials:

- Cystic fibrosis
- Kartagner’s syndrome
- SLE
- Granulomatosis with polyangiitis (Wegeners’)
- Sarcoidosis
# Examination of the nose

<table>
<thead>
<tr>
<th><strong>Introduction</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>patient ID</td>
</tr>
<tr>
<td>Informed consent</td>
</tr>
<tr>
<td>wash hands</td>
</tr>
</tbody>
</table>

**Remove any glasses**

- Inspect from front and side for:-
  - Size/shape,
  - Bend or deformity- often best seen from behind the patient,
  - Swelling,
  - Scars/abnormal creases,
  - Redness,
  - Discharge,
  - Smell

**Lift up tip of nose**

- Inspect anterior nares without speculum
- Check for obvious deformity/ septal deviation/ septal perforation
# Examination of the nose-2

**Check patency of each nostril**
- Use cold metal tongue depressor under the nose to check for condensation under each nostril, or occlude each nostril individually and ask patient to sniff

**Use Thudichum speculum to open nose**
- Insert gently, identify:
  - nasal septum medially,
  - turbinates laterally - inferior turbinate almost always visible
- Check for:
  - Inflammation,
  - Polyps,
  - Foreign bodies

**Examine palate**
- Look for large nasal polyps and tumours from soft palate

**Complete examination by:**
- Throat and ear examination
- Endoscopy (if indicated) to inspect postnasal space (Eustachian tube orifices) and pharyngeal recess (adenoids and common site for nasopharyngeal cancer)
Thudicum nasal speculum
Otitis media

- Inflammation of middle ear with fluid build-up
- Commonest cause of acquired hearing loss in kids
- 20% at 2 yrs old
- Males > females
Otitis media

Presents with:-
• Ear ache,
• Hearing loss +/- behavioural problems

Management
• Largely conservative
• Analgesia
• Antibiotics NOT recommended by NICE
• Surgical vent placement is possible, but not often required

Prognosis
• Effusion normally resolves in 6-10 weeks
• 50-90% kids clear in 12 weeks

Prevention
• Influenza vaccine affords a 2-9 fold protection
Study guide: Head and neck

- Core topics:
  - Dysphagia
  - Hoarseness
  - Stridor
  - Sleep apnoea
  - Sore throat
  - Neck lumps
  - Salivary gland disorders
  - Thyroid gland disorders
Obstructive sleep apnoea

- Intermittent upper airway collapse during sleeping
- irregular breathing at night and excess fatigue in day

<table>
<thead>
<tr>
<th>Risk factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
</tr>
<tr>
<td>Male gender</td>
</tr>
<tr>
<td>Middle age</td>
</tr>
<tr>
<td>Smoking</td>
</tr>
<tr>
<td>Excess alcohol</td>
</tr>
<tr>
<td>Sedative drugs</td>
</tr>
</tbody>
</table>
# Obstructive sleep apnoea

<table>
<thead>
<tr>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive daytime sleepiness</td>
</tr>
<tr>
<td>Impaired concentration</td>
</tr>
<tr>
<td>Snoring</td>
</tr>
<tr>
<td>Unrefreshing/restless sleep</td>
</tr>
<tr>
<td>Choking during sleep</td>
</tr>
<tr>
<td>Apnoeas</td>
</tr>
<tr>
<td>Nocturia</td>
</tr>
<tr>
<td>Irritability/personality change</td>
</tr>
</tbody>
</table>
**Obstructive sleep apnoea**

<table>
<thead>
<tr>
<th>Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
</tr>
<tr>
<td>Fat deposition front and sides of neck</td>
</tr>
<tr>
<td>Neck circumference strong predictor-</td>
</tr>
<tr>
<td>&lt;37cm low risk, &gt; 48cm high risk</td>
</tr>
<tr>
<td>Craniofacial abnormalities- retrognathia,</td>
</tr>
<tr>
<td>enlarged tonsils, macroglossia, thick</td>
</tr>
<tr>
<td>uvula</td>
</tr>
<tr>
<td>Assess for nasal polyps/ deformity</td>
</tr>
</tbody>
</table>

- Associated with- HTN, IHD, stroke, CCH, obesity, metabolic syndrome, diabetes

**Managed by:-**

- Weight loss, smoking cessation, alcohol reduction, CPAP
- Surgery limited- uvuloplasty, mandibular/maxillary advancements, tonsillectomy, tracheostomy
Facial nerve

- Facial nerve- CN VII
- Largely motor
- Supplies stapedius
- Chorda tympani- taste anterior 2/3s of tongue
Facial palsy

- Upper motor neurone lesion - Patient is able to wrinkle forehead

**Causes:**
- CVA
- Intracranial tumours
- Multiple sclerosis
- Syphilis
- HIV
- Vasculitis
Facial palsy

- Lower motor neuron lesion - forehead affected

Causes:
- Infective herpesvirus 1
- Herpes Zoster (Ramsay Hunt)
- Lyme disease
- Otitis media
- Idiopathic - Bell’s palsy
- Trauma
- Neurological
- Gillian Barre
- Mononeuropathy
Bells’ Palsy

<table>
<thead>
<tr>
<th>Bells’ Palsy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idiopathic- ? familial link</td>
</tr>
<tr>
<td>Higher in diabetic patients</td>
</tr>
<tr>
<td>? Significant proportion due to subclinical herpes virus infection</td>
</tr>
<tr>
<td>Treat with steroids within 72 hours onset</td>
</tr>
<tr>
<td>Full recovery in 80% cases</td>
</tr>
</tbody>
</table>

Bell's Palsy

- Inability to wrinkle brow
- Drooping eyelid; inability to close eye
- Inability to puff cheeks; no muscle tone
- Drooping mouth; inability to smile or pucker
# Ramsay Hunt syndrome

<table>
<thead>
<tr>
<th>Ramsay Hunt Syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to varicella zoster</td>
</tr>
<tr>
<td>Pain and vesicles in ipsilateral ear, on hard palate, anterior 2/3 of tongue</td>
</tr>
<tr>
<td>Treat with steroids and acyclovir- best outcome within 72 hours</td>
</tr>
<tr>
<td>Pain relief for pain symptoms</td>
</tr>
<tr>
<td>Vestibular suppressants if severe vestibular symptoms</td>
</tr>
<tr>
<td>Full recovery in 75% of patients</td>
</tr>
</tbody>
</table>
Tonsillitis

Inflammation of tonsils due to infection

Commonly affects kids 5-10 years, adults 15-25 years

**Presents with:**

- Pain in throat +/- ears
- Abdo pain
- Headache
- Loss of voice

**On examination:**

- Erythema of throat
- +/- pyrexia
- Regional cervical lymphadenopathy
- Yellow exudate in pharynx/tonsils
Tonsillitis

• Non-drug approach appropriate if mild symptoms
• ‘Gargles’ anecdotally helpful
• Paracetamol, NSAIDs, oral fluids

Consider surgery if:--
• 7 or more documented sore throats in last year
  OR
• 5 or more in previous 2 years
  OR
• Three or more in the previous 3 years
Tonsillitis: Antibiotics or not?

Avoid if possible!!

NICE recommends antibiotics if:-
• Marked systemic upset
• History of rheumatic fever
• Immunocompromised or diabetic
• Unilateral peritonsillitis

If above criteria are absent, use centor criteria:-
1. History of fever
2. Tonsillar exudate
3. Absence of cough
4. Tender cervical lymphadenopathy

1-2 criteria- no antibiotics
3 or 4 criteria- prescribe 10 days of oral penicillin V
### Stridor

- Inspiratory, from airway about above thoracic inlet, ie. upper airway

<table>
<thead>
<tr>
<th>Causes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Croup</td>
<td>Most common acute stridor in children</td>
</tr>
<tr>
<td></td>
<td>Barking seal-like cough</td>
</tr>
<tr>
<td>Inhaled foreign body</td>
<td>Common in 1-2 year olds</td>
</tr>
<tr>
<td>Abscesses</td>
<td>Peritonsillar, retropharyngeal, dental</td>
</tr>
<tr>
<td></td>
<td>Presents with fever and difficulty swallowing</td>
</tr>
<tr>
<td>Anaphylaxis</td>
<td>Hoarseness, stridor, urticaria</td>
</tr>
<tr>
<td></td>
<td>Usually within 30mins of exposure</td>
</tr>
<tr>
<td>Epiglottitis</td>
<td>DON’T EXAMINE IF SUSPECTED!!</td>
</tr>
<tr>
<td></td>
<td>Phone ENT/anaesthetics immediately</td>
</tr>
<tr>
<td>Laryngitis</td>
<td>Mediastinal, thyroid, laryngeal</td>
</tr>
<tr>
<td>Tumours</td>
<td>Mediastinal, thyroid, laryngeal</td>
</tr>
</tbody>
</table>
# Neck lumps

<table>
<thead>
<tr>
<th>Anterior triangle</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lymph nodes</td>
<td>Consider malignancy if firm, non-tender, over &gt;2/52</td>
</tr>
<tr>
<td>Salivary gland swelling</td>
<td>Doesn’t move on swallowing</td>
</tr>
<tr>
<td>Branchial cyst</td>
<td>Doesn’t move on swallowing</td>
</tr>
<tr>
<td>Cystic hygroma</td>
<td>Doesn’t move on swallowing. More common in posterior triangle</td>
</tr>
<tr>
<td>Carotid aneurysm</td>
<td>Doesn’t move on swallowing</td>
</tr>
<tr>
<td></td>
<td>Pulsatile</td>
</tr>
<tr>
<td>Carotid body tumour</td>
<td>Doesn’t move on swallowing</td>
</tr>
<tr>
<td></td>
<td>pulsatile</td>
</tr>
</tbody>
</table>
## Neck Posterior triangle

<table>
<thead>
<tr>
<th>Posterior triangle</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lymphnodes</td>
<td>Consider malignancy if hard, painless, &gt;2/52 duration</td>
</tr>
<tr>
<td>Cervical rib</td>
<td>Mostly assymptomatic May cuse Raynauds’ phenomenon</td>
</tr>
<tr>
<td>Subclavian artery aneurysm</td>
<td>Pulsatile</td>
</tr>
<tr>
<td>Pharyngeal pouch</td>
<td>Gurgles on palpation</td>
</tr>
<tr>
<td>Cystic hygroma</td>
<td>Common in infants</td>
</tr>
<tr>
<td>Branchial cyst</td>
<td>Rare, painless</td>
</tr>
</tbody>
</table>
# Neck lumps

<table>
<thead>
<tr>
<th>Midline</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermoid cyst</td>
<td>Most likely if patient &lt; 20 years old</td>
</tr>
<tr>
<td></td>
<td>Doesn’t move on swallowing</td>
</tr>
<tr>
<td>Throglossal cyst</td>
<td>Below hyoid</td>
</tr>
<tr>
<td></td>
<td>Moves on tongue protrusion</td>
</tr>
<tr>
<td>Chondroma</td>
<td>Boney, hard</td>
</tr>
<tr>
<td>Thyroid isthmus mass</td>
<td>Moves on swallowing</td>
</tr>
<tr>
<td></td>
<td>Most likely if &gt; 20 years</td>
</tr>
</tbody>
</table>
OSCE topics

• Facial nerve
• Ear examination
• Thyroid examination
• Assessment of OSA
• Hearing loss
The end!!