DISORDERS OF THE NECK AND UPPER AIRWAY

NECK AND UPPER AIRWAY INFECTIONS:

PHARYNGITIS/TONSILLITIS:

- Group A beta haemolytic Strep is THE MOST COMMON BACTERIAL ORGANISM CAUSING PHARYNGITIS
- Patients with non-bacterial causes of pharyngitis (rhinovirus, EBV, HIV, CMV) only require symptomatic treatment
    - If unable to tolerate PO fluids→IV
    - Single dose of dexamethasone reduces severe pharyngeal inflammatory pain, especially in patients with identified bacterial pathogen
- VIRAL:
    - Infectious mononucleosis refers to the TRIAD:
        - Fever
        - Pharyngitis
        - Lymphadenopathy (caused by EBV)
    - Acute retroviral syndrome of EARLY HIV-1 mimics mononucleosis
        - Symptoms develop 2-4 weeks after exposure
- GROUP-A BETA-HAEMOLYTIC STREP PHARYNGITIS:
    - Strep PYOGENES is responsible for 5-15% of adult and 15-30% of paediatric pharyngitis
    - Virulent strains associated with acute rheumatic fever or acute GN
    - Symptoms/signs:
        - Marked erythema of tonsillar pillars and tonsils
        - Tonsillar exudate
        - Tender anterior lymph nodes
        - Fevers, myalgias, malaise (no rhinorrhoea, cough or conjunctivitis)
    - FOUR INDICATORS (CENTOR CRITERIA):
        - Tonsillar exudates
        - Tender anterior cervical adenopathy
        - Absence of cough
        - History of fever
            - If only 0-1 criteria→consider other diagnoses
            - 2-4 criteria→rapid strep test and treat if positive
            - 3 or 4 criteria→empiric antibiotics

- GABHS is rarely resistant to PENICILLIN→thus it is first line treatment
  - IV→benzyl-penicillin
  - PO→phenoxymethylpenicillin/penicillin V
  - If penicillin allergic→macrolide or clindamicin
    - Macrolide resistance is noted in 5-8%
- DEXAMETHASONE:
  - Single dose in immunocompetent patients shown to achieve earlier onset of pain relief

PERITONSILLAR ABSCESS:

- A polymicrobial collection of purulent material between the tonsillar capsule and the superior constrictor and palatopharyngeal muscle
- RISK FACTORS:
  - Periodontal disease
  - Smoking
  - Chronic tonsillitis
  - Multiple trials of oral antibiotics
  - Previous peritonsillar abscesses
- CLINICAL FEATURES:
  - Appear ill
  - Fever, malaise, sore throat
  - Odynophagia and dysphagia
- PHYSICAL SIGNS:
  - TRISMUS ******
  - MUFFLED VOICE (“HOT POTATO”)
  - Swollen uvula
  - Palatal oedema
  - Tender cervical lymphadenopathy
  - Drooling

- Dehydration

- DIFFERENTIAL DIAGNOSIS:
  - Peritonsillar cellulitis
  - Infectious moninucleosis
  - Lymphoma
  - HSV tonsillitis
  - RETROPHARYNGEAL ABSCESS
  - Neoplasm
  - Foreign body
- CT SCAN IS INDICATED if there is concern for spread beyond the peritonsillar space or lateral neck space complications
- **TREATMENT:**
  - OPTIONS:
    - Needle aspiration
      - Apply lignocaine or cophenylcaine spray
      - Inject 1-2mL of lignocaine with adrenaline into anterior pillar
      - Use 18 gauge needle and enter just lateral
      - Do NOT penetrate more than 1cm because the ICA usually lies laterally and posterior to the posterior edge of the tonsil
    - Incision and drainage→no difference in outcome when compared with needle aspiration
    - ABSCESS TONSILLECTOMY:
      - Only considered when patients have strong indications:
        - OSA
        - Recurrent tonsillitis
        - Recurrent PTA
      - Reason being that abscess tonsillectomy has higher risk for post-tonsillectomy bleeding
  - ANTIBIOTICS:
    - Need agent effective against GABHS and anaerobes e.g. AUGMENTIN or penicillin V plus METRONIDAZOLE
      - CLINDAMICIN if penicillin-allergic
  - STEROIDS
- **COMPLICATIONS:**
  - Airway obstruction

- Rupture of abscess with aspiration of the contents
- Haemorrhage secondary to erosion of the carotid sheath
- Retropharyngeal abscess
- Mediastinitis
- Post-strep sequelae

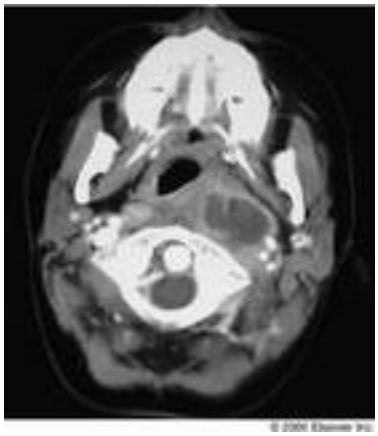
ADULT EPIGLOTTITIS (SUPRAGLOTTITIS):

- An inflammatory condition (usually infectious), primarily of the epiglottis but often including the entire supraglottic region
- Since HiB vaccination, most cases are in adults with mean age 46 years
- Most cases caused by Strep and Staph species
  - Hib still implicated in 25% cases
- CLINICAL FEATURES:
  - 1-2 day history of worsening dysphagia and odynophagia and dyspnoea
    - SOB particularly if SUPINE
  - THREE 'Ds':
    - DROOLING
    - DYSPHAGIA
    - DISTRESS
  - Fever, tachycardia, adenopathy
  - STRIDOR→inspiratory and SOFTER than croup
- DIAGNOSIS:
  - Made by history and exam then fibreoptic laryngoscopy
  - Lateral cervical soft tissue radiographs demonstrate OBLITERATION OF THE VALLECULA→thumb-shaped epiglottis
  - Patients with worsening dyspnoea in the supine position should NOT be sent to CT
- TREATMENT:
  - URGENT E.N.T. consult
  - Keep sitting up
  - Awake fibreoptic intubation in OT
  - ANTIBIOTICS→ ceftriaxone 2g IV
    - Alternative = TAZOCIN
  - Steroids

RETROPHARYNGEAL ABSCESS:

- The retropharyngeal space is A POTENTIAL SPACE anterior to the prevertebral fascia that extends from the base of the skull to the tracheal bifurcation
  - Fused in the midline
- In kids, retropharyngeal abscesses are usually purulent changes within a lymph node
- In adults, it usually represents direct extension of purulent debris from an adjacent site (e.g. LUDWIG ANGINA)
  - Hence in adults it is far more likely to extend into the MEDIASTINUM
- CLINICAL FEATURES AND DIAGNOSIS:

    - Sore throat (76%)
    - Fever (65%)
    - Torticollis (37%)
    - Dysphagia (35%)
    - Stridor and neck oedema IN KIDS (not adults)
    - Usually polymicrobial
    - CT is GOLD STANDARD OF DIAGNOSIS:
        - Central low attenuation and ring enhancement
- TREATMENT:
    - Immediate ENT consult
    - IV hydration and antibiotics
        - Clindamicin 600mg tds
        - Cefoxitin 2g
        - Tazocin
- COMPLICATIONS:
    - Mediastinitis
    - Upper airway asphyxia from direct pressure or aspiration after sudden rupture of the abscess



ODONTOGENIC ABSCESS:

- Can arise from an infected tooth or after extraction
- Onset <1day to 3 weeks after onset of tooth pain
- Generally polymicrobial:
    - Aerobes and anaerobes
        - GPC→PEPTOSTREPTOCOCCUS
        - Anaerobic GNR→PREVOTELLA, BACTEROIDES
- MOST DEEP NECK INFECTIONS ORIGINATE FROM AN ODONTOGENIC SOURCE, USUALLY THE MANDIBULAR TEETH
- Symptoms:
    - Neck mass
    - Trismus
    - Fever
- COMPLICATIONS:

- Necrotizine fasciitis
- Descending necrotising mediastinitis
- Orbital infections
- Haematogenous dissemination to distant organs

LUDWIG ANGINA:

- An infection of the submental, sublingual and submandibular spaces BILATERALLY
- Usually present with poor dental hygiene, odynophagia, trismus and oedema of the UPPER NECK
- Infection progresses rapidly and can posteriorly displace the tongue, causing airway compromise
- Systemic antibiotics are usually not a substitute for definitive airway management as it may take >1 week for oedema resolution with antibiotic therapy

NECROTISING INFECTIONS:

- CRITICALLY ILL PATIENTS
- Overlying skin discolouration and crepitus of the subcutaneous tissue
- CT reveals deep tissue gas
- IMMEDIATE SURGERY WITH FASCIOTOMY WITH WIDE LOCAL DEBRIDEMENT AND BROAD-SPECTRUM ANTIBIOTICS
- Mortality 25-40%
  - Complications include mediastinal extension
  - Great vessel erosion
  - Retroperitoneal extension
  - Pleural abscess
  - Pericardial effusion
  - SEPSIS

- ANTIBIOTICS:
    - Ampicillin/sulbactam
    - Tazocin
    - Imipenem/cilstatin
    - Ertapenem
    - NOT PENICILLIN→resistance a problem

POTENTIAL CAUSES OF AIRWAY OBSTRUCTION:

POST-TONSILLECTOMY BLEEDING:

- Well-known complication that can lead to DEATH due to either airway obstruction or haemorrhagic shock
- The incidence of post-tonsillectomy bleed ranges from 1-6%, with ~half requiring OT intervention
- Can be seen within 24 hours of surgery, most haemorrhage occurs between post-op days 5-10 and is associated with sloughing of fibrinous debris from the tonsillar bed
- ED TREATMENT:
    - Keep patient NBM
    - Sit upright
    - IV access (bloods for FBC, x-match and coags)
    - Direct pressure using a tonsillar pack ON A LONG CLAMP.
        - Moisten with lignocaine and adrenlaine

RECURRENT RESPIRATORY PAPILLOMATOSIS:

- Two age groups:
    - 3-4 years old
    - Third decade of life
- Caused by HPV 6 and 11
    - Maternal transmission in kids
    - Sexual transmission in adults
- Can present to ED with acute stridor
    - Papillomas are usually found at the glottis and are exophytic, wartlike lesions
    - Intubation only attempted in ED if absolutely necessary

LARYNGEAL TRAUMA:

- Compression of larynx on the bodies of the anterior cervical spine
- CLOTHESLINE INJURY:
    - High impact, neck strikes linear stationary object
    - Crush injury to thyroid cartilage and may cause laryngotracheal separation
    - EMERGENT TRACHEOSTOMY WITHOUT ATTEMPTED INTUBATION
- CLINICAL FEATURES:
    - Hoarseness, anterior neck palpation, haemoptysis
    - Subcut emphysema

- When laryngeal lumen is severely compromised, aphonia and apnoea may occur
- Bleeding, expanding haematomas, bruits and loss of pulses are signs associated with vascular injury

ANGIOOEDEMA OF THE UPPER AIRWAY:

- A paroxysmal non demarcated swelling of the dermal or submucosal layers of the skin or mucosa
  - Sudden onset and rapid progression
    - Mortality as a result of airway obstruction
- Four main causes:
  - Congenital loss of C1-esterase inhibitor
  - IgE mediated type I allergic reaction
  - Adverse reaction to ACE-inhibitors
  - IDIOPATHIC
- HEREDITARY:
  - C1 esterase inhibitor is the main regulator of the activation steps of the classical complement pathway
    - Its deficiency results in UNREGULATED ACTIVITY of vasoactive mediators and is the cause of HEREDITARY ANGIOEDEMA
  - C1 esterase inhibitor has been approved for prophylaxis
  - FFP replaces the missing inhibitor protein and can improve symptoms during an attack
    - Can become MORE OEDEMATOUS, thus don't use in acute attacks
  - FIBREOPTIC INTUBATION
  - Long-term use of acetylated artificial androgens
- RELATED TO ACE-INHIBITOR USE:
  - Can occur after years of use
  - More common in blacks
  - ACE-I alter conversion of bradykinin and Angiotensin 1→2
    - Can cause local increases in bradykinin and thus vasodilation/vascular permeability
  - Withdraw ACE-I immediately
  - Treatment of upper airway angiooedema is empirical
    - Secure airway if threatened
    - Subcut adrenaline
    - Antihistamines
    - Steroids
  - Only discharge after several hours of observation