**Tonsillitis & pharyngitis, peritonsillar abscess, bacterial tracheitis and epiglottitis**

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### Tonsillitis & Pharyngitis

**Background**

- **Acute tonsillitis**: Inflammation of the tonsils
- **Acute pharyngitis**: Inflammation of the oropharynx
- **Common causes:**
  - Most are viral, particularly in those <3yo. Most common bacterial pathogen is *Group A β-haemolytic streptococcus* (GAS)
  - No evidence that bacterial infections are more severe than viral infections, or that the duration is significantly different
- **95% resolve within 1 week irrespective of cause**

**Complications**

<table>
<thead>
<tr>
<th>Suppurative</th>
<th>Non-suppurative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Otitis media, acute mastoiditis <em>(see above)</em></td>
<td>Post-streptococcal glomerulonephritis</td>
</tr>
<tr>
<td>Peritonsillar abscess AKA Quinsy <em>(see below)</em></td>
<td>Acute rheumatic fever</td>
</tr>
<tr>
<td>Retropharyngeal abscess</td>
<td></td>
</tr>
<tr>
<td>Cervical adenitis</td>
<td></td>
</tr>
</tbody>
</table>

**Assessment**

Non-specific symptoms: fever, vomiting, abdominal pain, headache, URTI symptoms, poor oral intake

**Examination**

- Tonsillar exudates, enlargement, erythema
- Anterior cervical lymphadenopathy
- Signs of dehydration

There are no clinical features alone that reliably discriminate between GAS and viral causes.

Use the Centor criteria (not validated in children, streptococcus low risk in young children) or the FeverPAIN scoring system to help with prescribing decisions.
**Centor criteria:** 1 point for each of a) tonsillar exudate b) tender anterior cervical LN or lymphadenitis c) history of fever d) absence of cough.

- Score 0,1 or 2: associated with 3-17% likelihood of isolating streptococcus
- Score 3 or 4: associated with 32-56% likelihood of isolating streptococcus

**FeverPAIN**

<table>
<thead>
<tr>
<th>NOTE: FeverPAIN has only been validated in children ≥3 years old. Younger children are less likely to have a bacterial aetiology and are less likely to develop complications. Antibiotics in this age group would be based on clinical judgement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever over 38°C</td>
</tr>
<tr>
<td>Purulence (pharyngeal/tonsillar exudate)</td>
</tr>
<tr>
<td>Attend rapidly (3 days or less)</td>
</tr>
<tr>
<td>Severely inflamed tonsils</td>
</tr>
<tr>
<td>No cough or coryza</td>
</tr>
</tbody>
</table>

A score of 0 or 1 is associated with a 13% to 18% likelihood of isolating streptococcus. A score of 2 or 3 is associated with a 34% to 40% likelihood of isolating streptococcus. A score of 4 or 5 is associated with a 62% to 65% likelihood of isolating streptococcus.

**Differential Diagnosis**

**Epstein-Barr Virus (EBV) AKA Glandular Fever, Infectious Mononucleosis**
- Pharyngitis of longer than several days' duration
- Lymphadenopathy
- Hepatosplenomegaly
- Investigations: Serum monospot test, FBC
  (A raised WCC with lymphocytosis and atypical lymphocytes is suggestive of EBV)

**Scarlet Fever** (caused by GAS)
- Scarlet-fever type rash: Blanching, sandpaper-like rash, more prominent in skin creases, flushed face/cheeks with peri-oral pallor

**Investigations:**

Throat swabs are not routinely taken – due to poor sensitivity and they cannot differentiate between infection and carriage.

Positive throat culture makes GAS more likely but a negative throat culture does not rule out diagnosis.

**Management**

See management flow chart.

Studies suggest that antibiotics for streptococcal sore throat decreases symptoms by *less than 1 day*. The main benefit is to prevent complications.
**Paediatric Clinical Practice Guideline**

**Management flow chart**

**ANALGESIA**
- Paracetamol and ibuprofen
- Benzydamine spray (Difflam) (Note: there is no good clinical evidence of effectiveness but many children find this helpful)
- Corticosteroids can be considered in those with severe pain unresponsive to simple analgesia: Dexamethasone 0.15 mg/kg (max 10 mg) PO/IV/IM as a single dose

**ANY RED FLAGS?**
- <3 month old with fever >38
- Toxic appearance, signs of sepsis
- Respiratory distress, stridor, voice changes, trismus, drooling, torticollis, neck swelling, inadequate oral hydration
- Severe suppurative complications

**Senior Review**
Consider antibiotics* and admission, treat complication(s) as appropriate

**HIGH RISK GROUP?**
- Previous rheumatic fever
- Immunosuppressed
- Cardiac/respiratory/hepatic/renal disease

**Low threshold for antibiotics***

**SUSPECTED GAS INFECTION?**
(e.g. FeverPAIN ≥4)

**Consider antibiotics***

**NO**

**NO ANTIBIOTICS**
Advise to continue analgesia and appropriate safety netting

**Antibiotics for tonsillitis & pharyngitis**
First line: Phenoxymethylpenicillin (Penicillin V) PO 7 days
Penicillin allergic: Clarithromycin PO 5 days

Unable to tolerate oral antibiotics (consider early IV to PO switch): Ceftriaxone IV 5 days
Penicillin allergic: Clarithromycin IV 5 days
Peritonsillar abscess AKA Quinsy

Background

- Very rare in children
- Normally unilateral, rarely bilateral.
- Usually due to a complication of acute tonsillitis/pharyngitis with abscess formation between the tonsil and lateral pharyngeal wall.
- May also occur without preceding infection. These are thought to be due to obstruction of a peritonsilar salivary gland (Weber gland).
- **Common pathogens:**
  - Often polymicrobial
  - Bacterial: *Group A streptococcus*, *Staphylococcus aureus*, and respiratory anaerobes (including *fusobacteria*, *prevotella*, and *veillonella* species). *Haemophilus* species are found occasionally.

Complications:

- Airway obstruction
- Aspiration pneumonia if the abscess ruptures into the airway
- Vascular involvement: Jugular vein thrombophlebitis or thrombosis, carotid artery rupture or pseudoaneurysm

Assessment

Diagnosis is usually made clinically, and confirmed by collection of pus if drained.

- Tonsil enlarged and deviated towards midline or across midline. May be fluctuant, with swelling extending to soft palate.
- Uvula deviated to the unaffected side. If bilateral, uvula may deviate anteriorly.
- Cervical lymph nodes enlarged and tender on affected side
- Pain can be severe, associated with ear pain, trismus, dysphagia, ‘hot potato’ muffled voice, and drooling of saliva.
- Usually pyrexial and systemically unwell.

Management

- Analgesia
- All cases should be referred to ENT for joint care
  - Most will require drainage
- All cases require antibiotics, most need IV antibiotics with admission
- Ensure a pus swab is sent for microbiology
- Corticosteroids can be considered for management of both pain and inflammation:
  - Dexamethasone 0.15 mg/kg (max 10 mg) PO/IV/IM as a single dose
- **These patients are at risk of airway compromise.** Avoid oropharyngeal examination if presenting with respiratory distress
Antibiotics for peritonsillar abscess

First line:
- **Benzylpenicillin IV + Metronidazole IV 7-10 days**
- Penicillin allergic: **Clarithromycin IV + Metronidazole IV 7-10 days**
  (10 day course if Group A streptococcus isolated)

Consider IV to PO switch:
- First line switch: **Co-amoxiclav PO 7-10 days total course**
- Penicillin allergic: **Clindamycin PO 7-10 days total course**
  (10 day total course if Group A streptococcus isolated)

### Bacterial Tracheitis & Epiglottitis

#### Background

**Bacterial Tracheitis** (AKA pseudomembranous croup)
- Bacterial infection of the soft tissues of the trachea, often a complication of a previous viral infection

**Epiglottitis**
- Inflammation of the epiglottis and adjacent supraglottic structures
- Risk factors: Incomplete/lack of HiB vaccination, immune deficiency
- Traumatic non-infectious causes: Thermal injury, foreign body ingestion, caustic ingestion
- Common bacterial pathogens: *H. influenza type B*, *S. pneumoniae*, Group A strep., *S. aureus*

#### Assessment

These patients are at high risk of airway compromise. Avoid distressing patients with marked respiratory distress, e.g. allow to remain with carer, do not attempt oropharyngeal examination. Airway should be secured if necessary, and be prepared for difficult intubation.

Croup, Bacterial tracheitis, and Epiglottitis can all present with similar features:
## Croup
(See croup guideline)

<table>
<thead>
<tr>
<th>Anatomy</th>
<th>Subglottic</th>
<th>Tracheal Lumen</th>
<th>Supraglottic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak age</td>
<td>6 months – 6 years</td>
<td>3 months – 13 years</td>
<td>3 – 7 years</td>
</tr>
<tr>
<td></td>
<td>Peak 1-2 years</td>
<td>Peak 3-5 years</td>
<td></td>
</tr>
<tr>
<td>Onset</td>
<td>2-3 days</td>
<td>1-3 days with progressive worsening</td>
<td>6-24 hours (rapid)</td>
</tr>
<tr>
<td>Toxicity</td>
<td>Mild to moderate</td>
<td>Mild to severe</td>
<td>Moderate to severe</td>
</tr>
<tr>
<td>Fever</td>
<td>Low grade fever</td>
<td>High grade fever</td>
<td>High grade fever</td>
</tr>
<tr>
<td>Cough</td>
<td>Present, barking</td>
<td>Present, may be barking</td>
<td>Usually absent</td>
</tr>
<tr>
<td>Drooling</td>
<td>Sometimes present</td>
<td>Sometimes present</td>
<td>Usually present</td>
</tr>
<tr>
<td>Voice</td>
<td>Hoarse</td>
<td>Hoarse</td>
<td>Hot potato (muffled) or Hoarse</td>
</tr>
<tr>
<td>Position</td>
<td>Sitting</td>
<td>Lying flat</td>
<td>Upright/tripod posture, refusing to lie down</td>
</tr>
<tr>
<td>Presentation</td>
<td>Barking cough, stridor, worse at night</td>
<td>Cough (may be barking), stridor, appears more toxic than croup</td>
<td>Abrupt and rapid progression. Drooling, dysphagia, distressed</td>
</tr>
</tbody>
</table>

### Management
- Senior review immediately
- All patients will require IV antibiotics and admission +/- HDU monitoring
- During distressing procedures e.g. IV access, ensure airway management kit is available

### Antibiotics for bacterial tracheitis and epiglottitis

**First Line:**
- <1 month: Cefotaxime IV 7-10 days
- >1 month: Ceftriaxone IV 7-10 days
  - IgE mediated penicillin allergic: Chloramphenicol IV 7-10 days.
    - Risk of bone marrow depression or aplastic anaemia. Ensure microbiologist is aware of use and monitor FBC.
    - Plasma concentrating monitoring advised.

**IV to PO switch:**
- Co-amoxiclav PO 7-10 days total course
- Penicillin allergic: Discuss with microbiologist