

## Illness Scenario 5 Refresher Course

*This is a Teaching Scenario. Some flexibility in how it progresses is possible according to individual learner needs*

### History {initial candidate briefing prior to arrival of child}

A 1 year old boy is brought into emergency at 2am. Whilst eating dinner, he had a coughing fit, but settled after having a drink. He went to bed well but woke with a barking cough at 9pm. He has now developed fever, noisy breathing, and shortness of breath. A barking cough can be heard in the waiting room.

Estimated weight: 10kg

### Initial impression {provide information as candidate assesses child and applies monitoring}

Child is sitting on his mother's lap upright. Obvious inspiratory stridor. Tracheal tug.

Tachypnoea. Hoarse cry.

(Second instructor to role play parent holding the manikin upright, mimicking severe stridor - stridor sound also available on Realiti).

### Initial observations

Very flushed. Temperature 39.2°C

RR 50. Marked work of breathing. Saturations 92% in room air. HR 150. Reduced air entry.

### Additional history

Previously well child. No immunisations due to parental refusal.

### Clinical course {to be given to candidate as they progress}

Oxygen via face mask – makes child distressed, so wafted

Partial improvement with nebulised adrenaline. Stridor gets louder and work of breathing returns after 20 minutes.

Improves again with adrenaline, but still has soft stridor and wheeze on auscultation – more on left than right.

## INSTRUCTORS INFORMATION

### Key Treatment Points



<b>Airway</b>	Maintain comfortable position. Do not cause distress.	
<b>Breathing</b>	Oxygen administered OR conscious decision not to give oxygen	
<b>Circulation</b>	Avoid IV insertion while distressed	
<b>Specific Therapy</b>	Nebulised adrenaline for acute stridor Steroids	
<b>General therapy</b>	Consider CXR, lateral neck Xray Consider antibiotics ICU/anaesthesia consult	
<b>Diagnosis:</b>	Acute severe croup DDx (see below)	

### Learning objectives

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management, and diagnosis of acute airway obstruction and severe croup
- Consider DDX
- Recall and apply the principles of management of severe airway obstruction in their own practice

#### **Potential issues to be discussed/resources**

- Differential diagnosis and management of acute airway obstruction
- Use of steroids, adrenaline
- DDX
- Paediatric Improvement Collaborative (PIC) CPGs:
  - [Croup](#)
  - [Acute upper airway obstruction](#)
  - [Inhaled FB](#)

#### **DDx**

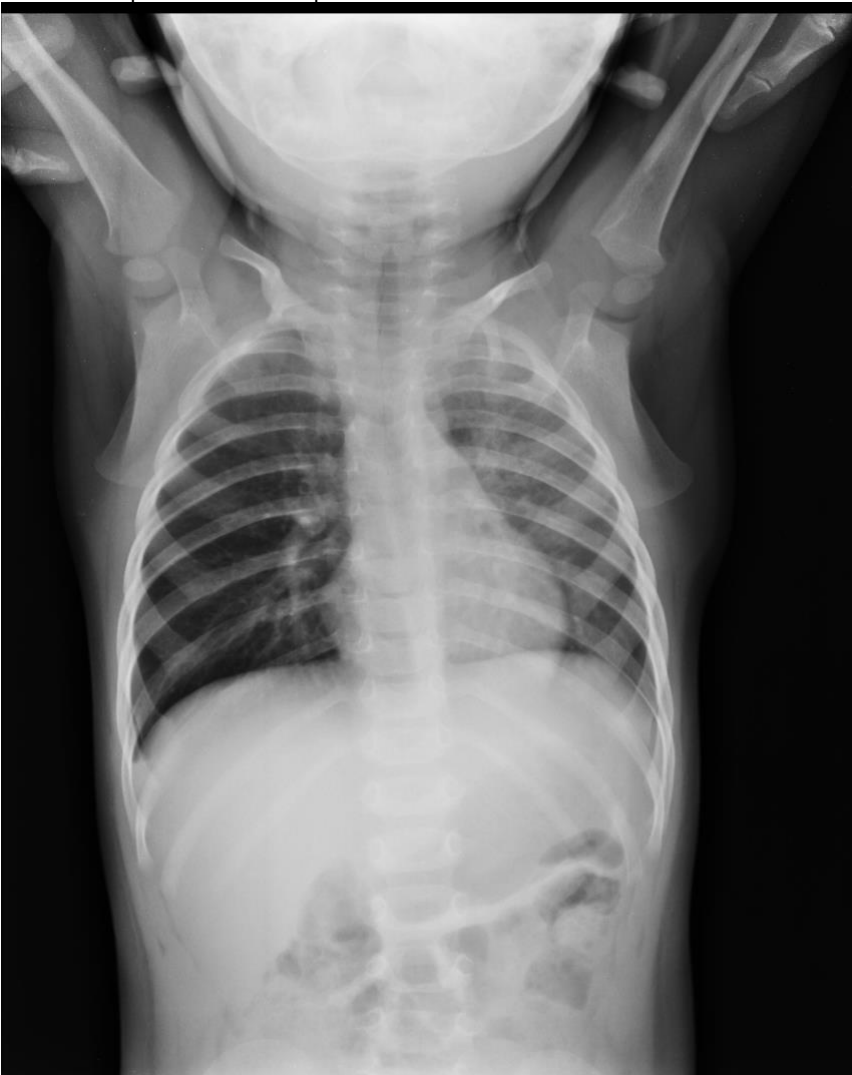
Croup = laryngotracheobronchitis – there's a lower respiratory tract component, which presents as wheeze. Lower airway involvement is not always symmetrical – it should certainly make one think about inhaled FB, but it may be mucus plugging. With COVID (and sometimes with parainfluenza and other viruses), infants have prolonged, more troublesome croup and may need repeated doses of adrenaline. Fortunately, intubation is rarely needed.

Although croup is the most likely diagnosis, candidates need to keep an open mind. Possibilities include:

- Inhaled FB - given story of coughing during dinner and asymmetrical signs
- Bacterial tracheitis – high fever can occur with croup, but should think of bacterial infection – usually systemically unwell
- Epiglottitis – rare but consider as no Hib vaccine



Steeple sign – narrowing of subglottic airway. NB can be simulated by different phases of respiration, even in normal children



Inhaled FB on right

Here's a more extensive DDx taken from the PIC Upper airway obstruction CPG

**Differential diagnoses** (the table below is not an exhaustive list)

Presentations, particularly the bacterial causes, often overlap

Possible diagnosis	Features
<b><u>Croup</u></b>	Young child (rare <3 months) Rapid onset harsh barking cough Hoarse voice/cry Stridor May be febrile and miserable but systemically well
<b><u>Anaphylaxis</u></b>	Swelling of the face and tongue Wheeze Urticarial rash Allergen exposure Haemodynamic compromise
<b><u>Inhaled foreign body</u></b>	Young child (or developmentally similar) Very sudden onset Coughing, choking, vomiting episode (may not be witnessed) May have unilateral chest findings, wheeze
<b>Reduced pharyngeal tone or size</b>	Reduced conscious state eg after drug or alcohol ingestion, recent seizure, <u>head injury</u> (including NAI) Pre-existing narrow or floppy upper airway
<b>Retropharyngeal abscess</b>	Sore throat Fever Neck pain and stiffness or torticollis Fullness and redness of posterior pharyngeal wall; may be midline but can be laterally behind tonsil Dysphagia and drooling
<b>Peritonsillar abscess (quinsy)</b>	Severe sore throat (often unilateral) Hot potato/muffled voice Trismus Swollen posterior palate and tonsil, with medial displacement of tonsil and deviation of the uvula
<b>Epiglottitis</b>	Inadequate Hib immunisation or immunocompromised High fever and systemically unwell Muffled voice Hyperextension of neck Dysphagia Pooling of secretions, drooling Absent cough Low pitched expiratory stridor or stertor
<b>Bacterial tracheitis</b>	Systemically unwell More severe and rapidly progressive symptoms Recent URTI Markedly tender trachea Cough may be productive with thick secretions

<p><b>Ludwig angina (infection of the sublingual and submandibular spaces)</b></p>	<p>Swollen, tender floor of mouth and under tongue Facial laceration or dental abscess Submandibular swelling</p>
<p><b>Airway burns</b></p>	<p>Burns elsewhere, especially facial Singed nasal hairs Sooty sputum</p>
<p><b>Trauma</b></p>	<p>Bruising and swelling of the neck Subcutaneous emphysema May progress to pneumothorax / pneumomediastinum</p>