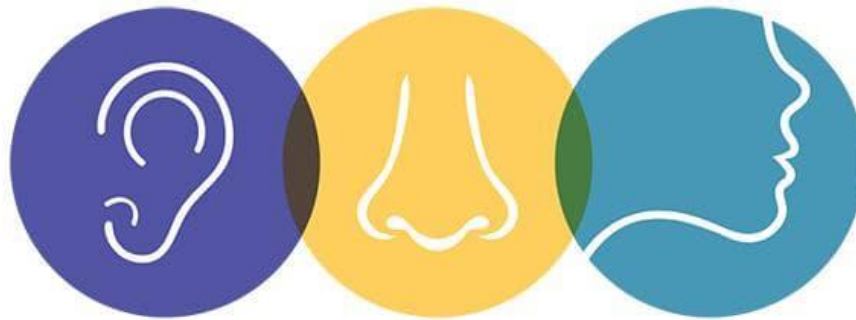


Case 5:



EDINBURGH UNIVERSITY
EAR NOSE & THROAT
SOCIETY

The Edinburgh ENT Soc cases have not been proofread by any professionals or members of the medical school. They have been made based on the guidelines available at the time.

For questions and feedback please email us at edinburghentsoc@gmail.com or use our social media pages (@EUENTSOC on instagram, @EdinburghENTSoc on Facebook).



Chloe, a 4-year-old girl, presents to A&E at 8pm with difficulty breathing. Her mum tells you that she was hot to touch and developed a sore throat earlier in the afternoon.

Mum tells you that Chloe is usually a fit and active child. However, she is not sure if her daughter is on top of her immunisations.

When you enter the examination room, Chloe is alert but very still, in a tripod position and drooling. You hear a very distinct inspiratory stridor and you can see obvious signs of increased work of breathing such as subcostal recession and sternal recession.

A set of observations shows the following:

- Respiratory rate: 36/min
- Heart rate: 150bpm
- Temperature: 39.1°C
- SpO₂: 95%

Question 1: What is your provisional diagnosis with this information?

“Tripod Position”



Your differential diagnosis list in paediatric stridor cases should contain the following conditions:

- Epiglottitis
- Bacterial tracheitis
- Croup
- Anaphylaxis
- Foreign body

Considering the story of rapidly developing fever and sore throat anaphylaxis and foreign bodies are unlikely here.

Croup can present with severe respiratory distress, but it is usually a more progressive onset and the patients usually have a distinct barking cough.

Bacterial tracheitis is often preceded by a viral upper respiratory tract infection but cannot be excluded here.

A story of rapidly developing fever + sore throat followed by stridor and respiratory distress in a 4-year-old child is a classic presentation of epiglottitis. Epiglottitis is an infection of the epiglottis, a leaf shaped flap in the throat that prevents food/fluids from entering the respiratory tract.

As a diagnosis of epiglottitis is suspected, you make sure not to distress the child and you do NOT examine the child's throat as there is a serious risk of airway collapse. You urgently call a senior ENT surgeon and a senior anaesthetist.

Question 2: What will be the ENT surgeon and anaesthetist most likely plan?



The priority will be to proceed to direct rigid **laryngoscopy** which will confirm the diagnosis. When combined with **nasotracheal intubation**, this will act as a therapeutic measure as it will establish an airway. This should ideally be performed in a controlled operating theatre setting.

Tracheostomy should only be carried out as an emergency procedure if intubation is not possible.

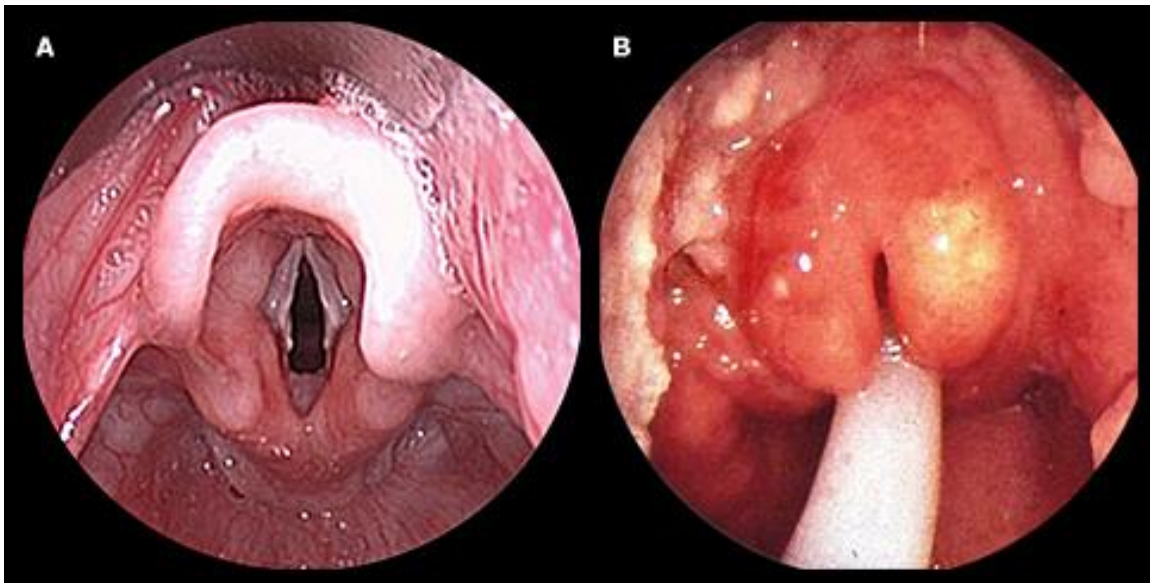


Figure 1: Laryngoscopy view. A = Normal epiglottis. B= Epiglottitis. Reproduced from Up To Date: https://www.uptodate.com/contents/epiglottitis-supraglottitis-clinical-features-and-diagnosis?search=epiglottitis&source=search_result&selectedTitle=1~41&usage_type=default&display_rank=1



Once the airway is secured, a lateral neck radiograph is performed.

Question 3: Can you name the radiological sign present in this picture?

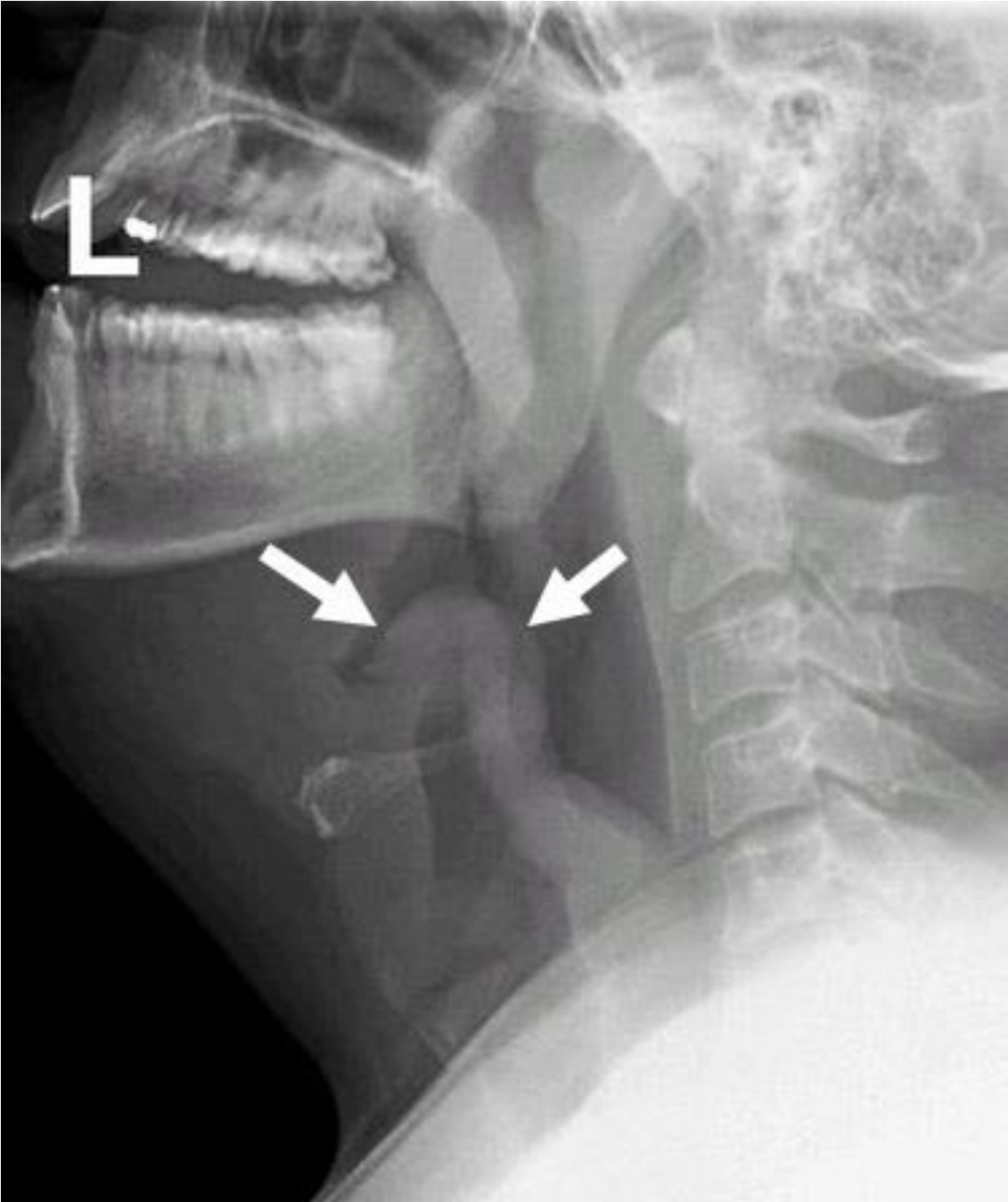


Figure 2: Lateral neck film. Reproduced from: <https://bestpractice.bmj.com/topics/en-gb/452>



This a **thumbprint sign** which shows an oedematous and enlarged epiglottis.

The term **thumbprint** is also used for abdominal X-rays to describe large bowel wall thickening.

Blood cultures + FBC and epiglottis swab are also taken after having secured the airway.

Question 4: What initial IV medication will be administered?



Epiglottitis most likely results from a **bacterial infection**, so **antibiotics** are the first line treatment for ALL patients. In Lothian, **ceftriaxone** is recommended.

Corticosteroids have not been proven to be effective in controlled trials BUT they may be used to reduce supraglottic inflammation per clinician discretion.

Chloe makes a good recovery and goes home on oral antibiotics. At the follow up appointment, the clinician is keen for Chloe to catch up on the immunisations she has missed.

Question 5: What vaccine is the most efficient at reducing the risk of epiglottitis?



The most likely pathogen in epiglottitis is **haemophilus influenzae type B (Hib)**. Children get 4 separate doses of the Hib vaccine at 8, 12, 16 weeks and 1 year.

In the US, there has been a 95% reduction in epiglottitis cases since the introduction of the vaccine.

However, be aware that vaccination does not preclude the possibility of epiglottitis or even the possibility of epiglottitis from Haemophilus influenzae.

References:

- [BMJ Best Practice: https://bestpractice.bmj.com/topics/en-gb/452](https://bestpractice.bmj.com/topics/en-gb/452)
- Lothian Microguide App
- https://www.uptodate.com/contents/epiglottitis-supraglottitis-clinical-features-and-diagnosis?search=epiglottitis&source=search_result&selectedTitle=1~41&usage_type=default&display_rank=1

