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Delayed diagnosis of laryngeal foreign body

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Abstract
Aspiration of a foreign body is a recognized cause of accidental death in children. Paediatricians are aware of the symptoms of inhaled foreign bodies in the lower respiratory tract. However, symptoms which suggest impaction in the larynx do not appear to raise the same index of suspicion of a foreign body. One case of laryngeal foreign body is described with a delay in diagnosis of five days. The clinical presentation, investigations and management are discussed.

Key words: Larynx; Foreign Bodies; Laryngoscopy; Bronchoscopy

Introduction

Aspiration of a foreign body is a recognized cause of accidental death in children. The maximum incidence of inhalation of foreign bodies occurs in children under four years.[1] Whilst many paediatricians are aware of the symptoms of inhaled foreign bodies in the lower respiratory tract, a minority of these objects impact in the larynx[2] where they cause a different clinical picture. Objects impact here because they are too large to pass through the larynx or due to their irregular shape of sharp edges. Common examples include glass, plastic or egg shell fragments.

Case report

An 11-month-old boy presented to the local Accident and Emergency Department with dyspnoea, biphasic stridor and a barking cough. For the preceding week he had been suffering with coryzal symptoms and a productive cough. However, two days prior to presentation he had been seen putting a glass Christmas decoration into his mouth where it shattered. His mother retrieved fragments from his mouth. His presenting symptoms developed gradually over the next 48 hours.

A differential diagnosis of croup or foreign body inhalation was made, of which croup was felt more likely. Initial resuscitation involved oxygen, dexamethasone and Pulmicort® nebulizers. An antero-posterior chest X-ray showed no evidence of a foreign body, although the film did not include the larynx. He was admitted under the care of the paediatricians. Overnight the stridor and barking cough persisted but lessened in severity. Over the next four days his symptoms persisted, fluctuating in severity. Increased doses of dexamethasone and bronchodilators were employed with little change. A repeat antero-posterior chest X-ray taken four days after admission again revealed no abnormality. Finally, on this fifth day as an in-patient, a referral was made to the ENT Department. They felt that, given the history, a foreign body needed to be formally excluded. Therefore, the patient was transferred to the specialist paediatric ENT department at the Royal Manchester Children's Hospital.

Review of the second chest X-ray revealed the presence of a thin radio-opaque foreign body in the larynx (Figure 1). The same evening, a direct laryngotracheobronchoscopy was performed which revealed a glass fragment lodged transglottically in the larynx (Figure 2). This was duly removed atraumatically with grasping forceps. A subsequent bronchoscopy revealed no foreign body in the trachea, carina or main bronchi. Assessment of the larynx after removal of the foreign body revealed anterior and posterior commissure granulations and generalized oedema.

Post-operatively, the patient was admitted to the paediatric ITU for 24 hours where he was treated with intravenous steroids and nebulized adrenaline. He made a good recovery and was discharged home 48 hours following surgery.

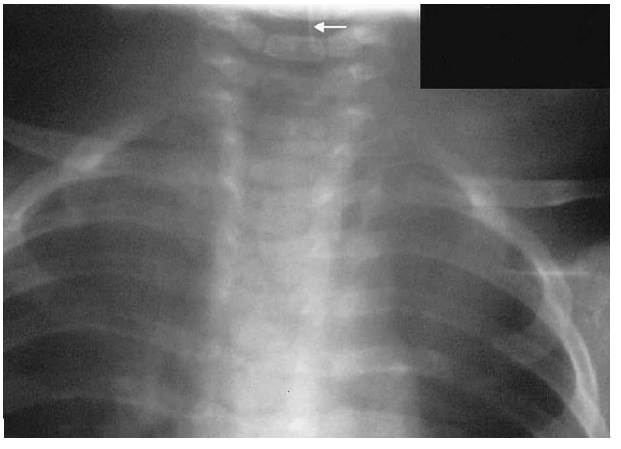

Fig. 1
Chest X-ray. The white arrow indicates the presence of a thin radio-opaque foreign body in the larynx.

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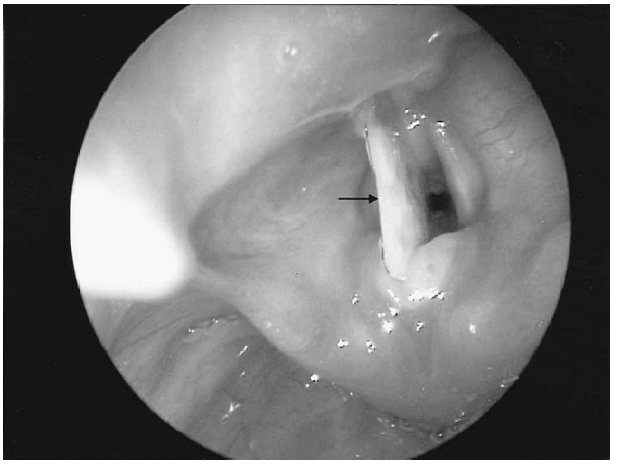

FIG. 2

Endoscopic view of the larynx. The black arrow indicates a glass fragment lodged transglottically in the larynx.

Discussion

In most cases of inhaled foreign body, a positive history of aspiration is obtained.[3] If there is no history of aspiration, it is important to recognize the key symptoms and signs that suggest the presence of an inhaled foreign body. These symptoms and signs will vary according to the site of impaction of the foreign body.

Paediatricians are familiar with the symptoms associated with impaction of a foreign body in the lower respiratory tract such as cough, wheeze or pneumonia resistant to treatment. In such cases, they are quick to refer the patient so that a foreign body may be excluded. However, symptoms such as hoarse cry, stridor, neck pain or acute respiratory distress, which suggest impaction of a foreign body in the larynx, do not appear to raise the same index of suspicion of a foreign body. In this particular case, not only is there a strongly suggestive history of aspiration but the presenting symptom complex is in itself highly suggestive of a foreign body in the larynx. The mere suggestion of such a diagnosis requires urgent referral to an otorhinolaryngologist for direct laryngoscopy, as even 24 hours delay can prove fatal.[4]

It is important to stress that normal X-ray findings do not exclude the diagnosis of inhaled foreign body.[5] Standard X-rays must include the neck as well as the chest. In this case the first X-ray did not include the larynx. The second X-ray actually displayed a foreign body in the larynx but it was not spotted by doctors at the first hospital.

Conclusions

Although laryngeal foreign bodies form a small minority of inhalation injuries, the diagnosis must always be suspected in young children presenting with acute laryngeal symptoms, even when there is no history of aspiration. In our case, the orientation of the glass fragment lodged in the larynx can truly be considered a 'lucky break'.

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