

Bronchoscopic removal of an inhaled, sharp, foreign body: an unusual complication

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Abstract

A case is reported in which an inhaled sewing needle, stuck fast in the trachea, became displaced through the tracheal wall during attempted removal via flexible bronchoscopy. The inherent risks and pitfalls of this procedure are highlighted.

Key words: Foreign bodies; Bronchi; Surgery, operative

Introduction

Ninety-five per cent of inhaled foreign bodies are removed without complication. In the less common scenario, when a foreign body passes beyond the glottis, endoscopic removal is usually needed. Common complications include atelectasis, pneumonia, retained fragments, airway spasm or airway oedema (Hughes *et al.*, 1996). This case illustrates the extreme care required when the inhaled object is sharp and the need for training in all methods available for those required to remove them.

Case report

A 13-year-old boy with a previous history of mild asthma and an asymptomatic, systolic heart murmur presented to Accident and Emergency. He had inhaled a home-made 'blow dart', consisting of a 30 mm long by 1 mm diameter needle tipped with plasticine, whilst preparing to fire it through a small, plastic pipe. He complained of intermittent coughing, salivation and an unpleasant metallic taste but was not breathless nor wheezing.

On examination, he did not display any signs of stridor or respiratory distress. Blood oxygen saturation was 100 per cent breathing air and air entry was normal bilaterally. Examination of the throat revealed no laceration nor haematoma.

Plain radiographs revealed a needle lying in the midline trachea (Figure 1) and consent was obtained for bronchoscopic removal.

Prior to induction, the child was coughing violently and at rigid bronchoscopy, the needle was seen to have displaced downwards to a position close to the carina. The first attempt at removal caused the plasticine to separate from the needle leaving the bare needle wedged in the distal trachea. Further attempts at removal by this method failed and flexible bronchoscopic removal was attempted. In freeing one end of the needle, the other end was pushed further into the tracheal wall and a further attempt to grasp the free end moved the needle further

outwards until the tip was lost from view. Three further attempts at flexible bronchoscopic removal were unsuccessful as the needle could no longer be visualized.

Anteroposterior and lateral radiographs showed the needle displaced into the right, lower neck (Figure 2).

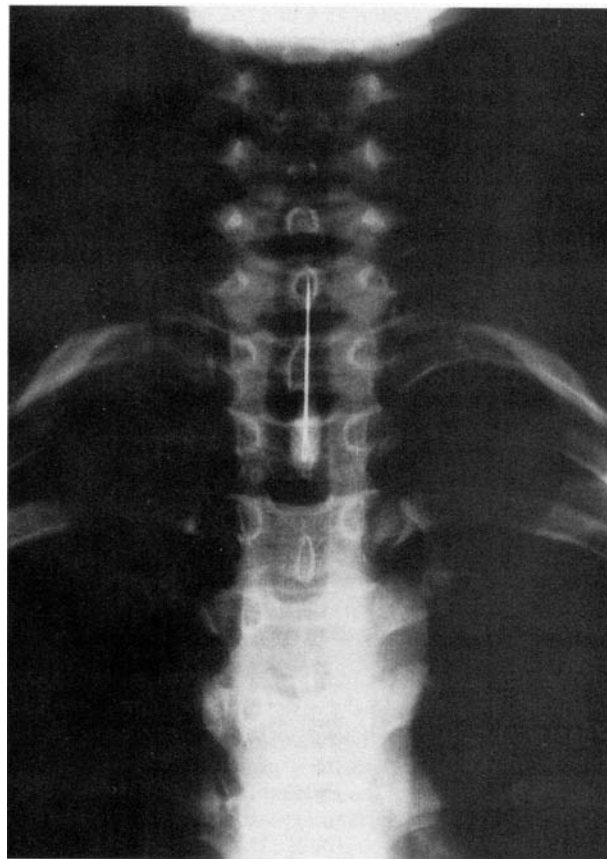


FIG. 1

Anteroposterior radiograph showing the needle lying within the trachea in the midline.

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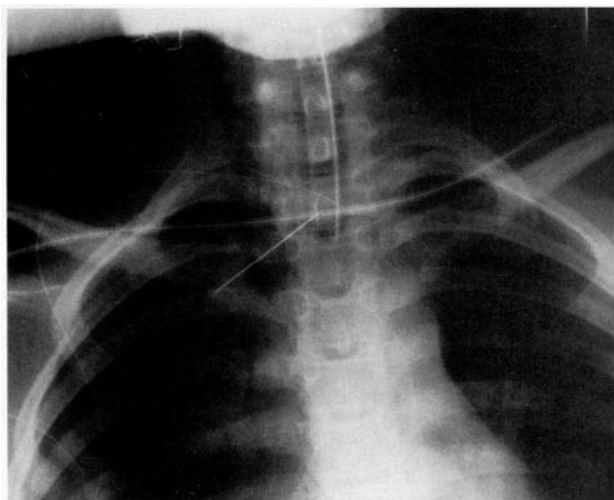


FIG. 2

Anteroposterior radiograph showing the needle displayed and external to the trachea.

Initial exploration of the neck via a transverse incision, failed to locate the needle leading to concern that it might have entered the thorax. The patient remained stable and was ventilated overnight. The following morning the needle was removed without trauma, from its position posterolateral to the trachea, by the thoracic surgical team, using the same incision. The patient was discharged from hospital three days later and suffered no adverse sequelae.

Discussion

Aspiration of a foreign body can be life-threatening in itself. Rigid and flexible bronchoscopy each carry their own risk. This case illustrates the difficulty of removing sharp, inhaled foreign bodies and identifies a clear need for

experience and formal training in these methods. Metallic foreign bodies are difficult to locate in any anatomical site and per operative imaging should always be used if there is difficulty.

In the case presented, a specialist registrar in otorhinolaryngology, failed to remove the needle by the rigid bronchoscopic technique most surgeons would consider standard in this situation. After senior consultation, removal using a relatively unfamiliar flexible bronchoscope was attempted with the complication presented. It has been proposed previously that an endoscopist contemplating removal of a foreign body from the airway of a child should have completed 100 or more removals in animal models. We endorse the level of experience suggested and further recommend that it should apply to the specific equipment and technique used (Black *et al.*, 1994). In a case such as this, transfer to a specialist unit where this experience is available is therefore preferable. Even though it may appear straight-forward to remove an object with a flexible scope, the distinct nature of the technique should be respected and the temptation resisted in favour of transfer.

References

- Hughes, C. A., Marsh, B. R., Baroody, F. M. (1996) Pediatric tracheobronchial foreign bodies: Historical review from the Johns Hopkins Hospital. *Annals of Otolaryngology and Laryngology* **105**(7): 555–561.
- Black, R. E., Matlak, M. E., Johnson, D. G. (1994) Bronchoscopic removal of aspirated foreign bodies in children. *Journal of Paediatric Surgery* **29**(5): 682–684.

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