

Multiple foreign body aspiration

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DESCRIPTION

A baby girl aged 3 years 8 months presented 8 months earlier with a history of cough and tight chest for 3 days prior to admission. On chest examination, the child had bilateral wheezing, was mildly distressed and had reduced air entry on the right side over the middle and lower zone. Chest X-ray demonstrated a round object in the oesophagus, but also collapse of the right middle and lower lobes (figure 1A). A metal washer was removed from the oesophagus at the cricopharyngeal level with a rigid scope. The child was then admitted postoperatively to paediatric intensive care unit for aspiration pneumonia. Considerable oesophageal mucosal inflammation was present at the site of the foreign body with no associated perforation. Contrast study performed at that stage demonstrated some narrowing of the oesophagus which did not need dilatation (figure 1B). Eight months later, she presented with respiratory distress and

clinically reduced air entry over the right middle and lower lobe with dullness to percussion and bronchial breathing. Acute pneumonia of the right middle and lower lobe with volume loss was diagnosed (figure 1C).

Ultrasound scan confirmed consolidation but no effusion present. There was no response to amoxicillin clavulanate antibiotic and bronchoscopy was performed after a week's treatment. Pus was visible in the trachea and the right main bronchus. Significant granulation tissue was observed in the bronchus intermedius. A fragment of chicken bone was removed from the right main bronchus with a rigid bronchoscope (figure 2A). Oral corticosteroids were given for 5 days in order to reduce the amount of inflammation present in the airway. The child needed ventilation for 24 hours and was then successfully extubated. Repeat bronchoscopy was performed after 5 days due to a significant granulation tissue observed at the first bronchoscopy.

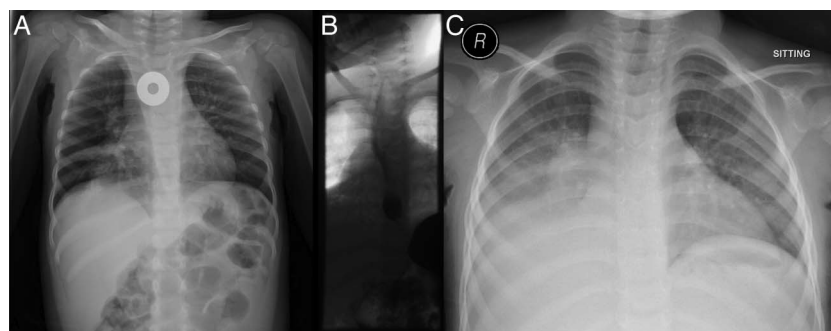


Figure 1 (A) Chest X-ray demonstrating round foreign body in the oesophagus, with signs of right lower lobe pneumonia. (B) Contrast study demonstrating a narrowing in oesophagus and complete collapse of the right middle and lower lobe. (C) Chest X-ray performed 8 months after aspiration of foreign body in oesophagus. Child presents with acute pneumonia of the right middle and lower lobe.

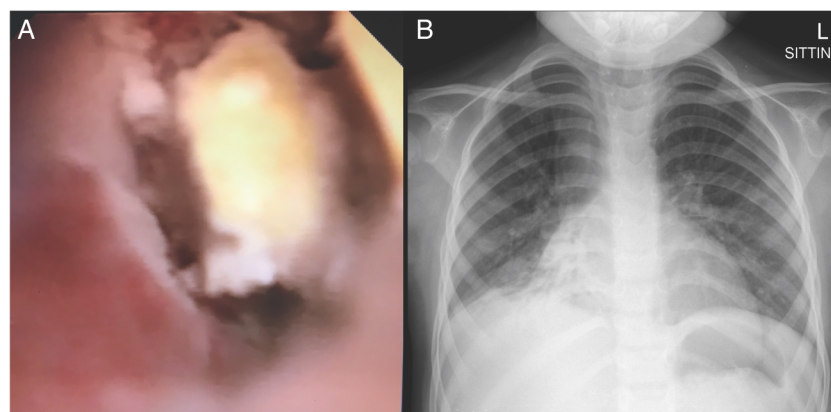


Figure 2 (A) Bronchoscopy picture of inhaled chicken bone in right bronchus intermedius with granulation tissue formed. (B) Chest X-ray performed 2 weeks after removal of foreign body shows some resolution of the right middle and lower lobe collapse.



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Images in...

The granulation tissue had significantly reduced at repeat bronchoscopy; however, a second fragment of chicken bone was found in the left main bronchus, which was removed with a flexible bronchoscope. Repeat oesophageal endoscopy was performed at this time, which showed no narrowing or stricture.

A third bronchoscopy was performed 4 weeks later, which showed no signs of granulation tissue. The repeat chest X-ray showed significant improvement of consolidation and volume loss in the right lower lobe (figure 2B).

This child came with the unusual presentation of simultaneous foreign bodies in the oesophagus and the bronchus. One can postulate that the obstruction of the oesophagus may have complicated swallowing and predisposed to aspiration of the chicken bone. An extensive literature search was performed; however, we could not find any cases of simultaneous aspiration of both foreign bodies in the airway and oesophagus.

We suggest that after the extraction of a foreign body in the upper digestive tract, with the persistence of abnormal radiological images and clinical symptoms, one has to search for associated lesions and/or other foreign bodies. Furthermore, it is important to consider aspiration of foreign material into the airways when lung collapse is present with a foreign body in the oesophagus. The main potential clinical complication of impacted foreign bodies in the oesophagus is aspiration pneumonia.¹ One must consider that due to obstruction of the oesophagus, the child may be at additional high risk of aspirating material into the airways and we suggest that bronchoscopy be performed during the same session as oesophageal endoscopy. Another important issue is that follow-up bronchoscopy must be performed when there is significant granulation tissue or pus within the airways as fragments of the same foreign body or additional foreign bodies may be missed during the initial endoscopy attempts. Bronchoscopy is made more complicated and difficult by the presence of granulation tissue and the sequelae of prolonged non-treatment results in a higher rate of

chronic respiratory disease. Neeff reported that in children with a history of choking of more than 2 weeks before attempted removal have significant intraoperative granulation tissues. Granulation tissue was present in 89% of patients and 46% of patients had more than 50% obstruction of the lumen.^{2 3}

Learning points

- ▶ Persistent collapse of a lobe should be investigated in children with aspirated foreign bodies in the oesophagus.
- ▶ Repeated bronchoscopy must be considered in children where there is a significant amount of pus and/or granulation tissue present at the initial bronchoscopy, to exclude missed foreign bodies.
- ▶ Multiple foreign bodies are rare but must be considered if lobar collapse persists.

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Contributors PG was responsible for foreign body removal, JLM and L-LG were responsible for the care of patient and INA was responsible for care of the patient in the ICU.

Competing interests None declared.

Patient consent Obtained.

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REFERENCES

- 1 Berdan EA, Sato TT. Pediatric airway and esophageal foreign bodies. *Surg Clin North Am* 2017;1:55–91.
- 2 Martin A, van der Meer G, Blair D, *et al.* Long-standing inhaled foreign bodies in children: characteristics and outcome. *Int J Pediatr Otorhinolaryngol* 2016;90:49–53.
- 3 Tenenbaum T, Kähler G, Janke C, *et al.* Management of foreign body removal in children by flexible bronchoscopy. *J Bronchology Interv Pulmonol* 2017;24:21–8.

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