

## A typical presentation of a laryngeal foreign body in an infant

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### Abstract

#### Background


A 1-year-old boy presented with a one-day history of fever and cough, potentially linked to an episode of aspiration during homemade rice feeding. Following the incident, he refused to feed, displaying irritability. The detection of neutrophil leucocytosis and dehydration prompted IV antibiotics and fluid. Persistent symptoms led to a lateral neck x-ray, revealing a radiopaque material near the epiglottis. Fibre optic laryngoscopy identified a metallic wire lodged in the right arytenoid cartilage and posterior pharyngeal wall, possibly a fragment from a rice polishing machine. Extraction under general anaesthesia resulted in minimal mucosal injury, and the child quickly recovered postoperatively.

#### Conclusion

This report serves as a reminder to consider foreign body ingestion in the differential diagnosis, particularly in cases with subtle or unrelated symptoms in the paediatric age group. The multidisciplinary approach emphasises prompt intervention to prevent life-threatening complications in paediatric patients. Furthermore, employing awake fibre-optic laryngoscopy in the context of a suspected respiratory tract infection to confirm the presence of a foreign body is considered a clinically safer approach than immediately resorting to examination under anaesthesia.

**Keywords:** Foreign body; Laryngeal; Infant

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## Introduction

Children's natural curiosity often leads to foreign body ingestion, a common reason for Emergency Department visits, and a significant, preventable cause of morbidity and mortality in young children<sup>1</sup>. Diagnosing foreign body ingestion remains challenging due to its diverse presentation, with accidental cases being more frequent in males than females<sup>1</sup>. Following ingestion or aspiration into the aerodigestive track, the behaviour of the foreign body depends on various factors such as age, sex, nature of the FB, time of presentation, and maturity of swallowing and dentition<sup>2</sup>. This case report highlights an atypical, delayed presentation of foreign body ingestion in a 1-year-old boy. The nonspecific nature of the initial symptoms coupled with the unusual circumstances of the FB ingestion posed a challenge in initial diagnosis and management, emphasizing the crucial role of maintaining a high degree of suspicion to prevent life-threatening complications.

## Case presentation

A one-year-old boy was admitted to the paediatric ward due to a one-day history of fever and dry cough. The child had experienced odynophagia, regurgitation, and vomiting of food particles, leading to feed refusal and irritability. Initial systemic examination was unremarkable and full blood count showed neutrophil leucocytosis, prompting the initiation of IV antibiotics and hydration. Despite treatment for an upper respiratory tract infection, symptoms persisted, prompting a lateral neck soft tissue x-ray on day 3, revealing a radiopaque material near the epiglottis (Figure 1). Further questioning revealed a potential event of aspiration during feeding homemade rice. Fiber optic laryngoscopy identified a metallic wire lodged in the right arytenoid cartilage and posterior pharyngeal wall with minimal mucosal injury. The wire was successfully extracted under general anaesthesia with direct laryngoscopy. (Figure 2). The foreign body was suspected to be part of a rice polishing machine. Postoperatively, the child quickly recovered resuming normal feeds and activity.

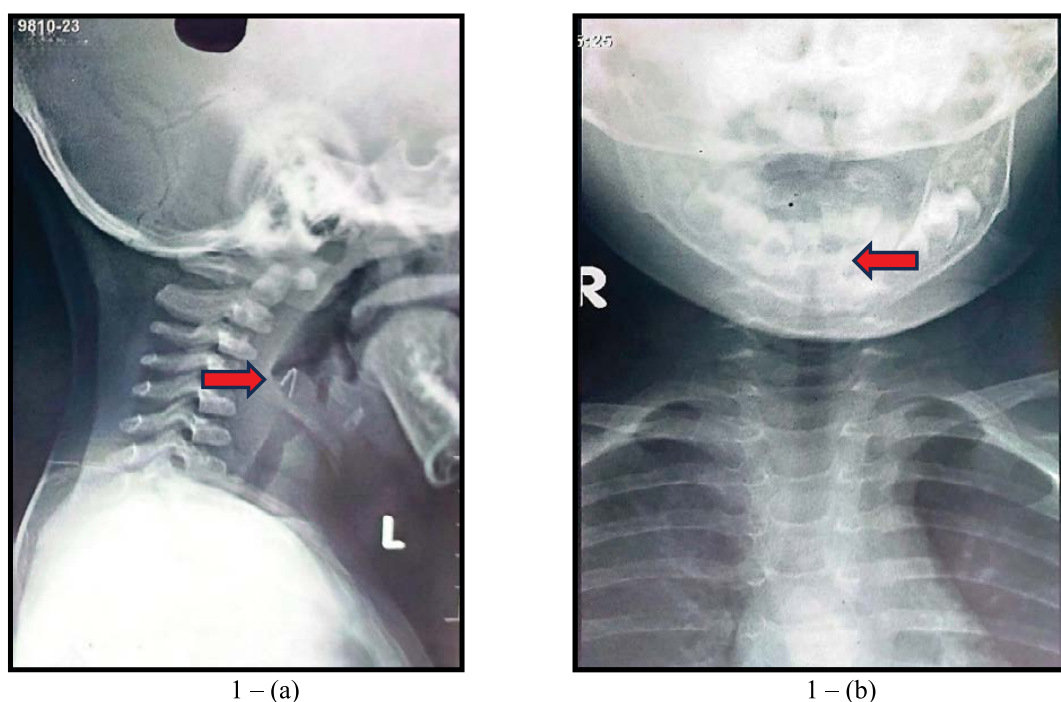


Figure 1: (a) Lateral X ray neck soft tissue – radio-opaque foreign body (arrowhead), (b) Anterior X ray neck – barely discernible foreign body (arrowhead)

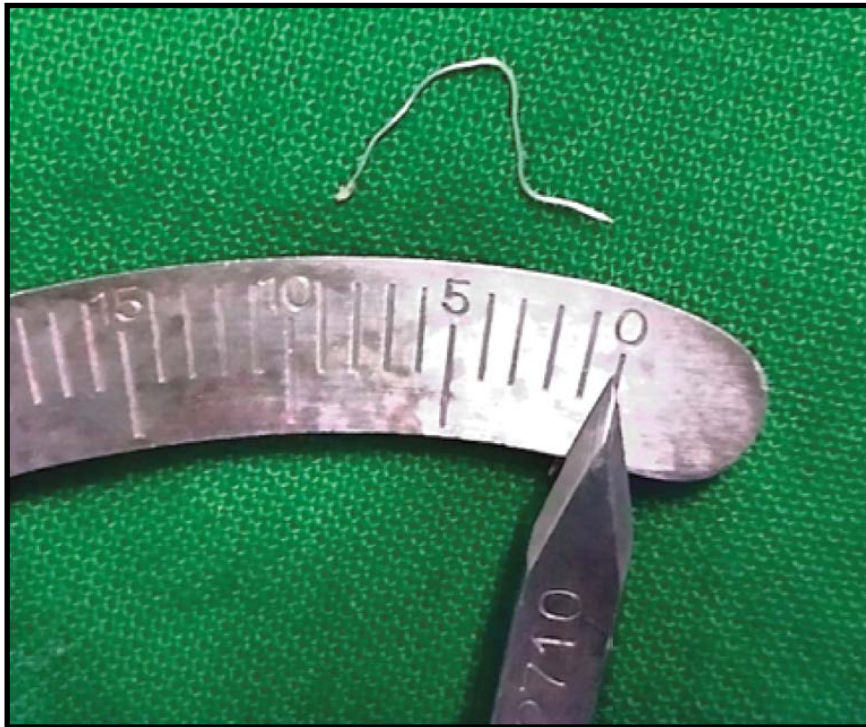


Figure 2: The extracted piece of wire

## Discussion

Foreign body ingestion or aspiration is a frequent event in the paediatric age group, originating from the innate curiosity that compels children to explore their surroundings by putting various objects into their mouths. Foreign bodies can be broadly divided into organic and inorganic material. Organic material includes food (peanut, seeds, fish bone etc.), rubber, wood whereas inorganic material includes plastic, beads, coins, pins, batteries, magnets etc. Approximately 80-90% of instances involve the foreign object naturally passing and being expelled in the stool within a few days. In 10-20% of cases, endoscopic removal may be necessary due to difficulty in passage or potential harm. Surgical intervention is required in less than 1% of cases<sup>3</sup>. The primary site of foreign body (FB) impaction in cases of ingestion is typically the oesophagus, specifically at the cricopharyngeus muscle level, constituting more than 75% of all instances<sup>4</sup>. However, objects with sharp or irregular shapes may become lodged in the larynx or trachea, as observed in the present case. In children, the most common sites for FB aspiration are the right bronchi (60%) and left bronchi (23%), followed by the trachea/carina (13%), larynx (3%), and bilateral locations (2%)<sup>5</sup>. Laryngeal bodies often pass into the bronchus or are expelled through coughing, leading to infrequent reporting or suspicion<sup>6</sup>. Nevertheless, such laryngeal foreign bodies can occasionally result in respiratory obstruction and reflex laryngospasm<sup>7</sup>. FB ingestion and aspiration can present with a spectrum of symptoms including gastrointestinal, respiratory and nonspecific. Gastrointestinal symptoms can be vomiting, dysphagia, odynophagia, increase in saliva, changes in the daily diet resulting from loss of appetite or hematemesis that may occur in very rare cases originating from a life-threatening aorto-oesophageal fistula<sup>1</sup>. Respiratory symptoms includes stridor or wheezing and nonspecific symptoms includes fever, chest discomfort. The possible complications of ingestion of a sharp FB are mucosal lacerations, bleeding, aerodigestive tract perforation, mediastinitis, abscess and fistula formation, and migration of the foreign body.

The diagnosis is reliant on clinical and radiological assessments. In the instance of this child, the importance of gathering a thorough history from the mother proved to be significant. Following the customary practices in Sri Lankan culture, the mother had meticulously prepared a homemade meal consisting of rice, vegetables, and fish. Using a blender, she created a paste and fed the child with a spoon. Notably, the raw rice employed in the preparation was a processed red rice with light polishing. This leads to the hypothesis that the introduction of the foreign body might have occurred during the industrial polishing of the rice.

Chest radiographs are often of limited diagnostic utility in identifying foreign body aspiration (FBA) since less than 10% of aspirated objects are visible on X-rays<sup>8</sup>. The radiographic findings are primarily nonspecific, including indications of air trapping, air leak, or the absence of abnormalities<sup>9</sup>. In the case of this child, despite the detection of a radio-opaque material on the lateral neck X-ray, the initial difficulty in visualizing it on the anterior X-ray led to initial suspicions of an artifact. In a resource restricted set up, the clinical assessment alone had to be utilized for management decisions. Therefore, diagnosis was done with awake fibre optic laryngoscopy, which was a safer clinical strategy when dealing with suspected respiratory tract infections in paediatric cases to verify the presence of a foreign body. The rationale behind this suggestion lies in the belief that awake fibre-optic laryngoscopy provides a more secure and less invasive means of confirmation, offering potential advantages in terms of patient safety and minimizing the risks associated with anaesthesia, especially in the paediatric population. Rigid bronchoscopy still remains the most effective method to tackle airway FBs<sup>10</sup>. Laryngeal FBs, however, can be tackled with a direct laryngoscope especially in infants.

## **Conclusion**

This case report serves as a reminder to healthcare providers to consider foreign body ingestion in the differential diagnosis, especially in paediatric patients with subtle or unrelated symptoms. Despite its frequent oversight, it is crucial to understand the mechanism and circumstances surrounding foreign body ingestion to avoid recurrence. The multidisciplinary approach employed emphasizes the importance of prompt intervention to prevent life-threatening complications associated with foreign body ingestion in paediatric patients.

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