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Case report

Chronic stridor in a nine-month-old—Consider esophageal foreign body[☆]

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ABSTRACT

We present the case of a 9-month-old female with seven weeks of stridor.

Initial lateral neck radiograph showed widening of the retropharyngeal space with significant mass effect displacing the cervical and thoracic trachea. She was taken emergently by ENT to the operating room for intubation. In the OR, flexible fiberoptic nasotracheal intubation was achieved. Through multimodality imaging and several procedures, she was found to have ingested part of a Christmas ornament, which lodged in the esophagus, causing a perforation with retropharyngeal phlegmon. This compressed the airway, causing respiratory distress. She improved on intravenous antibiotics and the ornament was retrieved endoscopically.

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1. Introduction

A nine month old female presented to the Emergency Department (ED) with seven weeks of stridor that had markedly worsened over the previous week. She was evaluated by healthcare providers multiple times during this seven week period and diagnosed with a viral illness. Five days prior to presentation, she was seen at an urgent care and was noted to desaturate to 86% on room air. According to parents, no formal workup was done and she was sent home. Her stridor continued to worsen, especially at night, and she developed perioral cyanosis with crying, as well as a nighttime cough. During this time, she had no history of choking or known foreign body ingestion, no documented fever, rhinorrhea, drooling, or vomiting. She was tolerating liquids with good urine output, although parents noted she had developed dysphagia to solids over the last few days.

Upon arrival to our ED, she had a temperature of 38.1 °C, heart rate of 158 beats/min, respiratory rate of 40 breaths/min, and was

92% on pulse oximetry on room air. She was alert and playful with biphasic stridor and moderate retractions with coarse breath sounds on auscultation. She did not have nasal congestion or drooling, and had a normal oropharyngeal exam. She did not have tracheal deviation or marked cervical lymphadenopathy. Upon laying her supine, the patient's oxygen level dropped to the 1970s, and appropriately increased with upright positioning and blow by oxygen.

Initial lateral neck radiograph showed widening of the retropharyngeal space with significant mass effect displacing the cervical and upper thoracic trachea anteriorly with narrowing (Fig. 1). There was no retropharyngeal radiopaque foreign body, soft tissue air, or calcification. Differential diagnosis for this imaging finding is broad, including retropharyngeal phlegmon/abscess, congenital mass (lymphatic malformation) and neoplastic mass (infantile hemangioma, neuroblastoma). Otolaryngology (ENT) was consulted and examined the patient at the bedside, performing a flexible laryngoscopy which was normal. Blood work was obtained and was significant for leukocytosis (41,600), thrombocytosis (735,000), hypercarbia (57) with a normal pH (7.32), and otherwise normal complete metabolic panel, LDH, and uric acid, with negative blood cultures.

Due to her airway symptoms of significant stridor and oxygen desaturations when supine, she was taken emergently by ENT to the operating room (OR) for intubation. As the radiograph showed

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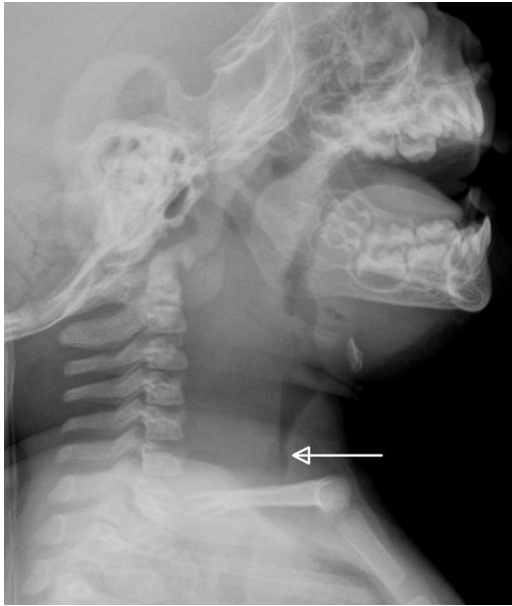


Fig. 1. Lateral neck radiograph shows marked widening of the retropharyngeal space with airway narrowing (arrow). No radiopaque foreign body is visible.

tracheal compression extending below the clavicles and there was concern for a fixed mass, extracorporeal membranous oxygenation (ECMO) was on standby in case this patient could not be intubated. In the OR, flexible fiberoptic nasotracheally intubation was achieved with the patient sitting upright. Direct laryngoscopy at that time revealed no abnormality. It was discussed whether to perform rigid bronchoscopy, but since the airway was secure, the team felt imaging was the more important first step. Upon securing her airway, neck computed tomography (CT) with IV contrast was performed, showing a fluid collection concerning for a retropharyngeal/paraesophageal phlegmon or abscess (Fig. 2).

She was started on IV antibiotics and admitted to the Pediatric Intensive Care Unit (PICU) still intubated. To evaluate for esophageal injury as a cause for the paraesophageal abnormality noted on CT, a fluoroscopic esophagram with gastrografin was performed. This showed a lobular filling defect, raising concern for a radiolucent foreign body, as well as leakage of contrast into the retropharyngeal space (Fig. 3). To further evaluate for foreign body, neck magnetic resonance imaging (MRI) was performed, showing a ring-shaped esophageal foreign body (Fig. 4). Correlating the neck MRI with prior imaging, the rim-enhancing structure on CT and lobular filling defect on esophagram were actually the radiolucent FB with surrounding inflammation. However, some type of infection was likely present as well, given the rapid resolution of leukocytosis and fever within 48 h of starting antibiotics.

Two days after being intubated, and following the neck MRI, she was taken back to the OR. Repeat direct laryngoscopy revealed a grade 1 view of the larynx with minimal swelling and a normal airway exam. Rigid bronchoscopy was normal as well other than some compression of the posterior tracheal wall from surrounding edema. Rigid esophagoscopy was performed and a foreign body—a portion of a Christmas tree ornament (Figs. 5 and 6)—was removed from the esophagus. Granulation tissue was present surrounding the foreign body but there was no definite esophageal perforation or well-defined abscess. A feeding tube was placed under direct visualization. She was kept intubated for an additional 48 h for concern or recurrent swelling after manipulation of the retropharynx for foreign body removal, and was then extubated. A repeat esophagram one week after foreign body removal revealed

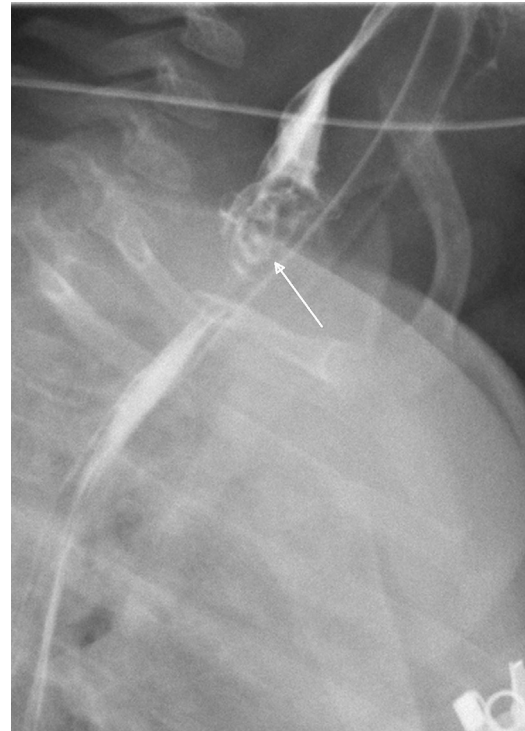


Fig. 2. Lateral view from water soluble contrast esophagram shows a lobulated filling defect (arrow) in the cervical esophagus with concern for perforation/extra-luminal contrast.

no esophageal leak and the patient was allowed to start oral intake. She was discharged home on room air and has continued to do well with no sequelae.

2. Discussion

Foreign body (FB) ingestion is a common presenting complaint in pediatric emergency departments, with at least 125,000 events per year. In most cases, there is a history of FB ingestion, and presentation is within 24 h [1]. Because most ingested FBs are

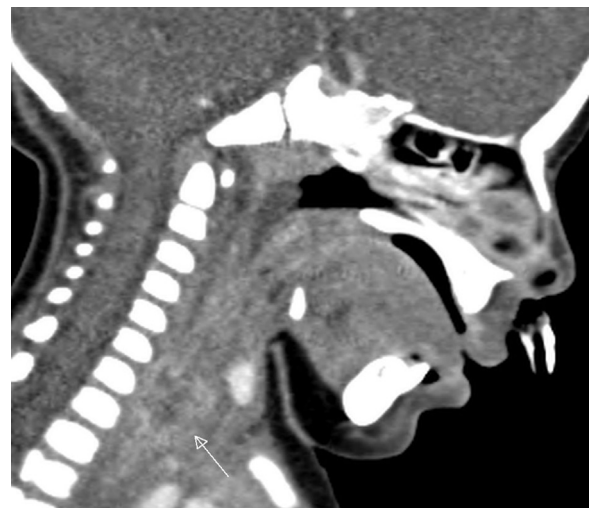


Fig. 3. Sagittal neck CT with IV contrast shows an irregular rim-enhancing fluid attenuation structure/collection (arrow) in the retropharyngeal space/cervical esophagus just above the thoracic inlet with abundant surrounding inflammation.

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