Case Report

AMERICAN ACADEMY OF OTOLARYNGOLOGY–HEAD AND NECK SURGERY FOUNDATION

OTO Open
1–3

DOI: 10.1177/2473974X17719021
http://oto-open.org
SAGE

Mediastinal Foreign Body Presenting as Biphasic Stridor and Hoarseness

Jonathan Yoon, MD[1], Matthew W. Miller, MD[1], Shahab Abdessalam, MD[2,3], and Dwight T. Jones, MD[1,3]

No sponsorships or competing interests have been disclosed for this article.

Keywords

stridor, esophageal foreign body, mediastinal mass

Received April 11, 2017; revised April 11, 2017; accepted June 14, 2017.

Biphasic stridor in the pediatric population can represent a diagnostic dilemma for the otolaryngologist. The wide variety of etiologies range from benign to life-threatening situations. The patient's history and physical examination, including flexible laryngoscopy, are often sufficient to establish a diagnosis.[1] We present a case of an 18-month-old girl who presented with a 6-month history of biphasic stridor due to an extraluminal esophageal foreign body causing external compression of the trachea. The University of Nebraska Medical Center Institutional Review Board has deemed this case report exempt.

Case Presentation

An 18-month-old girl was referred to pediatric otolaryngology with a 6-month history of noisy breathing, hoarseness, and recurrent croup. Flexible office laryngoscopy by an outside otolaryngologist revealed mild laryngeal edema, laryngomalacia, and a possible right piriform mass. The patient had increased work of breathing with feeds and was slow to gain weight. On examination, she was well appearing except for a weak, hoarse cry and mild biphasic stridor. She underwent microdirect laryngoscopy and bronchoscopy (**Figure 1A** and **1B**). There was tracheal compression consistent with a vascular ring or sling. Computed tomography of the chest was obtained (**Figure 1C** and **1D**).

These images showed normal vascular anatomy; however, a complex mediastinal mass measuring 2.7 × 2.0 × 2.7 cm was found within the right paratracheal region, posterior to the superior vena cava and immediately adjacent to the esophagus. The mass contained gas and fluid.

Pediatric surgery evaluated the patient and believed the mass to be consistent with a esophageal duplication cyst. The patient underwent a thorascopic resection of the mass (**Figure 2**). The cyst was identified within the wall of the esophagus and dissected free. A piece of plastic (1 × 1 cm) was found within the mass. The patient was seen at her 2-week postoperative visit with resolution of her symptoms.

Discussion

This case demonstrates a unique presentation of an extraluminal esophageal foreign body causing airway obstruction.

Flexible laryngoscopy is a tool that otolaryngologists utilize in their office, which provides a dynamic examination of the upper airway. It can help diagnose the common causes of pediatric stridor, including laryngomalacia and vocal fold paresis. This child had biphasic stridor and poor weight gain, prompting further evaluation in the operating room.

Direct laryngoscopy and bronchoscopy showed external compression of the trachea that appeared to be pulsatile given the close proximity of the cyst to the great vessels. Vascular rings are rare congenital defects that represent <1% of all congenital cardiac defects. These are most commonly due to a double aortic arch that wraps around the trachea and causes external compression. The common presenting symptom is stridor.[2] Pulmonary artery sling is another congenital cardiac defect caused by the anomalous origin of the left pulmonary artery off of the right pulmonary artery. The left pulmonary artery then passes over the right mainstem bronchus and posterior to the trachea to the left lung hilum.

Foreign body ingestion is a relatively common occurrence, with peak incidence between the ages of 6 months to 3 years. Around 50% of children will not have any

[1]Department of Otolaryngology–Head and Neck Surgery, University of Nebraska Medical Center, Omaha, Nebraska, USA
[2]Department of Pediatric Surgery, University of Nebraska Medical Center, Omaha, Nebraska, USA
[3]Children's Hospital Omaha, Omaha, Nebraska, USA

Corresponding Author:
Jonathan Yoon, MD, Department of Otolaryngology–Head and Neck Surgery, University of Nebraska Medical Center, 981225 Nebraska Medical Center, Omaha, NE 68198-1225, USA.
Email: jonathan.yoon@unmc.edu

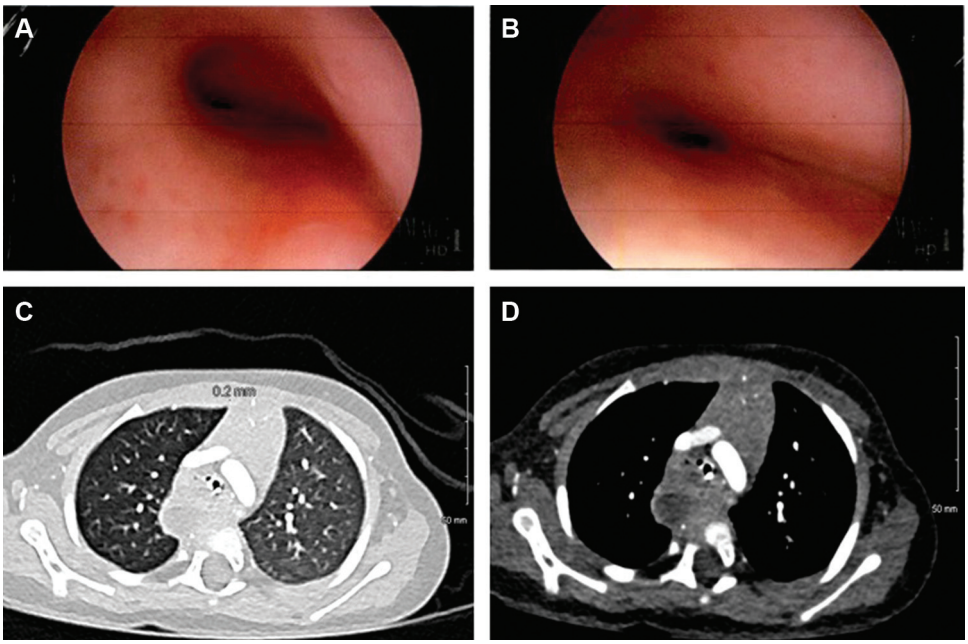

Figure 1. Chest findings from microdirect laryngoscopy and bronchoscopy and computed tomography prior to definitive treatment. (A, B) Midtracheal compression seen on microdirect laryngoscopy and bronchoscopy, with near total occlusion. (C, D) Representative cross-sectional images showing mediastinal cystic mass intimately involved with esophagus, with compression of trachea.

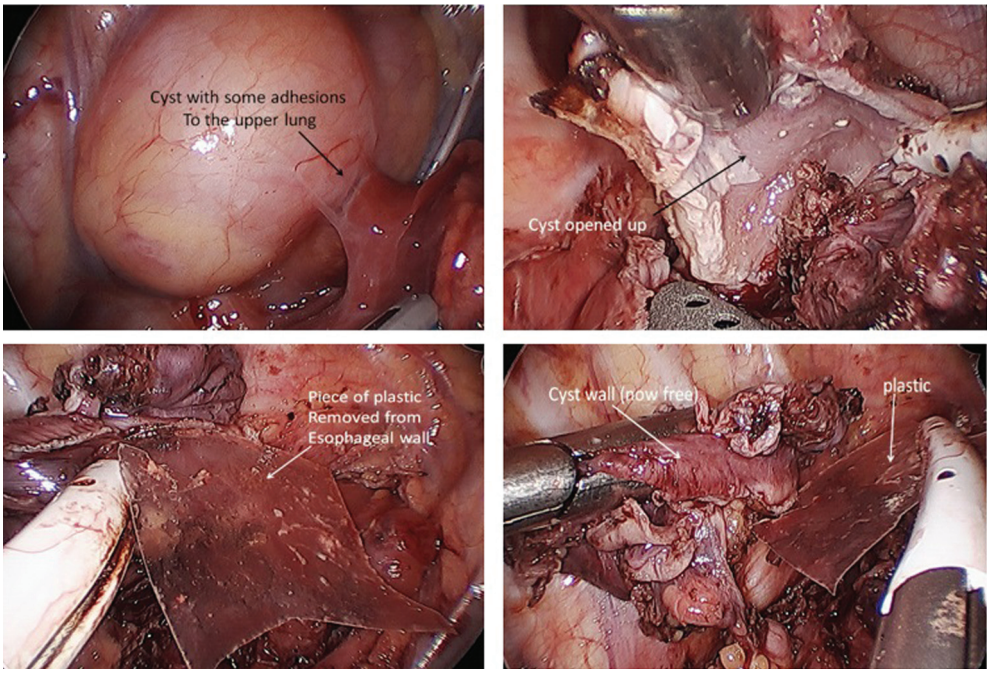

Figure 2. Intraoperative photographs. An approximately 5-cm inflammatory mass was identified over the lateral aspect of the esophagus. In the process of the dissection, the cyst was opened and within the wall of the mass/wall of the esophagus a square centimeter of rigid plastic sheet was identified, consistent with a swallowed foreign body that had partially eroded out of the esophagus, causing the inflammatory mass and resulting in the mass effect on her trachea. The foreign body was removed, and the inflammatory mass was removed. The esophageal wall was then closed.

symptoms with ingestion, in which cases the diagnosis is suspected on the basis of patient history.[3] Patients present in the first 24 hours 62% of the time. In the acute setting, most children have gastrointestinal symptoms, such as drooling and dysphagia. In chronic esophageal foreign bodies that have been present for >7 days, 76% of patients present

with respiratory symptoms. Patients with esophageal foreign bodies have abnormal chest radiograph results 82% to 90% of the time, while about 50% of esophageal foreign bodies are radio opaque. Typically, patients have immediate symptoms of mediastinitis when foreign bodies penetrate the esophagus. This case highlights many of the signs, symptoms, and diagnostic modalities for the workup of pediatric patients with stridor. The astute otolaryngologist should be ever vigilant to the diagnostic possibilities in any child presenting with stridor.

Author Contributions

Jonathan Yoon, first author, corresponding author, drafting, design of the work, final approval, accountability for all aspects of the work; **Matthew W. Miller**, drafting, designing the work with Dr. Yoon, revisions, final approval, accountability for all aspects of the work; **Shahab Abdessalam**, drafting, data analysis, final approval, accountability for all aspects of the work; **Dwight T. Jones**, drafting, interpretation of the data, final approval, conception and design of report, accountability for all aspects of the work.

Disclosures

Competing interests: None.

Sponsorships: None.

Funding source: None.

References

1. Moumoulidis I, Gray RF, Wilson T. Outpatient fibre-optic laryngoscopy for stridor in children and infants. *Eur Arch Otorhinolaryngology*. 2005;262:204-207.
2. Turner A, Gavel G, Coutts J. Vascular rings: presentation, investigation and outcome. *Eur J Pediatr*. 2005;164:266-270.
3. Miller RS, Willging JP, Rutter MJ, Rookkapan K. Chronic esophageal foreign bodies in pediatric patients: a retrospective review. *Int J Pediatr Otorhinolaryngol*. 2004;68:265-272.