Archives of Anesthesiology and Critical Care (Mar-Apr 2026); 12(2): 216-220.

Available online at http://aacc.tums.ac.ir

Case Report

Chronic Foreign Body Ingestion Causing Posterior Mediastinal Mass: A Case Report

Nastaran Sadat Mahdavi[1], Javad Ghoroubi[2], Ali Reza Mahdavi[1], Shiva Pourakbari[3], Morteza Mortazavi[3]*

[1]*Department of Anesthesiology, Mofid Children's Hospital, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*

[2]*Department of Surgery, Mofid Children's Hospital, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*

[3]*Shahid Beheshti University of Medical Sciences, Tehran, Iran.*

ARTICLE INFO

Article history:
Received 12 April 2025
Revised 02 May 2025
Accepted 16 May 2025

Keywords:
Posterior mediastinal mass;
Foreign body;
Pediatrics;
Anesthesia;
Thoracotomy

ABSTRACT

Posterior mediastinal masses pose challenges for anesthesiologists due to their compressive nature. The most frequently used surgical approach is thoracotomy and anesthesia involves awareness of potential complications and airway management strategies. Among different types of foreign bodies (FBs), the esophageal FBs are one of the most common pediatric emergencies among infants and young children and the proximal part is the most common site. Presentation can range from being asymptomatic to symptoms such as vomiting, dysphagia, and drooling, or respiratory issues like coughing, wheezing, choking, or stridor. In this report, we present a case of a posterior mediastinal mass in a child with a history of respiratory disorders and multiple treatment courses.

Introduction

Posterior mediastinal masses pose challenges for anesthesiologists due to their substantial compression of surrounding structures, which can lead to cardiorespiratory symptoms [1]. These masses show variable presentation, from an incidentally diagnosed mass to large compressing masses that compress the tracheobronchial tree and cause recurrent pneumonia [2]. The most commonly employed surgical technique is a posterolateral thoracotomy, which provides excellent exposure and control of the mediastinum, ensuring a safe tumor resection [3]. Due to the rarity of these cases, there are limited prospective trials to help clinicians choose an appropriate anesthesia technique.

When a thoracotomy is performed, anesthesia usually involves general anesthetic agents combined with various analgesic strategies [4]. In contrast, the field of thoracic surgery is witnessing rapid advancements in relevant surgical techniques for children [5]. It is crucial to recognize potential complications, such as cardiac and respiratory arrest, which require immediate attention. Airway management can present challenges, making it essential to allocate and prepare resources accordingly [6].

In this report, we present a case of a posterior mediastinal mass in a child with a history of respiratory disorders and multiple treatment courses.

Case Report

A 3.5-year-old 10kg weighted female patient with a history of chronic respiratory disorders was presented to Mofid Children's Hospital in Tehran, Iran. The patient's parents reported a chronic history of allergy-like symptoms, managed with multiple anti-allergic

The authors declare no conflicts of interest.

*Corresponding author.
E-mail address: mz.mortazavig@gmail.com

DOI: 10.18502/aacc.v12i2.20964

medications since the age of one, which significantly worsened following a severe cold six months ago. She was referred to another medical center due to symptoms including eating difficulties, drooling, and coughing after consuming cashew nuts. Two days later, the cashew nuts were expelled naturally. A diagnostic fiberoptic examination was performed at that center due to suspicion of foreign body aspiration; however, the results were inconclusive.

After being discharged from the previous center, the patient developed severe dysphagia. A suspicious chest X-ray prompted further radiological investigations (Figure 1), leading to her referral to our center. At our facility, the patient was scheduled for fiberoptic bronchoscopy.

Figure 1- Primary suspicious CXR

In the operating room, anesthesia was induced inhalationally using sevoflurane combined with intravenous (IV) fentanyl (1micg/kg), with spontaneous breathing maintained throughout the procedure. The results revealed severe tracheal narrowing, as shown in (Figure 2).

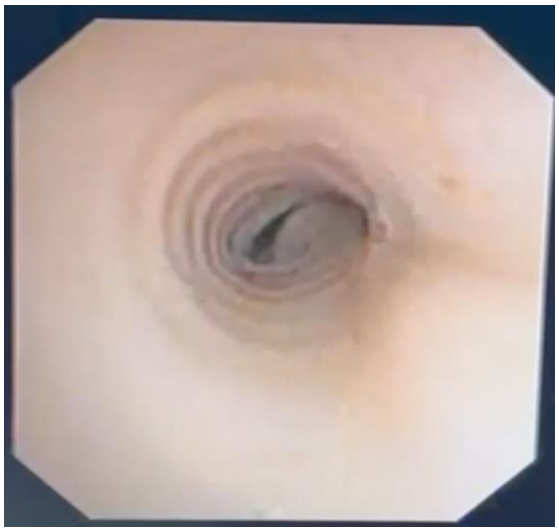

Figure 2- Severe tracheal narrowing in bronchoscopic investigation

Patient admitted to pediatric intensive care unit (PICU) for optimal post-operational monitoring. Subsequently, a barium swallow study was conducted, demonstrating severe narrowing in the proximal portion of the esophagus (Figure 3).

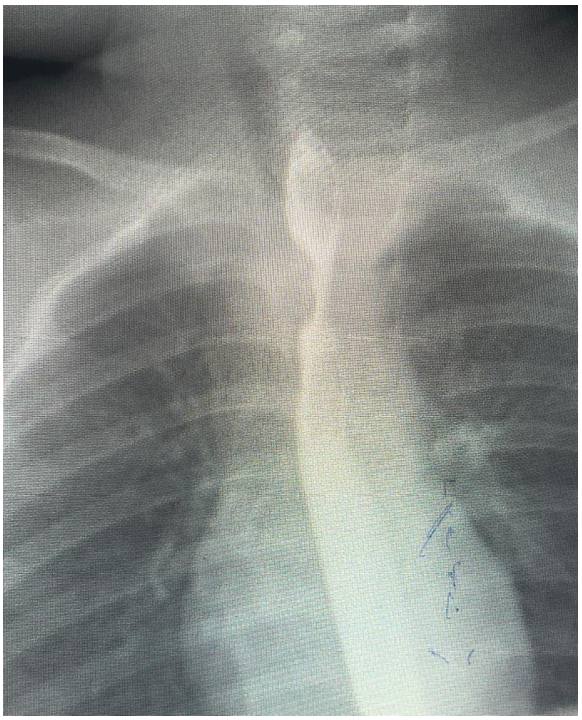

Figure 3- Barium swallow study showing severe narrowing in proximal portion of esophagus

A chest CT scan (Figure 4) further confirmed the presence of a posterior mediastinal mass, and the patient was scheduled for elective resection of the mass.

Figure 4- Posterior mediastinal mass in CT scan

The night before the surgery, the patient was evaluated by the anesthesiologist, who thoroughly explained the

risks of the procedure to her parents. Following the discussion, informed consent was obtained, and the routine fasting protocol was outlined. On the day of the procedure, the patient was brought to the operating room, and after establishing routine monitoring equipment, anesthesia induction was performed through a 22-gauge IV access in the right hand using 1mg of IV midazolam, 2 mcg/kg of IV fentanyl, and 40 mg of IV propofol while maintaining the patient's spontaneous breathing. A 4.5 mm uncuffed armored tracheal tube was placed without complications. Once proper ventilation was confirmed, 2 mg IV cisatracurium was administered as a muscle relaxant. Additional access was then established with a 20-gauge IV line in the left hand and a 20-gauge radial arterial line.

The patient was positioned in the left lateral decubitus position with careful consideration for proper alignment and support. A two-hour-long right-sided thoracotomy was performed, resulting in the successful resection of a granulomatous tissue formation caused by a chronic perforation in the posterior portion of the proximal esophagus, diagnosed as a trachea-esophageal fistula. This perforation was attributed to a small plastic artificial flower (Figure 5) ingested by the patient long ago. The granulomatous mass was successfully excised, and a chest tube was placed. The patient's hemodynamic status remained stable throughout the procedure. Extubation was uneventful, and the patient was transferred to the ICU for postoperative care.

Figure 5- Chronic esophageal foreign body

Discussion

Foreign bodies (FBs) are more prevalent in the pediatric population, particularly among those under 5 years of age, accounting for an average incidence of 7.9% to 9.5% of emergency otorhinolaryngological cases [7-9]. Due to the curious nature of children, the prevalence of these complaints varies between 57% and 80% [10]. Mostly, children with psychological disorders and those with congenital malformations are more prone to FBs [11].

Among different types of foreign bodies, the esophageal FBs are one of the most common pediatric emergencies among infants and young children (between 6 months and 3 years of age) [12]. Previous epidemiologic investigations demonstrate that coins are the most ingested objects [13-14]. The most significant factors influencing the passage of a foreign body include its initial location, size, and the presence of underlying esophageal disease [15]. The proximal part of the esophagus is the most frequent location for foreign bodies, and the presentation can vary from being asymptomatic to exhibiting symptoms such as vomiting, dysphagia, and drooling, or respiratory issues like coughing, wheezing, choking, or stridor [16]. Recently, there has been a rising number of children arriving at hospitals due to foreign body ingestions, often resulting in more severe and fatal outcomes [17-18]. 10%–20% of ingested foreign bodies require endoscopic removal, and only 1% necessitate an open surgical approach for removal, while 80–90% of them pass uneventfully [19-20]. Chronic foreign body ingestion is a rare condition (6-23.5% in the literature) that is defined as impaction lasting one week or longer [21] and may be associated with a preexisting congenital esophageal stricture in children [22].

In this report, we presented a rare case of granulomatous mass formation in the posterior mediastinum caused by a neglected ingested foreign body. Two sessions of anesthesia were performed using different techniques, adhering to the specific considerations required for airway management in patients with tracheal narrowing.

Doolin reported a case of a 6-year-old child with a one-year history of a missed impacted esophageal foreign body, which was managed with endoscopic removal followed by cervical approach esophagoplasty for esophageal stricture with pseudodiverticulum [23]. In 2015, Sannananja and colleagues reported a case of foreign body ingestion that presented with acute symptoms after 20 years. Similar to our study, the hypersensitivity reaction to the foreign body resulted in granuloma tissue formation in this case [24]. In 2017, Yahyaoui and colleagues presented a six-month-old boy who presented with a three-month history of respiratory symptoms with external compression of the trachea

during flexible bronchoscopy. The infant forced out a pistachio shell after a chest physiotherapy session [25]. Tashtush and colleagues in 2019 reported a case of a 36-month-old girl experiencing solid food dysphagia and regurgitation, which was found to be secondary to esophageal stricture following 26 months of accidental ingestion of an aluminum can tab that had migrated through the wall of the upper esophagus into the mediastinum [26].

In 2022, Darwish reported a rare case of a 72-year-old male with a mediastinal mass that developed as a complication of traumatic esophageal perforation during cardiac arrest. The pathology revealed foreign plant material with granuloma formation secondary to food residue as the etiology of the mass [27]. In 2023, Kumar presented a report of a sharp foreign body that was neglected in the upper aerodigestive tract of a 20-month-old female child. Similar to our study, the patient was misdiagnosed and treated for an upper respiratory tract infection. Following radiologic studies, the patient underwent urgent rigid esophagoscopy, and the foreign body was removed without any complications [28].

Conclusion

In conclusion, this case highlights the potential complications of a neglected ingested foreign body, which in this instance led to the formation of a granulomatous mass in the posterior mediastinum and tracheal narrowing in a pediatric patient. Through careful preoperative assessment, strategic anesthetic planning, and meticulous surgical intervention, the patient underwent successful mass resection without significant complications. This case underscores the importance of early diagnosis and tailored anesthetic and surgical management in similar scenarios, particularly in pediatric patients with airway challenges. It also emphasizes the need for heightened awareness of foreign body ingestion and its potential long-term complications.

References

[1] Tempe DK, Datt V, Virmani S, Tomar AS, Banarjee A, Goel S, et al. Aspiration of a cystic mediastinal mass as a method of relieving airway compression before definitive surgery. J Cardiothorac Vasc Anesth. 2005;19(6):781-3.

[2] Toda N, Murakami N, Ando T, Kokubo M, Kurosawa S, Kato M. Anesthetic management in two infants undergoing hemilaminectomy for giant mediastinal neuroblastoma. Masui. 2007;56(2):158-62.

[3] Demiroz SM, Sayan M, Celik A. Giant tumors of the posterior mediastinum: a narrative review of surgical treatment. Mediastinum. 2022;6:36.

[4] Bersot CDA, Pires HL, Pereira LFG, Linhares RM, Puntel VM, Quintão VC, et al. Anesthetic management of pediatric patients with large posterior mediastinal tumor–a systematic review and two case reports. Perioper Anesth Rep. 2024;2:0-.

[5] Song P, Josten NJ, Cheng AM. Posterior Mediastinal Mass Resection Requiring Venoarterial and Venovenous Extracorporeal Membrane Oxygenation Support. J Cardiothorac Vasc Anesth. 2022;36(4):1127-31.

[6] Hartigan PM, Karamnov S, Gill RR, Ng J-M, Yacoubian S, Tsukada H, et al. Mediastinal masses, anesthetic interventions, and airway compression in adults: a prospective observational study. Anesthesiology. 2021;136(1):104-14.

[7] Hssaine K, Belhoucha B, Rochdi Y, Nouri H, Aderdour L, Raji A. Foreign bodies in ENT: Ten-year experience. Pan Afr Med J. 2015;21:91-.

[8] Mangussi-Gomes J, Andrade JSCd, Matos RC, Kosugi EM, Penido NdO. ENT foreign bodies: profile of the cases seen at a tertiary hospital emergency care unit. Braz J Otorhinolaryngol. 2013;79:699-703.

[9] Bakhshaee M, Hebrani P, Shams M, Salehi M, Ghaffari A, Rajati M. Psychological status in children with ear and nose foreign body insertion. Int J Pediatr Otorhinolaryngol. 2017;92:103-7.

[10] Iseh K, Yahaya M. Ear foreign bodies: Observations on the clinical profile in Sokoto, Nigeria. Ann Afr Med. 2008;7(1):18-23.

[11] Schuldt T, Großmann W, Weiss NM, Ovari A, Mlynski R, Schraven SP. Aural and nasal foreign bodies in children–Epidemiology and correlation with hyperkinetic disorders, developmental disorders and congenital malformations. Int J Pediatr Otorhinolaryngol. 2019;118:165-9.

[12] Gatto A, Capossela L, Ferretti S, Orlandi M, Pansini V, Curatola A, Chiaretti A. Foreign body ingestion in children: epidemiological, clinical features and outcome in a third level emergency department. Children. 2021;8(12):1182.

[13] Jayachandra S, Eslick GD. A systematic review of paediatric foreign body ingestion: presentation, complications, and management. Int J Pediatr Otorhinolaryngol. 2013;77(3):311-7.

[14] Tadesse A, Feyo A. Management of Ingested Foreign Bodies in Paediatric Patients: An Experience from a Tertiary Hospital in Ethiopia. East Cent Afr J Surg. 2014;19(1):11-6.

[15] Lee JH, Lee JS, Kim MJ, Choe YH. Initial location determines spontaneous passage of foreign bodies from the gastrointestinal tract in children. Pediatr Emerg Care. 2011;27(4):284-9.

[16] Glover P, Westmoreland T, Roy R, Sawaya D, Giles H, Nowicki M. Esophageal diverticulum arising from a prolonged retained esophageal foreign body. J Pediatr Surg. 2013;48(2):e9-e12.

[17] Jatana KR, Litovitz T, Reilly JS, Koltai PJ, Rider G, Jacobs IN. Pediatric button battery injuries: 2013 task force update. Int J Pediatr Otorhinolaryngol. 2013;77(9):1392-9.

[18] Litovitz T, Whitaker N, Clark L, White NC, Marsolek M. Emerging battery-ingestion hazard: clinical implications. Pediatrics. 2010;125(6):1168-77.
[19] Kay M, Wyllie R. Pediatric foreign bodies and their management. Curr Gastroenterol Rep. 2005;7(3):212-8.
[20] Meltzer L. Ileocolic perforation secondary to disk battery ingestion in a dog. J Am Anim Hosp Assoc. 2018;54(5):e545-01.
[21] Miller RS, Willging JP, Rutter MJ, Rookkapan K. Chronic esophageal foreign bodies in pediatric patients: a retrospective review. Int J Pediatr Otorhinolaryngol. 2004;68(3):265-72.
[22] Ekim H. Management of esophageal foreign bodies: A report on 26 patients and literature review. East J Med. 2010;15(1):21.
[23] Doolin EJ. Esophageal stricture: an uncommon complication of foreign bodies. Ann Otol Rhinol Laryngol. 1993;102(11):863-6.
[24] Sannananja B, Shah HU, Badhe PV. Chronic retained esophageal foreign body masquerading as a mediastinal mass. Med J Dr DY Patil Vidyapeeth. 2015;8(3):380-2.
[25] Yahyaoui S, Jahaouat I, Brini I, Sammoud A. Delayed diagnosis of esophageal foreign body: A case report. Int J Surg Case Rep. 2017;36:179-81.
[26] Tashtush NA, Bataineh ZA, Yusef DH, Al Quran TM, Rousan LA, Khasawneh R, et al. Ingested sharp foreign body presented as chronic esophageal stricture and inflammatory mediastinal mass for 113 weeks: Case report. Ann Med Surg (Lond). 2019;45:91-4.
[27] Darweesh M, Kullab S, Mansour MM, Mahfouz R, Obeidat AE. Mediastinal Mass Caused by Granulomatous Reaction to Foreign Plant Material Following a Spontaneous Esophageal Rupture. Cureus. 2022;14(7):e26828.
[28] Kumar P, Sachdeva M, Kumar B. Neglected foreign body in esophagus treated as chest infection: a case report. Egypt J Otolaryngol. 2023;39(1):68.