



ANESTHETIC MANAGEMENT OF FOREIGN BODY ESOPHAGUS IN A PEDIATRIC PATIENT: A CASE REPORT

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ABSTRACT

Esophageal foreign bodies (EFBs) are a common emergency issue in pediatrics, and few studies have revealed its clinical features and treatment methods. Accidental foreign body ingestion is commonly encountered in the pediatric population, with a peak incidence between the ages of six months and three years. Since the act may go unnoticed, the child may present late. We report a case of a 17 months old male child with history of persistent cough after ingestion of a piece of wire 7 days earlier who underwent rigid esophagoscopy and foreign body removal under general anesthesia. With team effort, the procedure was successful.

KEYWORDS: Esophageal foreign body, Pediatric, Rigid oesophagoscopy.

INTRODUCTION

Esophageal foreign bodies are a very common emergency for otolaryngologists and often require urgent treatment. Anatomically the narrowest area within the GI tract is the esophagus, making this the commonest site of foreign body impaction. Within esophagus foreign body may lodge in the thoracic inlet, the aortic arch area, or the gastro esophageal (GE) junction. Patients usually present with dysphagia, vomiting, drooling, feeding refusal, neck and chest pain, and large FBs even compressing the airway may present with stridor, wheezing, and respiratory distress. Ingestion of foreign body is particularly common in children and is mainly detected in children less than 5 years of age because young children are prone to putting objects in their mouths and swallowing them.^[1-3] Orsagh^[2] showed that foreign body ingestion had a prevalence of up to 17.9 per 10,000 children in U.S. emergency departments in 2015. The most common Foreign Body is coins, and mostly do not induce serious complications. However, with changes in the types of Foreign Body, such as big toys, batteries, high-powered magnet ingestions, and various other objects that may be sharp or blunt and vary in size, the complications and the risk of death increases among children.^[4] Complaints are often absent in children compared with adults, which may lead to delays in diagnosis and treatment and subsequent complications such as oesophageal perforation, periesophagitis, and mediastinal infection. It is reported in the literature that approximately 1500 people die each year due to

Esophageal Foreign Bodies.^[5] Many foreign bodies pass on their own, but often the easiest and least anxiety-producing decision is to proceed to endoscopic removal among children instead of observation alone.^[6] The most common treatment strategies include rigid oesophagoscopy and Foley catheter balloon extraction.^[6] The choice of treatment modality depends on the characteristics of the foreign body, its composition, size, location, and presenting symptoms.

Each technique has its own unique set of risks and benefits. However, overall data on the adverse events associated with Esophageal Foreign Bodies and the management techniques are still limited.

All children with a history of foreign body ingestion should be evaluated with radiological examinations of the neck, chest, and abdomen. Radiolucent objects require direct visualization or contrast radiographs.^[7]

CASE REPORT

A 17 months old boy weighing 10 Kgs referred case from Rajbiraj, Sagarmatha, Nepal presented to the pediatric emergency room of BPKIHS with history of fever and cough for 7 days.

Pre operatively, he had complaints of fever and cough for 7 days. Fever was mild, intermittent, maximum temperature not recorded, not associated with chills and rigors. Cough was on and off, non productive, no blood

stained sputum. There was no history of noisy breathing, bluish discoloration of mouth, nose and body, no history of choking. The child was playful and feeding was intact. Physical examination revealed pulse rate of 120 beats/min, oxygen saturation of 90% with oxygen via facemask at 6L/min, with respiratory rate of 25 breaths per minute.

The Anterior-posterior (Fig 1) and lateral (Fig2) chest radiograph film showed a radio opaque U shaped esophageal foreign body lodged at the level of the D1-D2 level. He was planned for an emergency rigid esophagoscopy and foreign body removal under general anesthesia.

He was premedicated with injection Glycopyrrolate 0.1 mg intravenous. Inj. Dexamethasone 1 mg intravenous was given. Injection Fentanyl 20 mcg was given intravenously. Inhalational anesthesia was maintained by Sevoflurane. Mapelson F type circuit was used. Induction was done with injection Propofol 30 mg intravenously. Oxygen saturation was maintained at 90 – 95%. Injection Vecuronium 1 mg intravenous was given as muscle relaxant and was intubated with 4 mm cuffed, oral endotracheal tube. Pulse oximetry showed SpO_2 of 97%. Metallic wire of size approximately 2cm (Fig 3) at distance 14 cm from upper central incisor impinging esophageal wall was removed. After the removal of foreign body bleeding was noticed from endotracheal tube. Initially it was red in color. Injection adrenaline (1:1000) 0.5 ml/kg nebulization was done. After nebulization bleeding gradually subsided to sero-sanguinous secretion and then serous secretion on suctioning via endotracheal tube. The child was extubated and shifted to post anesthesia care unit where he was observed for 30 minutes. His vitals were stable with SpO_2 of 98% and then shifted to ward. He was kept nil per oral for 3 days then oral feeding was started and then discharged the next day.



Fig. 1: Anteroposterior view: Radio opaque foreign body in esophagus.

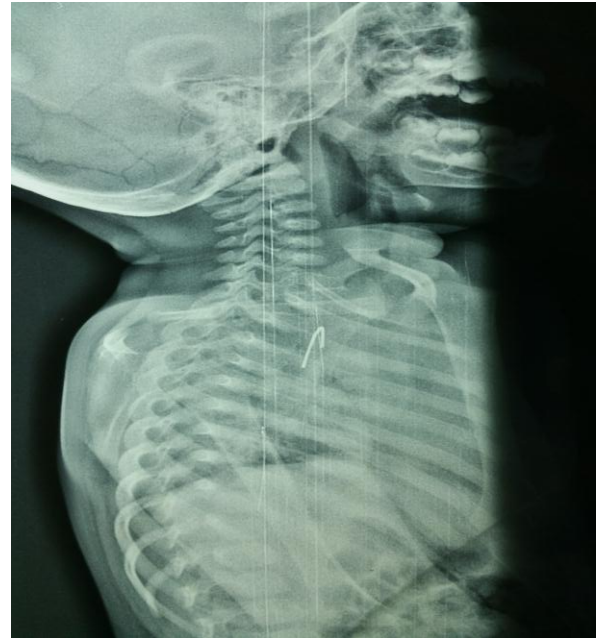


Fig. 2: Lateral view; radio opaque foreign body in esophagus.



Fig. 3: U shaped metallic wire as foreign body.

DISCUSSION

Foreign body ingestion is a potentially serious problem that peaks in children. The common sites of retained esophageal foreign bodies are related to age. Clinical management focuses on identifying and treating the cases at risk for complications, which depends on the location and type of foreign body. Children are more typically have objects entrapped in the upper part of the esophagus at the level of the cricopharyngeus muscle 70%, aortic cross over 20% and lower esophageal sphincter 10% where as adults more commonly have entrapment at the lower esophageal sphincter 60%,

cricopharyngeus muscle 25% and aortic cross over 15%.^[8]

Most children with esophageal foreign bodies are brought to medical attention by their parents. A careful history and physical examination are the keystones in diagnosing an esophageal foreign body and to the prevention of its complications. Imaging can be used to confirm the findings and to localize the site of the foreign body. The diagnostic steps and treatment depend on the patient's symptoms, the shape and location of the foreign body, whether it is radio-opaque, or whether it has magnetic properties.^[8]

Airway and breathing should always be examined first. The physical examination of the neck may reveal swelling, erythema, or crepitus, suggesting that an esophageal perforation has occurred, and surgical consultation is mandatory. The chest examination may reveal inspiratory stridor or expiratory wheezing, suggesting a lodged esophageal foreign body with tracheal compression. The abdominal examination may show evidence of small bowel obstruction or perforation, in which case immediate surgical consultation and abdominal imaging should be obtained.^[9]

The choice of anesthetic technique should be based on a discussion between the surgeon and anesthesiologist. Pediatric airway and esophageal foreign body removal is performed under general anesthesia. Anesthetic induction can be achieved either by inhalation of volatile anesthetic gas or intravenous medications. Anesthesia can then be maintained with spontaneous ventilation or paralysis with control of the airway. This choice is surgeon and anesthesiologist dependent, but should be agreed upon prior to the start of the procedure.

Especially in the case of tracheobronchial foreign bodies, constant and deliberate communication regarding the airway should be maintained between the surgical and anesthesia teams. This situation represents a true "shared airway".^[10]

During our case, proper communication was established between the surgeon and anesthesiologist regarding use of general anesthesia. Anesthesia was maintained with proper premedication, analgesics, induction agent and muscle relaxant. To avoid airway edema due to trauma seen in our case, nebulization with 1:1000 Adrenaline at dose of 0.5 ml/ kg was used.^[12] Patient was extubated after return of spontaneous breathing and consciousness to avoid layngospasm.

A variety of techniques are used to extract foreign bodies from the esophagus or stomach. Rigid esophagoscopy and flexible endoscopy for most foreign body extractions have been used at specialized centers. Magill forceps, Bougienage (passage of a dilator) and Foley catheter has been used in some of the centers to removed foreign bodies like coins.^[11] In our study rigid esophagoscopy

was used to grasp and extract the metallic wire of size approximately 2cm at distance 14 cm from upper central incisor impinging esophageal wall.

CONCLUSIONS

The management of pediatric airway and esophageal foreign bodies carries the potential for morbidity and mortality, and can be challenging to diagnose if an unwitnessed aspiration or ingestion occurs in a young child. The symptoms can be somewhat nonspecific, not easily differentiated from common viral illnesses in children. Clinical decision making based on thorough history and physical examination is critical. Centers with airway surgeons and endoscopists trained in foreign body management, experienced anesthesiologist and with pediatric ICU care are best equipped to manage the most complex cases in the children.

With good preoperative assessment, proper preparation for difficult airway and providing good intraoperative and postoperative analgesia, rigid esophagoscopy and foreign body removal can be easily performed under general anesthesia in pediatrics patients with esophageal foreign body.

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