

CASE REPORT

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Successful endoscopic removal of sewing needle and flat metal: a case report

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Abstract

Emergency gastroenterology evaluations related to complaints of foreign body ingestion are relatively common. Most ingested foreign bodies pass through the gastrointestinal tract (GIT) to be excreted in the feces. But sharp foreign bodies may be difficult to pass naturally without intervention and can cause devastating, risky complications without urgent management. Complications include impaction, fistula formation, perforation, mediastinitis, and sepsis. Here we present a difficult case of esophageal and duodenal foreign bodies effectively removed endoscopically supported with a multi-disciplinary approach.

Keywords Foreign bodies, Perforation, Endoscopy, Overtube, Impaction

Introduction

Foreign body ingestion is common among pediatric and adult populations, more frequent in the former, and foreign bodies can further be categorized as food and non-food. Nonfood foreign body ingestion, a true foreign body ingestion, is more commonly seen in incarcerated adults and adults with psychiatric comorbidities [1]. The ingestion of foreign bodies continues to be a frequent reason for consultation and, in some circumstances, is still considered an emergency in gastroenterology. Esophagogastroduodenoscopy (EGD) is the method of choice as it is diagnostic and therapeutic [2].

Case presentation

An 18-year-old male patient from Addis Ababa, Ethiopia working as a tailor presented with pain and being unable to swallow solid food of five days duration after he had accidentally swallowed a sewing needle while working. His relatives later tried to remove the needle using another small flat metal which later on slipped and stacked in his throat. He had no abdominal pain, swelling or vomiting. He had no cough, chest pain or shortness of breath. On physical examination he appeared quite stable with a blood pressure (BP) of 110/70 mmHg, pulse rate-92 per minute, SaO₂- 96% at room temperature, respiratory rate- 20 breaths per minute, and axillary temperature = 36.9°C. His chest was clear and resonant. There was soft, non-tender abdomen to gentle palpation. Bowel sounds were normoactive.

Laboratory evaluation showed a normal complete blood count (CBC) and serum creatinine level. Erect chest x ray (CXR) and plain abdominal film were done immediately as shown below (Figs. 1 and 2).

The patient was sedated after the anesthesia team was called into action. Titrated doses of intravenous propofol and fentanyl were used. Cardiothoracic surgery team was alerted in case complications would

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Fig. 1 Radiopaque shadow at the prevertebral soft tissue at the level of the thoracic inlet (blue arrow) showing esophageal metallic foreign body at 5th day post ingestion



Fig. 2 Plain abdominal radiograph showing a linear radiopaque shadow (sewing needle) at the left paravertebral region on 5th post ingestion day

happen. Later endoscopy was done at the endoscopy unit showing a flat, rectangular sharp metallic object measuring 2 by 1.6 cm in the proximal esophagus with minimal ulceration over the mucosa. The edge of the metal was abutting the esophageal mucosa. A locally modified overtube was used to retrieve the foreign body using rat-toothed forceps. The endoscope was again advanced to evaluate for bleeding and a needle

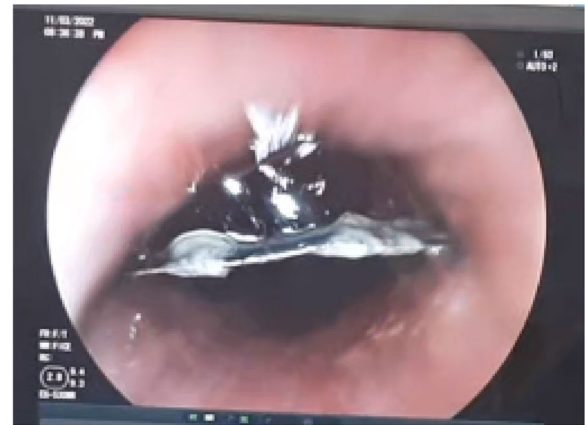


Fig. 3 Endoscopic view, flat metallic object seen at the proximal esophagus



Fig. 4 Flat metallic object-about 2 by 1.2 cm after being removed from the esophagus

was identified at the 3rd part of the duodenum. It was retrieved using the same forceps with the modified overtube in-situ (see Figs. 3, 4 and 5). The patient's vital signs remained stable following the procedure. The plan was to perform a plain abdominal x-ray and a chest X-ray; both were normal following the procedure. The patient was discharged in a stable condition after 2 days of observation at our hospital.

Discussion

Although foreign body ingestions and food bolus impactions in the esophagus are important emergency conditions, the real incidence is unknown. One study from the USA revealed an incidence of 13 out of 100,000 individuals [3]. The majority of ingested foreign bodies will pass spontaneously. Pre-endoscopic series have shown that 80% or more of foreign objects will likely pass without the need for intervention [4].

The most common items swallowed that can cause trouble are coins, food, metal objects, and fishbones. However, foreign body ingestion cases can include all kinds of objects, such as forks, magnets, and nails.



Fig. 5 Sewing needle about 4 cm was removed from the 3rd part of the duodenum endoscopically

Pre-schoolers of both sexes and individuals with mental health issues are in the high-risk group [5]. A complication frequently reported associated with foreign body ingestion is intestinal perforation, which is predominantly caused by fish bones, yet <1% of foreign bodies are actually known to cause perforation. Perforations often present with erythema, crepitus, or tenderness [6].

For radiolucent foreign body entities, computed tomography (CT) may be performed. Magnetic resonance imaging (MRI) is ineffective for detecting FBs [7]. Endoscopy has become the preferred choice to remove FBs not only because it avoids the need for surgery, but because it uses conveniently accessible technical devices and advanced visualization, may simultaneously diagnose other diseases, and is cost efficient in comparison to other methods [8]. The overtube resembles a sleeve-like device, which possesses a diameter that is larger than an endoscope to enable its passage into the esophagus and stomach. Using this method, overtubes protect the digestive mucosa from injury and limit the risk of aspiration. Additionally, they facilitate access for repeated withdrawal and insertion [9].

Emergency endoscopic intervention (within 2 h of arrival) is required for patients with high-grade esophageal obstruction and ingestion of disk batteries or sharp-pointed long objects. Urgent endoscopic intervention (within 24 h of arrival) is needed for esophageal foreign objects that are not sharp-pointed, food impaction without complete obstruction, sharp-pointed objects in the stomach or duodenum, objects longer than 6 cm in length, and magnets within endoscopic reach [10]. Surgical intervention is required in less than 1% of cases. Since endoscopic techniques have progressed, surgery takes more of a background seat. The absolute indication for surgery exists only in case of perforation [11].

Conclusion

We successfully removed sewing needle and a flat metallic object endoscopically assisted by a locally designed wide overtube so that it could pass the foreign bodies easily without significant injury and perforation risks to

the esophagus and duodenum. Evaluation requires bi-directional x-ray of the neck, chest, abdomen and pelvis accordingly. The management of such patients should be emergent with the joint discussion of endoscopists, radiologists, surgeons, and anesthesiologists for best outcomes.

Informed consent

Prior to data collection informed consent was acquired both for case reporting as well as publication after the studies were well explained to the patient.

Authors' contributions

YB-Substantial contributions to the conception, design, drafting and revision of the work. WM-contributions to the conception, design, analysis, drafting and interpretation of data. ZM- contributions to the conception, design, analysis, drafting, and analysis of the work. HS-contributions to the conception, design, analysis, drafting, and analysis of the work. SA-contributions to interpretation, revision, drafting, and analysis of the work.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

This case report has been approved by the Research Ethical review Committee of School of Medicine, Addis Ababa University.

Consent for publication

Written consent was acquired from the patient both for the case report and publication.

Competing interests

The authors declare no competing interests.

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