

Celebration gone wrong: A case of foreign body ingestion related to a military promotion ceremony

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ABSTRACT

Introduction: It has been reported that every year, over 1500 deaths have been attributed to foreign body aspiration in adults. Most foreign body ingestions in adults occur during eating, while in the pediatric population, toys and magnets are the common culprits. Delay in diagnosis is common given that patients may only present with a cough and be mislabeled as having asthma or an upper respiratory infection. As a result, a high index of suspicion for foreign body aspiration must be present to allow for timely identification and treatment. If noted to be in the gastrointestinal tract, endoscopy is often employed due to its reported 95% successful retrieval rate. **Case Report:** We present a case of 26-year-old active duty soldier who was found to have aspirated a foreign object during a promotion ceremony. Urgent endoscopy with a roth net was utilized and successful in removing the object. **Conclusion:** Initial evaluation should focus on the patient's respiratory status to include choking, drooling, wheezing, and bloody saliva to determine if urgent intubation is required for airway protection. While in the past, foreign object removal required a surgical procedure, endoscopy has now stepped up as a suitable non-invasive alternative in many cases.

Keywords: Cough, Foreign body ingestion, Pediatric population, Roth net

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INTRODUCTION

While the annual occurrence of foreign body ingestions is unknown, it has been reported that over 1500 deaths occur yearly. Often, it may be difficult to determine if the patient has a food impaction or foreign body ingestion, with clinical history being an important factor in making this determination. While food impaction may not require emergent treatment, foreign body ingestion is a medical emergency. While in the past, foreign object removal required a surgical procedure, endoscopy has now stepped up as a suitable non-invasive alternative in many cases. As a result, primary care physicians can aid gastroenterologists by identifying the size of the object ingested (based on imaging obtained or patient history), likelihood of esophageal damage (based on shape of object, clinical symptoms), and patient stability (tolerance to generalized anesthesia). With this information, gastroenterologists can then determine which equipment will allow for the safest removal of the foreign object [1–5].

CASE REPORT

History

A 26-year-old male active duty sergeant in the United States Marine Corp., without significant medical history,

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presented to the emergency room for concern of possible foreign body ingestion. Approximately half an hour prior to arrival, he was enjoying the super bowl with family and friends, concurrently celebrating a recent promotion to staff sergeant. He recalled celebrating with friends when he felt a painful sensation in his throat after ingesting a drink.

Clinical Features

The patient denied any history of dysphagia, odynophagia, or coughing prior to this episode. His past medical history was notably absent for allergies, asthma, and autoimmune conditions. He denied any chest pain, nausea, vomiting, hematemesis, or difficulty breathing. He had no features consistent with Raynaud's, clubbing, arthralgias, or dyspnea on exertion. He was tolerating his secretions well. He had eaten approximately 45 minutes prior to arrival to the emergency room.

Investigations

On physical examination, he was in no acute distress and did not appear acutely intoxicated. Oropharynx was unremarkable. Abdomen was soft and non-tender. Chest X-ray obtained in the emergency room showed a radiopaque rank with pin covers intact in the upper esophagus above the level of the sternoclavicular junction (Figure 1). There was no evidence of free air.

Differential Diagnosis

Based on clinical history and imaging, foreign body ingestion was highest on the differential diagnosis. In other cases in which clear clinical history or imaging is not definitive, differential for symptoms such as dysphagia, odynophagia, and coughing includes eosinophilic esophagitis, esophageal stricture, esophageal adenocarcinoma, and esophageal perforation among others as applicable.

Treatment

The gastroenterology service was consulted for removal of the foreign body. Under general anesthesia, an esophagogastroduodenoscopy (EGD) was performed which revealed a foreign body in the upper third of the esophagus resembling an E6 rank (Figure 2). Given intact pin covers, a Roth net removal was employed. Initial removal attempt resulted in progression of the pin to the gastric lumen. The standard EGD scope was switched out for a "clot buster" to aid in suctioning of significant gastric contents that were present. This aided in better visualization of the pin. Roth net was then again used and the pin was successfully removed intact (Figure 3). Post-procedural chest X-ray showed interval removal of foreign body.

Outcome and Follow-Up

The patient did clinically well and was discharged home. Over the following year, he had no further admissions to the hospital for foreign body aspiration.



Figure 1: Chest X-ray obtained in the emergency room revealing radiopaque rank with pin covers intact in the upper esophagus.

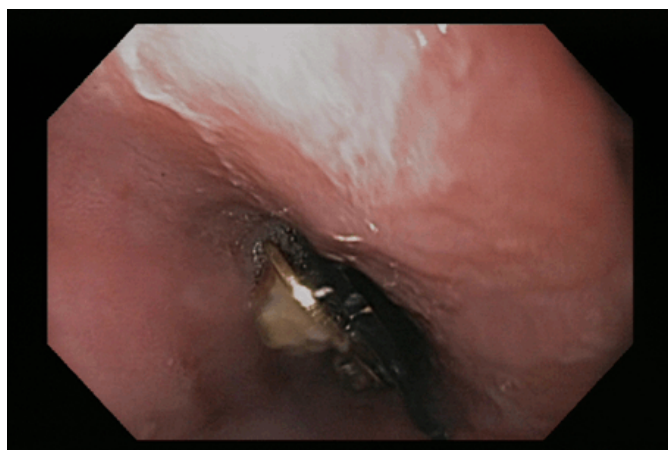


Figure 2: Foreign body identified in the upper third of the esophagus.

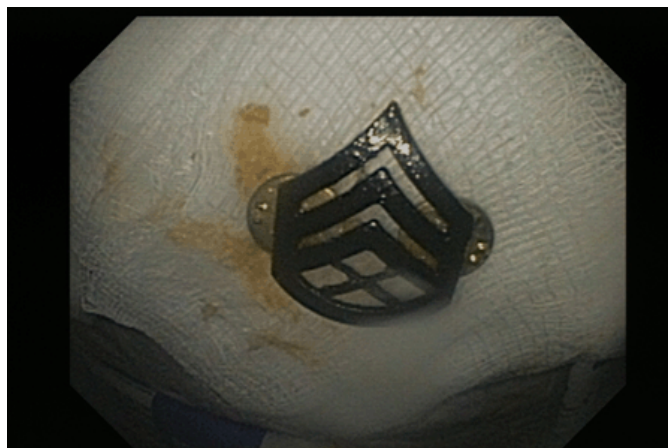


Figure 3: Insignia removed intact with roth net.

DISCUSSION

While the annual occurrence of foreign body ingestions is unknown, it has been reported that over 1500 deaths occur yearly [1]. The type of ingestion correlates with the age of the patient. In children, bodies consist of anything placed in the mouth such as aluminum can tops or batteries [6]. With a lifestyle that now commonly involves alcohol, college age students are likely to ingest objects related to drinking-related games [6]. No matter the age group, foreign body ingestion can represent medical emergencies and require definitive management with endoscopy to prevent further complications [7].

History is crucial to differentiate food impaction from foreign body aspiration. Past medical history can be helpful as patients with a history of autoimmune disease, allergies, or asthma are more prone to food impactions as recent data has shown an increasing prevalence of eosinophilic esophagitis [8]. If the patient does not recall ingestion of an object, they may present with vague symptoms such as the inability to swallow, cough, hemoptysis, and chest pain [6, 9]. Initial evaluation should focus on the patient's respiratory status to include choking, drooling, wheezing, and bloody saliva to determine if urgent intubation is required for airway protection [10]. Evidence of neck swelling and/or crepitus should increase suspicion for perforation and plain films done prior to endoscopy may aid in localization of the foreign body and evaluate for free air which would necessitate surgical intervention. Radiographic examination with contrast should be avoided if possible as barium could lead to mediastinitis if perforation is present [10]. Labs are generally not required unless active bleeding or infection is suspected.

Equipment

While in the past, foreign object removal required a surgical procedure, endoscopy has now stepped up as a suitable non-invasive alternative in many cases. Depending on the character of the object and patient stability, timing of the procedure differs. Emergent intervention within 24 hours is recommended in cases with high risk for perforation (disk batteries in the esophagus, items with sharp-pointed edges), evidence of airway compromise, and patient distress [11–13]. Nonurgent-endoscopy applies to blunted esophageal objects, food impactions without complete obstruction, magnets, and coins in an asymptomatic patient [10].

Rigid Endoscopy

As in the case above, most scenarios can be managed with a flexible endoscope given its reported success rate to be as high as 86% [9]. However, if plain films show impaction at the upper esophageal sphincter or in the upper pharyngeal area, or the ingestion is thought to be long-standing leading to the development of granulation tissue and wall adhesion, rigid endoscopy should be considered [9, 14].

Overtubes

In an adult, if plain films or clinical suspicion reveals multiple objects or any items with sharp edges, overtubes can be utilized for multiple purposes to include: protection of the esophagus during object removal, preventing aspiration, gastrointestinal tract decompression, among others [13, 15]. Overtubes are flexible tubes that are placed over the endoscope to prevent damage to the esophagus and trachea upon removal of the foreign object. They can also be used when piecemeal removal of food boluses is required and avoid the need for multiple intubations. Given the risk for damage during their insertion, they are rarely used in the pediatric population [14].

Roth Net

Retrieval nets are composed of a piece of mesh attached to the end of a snare, which, upon opening, creates a basket to retrieve an object. They are commonly used to retrieve smaller objects such as tissue fragments and batteries. For this patient, given that the pins had retained dammits, overtube use was deferred (given the low risk for surrounding mucosal damage) a roth net was deployed.

Other Options

If the foreign object progresses to the small intestine, single and double balloon enteroscopy, used concurrently with overtubes, can be utilized to obtain retain the very video capsules that are used for non-invasive small bowel investigation [15, 16]

The patient was counseled on the importance of checking his drinking glass prior to oral ingestion of its contents. He kept his rank pin and used it the following week during his promotion ceremony.

CONCLUSION

In conclusion the type of ingestion correlates with the age of the patient. No matter the age group, foreign body ingestion can represent medical emergencies and require definitive management with endoscopy to prevent further complications. History is crucial to differentiate food impaction from foreign body aspiration. Past medical history can be helpful as patients with a history of autoimmune disease, allergies, or asthma are more prone to food impactions as recent data has shown an increasing prevalence of eosinophilic esophagitis. Initial evaluation should focus on the patient's respiratory status to include choking, drooling, wheezing, and bloody saliva to determine if urgent intubation is required for airway protection. While in the past, foreign object removal required a surgical procedure, endoscopy has now stepped up as a suitable non-invasive alternative in many cases.

Author Contributions

Jacob Mathew – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Calvin Parker III – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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