

Swallowed Dental Bridge Refractory to Endoscopic Removal

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Abstract

Foreign body ingestion is a common issue that gastroenterologists face in clinical practice and a common cause of emergent endoscopy. While most foreign objects pass through the alimentary tract, some objects often require immediate attention and removal. The presentation and properties of these items can help guide clinical practice when routine solutions fail.

Introduction

Foreign body ingestion (FBI) is a frequent emergency that can result in significant morbidity and potential mortality if not treated promptly and adequately. While a vast majority of ingested objects will pass through the gastrointestinal tract with minimal complications, up to 20% can become lodged and require intervention, with less than 1% requiring surgical evaluation and intervention. We present a case of blunt object ingestion with impaction refractory to endoscopic removal.

Case Report

A 66-year-old Hispanic man with a medical history of coronary artery disease status-post coronary artery bypass graft, diabetes mellitus, hypertension, and dyslipidemia presented for complaints of dysphagia and feeling a lump in his throat of one-day duration. He denied any other symptoms, tobacco, alcohol, or illicit drug use. On presentation, vital signs were within normal limits. Examination of the oropharynx did not demonstrate oropharyngeal erythema, edema, obvious deformity, or lesions. The trachea was midline with no areas of prominence. Chest X-ray did not demonstrate a mass that could contribute to his symptoms. Computed tomography (CT) of the neck without contrast showed mild inflammatory changes in the region of the upper esophagus at the level of the thoracic outlet as well as a 1.1 cm round soft tissue density outlined by hyperdense fluid

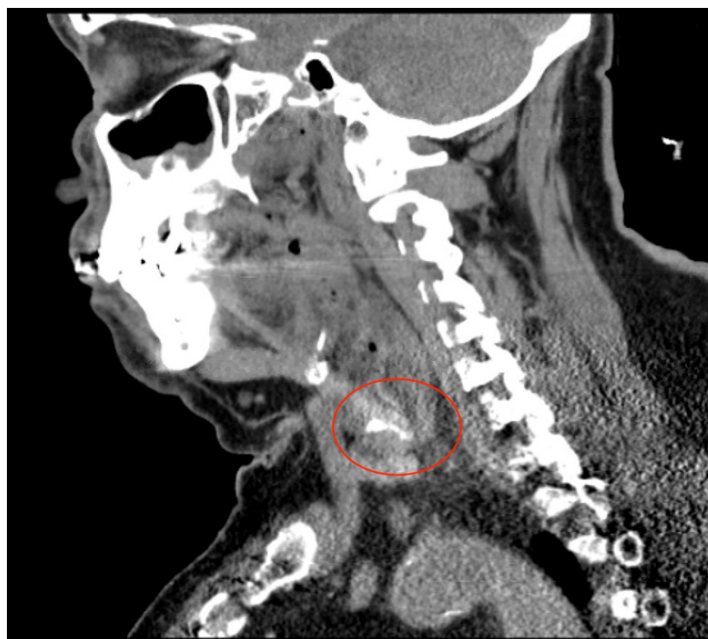


Figure 1: Sagittal computer tomography (CT) scan of the swallowed dental bridge.

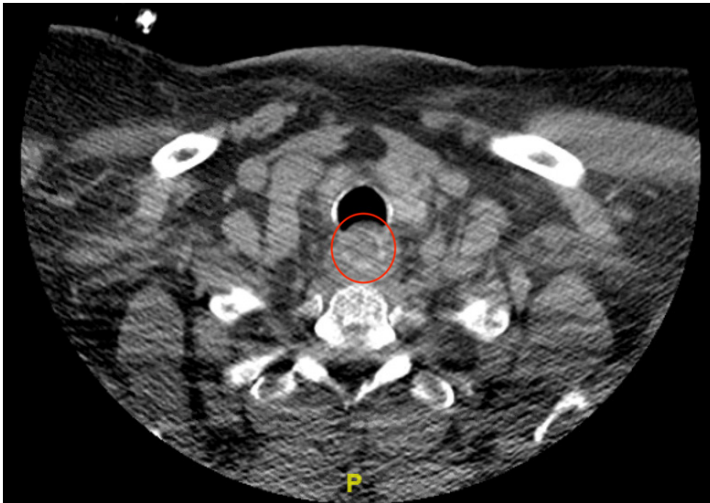


Figure 2: Axial computer tomography (CT) scan of the swallowed dental bridge.

There was no pneumoperitoneum. On further questioning, the patient endorsed swallowing his dental bridge a few hours before symptom onset. Esophagogastroduodenoscopy (EGD) demonstrated a small mucosal laceration in the proximal esophagus with distal discoloration consistent with esophagitis. Due to the inability to traverse a narrow proximal esophagus using both adult and a pediatric endoscopes, the procedure was terminated. An upper gastrointestinal series performed showed dysmotility of the mid and lower thoracic esophagus but no filling defect, stricture, or foreign body. A repeat EGD was able to visualize the foreign body, however, removal of the dental bridge was unsuccessful.

Surgical evaluation was pursued due to repeated failure in procuring the foreign object, and rigid esophagoscopy with a pediatric esophagoscope was utilized to locate the foreign body. Visualization demonstrated proximal esophageal erythema, edema and foul-smelling exudate as well as a swollen bulge in the proximal esophageal mucosa that prevented previous attempts of removal. After dilation with the pediatric esophagoscope, an adult esophagoscope was successfully inserted and the dental bridge was removed smoothly as a unit. The pediatric esophagoscope, re-inserted to visualize for any resultant damage to the esophagus, did not demonstrate any further abnormalities. No post-operative x-rays were taken.

Discussion

FBI is a frequent cause of emergent endoscopy with over 100,000 cases reported in the United States annually. Of these, about 80% occur in children with coins being the most frequently ingested items. In adults, FBI occurs frequently in patients with psychiatric disorders, developmental delays, alcohol intoxication, and neurological disease that impairs the pharyngeal reflex (1).

Impacted meat or food bolus is the most commonly encountered foreign body, but articles such as dentures can be ingested in elderly patients with reduced oral mucosa sensation and poor control of laryngeal muscles. The esophagus is the most common site of obstruction; with areas of physiologic narrowing such as the upper

esophageal sphincter, the region of the aortic arch and diaphragmatic hiatus the most likely location.

The majority of patients present symptomatically with dysphagia, odynophagia, wheezing, drooling, vomiting, or respiratory distress (2). More dangerous complications include esophageal perforation, obstruction, or fistula formation. Patients with perforation can present with tenderness to palpation of the sternocleidomastoid muscle, crepitus, or an acute surgical abdomen. While obstructed patients can present with classic obstipation, nausea and vomiting are common. The symptoms of patients with fistula formation largely depend on the anatomic location of the tract (3, 4). The European Society of Gastrointestinal Endoscopy (ESGE) guidelines recommend that asymptomatic patients with ingestion of blunt and small objects (except batteries and magnets) can avoid endoscopy (5). However, in a high proportion of cases, the patient is unsure if the object is blunt or sharp. Given that potential complications of FBI are severe, endoscopic evaluation and therapy are beneficial as the first-line approach in the majority of patients with FBI because it can remove the foreign body, prevent complications (namely late complications such as fistulization and abscess), and can also have a reassuring effect (6).

Imaging studies can often confirm a suspected diagnosis and help determine whether the item has passed, although radiolucent items such as wood, glass, thin metal, and plastic may not be visualized on radiographs (7). The use of radiocontrast agents is contraindicated due to the risk of aspiration, perforation, and complication of future endoscopic evaluation. If radiography is inconclusive, a CT scan may be pursued for further evaluation; however, this modality is also limited by the composition of the item. Persistent symptoms should be confirmed by upper endoscopy, even in the setting of negative radiography (8).

Endoscopic management depends on the characterization of the item ingested. Most commonly, food impaction is treated with either retrieval or advancement of the bolus into the stomach. With advancement, the esophagus distal to the bolus should be examined before advancement. Similarly, short blunt items, such as dentures, should either be retrieved or advanced into the stomach, utilizing a similar technique as described for impacted food boluses. In patients with items unable to be managed endoscopically, a surgical referral may be warranted, with treatment options including incision and removal through the sternocleidomastoid. Tracheostomy and bilateral drainage are rarely necessary (9).

Our case illustrates an FBI with imaging evidence of impaction that was not amenable to endoscopic intervention. This is an uncommon occurrence as more than 90% of FBI cases encountered can be treated successfully and safely by endoscopic therapy. Further studies would be beneficial to identify the best approach to cases of failed endoscopic intervention.

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