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Unrecognized foreign bodies in the gastrointestinal tract of developmentally delayed children: A case series

Devin R. Halleran [a,*], Manoochehr Karjoo [b], Mirza Bedar Bakht Beg [b], Tossaporn Seeherunvong [b]

[a] SUNY Upstate Medical University College of Medicine, 750 East Adams St., Syracuse, NY 13210, USA
[b] SUNY Upstate Medical University, Department of Pediatric Gastroenterology, Suite 501, Physicians' Office Building, 725 Irving Ave., Syracuse, NY 13210, USA

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ABSTRACT

Foreign body ingestion is very common in the pediatric population. Children with developmental delay are at an increased risk of foreign body ingestion for several reasons, including poor gross and fine motor control, prolonged oral phase, oral and pharyngeal dysphagia, impaired protective mechanisms, and difficulty communicating. Four patients between the ages of 3 and 18 years old with developmental delay presented with nonspecific gastrointestinal and pulmonary symptoms. Foreign bodies along the upper gastrointestinal tract were identified as the cause of these symptoms, and all four patients improved after endoscopic retrieval. A high index of suspicion should be had even in the absence of findings on routine imaging. Once symptoms are displayed, clinicians should aim to endoscopically or surgically remove the foreign body, depending on the location along the gastrointestinal tract.

Foreign body ingestion is a common problem faced by pediatricians and presents a diagnostic challenge for the clinician. Infants and children are often asymptomatic, but when symptoms are present they can be non-specific. Children with developmental delay are at an increased risk for both foreign body ingestion and subsequent complications. Furthermore, symptoms can be attributed to the underlying disease, causing a delay in diagnosis. Herein we report four patients with developmental delay who presented with unrecognized foreign bodies in the gastrointestinal tract. The aim of this report is to warn the clinician that children with congnitive dysfunction should be evaluated for foreign body ingestion if presenting with a new onset feeding problem, weight loss, repeat respiratory disease, discomfort, or abdominal pain. When diagnosed with symptoms, expeditious plans to remove the foreign body should be made.

1. Case presentations

1.1. Case 1

An 18 year old female with underlying severe developmental delay of unknown etiology was admitted to the hospital because of feeding difficulty, food refusal, and 14 pound weight loss over the preceding several months. The patient refused feeding while in the hospital. We were consulted for insertion of a gastrostomy tube. Initial physical examination revealed a severely delayed female with significant wasting. She had severe scoliosis. The abdominal examination was unremarkable. Upper endoscopy prior to PEG placement revealed a normal esophagus and stomach, but discovered a long foreign body in the duodenum (Fig. 1). It was noted to be a fully intact toothbrush. The toothbrush was removed endoscopically with alligator forceps without complication. Three months after her hospital discharge she demonstrated good weight gain and no refusal of feeding.

1.2. Case 2

A 17 year old female with trisomy of chromosome 14q, developmental delay, and seizure disorders presented with multiple episodes of gagging and repeat episodes of pneumonia of six months duration. She was status post tracheostomy tube and Nissen fundoplication. She was fed only through the gastrostomy tube. We were consulted to evaluate for possible ongoing gastroesophageal reflux. An attempt to insert a pH probe as an outpatient study was unsuccessful. An upper endoscopy was performed in the operating room which uncovered a water bottle cap in the body of the esophagus (Fig. 2). Attempts to remove the cap through the mouth

* Corresponding author. Tel.: +1 315 450 0410 (mobile).
E-mail address: devinrhalleran@gmail.com (D.R. Halleran).

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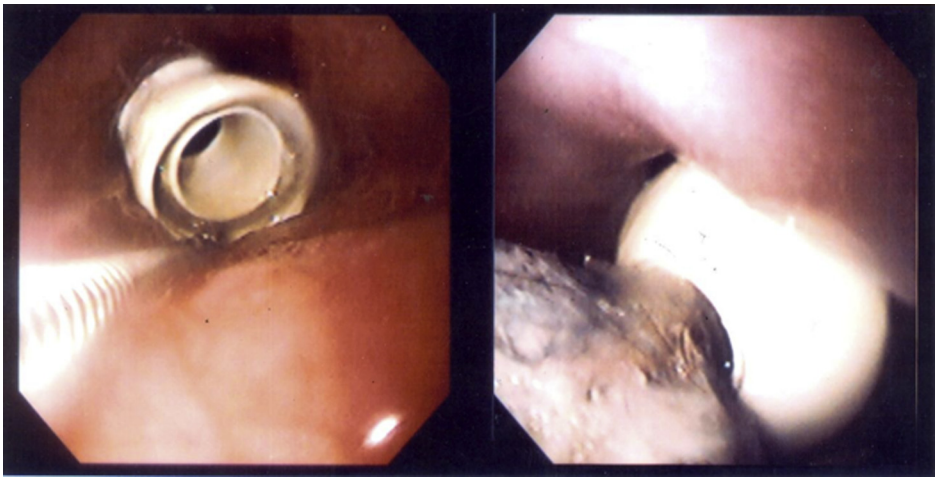

Fig. 1. Right and left, water bottle cap identified in the mid-esophagus with food debris on upper endoscopy.

were unsuccessful. We were able to push the cap into the stomach with some difficulty due to the previous Nissen fundoplication. After making a small incision at the gastrostomy site, the water bottle cap was removed endoscopically with no complication.

1.3. Case 3

A 14 year old developmentally delayed female presented with swallowing difficulties, poor oral intake, and irritability for two weeks. Her mother was suspicious that she swallowed a foreign body and mentioned that one of her sister's earrings was missing. Chest radiography revealed an earring located above the gastroesophageal junction. Endoscopy demonstrated some food packed with an earring at the same location. The esophageal lumen was almost completely obliterated. The earring was removed successfully. Re-endoscopy showed bilateral erosion and some inflammation of the esophageal mucosa at the level where the earring was lodged. She was seen one week after her discharge and her mother reported the swallowing difficulties had resolved.

1.4. Case 4

A 3 year old female with cerebral palsy, feeding difficulties, and gastrostomy tube feeding presented with on and off severe abdominal discomfort. She could not express the location of pain due to her underlying cognitive dysfunction. Her mother thought that the patient had abdominal pain because she would rub her stomach during the episodes of discomfort. Upper endoscopy revealed a barrette in the body of the stomach which was removed successfully. She remained asymptomatic after removal of the foreign body.

2. Discussion

Foreign body ingestion (FBI) is a commonly encountered problem in the pediatric population, as placing objects in the mouth is part of the normal interaction of a growing child with the world. Of the approximately 100,000 reported cases in the United States each year, nearly 80% occur in children, most of whom are between 6 months and 3 years of age [1,2]. Risk factors for FBI include rounded objects (esophageal impaction), the presence of social, developmental, or psychiatric risk factors, and esophageal disease. The incidence of foreign body ingestion in children who have psychosocial risk factors may be as high as 29.6% [3]. This high risk may be explained by associated abnormal behavior such as pica [4,5] and self mutilation [6]. Coins represent the most commonly identified foreign body [7], although nearly any object that can be swallowed presents a danger. While most objects pass spontaneously without

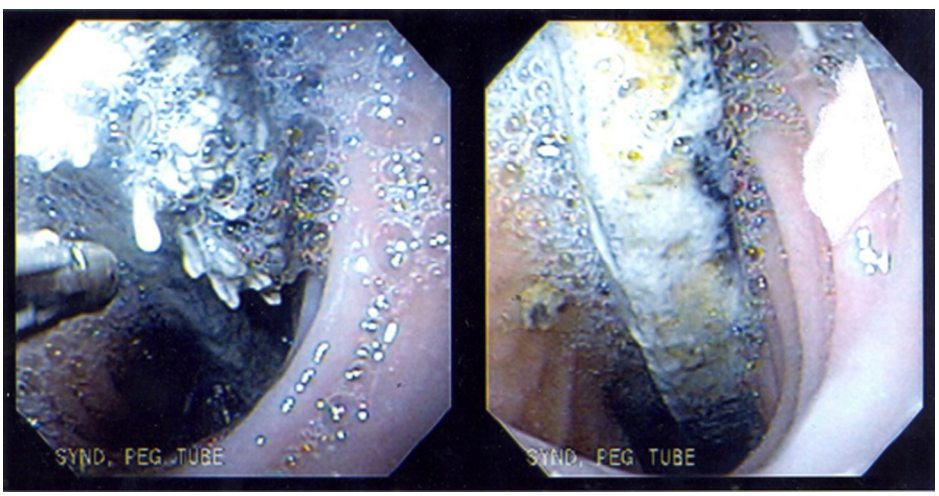

Fig. 2. Right and left, toothbrush identified in the duodenum by duodenoscopy.