

CASE REPORT

Pediatrics

A 3-year-old boy with rapid obstructive symptoms secondary to coin ingestion and gastric impaction

Andrew Pugh MBBS¹ | Jeff Schunk MD² | Sydney Ryan MD²

¹ Division of Emergency Medicine,
Department of Surgery, University of Utah,
Salt Lake, Utah, USA

² Division of Pediatric Emergency Medicine,
Department of Pediatrics, Primary Children's
Hospital, Salt Lake, Utah, USA

Correspondence

Andrew Pugh, MD, Division of Emergency
Medicine, School of Medicine, University of
Utah School of Medicine, 30 N 1900 E 1C026,
Salt Lake City, Utah 84132, USA.
Email: andrew.pugh@hsc.utah.edu

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Abstract

Foreign body ingestion is a common problem in children; blunt objects occur most frequently, and coins are the most common culprit. Rarely does coin ingestion lead to serious consequences other than esophageal impaction. In this report, we present the case of a healthy 3-year-old boy who developed rapid obstructive symptoms after the ingestion of a coin that required endoscopic retrieval from the stomach. Obstruction attributed to an ingested coin once post-esophageal is a rare complication of a relatively common presenting complaint.

KEYWORDS

coin ingestion, endoscopic retrieval, foreign body ingestion, gastric obstruction, gastroenterology, pediatrics

1 | CASE PRESENTATION

A previously healthy 3-year-old boy presented to our emergency department (ED) after a presumed coin ingestion. He had been playing with his older sister's piggy bank when his mother heard a brief episode of choking.

On arrival to the initial ED, ≈30 minutes after the ingestion, the patient was well, appearing without stridor, drooling, or increased work of breathing. The patient had a normal neurological examination with a Glasgow Coma Scale of 15. The blood pressure was 105/70 mmHg, pulse rate was 116 beats/minute, oxygen saturation was 98% on room air, and respiratory rate was 24 breaths per minute and without retractions or noisy or labored breathing.

Chest and abdominal radiographs demonstrated a metallic foreign body consistent with a coin projecting in the stomach in a transverse position (Figures 1 and 2). An oral challenge with juice was tried on 2 separate occasions 30 minutes apart. However, the patient promptly

vomited on both occasions and complained of worsening abdominal discomfort, although his abdominal examination remained unchanged without evidence of gastric distention.

Given his inability to tolerate oral intake, the patient was transferred from the community ED to our tertiary pediatric facility where he was evaluated by pediatric surgeons. He underwent general anesthesia to facilitate foreign body retrieval in the setting of persistent vomiting and obstructive symptoms. Under direct visualization, an endoscope was placed into the esophagus and advanced without difficulty into the stomach. The foreign body, a penny, was encountered in the fundus. It was grasped and brought out without difficulty. His post-procedural recovery was unremarkable, and he was discharged later the same day.

2 | DISCUSSION

Ingested foreign bodies are a common reason that children seek medical care in the United States, occurring in 250,000 patients per annum.¹ Children between the ages of 6 months and 5 years account for ≈75%

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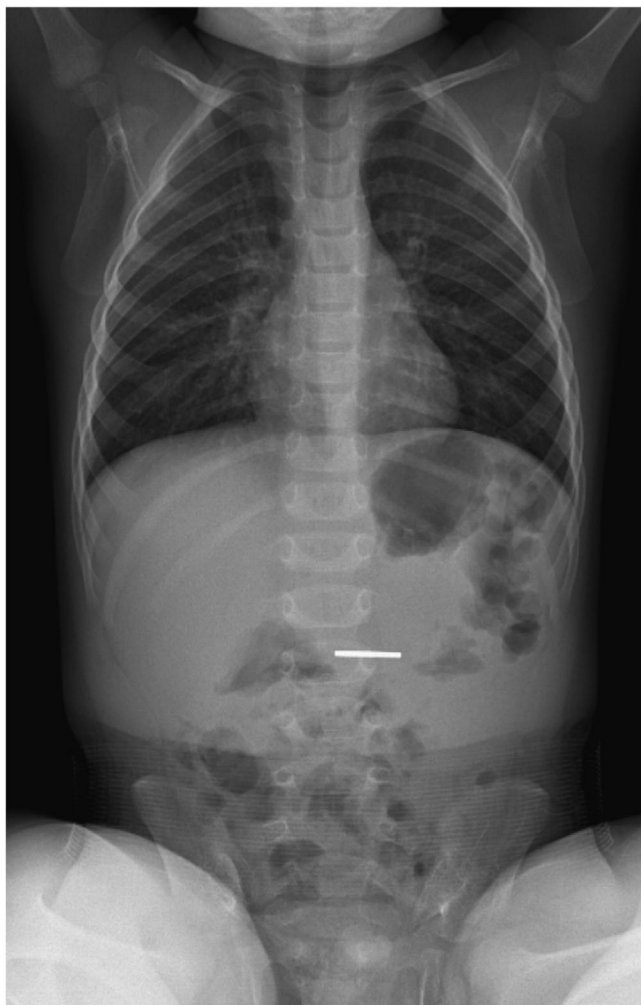


FIGURE 1 Foreign body ingestion series anteroposterior view

of all foreign body ingestions.^{2,3} Coins are the most common type of foreign body ingested by children, followed by food bolus, button batteries, and toys.^{1,3} The majority of patients pass blunt foreign bodies, spontaneously obviating the need for endoscopic or surgical removal.⁴ Once past the esophagus, most coins will eventually pass through the gastrointestinal tract without causing obstruction.⁵ We present a case of a 3-year-old who ingested a penny, resulting in gastric obstruction and necessitating endoscopic removal.

In the case of a coin ingestion, several factors should be considered when determining whether removal is needed and the urgency of that removal. These factors include the presence of symptoms and location and size of the coin.⁶ Individual patient characteristics also should be taken into account. For example, a history of pyloromyotomy may reduce the chance of spontaneous passage and prompt earlier removal. In general, the most important determinants of spontaneous passage include coin size and age of the child.^{7,8} Coins >23.5 mm such as the American quarter, are less likely to pass spontaneously, and coins >25 mm, such as the American half dollar and American dollar, almost always require elective removal.

If possible, it is important for providers to rapidly differentiate coin from button battery ingestions, which have the propensity to cause

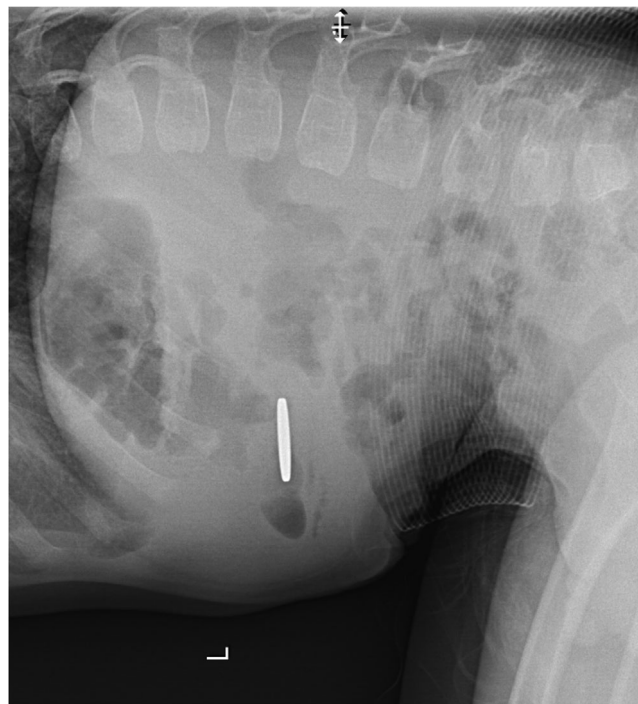


FIGURE 2 Foreign body ingestion series lateral view

higher morbidity and mortality through the generation of hydroxide radicals and caustic mucosal injury.⁹ Pay careful attention to coin edges on X-ray for the double-halo sign synonymous with a button battery ingestion, although given its orientation that would not have been possible in this case.¹⁰

The most common serious complication of coin ingestion is esophageal impaction. Esophageal impaction should be managed quickly, within 24 hours, to prevent significant esophageal mucosal damage.¹¹ However, gastric coins, as in this case, almost always can be managed expectantly and will usually pass within 4 to 6 days.³ In the absence of early spontaneous passage, they typically can be observed for a period of 2 to 4 weeks, after which elective endoscopic removal should be considered with close monitoring for signs of gastric outlet obstruction.¹¹ Although described in cases of esophageal impaction, we are unable to find any cases of gastric perforation secondary to coin ingestion existing in the literature.^{12,13}

Our patient developed overt gastrointestinal symptoms almost immediately, with persistent vomiting and inability to tolerate oral intake, which is unusual once the coin has passed below the level of the lower esophageal sphincter. Despite the location of the penny in the gastric fundus, it is likely that the relative size of the coin in relation to the size of the child's stomach was enough to cause gastric out-flow obstruction. Emergency physicians should be aware that although not typical, this may occur and requires expedient management by an endoscopist.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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