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Case Report

Duodenal perforation and enteroosseous fistula from ingestion of a fork 2 years prior

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ABSTRACT

The purpose of this study was to highlight the fact that serious complications can occur following the ingestion of a foreign object and report a unique example resulting in enteroosseous fistula formation. We report here on a 21-year-old woman who experienced duodenal perforation 2 years after ingestion of a plastic fork. During surgical removal, it was discovered that a fistula had formed between her duodenum and iliac crest. Following debridement, the patient required treatment with long-term antibiotics. The procedure was well tolerated and resulted in a marked reduction of the patient's symptoms. Follow-up 3 weeks later showed the patient to be recovering well. Foreign body ingestion is a relatively common occurrence. These incidents are usually benign; however, this case demonstrates that in the right clinical context, they have the potential to cause serious harm.

KEY WORDS: Fistula, foreign body, ingestion, perforation

INTRODUCTION

Duodenal perforation usually presents with acute onset abdominal pain and tenderness, followed closely by peritoneal inflammation and in some cases, hypotension and shock [1]. By far, the most common cause is duodenal ulcer; however, trauma and endoscopic retrograde cholangiopancreatography-related perforations are also encountered in clinical practice. The mortality from these can be as high as 18% [2]. In this report, we present the rare case of a patient who developed duodenal perforation as a result of erosion from an ingested foreign body.

CASE REPORT

A 21-year-old woman with a medical history of bulimia nervosa presented with nausea, vomiting, fevers, and generalized abdominal pain of 2 weeks duration. No additional history was provided. Computed tomography (CT) of the abdomen and pelvis was performed in the emergency department and a 17 cm plastic fork was discovered in the second part of the duodenum with fork tines located in the duodenal bulb [Figure 1] and handle eroding into the right iliac wing [Figure 2]. At that time, there was no CT evidence of bowel perforation or obstruction. On further questioning, the patient stated that she was using the handle of a fork to induce vomiting 2 years prior. The fork got stuck in her throat, she was unable to pull it out, and ended up swallowing it. She went immediately to an outside hospital and had a CT of her abdomen and pelvis, which was read as negative. Two days later, she came to our emergency department. The outside CT report was obtained, and no further imaging was performed. Basic laboratory values were within normal limits and she was discharged home. At this point, she assumed the fork had dissolved, and over the course of the next 2 years, she did not experience any symptoms that would cause her to believe it had been retained in her gastrointestinal tract. Returning to the current visit, she was admitted to our surgery department for operative management the following day; however, left against medical advice before that procedure could be performed. She returned 2 weeks later with 2 days of bloody emesis and bloody diarrhea as well as fevers and worsening abdominal pain. She had peritoneal signs on physical examination and was taken urgently to surgery. Exploratory laparotomy showed a black plastic fork within the first and second parts of the duodenum with perforation of the handle through the second part, eroding into the right iliac crest. In addition, there was an enteroosseous fistula causing osteomyelitis/intraosseous abscess. The fork was removed, and the patient underwent primary repair of her duodenum with pyloric exclusion, Stamm gastrostomy, and feeding jejunostomy. The iliac wing was debrided and cultures grew polymicrobial gastrointestinal flora. She was treated with 3 weeks of intravenous antibiotics and her postoperative course was unremarkable.

DISCUSSION

Foreign body ingestion is a relatively common occurrence with the vast majority passing spontaneously. Only about 10–20% require endoscopic removal, and <1% require surgical removal [3,4]. Ingesting objects longer than 10 cm is rare with only a few cases reported in literature [5-7]. There are

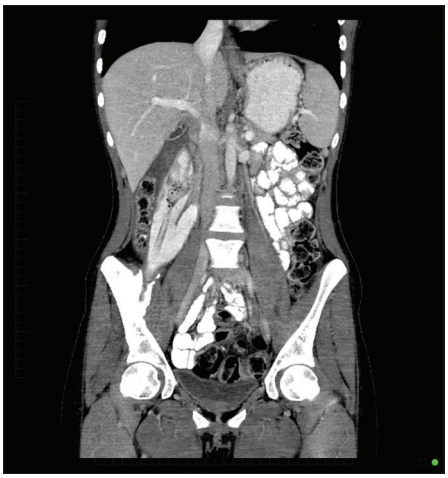

Figure 1: Contrast enhanced coronal computed tomography reconstruction with soft tissue window through the abdomen and pelvis shows a plastic fork stretching the second part of the duodenum with fork tines located in the duodenal bulb

Figure 2: Contrast-enhanced coronal computed tomography reconstruction with bone window through the abdomen and pelvis shows the fork handle eroding into the right iliac wing

case reports of ingested foreign bodies remaining within the body for up to 5 years; however, ingested objects are almost always removed shortly after the incident [6,7]. In one study of 325 consecutive cases, all patients presented within 36 h of ingestion [8]. Because of the short dwell time within the body, fistulas from ingested foreign bodies are rare. These are typically enterovascular caused by the ingestion of a sharp object or tracheoesophageal in the setting of caustic ingestion [9-11]. To our knowledge, this is the first case of enteroosseous fistula from an ingested foreign body. Multiple unlikely events were required for this to occur. Initially swallowing the fork was, as one emergency medicine physician put it, "physiologically unlikely." In addition, the fork was not recognized on the initial CT (performed at an outside institution), at least in part due to the near-fluid density of the plastic fork on CT, which was likely in the stomach surrounded by gastric contents at that time. Failure to obtain imaging on initial presentation to our institution (2 days after ingestion) as well as not performing surgery more urgently during the patient's first admission also contributed to the eventual outcome.

CONCLUSIONS

Once symptomatic, ingested foreign bodies should be removed immediately. In this case, the patient initially presented with pain, but no evidence of bowel perforation. On her return, 2 weeks later, she had a surgical abdomen and laparotomy confirmed the presence of perforation and resultant infection. This case also demonstrates the body's incredible ability to tolerate seemingly large insults and adapt to function at a near-normal level for relatively long periods of time. However, the most important lesson learned from this case is that the history provided by a competent patient should be taken seriously even if it seems unlikely. On initial presentation to our institution, outside imaging could have been obtained or new imaging performed. That would have possibly allowed the diagnosis to be made 2 years sooner and saved the patient significant morbidity and expense.

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