Case report

A CASE REPORT OF GASTRIC PERFORATION SECONDARY TO FOREIGN BODY INGESTION MANAGED WITH A COMBINED LAPAROSCOPIC AND ENDOSCOPIC APPROACH.

Abstract

INTRODUCTION:Foreign body ingestion resulting in perforation is a rare complication seen in 1% of cases. Clinical signs of perforation can vary widely and there is often a delay to presentation.

PRESENTATION OF CASE: A 51-year-old lady presented with a history of abdominal pain which was exacerbated by eating. She had an elevated white blood cell count and C-Reactive protein. A computed tomography scan of her abdomen revealed a collection of gas and fluid in her lesser sac from a suspected perforation near her gastric antrum. A diagnostic laparoscopy was performed but did not reveal an obvious cause for the perforation. A gastroscopy showed a sharp plastic foreign body protruding from the posterior gastric antrum. It was removed with an endoscopic grasper.

DISCUSSION: The majority of ingested foreign bodies will pass without incident with only 1% causing perforation. Most cases can be managed conservatively. Surgical intervention is indicated when the foreign body is deemed high risk for causing injury, such as a battery or a long sharp object, or if a complication has already occurred. The common sites for perforation in the gastrointestinal tract are areas of narrowing or angulation. These are usually the ileocaecal and rectosigmoid regions.

CONCLUSION: Ingested foreign body perforation in the general adult population is usually secondary to accidental ingestion and is frequently caused by dietary foreign bodies.A preoperative history of foreign body ingestion in rarely obtained.Foreign body perforations of the stomach, duodenum or large intestine tend to present with a longer, more innocuous clinical picture than perforations of the jejunum or ileum.

Introduction

Dietary foreign body ingestion is very common and the majority of ingested foreign bodies will pass through the gastrointestinal tract without causing any harm. Foreign body ingestion is most common in paediatric, psychiatric and prison populations(1). Perforation is a rare complication seen in approximately 1% of cases(2). The anatomical areas where perforation is mostly likely to occur are narrow, angled or pouching zones, surgical anastomosis, or diverticula(3). Diagnosis of a bowel perforation secondary to foreign body ingestion can be challenging as most are accidental and patients are unaware. Clinical signs can vary widely and are often non-specific such as abdominal pain, nausea, vomiting and fever. Computed tomography scans have limited reliability(4). Surgical intervention should aim to remove the foreign body and restore gastrointestinal continuity(5). This case represents a combined laparoscopic and endoscopic management of a gastric perforation caused by accidental ingestion of a plastic foreign body.

Case presentation

A 51-year-old lady presented to the emergency department with a two day history of upper abdominal pain described as a constant ache with occasional episodes of sharp pain. Associated with nausea but no vomiting. The pain was exacerbated by eating and movement. She denied any fevers, and had a normal bowel motion the day prior to presentation. She was using paracetamol and ibuprofen after the onset of pain but felt the pain was worsening despite analgesia.

Her past medical history included a wide local excision of a breast lesion for a ductal carcinoma in situ, followed by radiotherapy two years ago. She was a non-smoker and had no previous abdominal surgery, gastroscopies or colonoscopies.

On examination she had a heart rate of 80bpm, blood pressure of 135/75mmHg, and her temperature was 37.5° C. She was very tender on palpation of her abdomen in the right upper quadrant and epigastric region, the rest of her abdomen was soft, Murphy's sign was negative.

Her blood results showed a haemoglobin of 123g/L (normal 115-160g/L), white blood cell count of 20.63 × 10^9/L (normal 4–11 × 10^9/L), neutrophils of 18.08 × 10^9/L (normal 2–7.5 × 10^9/L), C-Reactive protein of 188mg/L (normal <5mg/L) and lipase 124U/L (normal <60U/L).

A chest X-ray and an abdominal ultrasound scan were performed and were reported as normal. Her gallbladder wall was of normal thickness and had no evidence of cholelithiasis. She proceeded to have a computed tomography scan of her abdomen and pelvis which revealed a collection of gas and fluid in the lesser sac measuring 30mm x 49mm x 84mm in maximal dimensions (Fig 1). There was marked thickening of the posterior wall of the gastric body and pylorus and a mucosal defect at the pyloric antrum.

The patient was taken to theatre later that day for a diagnostic laparoscopy. Inflammatory changes around the pylorus and antrum were seen but no obvious cause for perforation was identified. The decision was made to perform an on-table gastroscopy. The foreign body was identified protruding from the posterior gastric antrum. It was a 3cm piece of sharp plastic (Fig 2). It was removed using an endoscopic grasper. There was no defect left after removal of the foreign body. The collection in the lesser sac was then thoroughly washed out laparoscopically and a drain left in situ.

The patient received intravenous antibiotics and antifungals while in hospital and was discharged six days post operation. She completed a further three weeks of oral cephalexin and fluconazole. She had a follow up gastroscopy six weeks later which showed only mild non-erosive gastritis and duodenitis.

Discussion

Foreign body ingestion is common in certain cohorts such as paediatrics, psychiatry and prison inmates. Common objects include glass, coins, small toys, narcotics and batteries(3). Accidental foreign body ingestion is more commonly food related and includes food boluses, animal bones and toothpicks. The type of foreign body is important in determining

both the likelihood and type of complication. Rounded objects are more likely to cause obstruction, batteries can induce exothermal burns and pressure necrosis, whereas sharp objects are more likely to cause perforation. The common sites for perforation in the gastrointestinal tract are areas of narrowing or angulation. These are usually the ileocaecal and rectosigmoid regions(6). The gastric mucosa has a thick muscular layer and perforation here may not lead to immediate presentation as the signs and symptoms of perforation or abscess formation take time to develop, as with this case. This is thought to be secondary to a sealing effect from the surrounding omentum(7). With the delayed onset of symptoms, patients invariably present days or weeks after ingestion of the foreign body and will often have forgotten what they consumed that has potentially caused the injury or be completely unaware that they have inadvertently ingested a foreign body. This makes the diagnosis more challenging. Perforation of the gastrointestinal tract will usually result in peritonitis or abscess formation(8). Patients will normally have a computed tomography scan of their abdomen to try and determine a cause for their symptoms however their reliability in detecting foreign bodies is limited.

The majority of ingested foreign bodies will pass without incident with only 1% causing perforation(9). Most cases can be managed conservatively. Surgical intervention is indicated when the foreign body is deemed high risk for causing injury, such as a battery or a long sharp object, or if a complication has already occurred(7). In this case, it was unclear from the history, exam, laboratory and radiological findings that the patient had ingested a foreign body. The computed tomography scan confirmed the presence of a developing collection in the lesser sac and suggested a perforation had occurred near the pyloric antrum but there was no obvious foreign body detected on the scan. The decision was made to proceed with a diagnostic laparoscopy to assess the collection and confirm the diagnosis. The collection was seen and but there was still no obvious cause for the findings. Gastroscopy confirmed the presence of a sharp plastic foreign body. Endoscopic management of gastric perforation secondary to foreign body has been reported in the literature before using haemoclips(7). In this case the perforation was small enough that it did not require endoscopic management other than removal of the foreign body.

Conclusion

Ingested foreign body perforation in the general adult population is usually secondary to accidental ingestion and is frequently caused by dietary foreign bodies. A preoperative history of foreign body ingestion in rarely obtained. Patients with intraabdominal perforations present with a wide spectrum of clinical manifestations that are determined partly by the site of the perforation. Foreign body perforations of the stomach, duodenum or large intestine tend to present with a longer, more innocuous clinical picture than perforations of the jejunum or ileum.

Consent

Written informed consent was obtained from the patient forpublication of this case report and accompanying images. A copyof the written consent is available for review by the Editor-in-Chiefof this journal on request.

Ethical approval

Exception from ethical approval-case report only, consent from the patient provided at request.

References

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Figures

Fig 1. Computed tomography scan image with red arrows indicating the collection of gas and fluid in the lesser sac.

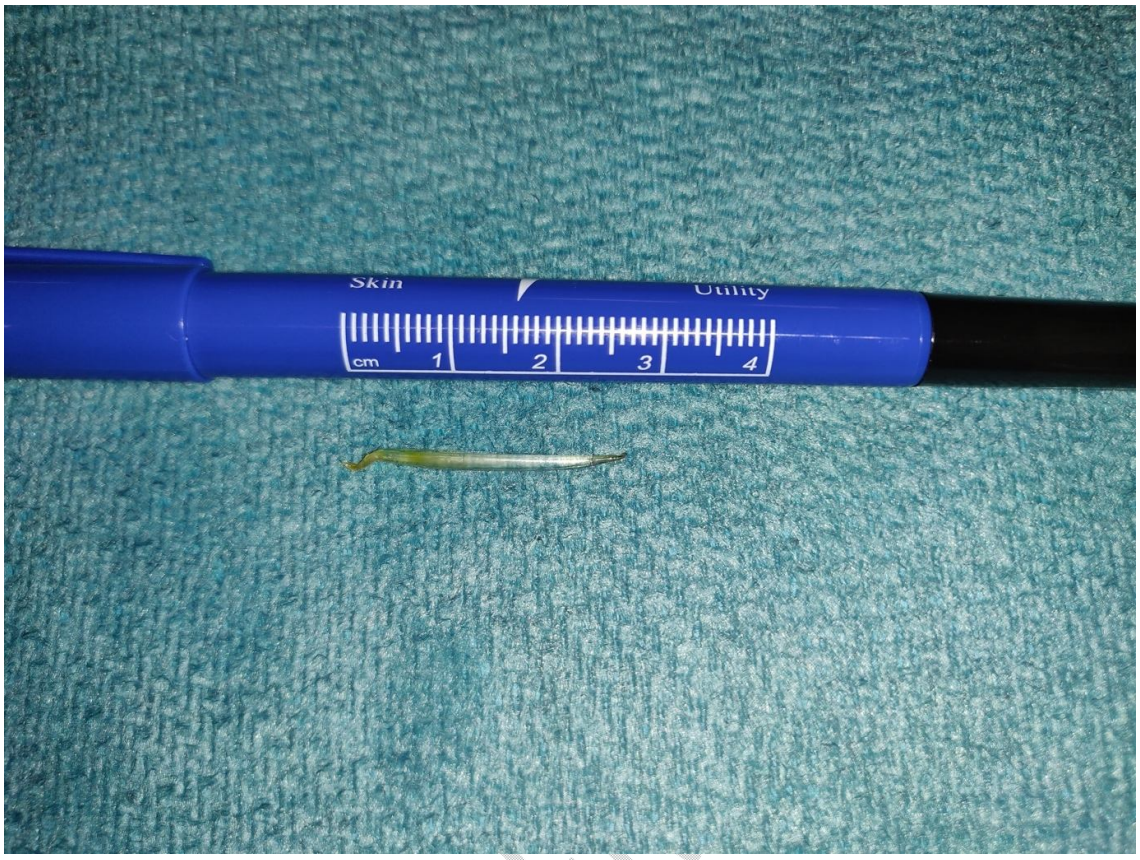

Fig 2. The sharp plastic foreign body that had perforated the gastric antrum.