EMERGENCY CASEBOOK

Cardiac tamponade due to ingested gastric foreign body

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Ingestion of foreign bodies is a well-recognised problem in children and adults with psychiatric conditions and personality disorders.¹ Patients may be asymptomatic or may present with symptoms and signs of gastrointestinal obstruction, perforation and/or bleeding. A rare case of an ingested foreign body in the stomach causing pericardial tamponade is described here.

CASE REPORT

A 24-year-old woman with a history of personality disorder, borderline schizophrenia and alcohol abuse was an inpatient in a psychiatric hospital. She had a history of acts of deliberate self-harm including foreign body ingestion. She had ingested a plastic ball point pen 5 weeks earlier and was being managed conservatively. She was referred to the emergency department with increasing epigastric pain and general malaise. On examination, she was found to be febrile (38°C) and clinically shocked. Cardiac auscultation revealed a third heart sound. Abdominal examination revealed mild epigastric tenderness but no peritonitis. Laboratory tests showed a leucocytosis ($38.5 \times 10^9/l$), renal impairment (urea 11.1 mmol/l, creatinine 252 $\mu\text{mol/l}$), and raised levels of C reactive protein (497 mg/l) and alanine transferase (4228 IU/l). Arterial blood gas analysis showed a compensated metabolic acidosis, and ECG showed widespread saddle-shaped ST elevation. Plain chest radiography showed an enlarged cardiac shadow consistent with a pericardial effusion. There was also evidence of multiple opacified foreign bodies in the upper abdomen, but no evidence of either an intrathoracic foreign body or a pneumoperitoneum. She was initially managed with fluid resuscitation and underwent a chest and abdominal CT scan. The CT confirmed a large pericardial effusion and showed a foreign body located in the gastric fundus. There was no evidence of free intra-abdominal fluid or air. A transthoracic echocardiogram confirmed the presence of cardiac tamponade, and she underwent urgent open drainage of the pericardial effusion via a subxiphoid approach. A volume of 350 ml of green fluid was drained from the pericardial sac. A pericardial drain was left in situ and treatment was begun with broad-spectrum antibiotics. Subsequent culture of the fluid demonstrated Gram-negative bacilli, and appropriate modifications were made to antimicrobial treatment. The following day, she underwent an endoscopy on the intensive care unit, which showed a normal oesophagus and three plastic pens in the stomach, one of which was adherent to the gastric fundus. At laparotomy, the pen had eroded tip first through the fundus of the stomach, traversed the peritoneal cavity and had penetrated the pericardial sac via the central tendon of the diaphragm (fig 1). There was no evidence of peritonitis. The pens were removed via the gastric perforation, which was closed in two layers with vicryl. The pericardial drain was not disturbed.

Postoperatively, she developed a retrosternal abscess, requiring surgical drainage, and a wound infection. She made an otherwise uneventful recovery and was discharged to the referring hospital after 32 days.

Figure 1 Intraoperative photograph showing the pen (P), gastric fundus (F) and diaphragm (D).

DISCUSSION

Pyopericardium is rare and usually secondary to pericarditis or systemic infections.² There have been a few case reports of cardiac tamponade caused by oesophageal foreign bodies.³ However, this is the first reported case in which an ingested gastric foreign body has caused pericardial injury resulting in cardiac tamponade and pyopericardium. Erosion through the gastric wall and pericardium had probably occurred gradually over several weeks, allowing the passage of gastric contents and gastrointestinal flora through the lumen of the pen into the pericardial sac, resulting in pyopericardium.

Oesophageal foreign bodies mandate urgent endoscopic removal due to the risk of perforation and mediastinitis.^{1 3 4} The management of asymptomatic gastric foreign bodies is less well defined. In patients with signs of gastrointestinal perforation, bleeding and/or obstruction, urgent surgical intervention is required. In asymptomatic patients, a careful assessment of individual risk is required. Small blunt objects may be managed conservatively with clinical and/or radiological follow-up. The risk of perforation and/or obstruction is significant for sharp objects and for objects longer than 7–10 cm,¹ respectively. Early surgical intervention should be considered in this group. Of the three pens found in the stomach in this case, two were capped and the pen that had caused the injury was uncapped. The clinical course of this patient suggests that ingested pens should perhaps be treated as “sharp” objects, and should be managed by careful follow-up and/or prompt intervention. Our experiences with such patients have resulted in a review of local practice and, in close liaison with psychiatric colleagues, we have formulated local clinical guidelines for the management of ingested and inserted foreign bodies.

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Informed consent was obtained from the patient for publication of their details in this report.

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