CASE REPORT

Choleduodenal fistula with gastric outlet obstruction

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SUMMARY

Bouveret's syndrome, cholecystoduodenal fistula with gastric outlet obstruction secondary to an impacted gallstone, is a rare but serious complication of cholelithiasis. We report the case of a 69-year-old woman who presented with epigastric pain and vomiting in whom cross-sectional imaging revealed a duodenal mass with cholecystoduodenal fistula and pneumobilia. Endoscopic evaluation identified a large gallstone obstructing the pyloric channel. She underwent laparotomy and stone extraction with pyloroplasty, had an unremarkable recovery. She was asymptomatic at 15 months follow-up.

BACKGROUND

Classically, gallstone ileus presents with an obstructing stone lodged in the distal ileum due to inability to pass through the ileocaecal valve. In rare cases, a gallstone may become impacted within the duodenum, resulting in gastroduodenal obstruction, first described in 1896 by Leon Bouveret.¹ As in classic gallstone ileus, Bouveret's syndrome typically presents in elderly women.² Management is on a case-by-case basis, but frequently endoscopic extraction with or without lithotripsy is preferable, particularly in cases in which the patient is frail, elderly and with multiple medical comorbidities, as is commonly the case. Failing this, surgical enterolithotomy may be attempted.³ In this case report, we describe a patient who presented with Bouveret's syndrome, who was managed surgically by stone extraction and with pyloroplasty.

CASE PRESENTATION

A 69-year-old woman presented to an outside emergency department with a 1-day history of epigastric abdominal pain. She described the pain as being located in her mid-upper abdomen. It was colicky in character and exacerbated by food intake. The pain was also associated with nausea, non-bilious emesis and anorexia. The patient did not report any fever or chills and denied haematemesis. She also denied acholic stools or dark urine. She had a single episode of gallstone pancreatitis, which was treated non-operatively, approximately 6 months prior to her presentation. Her medical history included essential hypertension, type II diabetes requiring oral hypoglycemics, and obstructive sleep apnoea. Her surgical history included carpal tunnel release, a total hip replacement and caesarian section. On examination, the patient's vital signs were within normal limits and her abdomen was soft and non-tender.

Figure 1 Axial CT image displaying gallstone obstructing the pylorus.

INVESTIGATIONS

A CT scan demonstrated diffuse thickening of the gallbladder, pneumobilia and a fistula between the gallbladder and the proximal duodenum ([figure 1](#)). A 4.7 cm mass was also identified within the lumen of the proximal duodenum. A MR cholangiopancreatography confirmed the findings of the CT scan, indicating the stone to be 5.1 cm in maximal diameter and confirmed the common bile duct to be intact and of normal character but that

Figure 2 Coronal T2-weighted MRI demonstrating the stone and fistula.

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Figure 3 Forceps indicating a palpable mass within the pyloric channel.

the cystic duct was distended (*figure 2*). An endoscopy was performed and demonstrated an obstructing gallstone impacted in the duodenal bulb. Attempts at endoscopic retrieval were unsuccessful.

TREATMENT

The patient was taken to the operating room for exploratory laparotomy. The stone was easily identified distending the pylorus (*figure 3*). Attempts to milk the gallstone into the stomach were unsuccessful. The pylorus was isolated and encircled with a vessel loop and the pylorus was opened longitudinally (*figure 4*). A 5 cm gallstone was removed from the pyloric channel (*figure 5*) and the enterotomy was closed transversely (*figure 6*). Intraoperative endoscopy showed a patent pyloric channel, evidence of a choledochoduodenal fistula with no leak from the closure of the enterotomy. An omental patch was placed over the pyloric closure. A 10 Fr Jackson-Pratt drain was placed anterior to the repair.

The patient had an uneventful postoperative recovery and she was discharged on postoperative day 6. Her drain was removed prior to discharge.

OUTCOME AND FOLLOW-UP

At follow-up visit, 3 weeks postoperatively, the patient was recovering well without complications. At her subsequent health maintenance visit, she reported no obstructive symptoms and she had resumed an unrestricted diet and normal activity.

Figure 4 Following pyloromyotomy, a 5–6 cm gallstone is visualised.

Figure 5 Gallstone following extraction.

DISCUSSION

Chronic inflammation of the gallbladder and adjacent small bowel due to gallstones and the resulting ischaemia and necrosis, can lead to the formation of a bilioenteric fistula.² This complication is seen in 0.3–0.5% of patients.⁴ If a large gallstone migrates into the gastrointestinal tract, it may lead to intestinal obstruction.⁵ Classically, this occurs at the ileocaecal valve, but in rare cases, the gallstone may become impacted in the duodenum or stomach, leading to gastric outlet obstruction, known as Bouveret's syndrome.⁶

Bouveret's syndrome is typically seen in elderly women, with a gender ratio 2:1 and with a median age of 74.1 years. Patients most frequently present with abdominal pain, nausea and/or emesis (63%), haematemesis (24%), fever (5%), or occasionally with jaundice (3%).² It is associated with mortality rates as high as 30%^{6 7} although recent data shows an improvement to approximately 12%.⁸ The diagnosis is frequently made on cross-sectional imaging and may be confirmed with esophagogastroduodenoscopy.

As patients with this syndrome are frequently frail and elderly, and therefore often poor operative candidates, therapeutic endoscopy, with or without lithotripsy is often attempted.³ This may be attempted at the time of the diagnostic esophagogastroduodenoscopy. Although endoscopy is of low morbidity, in the majority of cases it is unsuccessful and surgery is required for definitive management of Bouveret's syndrome in 91% of cases.⁷ Laparoscopic or open surgical enterolithotomy is performed, with or without gastroenteric diversion. In some cases, the gallbladder may be removed to reduce the probability

Figure 6 Pyloromyotomy following repair.

of further gallstone disease or cholangitis, but this is frequently impractical due to patient frailty or an extensive inflammatory mass.⁹ Removal of the gallbladder at the same time as stone extraction is not shown to have a survival benefit.¹⁰

Learning points

- ▶ Bouveret's syndrome is a rare but serious complication of gallstone disease and an unusual presentation of gallstone ileus, characterised by proximal obstruction.
- ▶ While it is preferable to manage this condition endoscopically, surgical intervention with stone extraction is required in the majority of cases.
- ▶ In this particular case, the stone was lodged within the pylorus and the patient required a pyloroplasty to remove the obstructing stone.

Contributors SC was the surgeon for the procedure described in this case report. He was assisted by ADG. MD drafted the majority of the manuscript. GM-S edited the manuscript and oversaw its production.

Competing interests None declared.

Patient consent Obtained.

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