CASE REPORT

An unusual case of biliary bezoar causing small bowel obstruction in a patient with ampullary diverticulum and stapled gastroplasty

Awais Ashfaq, James A Madura II, Alyssa B Chapital

Mayo Clinic, Phoenix, Arizona, USA

Correspondence to
Dr Awais Ashfaq,
ashfaq.awais@mayo.edu

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SUMMARY

Primary small bowel bezoars constitute 0.44% of small bowel obstructions (SBO). We report a case of a man with a history of gastroplasty who presented with lower abdominal pain. Initial examination revealed leucocytosis and serum lipase. CT of the abdomen/pelvis was consistent with pancreatitis, cholelithiasis and a stable, 3.8 cm, ampullary diverticulum, without obstruction of the pancreatic/common bile duct. Considering this was the patient's first episode of pancreatitis with evidence of cholelithiasis, it seemed prudent that he would benefit from cholecystectomy but not diverticulectomy. Post-cholecystectomy he represented to the hospital with biliary emesis. CT of the abdomen/pelvis revealed postsurgical changes. Owing to non-resolution of the symptoms, 48 h later a small bowel follow-through was obtained that suggested partial SBO. Ultimately, the patient was taken for exploratory laparoscopy and small bowel resection, after a large intramural mass was encountered in the small bowel. Final pathology revealed a 3 cm biliary bezoar causing obstruction and stercoral ulceration.

BACKGROUND

A bezoar is a mass that consists of accumulated ingested material. Bezoars are usually found after gastric operations because of reduced gastric motility and/or delayed gastric emptying.¹ Phytobezoars are the most common type of bezoar; they contain masses of indigested vegetable matter and fibre that are normally found in the stomach, and they may pass into the small bowel.² Patients may present with epigastric pain and postprandial fullness and, in rare cases, may have gastritis, gastric ulcer, gastric perforation and intestinal obstruction.³

Primary, small bowel bezoars are extremely rare, forming in patients with underlying diverticulum, stricture or tumour,⁴ constituting only 0.44% of all small bowel obstructions (SBO).^{5–6} Of these, there are four cases of biliary bezoars reported in the literature with varying presentation,^{7–10} none similar to our patient. We report a case of SBO caused by a biliary bezoar that formed in the ampullary diverticulum and then migrated to involve the small bowel, requiring surgical intervention.

CASE PRESENTATION

A 55-year-old man with a history of nephrolithiasis and stapled gastroplasty presented to the emergency department with bilateral lower abdominal pain for 3 days, associated with severe nausea and

indigestion. Examination revealed the abdomen to be soft, non-tender and non-distended. Initial laboratory investigation revealed normal white cell count $5.9 \times 10^9/L$ and haemoglobin 12.6 g/dL. However, lipase was elevated to 180 U/L. All other liver function tests were within normal limits. CT of the abdomen/pelvis with contrast was consistent with pancreatitis at the inferior aspect of the pancreatic head without fluid collection. Also seen was a 3.8 cm ampullary diverticulum, stable in size, noted based on previous CT scan in our records (figure 1); there was no obstruction of the pancreatic or common bile duct. The gallbladder was distended with gallstones but no pericholecystic inflammation/fluid. Another interesting finding was the presence of a gastrogastic fistula through the patient's prior stapled gastroplasty. Gastroenterology recommended MR cholangiopancreatography, which revealed similar findings with mild peripancreatic fluid and cholelithiasis without choledocholithiasis.

TREATMENT

General surgery was ultimately consulted for possible cholecystectomy and diverticulectomy. Considering that this was the patient's first episode of pancreatitis with evidence of cholelithiasis, it seemed prudent that he would benefit from cholecystectomy. However, the benefit of diverticulectomy was unclear.

Figure 1 CT of the abdomen/pelvis depicting an ampullary diverticulum, 3.8 cm in transverse dimension. Internal content is heterogenous with no gas. The pancreatic and common bile duct do not seem to be obstructed.

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since the diverticulum had remained stable over the past few years. Subsequently, when the liver function tests had normalised, the patient underwent laparoscopic cholecystectomy with intraoperative cholangiogram, which revealed non-dilated extrahepatic ducts without any filling defects (figure 2). He was discharged on postoperative day 2. Unfortunately, the patient re-presented to the hospital a day later with biliary emesis associated with persistent nausea and abdominal bloating. He was found to have a low leucocytosis count $11.5 \times 10^9/L$ and hyperbilirubinaemia 1.5 mg/dL. Liver function tests revealed elevated alkaline phosphatase 182 U/L and lipase 119 U/L. CT of the abdomen/pelvis and abdominal ultrasound revealed postsurgical changes. The patient was admitted under care of the general surgical service with a diagnosis of ileus/partial SBO.

After 3 days of conservative management involving nasogastric tube decompression, *nil per os* and intravenous fluids, the patient symptomatically felt better but vomited after his diet was advanced. Non-resolution of the symptoms 48 h later led us to obtain a small bowel follow-through with a water-soluble contrast, which suggested partial SBO in the 4 h image but resolved by 24 h (figure 3A, B). Another 36 h had passed without any progress, and ultimately the patient was taken for exploratory laparoscopy, lysis of adhesions and small bowel resection with primary stapled anastomosis. The decision for bowel resection was made after a large intramural mass was encountered in a small bowel segment in the left lower quadrant. The mass appeared to be firm and fixed without any mesenteric lymph node enlargement. Final pathology revealed a $3.5 \times 3 \times 2.7$ cm round biliary bezoar causing small bowel obstruction and stercoral ulceration (figure 4).

OUTCOME AND FOLLOW-UP

The patient recovered well and was subsequently discharged on postoperative day 5. He was last seen at his postoperative visit 2 weeks from the day of discharge and was completely asymptomatic.

DISCUSSION

SBO after any abdominal surgery is usually due to adhesions, internal hernias and, rarely, bezoars. A bezoar is a concrete mass

Figure 2 Intraoperative cholangiogram of the patient showing non-dilated extra-hepatic ducts with no filling defects.

Figure 3 Abdominal X-ray of the patient 48 h after readmission demonstrating partial small bowel obstruction; (A) 4 h image and (B) 24 h image.

of indigestible material that usually forms in the stomach and then travels to the small bowel to cause obstruction. Usually, bezoars are divided into four major types: trichobezoar, pharmacobezoar, lactobezoar and phytobezoar.¹¹

A biliary bezoar is an extremely rare development in patients with prior cholecystectomy. The first report was published in 1995 where a patient developed a biliary phytobezoar 15 years

Figure 4 Final specimen depicting a $3.5 \times 3 \times 2.7$ cm round biliary bezoar causing stercoral ulceration.

after cholecystogastrostomy.⁷ Other reports have mentioned biliary bezoars in patients who developed choledochoduodenal fistulas.¹² However, the most common risk factor for any bezoar formation is prior gastric surgery; it is related to dysmotility and decreased gastric secretions. This prevents the digestion of food and results in immediate passage from the stomach to the small intestine. Small bowel bezoars are rare and usually result in obstruction proximal to the ileocecal valve, the narrowest portion of the bowel. When it occurs it is an emergency requiring surgical intervention.

In our case, mild bouts of acute pancreatitis were caused by a large biliary bezoar that had formed in the ampullary diverticulum and then migrated to obstruct the jejunum. A high index of suspicion is required to diagnose bezoars as a cause of SBO, as in most cases, bezoars are found on diagnostic laparoscopy or laparotomy. CT scan can sometimes be helpful in delineating an ovoid or a circular luminal mass. Timing of surgery is quintessential if the obstruction is not relieved, since patients can sustain further complications such as intestinal necrosis, ulceration or perforation at the site of the bezoar, which can have a great impact on morbidity and mortality. In such cases, small bowel resection is indicated with a thorough examination of the entire small bowel to rule out concurrent bezoars.¹³

In conclusion, we present a case of SBO caused by a large biliary bezoar that originated in the ampullary diverticulum with subsequent migration. Complications can result from SBO

caused by a bezoar, although rare. A high index of suspicion is required for the diagnosis and proper management of such patients.

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Competing interests None.

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Learning points

- ▶ A biliary bezoar is an extremely rare development in patients with either prior cholecystectomy or biliary diverticulum.
- ▶ Small bowel obstruction can occur due to biliary bezoars and should be viewed with a high index of suspicion in patients with pertinent risk factors.
- ▶ Timing of surgery is quintessential in reducing the morbidity of the patient.

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