Surgical treatment of gallstone ileus caused by cholecystoduodenal fistula – a case report

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ABSTRACT

Background: Gallstone ileus is a rare complication of cholelithiasis caused by a bilioenteric fistula. Besides clinical examination, computer tomography (CT) scan is considered a radiological diagnostic procedure.

Case Presentation: A 68-year-old male patient presented with epigastralgia, nausea, and emesis. The abdomen was distended and diffusely painful to palpation with peritoneal irritation. Auscultation showed raised peristaltic sounds. CT scan showed aerobilia, distension of the stomach, duodenum, and proximal jejunum, and inside it a 3.5 cm calcified round foreign body. Exploratory laparoscopy showed jejunum obstruction and chronic inflammation of the gallbladder. Lifting the small bowel through a small laparotomy was performed for gallstone removal. After recovery a delayed cholecystectomy and fistula closure followed. Hospital stays were short and complication-free.

Conclusion: There are no guidelines for the management of gallstone ileus yet because of a limited number of reported cases. Most of the bilioenteric fistulas are located between the gallbladder and duodenum. In cases of biliocolonic fistula, causing obstruction in the colon endoscopic or conservative therapy can also be performed with a success rate of 26%. Surgical treatment is still a common procedure in emergency cases.

Keywords: Gallstone ileus, bilioenteric fistula, surgical treatment, delayed cholecystectomy, fistula closure.

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Background

Gallstone ileus is a rare complication of cholelithiasis caused by a fistula between the gallbladder and the intestinal lumen, occurring in 1%-4% of patients with mechanical bowel obstruction [1]. Based on chronic cholecystitis a fistula can be formed to adjacent organs such as the duodenum, colon, and stomach [2]. Clinical diagnosis is difficult because of numerous differential diagnoses such as tumor, hernia, bowel adhesion, volvulus, invagination, stricture, strangulation, and bezoar. Additional radiological examination is necessary. Both one-stage and two-stage procedures were described for surgical treatment. We present a patient with jejunal gallstone ileus caused by a cholecystoduodenal fistula who underwent surgical treatment as a two-stage procedure.

Case Presentation

A 68-year-old male patient with a slim body and without cardiorespiratory diseases presented to the emergency department due to spasmodic epigastralgia for 4 days, currently also nausea and emesis. Up to now no abdominal surgery and no endoscopy procedures were performed. On physical examination, the abdomen was distended and diffusely painful to palpation with peritoneal irritation in the middle abdomen. Auscultation showed raised peristaltic sounds. Laboratory tests showed leucocytosis of 16.9 Gpt/l, neutrophilia of 14.4 Gpt/l, and elevated creatinine of 187.4 µmol/l. Liver-specific values such as transaminases, total bilirubin, gamma-GT, and alkaline phosphatase were normal. A computed tomography scan showed dilatation of the stomach, duodenum, and jejunum caused by a calcified round foreign body with a maximal diameter of 3.5 cm, compatible with a concrement. The following parts of the small bowel were collapsed. It also showed air in the gallbladder with a suspected fistula between the gallbladder with a thickened wall and duodenum (Figure 1). A nasogastric tube was immediately inserted for oral decompression and to prevent aspiration, followed by exploratory laparoscopy. Small bowel obstruction was quickly identified. The gallbladder was completely covered by gastrocolic omentum with signs of chronic inflammation. It was decided to perform a two-stage procedure, ileus surgery first and after recovery a delayed cholecystectomy. A small umbilical laparotomy was performed to lift the obstructed small bowel, followed by antimesenteric longitudinal

jejunotomy in the oral direction of the obstruction for removing the gallstone (Figures 2 and 3). The incision was closed by transverse single absorbable sutures. After surgery the patient was observed in the surgical ward, complaining just about postoperative wound pain. After 5 days he was discharged. 6 weeks later elective cholecystectomy was performed by laparoscopic begin and necessity for conversion to right subcostal incision because of pronounced adhesions between the gallbladder and gastrocolic omentum, transverse colon, its meso and descending part of duodenum. After adhesiolysis and anterograde separation of a contracted gallbladder from the liver, the fistula was identified between the gallbladder and duodenum as a 2 mm small ostium in the duodenal wall. The fistula was closed by an absorbable suture on the duodenum. The postoperative observation was free of complications and the patient was discharged after 4 days. Histological findings showed chronic cholecystitis with fistula-associated tissue damage.

Discussion

Gallstone ileus is a rare finding caused by bilioenteric fistula in patients with cholelithiasis. Just a limited number of reported cases can be found. Currently, there are no guidelines for the management of gallstone ileus [3]. In emergency cases with obstruction of the small bowel surgical treatment should be performed. In cases of biliocolonic fistula causing obstruction in the colon endoscopic or conservative therapy can also be performed with a success rate of 26% [3]. most of the bilioenteric fistulas are located between the gallbladder and duodenum [4]. Computer tomography is considered a radiological diagnostic procedure [5]. There are three main findings that are characteristic: aerobilia, stomach or bowel distension due to obstruction, and ectopic gallstone [6]. The common surgical approach is longitudinal enterotomy for gallstone removal followed by transverse closing sutures [7]. The gallbladder was completely covered by gastrocolic omentum with signs of chronic inflammation, so it was decided to perform a two-stage procedure, although the patient had cardiorespiratory stable findings.

Conclusion

Ileus therapy only in patients with gallstone ileus is not sufficient. A persisting bilioenteric fistula can cause bowel obstruction again and recurrent episodes of cholecystitis.

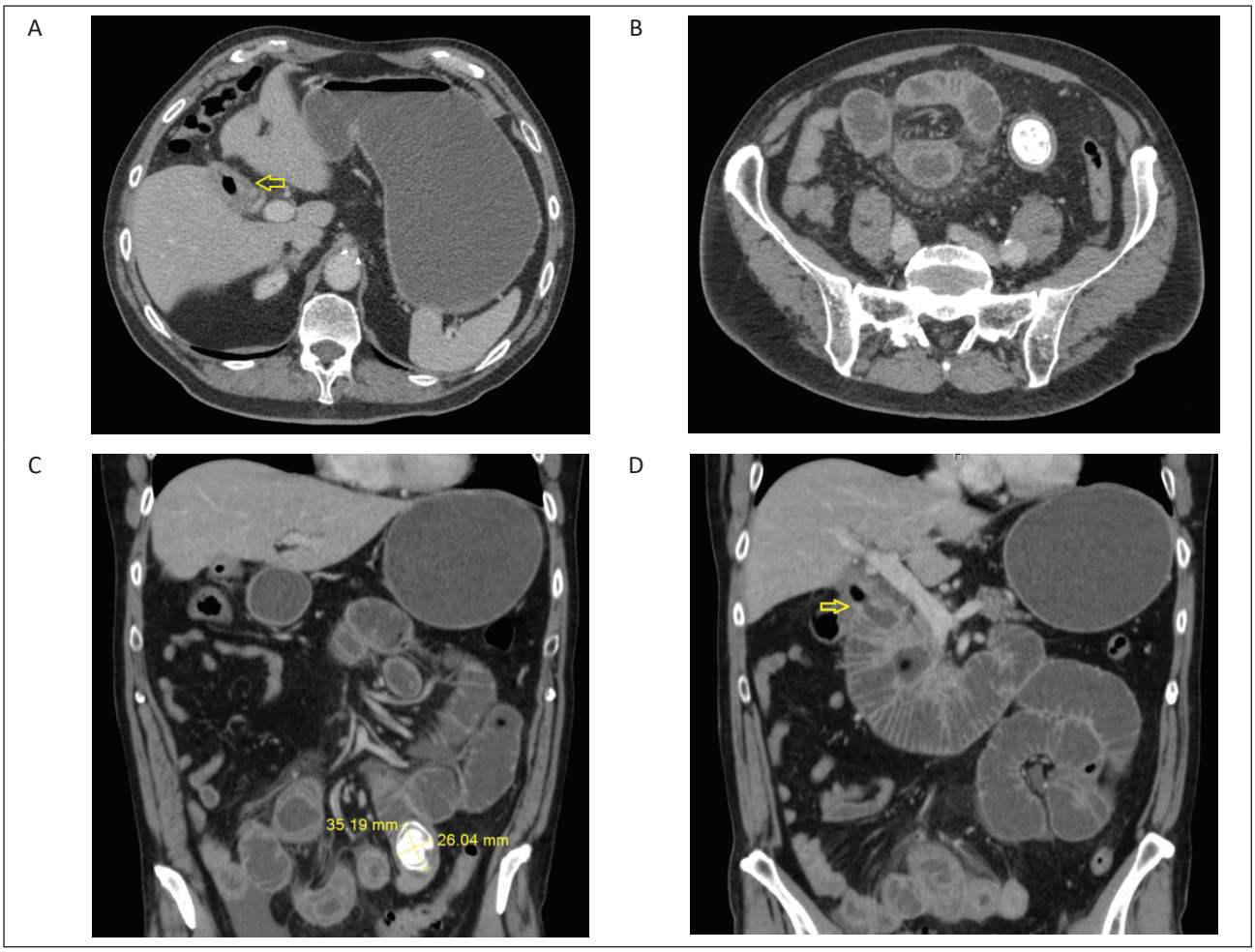

Figure 1. *(A) Distension of stomach, wall thickened gallbladder with aerobilia. (B) Calcified round foreign body in small bowel left hemiabdomen, compatible with a concrement. (C). Concrement diameter 3.5 × 2.6 cm. (D). Distension of stomach, duodenum, jejunum, suspected fistula between gallbladder and duodenum.*

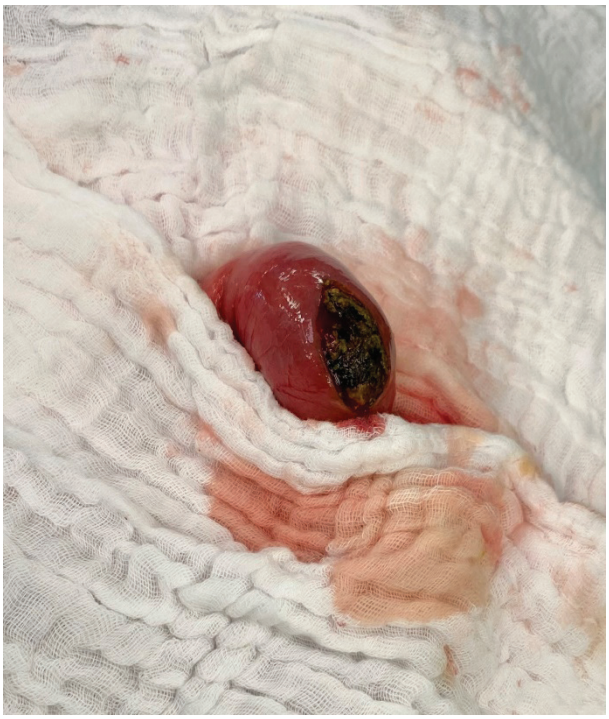

Figure 2. *Longitudinal enterotomy.*

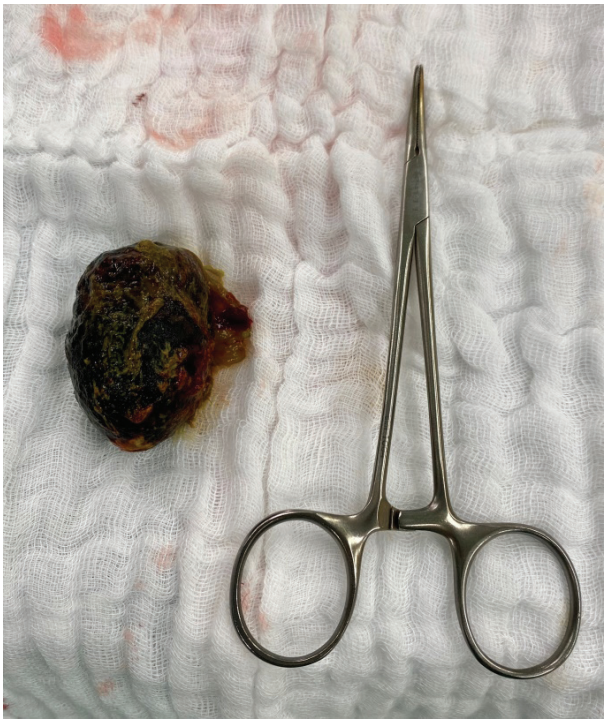

Figure 3. *Extracted gallstone.*

The two-stage surgical procedure is a save treatment option for gallstone ileus to prevent extensive surgery in emergency cases, extraction of the gallstone for resolving the ileus first, followed by delayed cholecystectomy and fistula closure after recovery. In our case, the patient was discharged after short hospital stays and without any complications.

What is new?

Gallstone ileus is a rare complication of cholelithiasis caused by bilioenteric fistula so just a limited number of reported cases can be found. Currently, there are no guidelines for the management of gallstone ileus. The authors described a save two-step procedure as a save surgical treatment option.

It is necessary to solve both, ileus and fistula, to prevent a new bowel obstruction. The two-stage surgical procedure is a safe treatment option, extraction of gallstone from the bowel first, followed by delayed cholecystectomy and fistula closure after recovery.

List of Abbreviations

CT Computer tomography

Conflict of interests

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

None.

Consent for publication

Written informed consent was obtained from the patient to publish the case and the accompanying images.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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Summary of the case

1	**Patient (gender, age)**	68 years, male
2	**Final diagnosis**	Gallstone ileus caused by cholecystoduodenal fistula
3	**Symptoms**	Spasmodic epigastralgia, nausea, emesis
4	**Medications**	Symptomatic treatment given parenteral
5	**Clinical procedure**	Two-stage surgery procedure
6	**Specialty**	Visceral surgery