Case Report

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Gallstone ileus of the sigmoid colon: case report

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Introduction: Gallstone ileus is an uncommon cause of intestinal obstruction. It is caused when a gallstone migrates through an enterobiliary fistula (most often between the duodenum and the gallbladder) and is impacted in the digestive system, most often in the terminal ileum toward the ileocaecal valve.

Case Presentation: Here the authors report the case of a 74-year-old woman who was admitted to Compiegne Hospital in France for a gallstone ileus with the sigmoid colon as the impaction site, which is an even more rare cause of intestinal obstruction. The enterobiliary fistula was between the colon and the gallbladder. The gallstone was removed surgically with a colotomy, without treating the fistula, and after a failed endoscopic attempt to extract the stone. The follow-up was without complications, and a colposcopy showed spontaneous closure of the fistula after 6 weeks.

Discussion and Conclusion: The surgical closure of an enterobiliary fistula is an option that should be considered, but it can lead to higher morbidity. That is why the authors opted out of it, especially considering that spontaneous closure of the fistulae can happen, as it did in our case.

Keywords: enterobiliary fistula, gallstone ileus, intestinal obstruction, sigmoid colon

HIGHLIGHTS

- A case report about a 74-year-old patient admitted for gallstone ileus of the sigmoid colon.
- An extremely rare cause of intestinal obstruction and even rarer when the impaction site is the sigmoid colon.
- The gallstone migrated through a cholecystecolonic fistula.
- Treated through surgery (colotomy no colostomy) after an attempt at endoscopic treatment.
- Treatment options include surgical closure of the fistula, which we opted out of due to the possibility of spontaneous closure of the fistula that happened in our case.

Introduction

Gallstone ileus is a rare cause of intestinal obstruction[1] the presence of a fistulous connection between the gallbladder and the intestinal tract is often due to chronic or repeated inflammatory episodes of the gallbladder. the colon is a rare site of impaction (3.0–4.1% of cases)[2,3] it mainly affects older people with a history of diverticulitis as it can lead to a reduced diameter of the sigmoid[4]. This cause of intestinal obstruction must be suspected in the presence of pneumobilia[5].

Treatment options include endoscopic extraction of the gallstone, endoscopic lithotripsy, and surgery as a one-stage or two-stage operation[4].

We report here a rare and unusual case of gallstone ileus of the sigmoid colon as a cause of intestinal obstruction.

Case report

A 74-year-old woman was admitted to the Emergency Department at Compiegne Hospital in France complaining of abdominal pain, nausea, vomiting, and absolute constipation.

The patient had a history of sigmoid diverticular disease but no history of cholecystitis or any other disease. Physical examination

Figure 1. Image showing impactation of the gallstone in the colon.

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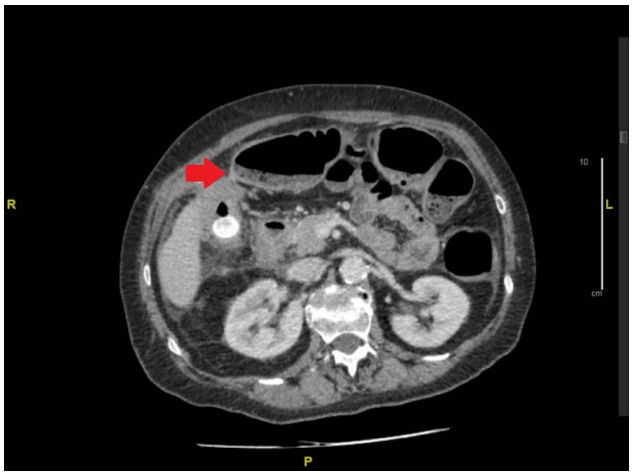

Figure 2. Image showing the fistulous connection between the gallbladder and the colon.

of the patient found a distended abdomen with left iliac fossa tenderness but no sign of peritonism.

Biochemical and hematological investigations revealed a C-reactive protein of 46 mg/l and a white cell count of 8.4×10^9/l. Liver function tests and serum amylase were entirely normal.

The patient had a contrast-enhanced computed tomography (CT) scan that showed a fistulous connection of the gallbladder with the colon and a 3 cm opacity impacted in the sigmoid associated with distention of the bowel. Another 2 cm gallstone was found in the gallbladder (Figs 1 and 2).

An endoscopy was performed to remove the stone but was unsuccessful due to its large size (Fig. 3).

The patient underwent surgery and a laparotomy was performed with a colotomy to extract the gallstone. The colon was closed with direct sutures without any colostomy. The fistulous connection was identified but not treated in order to reduce the risk of complication (Fig. 4).

The postoperative follow-up was uneventful with a rapid resumption of normal bowel function and the patient was discharged on day 6.

The patient had a postoperative colonoscopy 6 weeks later that showed a spontaneous closure of the fistulous connection. A postoperative CT scan showed spontaneous migration of the remaining gallstone.

Discussion

Gallstone ileus is a rare complication of cholelithiasis[1]. It can cause two to five percent of mechanical intestinal obstruction, but in patients older than 60 years old it can cause up to a quarter of bowel obstruction[6–8]. That is why when treating symptoms of intestinal obstruction, gallstone ileus must be taken into consideration, especially in older female patients as it is 5–15 times more likely in female patients[9,10].

Enterobiliary fistulae are an uncommon complication of cholecystitis (1.5–5% of cholecystectomies)[1] and they mostly occur with the duodenum (nearly 75% of enterobiliary fistulae) cholecystocolonic fistulae are rare (10–20%)[11].

Gallstone ileus is rare and the most common impaction site of the gallstone is the ileum (50.0–60.5%), jejunum (16.1–26.9%), duodenum (3.5–14.6%), and colon (3.0–4.1%)[6–8].

In cases with impaction on the colon, such as ours, the impaction is due to intestinal stenosis caused by diverticulitis[9]. They are extremely rare (only 2–8% of gallstone ileus) and are due to cholecystocolonic fistulae[1].

Contrast-enhanced CT scan has a high sensitivity (93%), specificity (100%), and accuracy (99%) in the diagnosis of gallstone ileus[12].

Treatment options include endoscopic extraction of the gallstone, endoscopic lithotripsy, and surgery as a one-stage or two-stage operation[4]. Endoscopic extraction of the stone is rarely successful for gallstones bigger than 2.5 cm[1] such as in our case. Endoscopic lithotripsy may not be effective as it showed poor performance in patients with obesity and gas-containing bowel loops[13] and there have been reports of reimpactation of the fragment[14,15].

Surgery is indicated for both the gallstone extraction and the fistula's closure, but whether it should be done in one-stage or two-stage surgery is debated. A one-stage surgery may be associated with a higher rate of mortality and a significant lengthening of the hospital stay[3,16]. Two-stage surgery is associated risk of recurrence, retrograde cholecystitis, and cancer development due to the remaining cholecystointestinal fistula[6]. natural fistula closure without treatment of the biliary tract can occur in 61.5% of cases after lithotomy[17] and should be considered when planning a two-stage surgery.

Conclusion

Gallstone ileus of the sigmoid colon is an extremely rare cause of intestinal obstruction, but it must be considered, especially in older patients. While endoscopic treatment with lithotripsy is an option for a

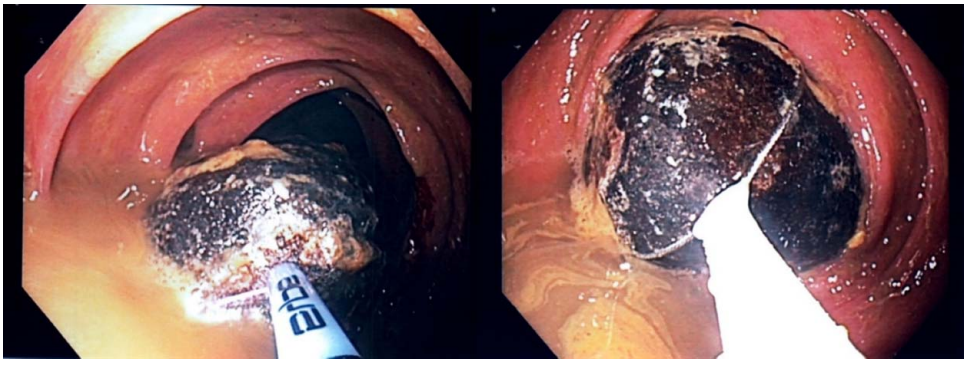

Figure 3. Endocopic view showing the impacted stone.

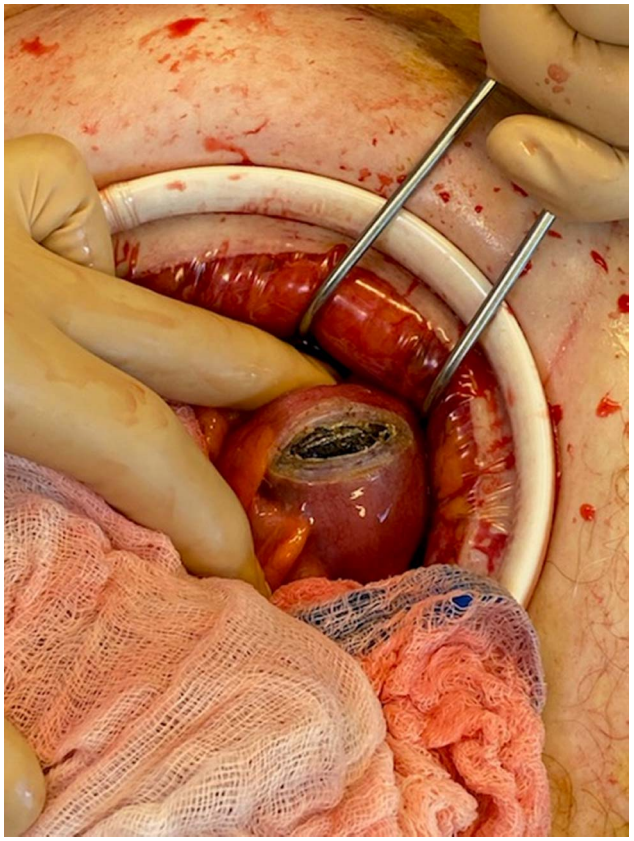

Figure 4. Operative view showing the impacted stone after colotomy.

fragile patient, it is not always feasible, such as in our case. Surgery remains the final option. However, surgeons should select the type of surgery on the basis of the patient's general condition[18].

Ethical approval

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Author contribution

M.O.: data collection, writing the paper. B.M., F.G. and R.A.: data collection. S.K.: finale correction and approval.

Conflicts of interest disclosure

The authors declare that they have no financial conflict of interest with regard to the content of this report.

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Consent

Patient consent was obtained verbally and no patient identifying details are present in the study

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