

## Gallstone ileus in a ninety-two years old colecistectomized patient after endoscopic biliary sphincterotomy: a case report

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**SUMMARY:** Gallstone ileus in a ninety-two years old colecistectomized patient after endoscopic biliary sphincterotomy: a case report.

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**Introduction.** Gallstone ileus is an uncommon condition of mechanical bowel obstruction caused by the passage of a gallstone into the bowel. It occurs more frequently in female patients older than 65 years and often for a biliary-enteric fistula. The pathognomonic features of gallstone ileus – the Rigler's triad – are pneumobilia, ectopic gallstone and bowel obstruction. Less commonly, a gallstone may enter the intestinal lumen through the common bile duct, after endoscopic retrograde cholangiopancreatography, and very rarely in colecistectomized patient.

**Case report.** A 92-year old colecistectomized male patient was admitted to our unit for the clinical suspicion of bowel obstruction. He

was also submitted to ERCP seven months before. Physical examination revealed tenderness in the lower abdomen and CT showed intrahepatic and extrahepatic biliary dilatation and small bowel obstruction with a hyperdense formation in right iliac fossa as gallstone ileus. It was performed an emergency laparotomy with enterotomy and a 5x3 cm gallstone removal. There were no post-operative complications and the patient was discharged 8 days after surgery.

**Discussion.** Cholecysto-duodenal fistulas are most frequently described in worldwide-reports. There are only few cases in literature of gallstone which enter the gastrointestinal tract following endoscopic retrograde cholangiopancreatography (ERCP) and sphincterotomy through papilla of Vater, without a biliary-enteric fistula, causing gallstone ileus. If the patient is colecistectomized, gallstone removal alone is required.

**Conclusion.** The differential diagnosis in case of small bowel obstruction should always include gallstone ileus, even if the patient previously underwent a cholecystectomy.

KEY WORDS: Gallstone ileus - Small bowel obstruction - Rigler's triad - Colecistectomized patient - Endoscopic biliary sphincterotomy.

### Introduction

Gallstone ileus is an uncommon condition of mechanical bowel obstruction caused by the passage of a gallstone into the bowel. It accounts of 1-3% of cases of mechanical obstruction of the small intestine, but it is a quite important disease especially in patients older than 65 years. It shares 25% of all small bowel obstructions, with a female to male ratio of 3.5-6.0:1 (1). Inflammation and pressure effect of the gallstone causes erosion through the gallbladder wall, leading to a biliary-enteric fistula formation (2, 3). It allows gallstone passage from the gallbladder

to the bowel (4) and air introduction into the biliary tree. The corresponding radiologic evidence of pneumobilia, ectopic gallstone and bowel obstruction constitutes Rigler's triad – the pathognomonic features of gallstone ileus. Less commonly, a gallstone may enter the intestinal lumen through the common bile duct (CBD) and through a dilated papilla of Vater (5) and it is extremely rare to observe gallstone ileus after endoscopic retrograde cholangiopancreatography (ERCP) (6-8). Few case reports about post-cholecystectomy gallstone ileus status have been reported in the literature (9, 10).

### Case report

A 92-year old male with a medical history of ischemic heart disease, hypertension and diabetes

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Figure 1 - Gallstone ileus after enterotomy.

mellitus was admitted to the Emergency Department for a 2 day history of progressive severe abdominal pain, acute constipation and fever. Past sur-

gical history consisted in appendectomy and open cholecystectomy for cholecystitis 30 years before. He had been admitted several times for cholestatic jaundice after cholecystectomy and underwent ERCP with sphincterotomy. Last ERCP with removal of gallstones from CBD was performed seven months before the admission in our Unit. Therefore he came to our attention for the clinical suspicion of bowel obstruction. Physical examination revealed tenderness in the lower abdomen with normoactive bowel sounds. Laboratory blood tests demonstrated high levels of C-reactive protein (PCR) and White Blood Cells (WBC) especially neutrophil, renal dysfunction and increased level of bilirubin and cholestatic enzymes. Plain film x-rays showed multiple gas-fluid levels and pneumobilia. Computed tomography (CT) revealed intrahepatic and extrahepatic biliary dilatation (3,3 cm diameter) and small bowel obstruction (SBO) with a hyperdense image in right iliac fossa as gallstone ileus. The following emergency surgical procedure was performed: 1) laparotomy which revealed distended small bowel loops up to the terminal ileum where a hard, mobile mass was found at 25 cm from ileocecal valve; 2) enterotomy (Figure 1), removal of a 5x3 cm gallstone (Figure 2); 3) closure of enterotomy in two layers using continuous suture. The patient started antibi-



Figure 2 - 5x3 cm gallstone.

otics protocol with Cefazoline and Metronidazole and underwent blood exams that showed improving of WBC and PCR values. There were no post-operative complications. 8 days after surgery he was discharged. Then he started his post-operative and medical follow-up.

## Discussion

The pathogenesis of gallstone ileus is based on complicated cholelithiasis with acute or chronic cholecystitis and adhesion to alimentary tracts, leading to biliary-enteric fistula. The size of the gallstone, the site of fistula formation and bowel lumen will determine whether an obstruction will occur. Gallstones smaller than 2 cm may pass spontaneously through intestinal lumen (2, 3, 11) instead (12) those ranged in size from 2 to 5 cm may be obstructive. Impacted gallstones ranged in size from 2-10 cm, with a mean of 4.3 cm (13).

A Japanese review (13) reveals that intestinal obstruction by gallstones can be described more frequently at the ileus, followed by jejunum and duodenum. According to Massannat et al., the youngest patient presenting gallstone ileum was 13 years old, instead the oldest known patient was 97 years (5).

Cholecysto-duodenal fistulas are most frequently described in worldwide-reports, followed by cholecysto-colonic, cholecysto-gastric and duodeno-left hepatic duct fistulas (14). In literature, there are few cases of gallstone which enter the gastrointestinal tract following endoscopic retrograde cholangiopancreatography (ERCP) and sphincterotomy (as seen in this patient) through papilla of Vater, without a biliary-enteric fistula, causing gallstone ileus. It may be immediately after ERCP (8) or months after (7). It is extremely rare in colecistomized patients (9, 10).

Although clinical symptoms are not specific, patients with gallstone ileus presented with abdominal pain and vomiting which may have partial and temporary remissions depending on the possibility to the gallstone to be disimpacted. Typical radiological images may include pneumobilia, signs of small bowel obstruction, and ectopic calcified gallstone (less than 15% of gallstones are radiopaque). CT is useful for estimating the size and number of impacted gallstones and the transition point between dilated and collapsed bowel (15).

Gallstone removal is typically achieved with an enterolithotomy via a laparotomy. Stone impaction may induce local bowel ischemia which can preju-

dice the closure of the enterotomy so it is preferable to perform the enterotomy proximally mobilizing the gallstone upstream to remove it.

If there is a cholecysto-enteric fistula, simple enterolithotomy is considered as the best surgical approach in most patients. Several studies demonstrate higher mortality in patients undergoing single stage enterotomy, cholecystectomy and fistula closure compared to patients undergoing enterolithotomy alone (16-18). A one-stage cholecystectomy and fistula repair is desirable if local and general patient conditions allow it, because enterolithotomy alone may cause recurrent cholangitis and gallstone ileus (19). Delayed cholecystectomy as a second procedure is clearly justified only in cases of symptom persistence (17) and it is recommended to be performed 4 to 6 weeks later. If the patient is colecistomized, gallstone removal alone is required.

## Conclusions

The differential diagnosis in case of small bowel obstruction should always include also gallstone ileus, even if the patient previously underwent a cholecystectomy. Enterolithotomy with gallstone extraction is considered as the best surgical procedure in these cases.

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