

CASE REPORT

Gallstone ileus with a giant stone and associated multiple stones

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Abstract: Gallstone ileus is an uncommon cause of small bowel obstruction. Gallstone ileus accounts for only about 1–3 % of cases of mechanical obstructions of the small bowel. It usually occurs in the elderly with a female predominance and may result in high mortality rates. The diagnosis is difficult and early diagnosis reduces the mortality. Terminal ileum is the most common site of gallstone impaction. We report a case of gallstone ileus in an 81-year-old female patient who was admitted to our clinic for abdominal pain, vomiting and constipation. The ultrasonography of abdomen revealed a decrease in bowel motion, and dilated bowel segments. Intraoperatively, a giant gallstone and associated multiple stones were found in the ileum 80 cm from the ileocecal valve and extracted from a longitudinal enterotomy (Fig. 4, Ref. 24). Full Text in PDF www.elis.sk.

Key words: gallstone ileus, intestinal obstruction, one-stage procedure.

The causes of mechanical small bowel obstruction include gallstones, foreign bodies, bezoars, tumors, adhesions, congenital abnormalities, intussusceptions, and volvulus. Gallstone ileus is a rare and potentially serious complication of cholelithiasis (1). Clinical symptoms of gallstone ileus are nonspecific. It presents with abdominal pain, vomiting, nausea and worsening of the general state (2). It accounts for 1–3 % of cases of mechanical small bowel obstruction (3, 4). The most common site of impaction of gallstone is the terminal ileum (4, 5). Gallstone ileus is usually a disease of the elderly, with its peak incidence between 65 and 75 years of age and a female to male ratio of 4.5:1 (5, 6). In patients aged 65 years and older, gallstone ileus accounts for 25 % of cases of nonstrangulated small bowel obstructions (5, 7–10). The morbidity and mortality rates of gallstone ileus remain very high. Being a disease of the elderly, it leads to high mortality because of the comorbid diseases of these patients (1, 5, 6, 8).

Case presentation

An 81-year-old female patient was admitted to emergency clinic with complaints of abdominal pain and vomiting. She also had gas and faeces discharge difficulties. The abdominal USG that was performed in another center revealed cholelithiasis and decreased bowel movements. The diameter of common bile duct was 13 mm. She was hospitalized for further evaluation and treatment with a pre-diagnosis of subileus. On physical examination, generalized tenderness of the abdominal wall was detected. The

levels of tumor markers, aspartate aminotransferase (AST), alanine aminotransferase (ALT), total and direct bilirubin were within normal limits, sedimentation 36 (0–20) mm/h, white blood cells 14.4 (4.5–11), respectively. On the second day of hospitalization, the patient was operated with the diagnosis of ileus due to the growing distention, increasing abdominal tenderness, defense and rebound on physical examination. The abdomen was explored from the median incision. An intraluminal mass causing obstruction was palpated in the small bowel that was 80 cm. from the ileocaecal valve (Fig. 1).

A 5-cm-long ileotomy was performed. The cause of obstruction was found to be gallstones, the biggest one being of 6x4x3 cm in dimension. There were nine other gallstones accumulated behind this giant gallstone, approximately 2 cm in diameter for each (Figs 2, 3 and 4). The gallstones were extracted and ileotomy was repaired primarily. Because of the age and general condition of the patient, no additional procedure was performed.

Discussion

Gallstone is a common disease with a 10 % prevalence in the United States and Western Europe. However, it is only symptomatic in 20–30 % of patients, with biliary “colic” pain being the most common symptom. The most common complications of gallstone disease are acute cholecystitis, acute pancreatitis, and cholangitis. Less frequent complications include Mirizzi syndrome, cholecystocholedochal fistula, and gallstone ileus (11).

Gallstone ileus was first described by Dr Erasmus Bartholin in 1654 (1, 4). Biliary-enteric fistula is the major pathologic mechanism of gallstone ileus (12). The gallstone enters the GI tract through a fistula between a gangrenous gallbladder and GI tract. Occasionally a stone may enter the intestine through a fistulous communication between the common bile duct and the GI tract. The terminal ileum is the most frequent site of obstruction,

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but other parts of GI tract can be involved including the stomach, duodenum, jejunum, and ligament of Trietz. Stone impaction at the colon is uncommon (0.5–3 %) (1, 13, 14). In previous studies, the mean stone size was found to be 3.5 cm and commonly single (6, 15). Reisner and Cohen (7) reviewed 1001 cases of gallstone



Fig. 1. Occluded ileum segment.

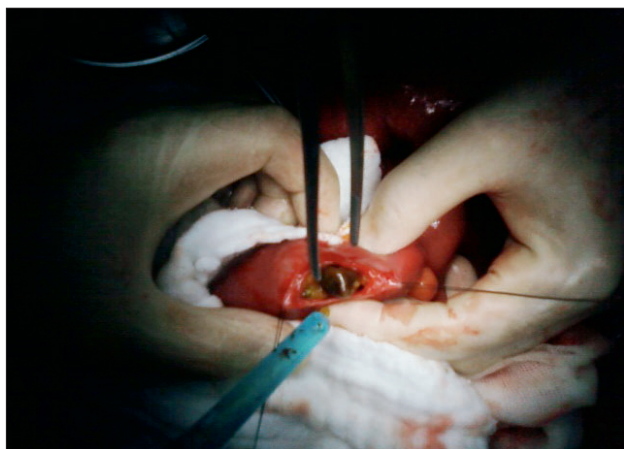


Fig. 2. Gallstones in the ileum.



ileus and reported that the most common locations of impaction of gallstone were the terminal ileum and ileocaecal valve because of their small diameter and less active peristalsis.

The clinical manifestations of gallstone ileus are variable and usually depend on the site of obstruction. The presenting symptom can be varied, such as vague abdominal pain, abdominal distension, vomiting, constipation, or jaundice. Moreover, a small portion of patients may present with hematemesis secondary to duodenal erosions. Published studies indicate that preoperative diagnosis is obtained in only 50–60 % of patients and is often delayed for several days (1, 15).

The diagnosis of gallstone ileus is difficult, usually depending on the radiographic findings. In 50 % of cases the diagnosis is often only made at laparotomy (1). The characteristic radiological sign of gallstone ileus is Rigler's triad, comprising of small bowel obstruction, pneumobilia and atypical migration of mineral shadow on radiographs of the abdomen (3, 16). Lassandro et al (17) compared the clinical value of plain abdominal film, abdominal US and abdominal CT in diagnosing 27 cases of gallstone ileus, and found that the Rigler's triad presented with plain abdominal film in 14.81 %, with abdominal US in 11.11 %, and with abdominal CT in 77.78 % of cases. Additionally, Yu et al (18) studied the value of abdominal CT in the diagnosis and management of gallstone ileus. The overall sensitivity, specificity and accuracy of CT in diagnosing gallstone ileus were 93 %, 100 %; and 99 %, respectively and the authors concluded that the abdominal CT offered crucial evidence not only for the diagnosis of gallstone ileus but also for decision making in management strategy. Rarely, laparoscopy has been used to diagnose this disease (19).

Gallstone ileus usually requires emergent surgery to relieve the intestinal obstruction. Bowel resection is only indicated when there is intestinal perforation or ischemia (1, 20). Although enterolithotomy alone remains the popular operative method in most reports, the one-stage procedure composed of enterolithotomy, cholecystectomy and repair of fistula is necessary, if indicated. Doko et al (21) compared the two surgical strategies in their studies.

Patients were treated either for ileus alone (group 1, 11 patients) or as one-stage procedure with urgent fistula closure (group



Figs 3 and 4. The gallstones extracted from the ileum.

2, 19 patients). Operating time was significantly longer for the one-stage procedure. Complications occurred in 3 of 11 patients (27.3 %) from group 1 and in 11 of 18 patients (61.1 %) from group 2. One patient in group 1 and two patients in group 2 died. Urgent fistula repair was significantly associated with the occurrence of complications. In conclusion, simple enterotomy should be the procedure of choice for patients with gallstone ileus. The one-stage procedure including urgent fistula repair should be reserved only for highly selected patients with absolute indications.

Laparoscopic surgery or laparoscopy-assisted open surgery can be used successfully for gallstone ileus (9, 14, 22, 23). The procedure is started laparoscopically and the exact location of gallstone in the intestine is identified (5). In the setting of gallstone ileus, laparoscopic techniques should be used only by experienced surgeons and in highly selected patients (6).

Lithotripsy is another choice in treatment. But this technique is generally associated with technical difficulties and the reports are limited to small series (6). Besides, some argue that if the stone is broken, the smaller stones might impact distally, causing further obstruction (5).

The prognosis of gallstone ileus is poor. This condition occurs in the elderly people who commonly suffer from concomitant conditions such as cardiorespiratory disease, obesity and diabetes mellitus (1). In the 19th century, the mortality is reported to have been as high as 60 %, dropping to around 40 % by 1960s and to 15–18 % in 1990s (5).

Recent studies reported that the mortality rate was dropping to around 7.5–8 % (8, 24). The recurrence rate of gallstone ileus was less than 5 %, and only 10 % of patients required reoperation for continued symptoms related to the biliary tract (7).

In conclusion, gallstone ileus is a rare cause of intestinal obstruction. The S ileum is the most frequent site of obstruction and commonly a single gallstone causes the obstruction. Gallstone ileus must be considered in intestinal obstruction cases with a past history of gallstone, especially in elderly female patients. Abdominal CT is the preferred modality. Emergent surgical operation is the preferred treatment modality. The presented gallstone ileus in this case report was different because the occlusion region was 80 cm from the terminal ileum, the size of the impacted stone was 6x4x3 cm, and nine other gallstones, each approximately 2 cm in size, were accumulated behind this giant gallstone.

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