

Investigating a rare cause of intestinal occlusion

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Abstract

Gallstone ileus is a rare form of mechanical intestinal obstruction caused by the passage of gallstones in the gastrointestinal lumen and is often diagnosed in elderly females. Diagnosis can be difficult due to nonspecific findings during physical examination and there are a number of options regarding surgical or endoscopic treatment. We report the rare case of a 77-year-old female patient with gastrointestinal obstruction due to a gallstone, but without a cholecystojejunal fistula. Clinicians should be aware of this rare entity especially in emergency situations, as early diagnosis and appropriate subsequent therapy in such cases is essential to reduce mortality.

Introduction

Gallstone ileus is a rare form of mechanical intestinal obstruction caused by the passage of gallstones in the gastrointestinal lumen, which is often present in elderly females. Diagnosis can be difficult due to nonspecific findings during physical examination and there are a number of options regarding surgical or endoscopic treatment. We report the rare case of a 77-year-old female patient with gastrointestinal obstruction due to a gallstone, but without a cholecystojejunal fistula. Clinicians should be aware of this rare entity especially in emergency situations, as early diagnosis and appropriate therapy is vital since the mortality rate is at present of about 7%.^{1,2}

Case Report

A 77-year-old female patient was admitted to our Emergency Room (ER) due to persistent biliary vomiting which had continued for four days. She had previously been treated with metoclopramide but with no benefit. Her past medical history revealed the following conditions: high blood pressure which had been chronically treated with beta-blockers, hypercholesterolemia in statin therapy, hypothyroidism treated with levothyroxine, chronic obstruc-

tive pulmonary disease, hiatal hernia and the presence of gallstones diagnosed after a gallbladder attack three years before admission. She had declined surgery for this last condition. On admission, her arterial blood pressure was 130/70 mmHg, heart rate 100 bpm and O₂ saturation was 94%. She was afebrile and was suffering from constipation and had not passed stools for four days. Physical examination of the abdomen worsened epigastric pain without signs of peritonitis and both cardiac and pulmonary examinations were unremarkable. Blood tests revealed leukocytosis (WBC 13390 mmc), C-reactive protein 1.9 mg/dL, creatinine of 2.2 mg/dL, urea 105 mg/dL, total bilirubin 1.4 mg/dL, AST 103 IU/L (upper normal limit 35) and ALT 91 IU/L (upper normal limit 35). She was treated with i.v. fluids in the ER.

An abdominal x-ray was carried out showing the presence of gasectasia, pathological dilation of small bowel loops with air-fluid levels and presence of a faintly radiopaque image in the intestinal loop (Figure 1). An ultrasonography was carried out confirming the picture to be compatible with gasectasia, a small bowel obstruction (Figure 2A) and one large gallstone (Figure 2B). In order to better define the findings of the two previous imaging techniques which were carried out, the patient underwent computer tomography which revealed the presence of air in the biliary tree, a small bowel obstruction due to the presence of huge ring calcification 3.5 cm in diameter in the lumen of the proximal dilated jejunum loop (Figure 3); the gallbladder was not distended and there were both a gallstone and air inside it (Figure 3); there was no evidence of cholecysto-enteric fistula. The patient underwent surgery and during the operation a small enterotomy was performed and a gallstone in the jejunum was found and extracted. No cholecystectomy was performed and exploratory examination of the gallbladder did not reveal the presence of any fistula. The patient was then admitted to the Intensive Care Unit due to uncontrolled blood pressure and ST alteration at ECG without troponin alteration. The patient was discharged after 10 days in good general health.

Discussion

Intestinal occlusion due to migration of large gallstones is a rare event affecting mainly older females (female-male ratio of 4.5:1) who usually suffer from other comorbidities.^{1,3} It has also been reported that the incidence of gallstone ileus is 0.095% which is a lower percentage than that

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reported in the past.¹ Clinical diagnosis is sometimes difficult as in our present case. The onset symptoms related to gallstone ileus are non-specific, namely, nausea, vomiting and vague abdominal pain as in our case are usually present; occasional acute abdominal pain and distention may also be present.^{4,5}

Preoperative diagnosis is carried out in the majority of cases (about 80%) from a combination of ultrasonography and computed tomography scans¹ as we have reported. We should be aware that a differential diagnosis is essential as this condition may mimic other more frequent diseases such as bezoars, foreign bodies or malignancies.⁶

From a radiological point of view, some authors have claimed the presence of an imaging triad, known as Rigler's triad, which consists in the presence of gas in the biliary tree, small bowel obstruction and the presence of a gallstone inside the bowel lumen.⁷ The dimension of an impacted intestinal stone is 3.6 cm with a range from 2.5 to 4.5 cm, the location commonly being in the terminal ileum, whereas, as however occurred in our case, it is rarely localized in the jejunum.¹ The pathogenesis of gallstone ileus is the presence of a cholecystoenteric fistula which is commonly located at the level of terminal ileum.⁸ In very rare cases cholecystoenteric fistulas are absent as in the case we have reported.⁹ Surgical treatment of large stones is still controversial; current surgical procedures are simple enterolithotomy or enterolithotomy, cholecystectomy and fistula closure in a one-stage procedure or enterolithotomy with

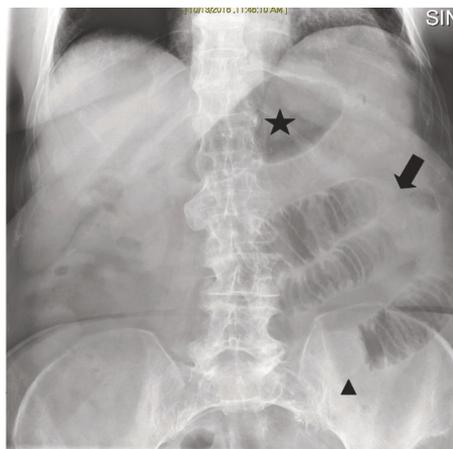


Figure 1. Abdominal x-ray showing the presence of gastrectasia (star), pathological dilation of small bowel loops with air-fluid levels (arrow) and of a faintly radiopaque image (arrowhead).

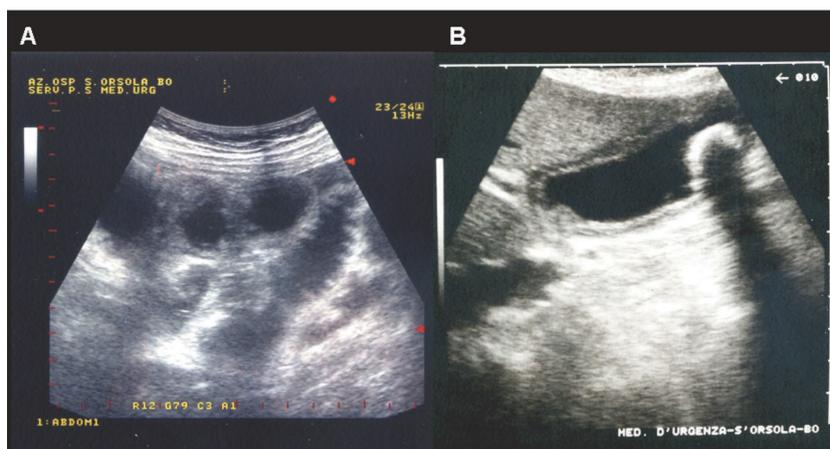


Figure 2. External abdominal ultrasonography. A) Dilatation of small bowel loops associated with bowel wall thickness, presence of fluid-fluid levels and thickness of valvulae conniventes; B) presence of large gallstone.

cholecystectomy performed later; bowel resection may be necessary in certain cases after enterolithotomy is performed.^{2,10}

In recent years, in cases of stones located in the jejunum or in the colon, endoscopic treatment with extraction of the stone may be carried out with or without extracorporeal shock wave lithotripsy to fragment the stones.¹¹

Conclusions

In conclusion, we have reported a challenging case of small bowel obstruction due to a gallstone located in the jejunum without radiological and surgical evidence of a cholecystoenteric fistula. Due to a lack of specific symptoms, a preoperative study based on imaging techniques is the cornerstone of treatment, which has been tailored especially for patients with comorbidities.

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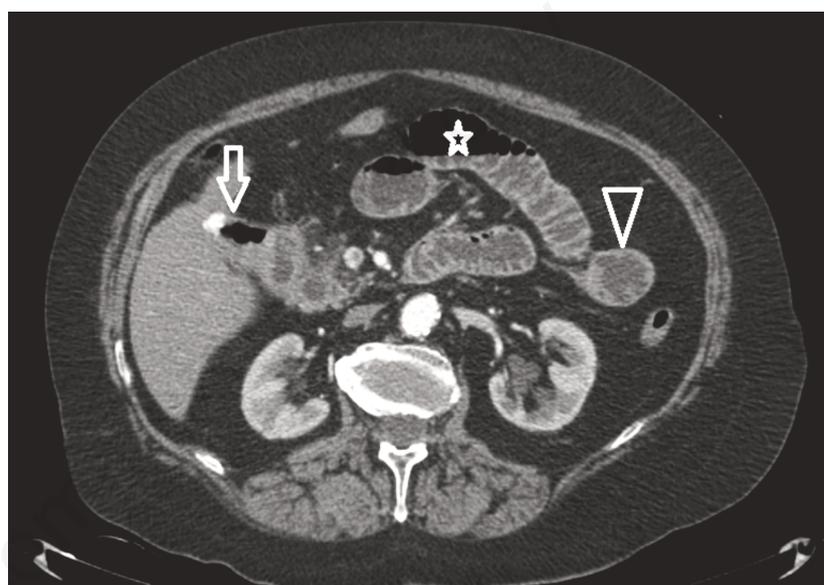


Figure 3. Computer tomography of the abdomen showing the presence of bowel obstruction (star) due to the presence of huge ring calcification 3.5 cm in diameter in the proximal dilated jejunum loop (arrow); the gallbladder was not distended and there were both a gallstone and air inside it (arrow).