

Gallstone ileus.

Report of two cases



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Gallstone ileus: Report of two cases

Gallstone ileus is uncommon. Gallstone impaction in the jejunum was rarely reported.

We report two cases of gallstone impaction in the proximal jejunum and in the distal ileum. One patient was treated with enterolithotomy alone and in the other one enterolithotomy was combined to cholecystectomy and repair of a cholecystoduodenal fistula.

Contrast-enhanced computed tomography of the abdomen is the mainstay of diagnosis. One-stage procedure including both enterolithotomy and cholecystectomy with bilioenteric fistula repair should be reserved to low-risk patients.

KEY WORDS: Gallstone ileus, Small bowel, Surgery.

Introduction

Gallstone ileus, caused by migration of a large gallstone either from the gallbladder or common bile duct into the intestine, is one of the most rare causes of small bowel obstruction accounting for 1–4% of all cases.¹ The peak incidence of gallstone ileus ranges from 65 to 75 years and it is 3–16 times more common in females.² The usual site of impaction of the calculus is the distal ileum. It may be found in the duodenum, causing Bouveret's syndrome. It is very rarely found in the jejunum.³

Controversies exist regarding the best surgical approach for this disease. Some favor enterolithotomy alone as the procedure of choice; others prefer a definitive procedure of cholecystectomy and fistula closure along with enterolithotomy.

We present two cases of gallstone ileus with gallstone impaction in the proximal jejunum and in the distal ileum. We discuss the clinical and therapeutic approach to this rare pathology.

Case reports

CASE N. 1

A 50-year-old man was admitted because of a 7-day lasting abdominal pain and vomiting. He had no history of abdominal surgery and no significant past medical history. Physical examination demonstrated mild abdominal distension with diffuse tenderness and presence of metallic abdominal sounds.

Laboratory studies revealed only moderate leukocytosis (WBC count=11.4 x10³/uL).

Plain abdominal radiograph showed signs of mechanical obstruction of the small bowel. A contrast enhanced computed tomography (CECT) of the abdomen was performed after intravenous injection of non-ionic iodinate contrast. It revealed pneumobilia with air-contrast level in gallbladder lumen. A calcified intraluminal mass was impacted in the lumen of a dilated small bowel loop (Fig. 1).

Based on these imaging findings, a diagnosis of gallstone ileus was suggested and the patient was submitted to emergency surgery.

Enterolithotomy with extraction of the gallstone together with cholecystectomy and repair of the cholecystoduodenal fistula was performed.

The postoperative course was uneventful and the patient was discharged 14 days after surgery in good health.

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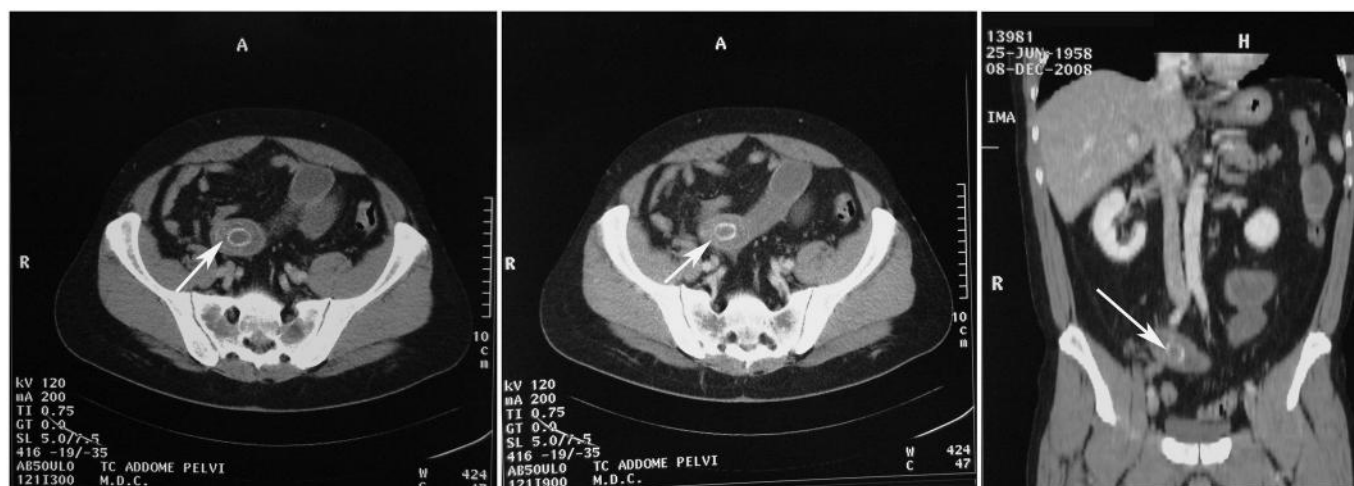


Fig. 1: Axial and coronal CT showing a large calcified stone in the distal ileum (arrow).

CASE N. 2

A 82-year-old female was admitted in the orthopaedic department because of a pertrochanteric traumatic fracture of the left femur. Past medical history documented appendectomy when the patient was 22 years old. Ten days after surgical internal fixation of the fracture the patient complained of persistent biliary vomiting and was transferred to the surgical department. Physical examination showed a normal abdomen with a mild epigastric tenderness. Laboratory investigation revealed only a mild anemic state (RBC count= $3,71 \times 10^6/\mu\text{L}$, HGB=10.1 g/dL, HCT=29.7%) Plain radiographic examination of the abdomen showed signs of proximal small bowel mechanical obstruction. A CECT of the abdomen was performed after administration of diluted (2%) ionic iodinate contrast through a naso-duodenal tube and intravenous injection of non-ionic iodinate contrast. It showed pneumobilia with a 45 mm-wide calcific mass in the small intestine with significant distension of the stomach, duodenum and intestinal loops proximal to the mass (Fig. 2). With the suspected diagnosis of gallstone ileus, the patient was submitted to emergency surgery. A 20 mm-wide gallstone was found in the small intestine 30 cm distal to the duodeno-jejunal flexure and a second 40 mm-wide gallstone was impacted in an intestinal loop 60 cm distal to the duodeno-jejunal flexure. The gallbladder was scleroatrophic with dense fibrotic adhesions with the transverse colon and duodenum and was left in place. Enterotomy with extraction of the two intraluminal gallstones was performed. The postoperative course was complicated by pulmonary edema and the patient died 6 days after operation.

Discussion

Gallstone ileus is a difficult disease to diagnose and the delay in treatment may result in high mortality and mor-

bidity. Patients are often debilitated with multiple medical problems, leading to a reported mortality rate of 15% to 18%.²

In elderly patients abdominal pain and vomiting with signs of small bowel obstruction, a past history of cholecystitis and absence of clinical evidence of strangulation such as inguinal hernias or previous surgeries should arouse suspicion of gallstone ileus. However, gallstone ileus is often insidious in onset and it presents with non-specific symptoms and signs and half of patients do not report a history of biliary symptoms. Plain abdominal x-ray is an important (and less costly) first step to confirm the diagnosis of small bowel obstruction. The classic presentation of gallstone ileus is Rigler's triad of small bowel obstruction, pneumobilia, and atypical migrating mineral shadow.⁴ However, only 10% of gallstones are sufficiently calcified to be visualized radiographically. Moreover, it should be noted that pneumobilia is not a specific sign of gallstone ileus, as it can occur after surgical or endoscopic biliary procedures as well as in cases of incompetent sphincter of Oddi. Exact preoperative



Fig. 2: Axial contrast enhanced CT shows a 45 mm-wide gallstone in the proximal jejunum (arrow) and proximal jejunal dilatation with air-fluid levels (asterisk).

diagnosis can be established in only 30% to 48% of patients.^{4,5} Abdominal ultrasound allows to confirm the presence of cholelithiasis and may identify fistula, if present.⁶ When combined with plain abdominal x-rays, it has a sensitivity of 74% for preoperative diagnosis of gallstone ileus.⁷ The CT findings of gallstone ileus are the equivalent of Rigler's triad: bowel obstruction, pneumobilia (in the gallbladder/bile ducts), and a radiopaque stone at the transition zone of dilated to collapsed bowel. The triad is not present in all patients, even on CT. In a series of 27 patients with gallstone ileus, with retrospective comparison of CT plain films findings and abdominal ultrasound, pneumobilia and an ectopic stone were seen in 82% of cases on CT, with Rigler's triad present in 78% of patients on CT, whereas the triad could be identified in 15% and in 11% of patients on plain films and abdominal ultrasound, respectively.⁸ In the two cases, that we reported, preoperative diagnosis could be established with CECT. We recommend CECT in all cases of intestinal small bowel occlusion with suspected gallstone ileus in order to achieve prompt and accurate preoperative diagnosis.

The treatment of gallstone ileus is controversial and should aim to relieve intestinal obstruction and minimize morbidity and mortality. Surgical options include enterotomy and gallstone extraction alone; cholecystectomy and fistula repair either in combination with calculus extraction (one-stage procedure) or after resolution of the intestinal obstruction (two-stage procedure) were also advocated. The potential complications of enterotomy and gallstone extraction alone include recurrent gallstone ileus, cholecystitis, cholangitis and gallbladder carcinomas.² The combination of cholecystectomy and fistula closure prolongs surgery and is associated with risks of enteric and/or biliary leakage. Simple enterotomy guarantees better results in term of reduced operative morbidity and mortality, when compared with one-stage procedure including cholecystectomy and fistula repair.^{4,5} Moreover, after enterotomy alone gallstone ileus recurs in 5% of cases and only 10% of patients requires subsequent surgery for symptoms related to the biliary tract.^{2,9} These data support the indication to reserve delayed cholecystectomy and fistula repair for persistent or recurrent biliary symptoms.^{4,10} Recently, laparoscopically assisted enterolithotomy was recommended for both diagnostic and treatment purposes.¹¹ However, in gallstone ileus laparoscopic techniques should be used only by experienced surgeons and in selected patients without any previous abdominal surgery.

In conclusion, gallstone ileus is a difficult clinical entity that requires a high index of suspicion in order to avoid the risks related to both delayed diagnosis and therapy. CECT is the most accurate diagnostic technique, because it allows to assess both the cause and the degree of intestinal obstruction and study the biliary status. Because of the high mortality and morbidity related to old age and significant comorbidities, enterolithotomy is

the mainstay of treatment in the emergency setting. The one-stage procedure should be indicated to young patients with low operative risk.

Riassunto

L'ileo biliare è una patologia di riscontro non comune. L'ostruzione con calcolo impattato nell'ileo terminale è di più frequente osservazione rispetto all'ostacolo in sede digiunale raramente descritto. Riportiamo due casi di ileo biliare con calcolo identificato nel digiuno prossimale e nell'ileo distale. Un paziente fu trattato con la sola enterolitomia. Nell'altro caso all'enterolitomia si associò la colecistectomia con riparazione della fistola colecisto-duodenale.

La TC addome con m.d.c. rappresenta la metodica di scelta per la diagnosi.

La procedura chirurgica in un unico tempo che prevede l'enterolitomia, la colecistectomia e la riparazione della fistola colecisto-duodenale dovrebbe essere riservata ai pazienti a basso rischio.

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