

Received: 2016.01.18
Accepted: 2016.02.05
Published: 2016.05.02

An Unusual Presentation of Gallstone Ileus: A Red-Herring or Missed Diagnosis

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

ABDEF 1 **Saif Al-Mudares**
ABE 1 **Mohamed Kurer**
ABDEF 1 **Renol M. Koshy**
DEF 2,3 **Ayman El-Menyar**

1 Department of Surgery, Hamad General Hospital Doha, Qatar
2 Department of Clinical Research, Trauma Surgery, Hamad General Hospital, Doha, Qatar
3 Department of Internal Medicine, Weill Cornell Medical College, Doha, Qatar

Corresponding Author: Saif Al-Mudares, e-mail: saifalmudares@gmail.com, traumaresearch@hamad.qa
Conflict of interest: None declared

Patient: Male, 72
Final Diagnosis: Gallstone ileus
Symptoms: —
Medication: —
Clinical Procedure: Laparotomy
Specialty: Gastroenterology and Hepatology

Objective: Unusual clinical course





Background: Gallstone ileus is a rare complication of chronic calculous cholecystitis and an uncommon etiological entity responsible for mechanical intestinal obstruction. The most common obstructed part is the narrow terminal ileum, whereas the jejunum is rarely affected. The gallstone is postulated to reach the small bowel by gradual erosion from the gall bladder, most commonly into the duodenum, forming a cholecysto-duodenal fistula.

Case Report: Herein, we report a 72-year-old male who presented with intestinal obstruction of a 5-day duration, with a clinical diagnosis of an irreducible inguinal hernia. However, the patient continued to be symptomatic following an uncomplicated hernioplasty. A computerized tomography (CT) scan of the abdomen revealed a small bowel lesion, which intra-operatively was confirmed to be an impacted gallstone in the jejunum with a cholecysto-duodenal fistula.

Conclusions: Despite gallstone is uncommon cause of intestinal obstruction, a high index of suspicion with a careful CT scan interpretation is the key to the diagnosis, especially when there is a red-herring distracting the attention, like irreducible hernia in this case.

MeSH Keywords: Biliary Fistula • Gallstones • Intestinal Obstruction

Full-text PDF: <http://www.amjcaserep.com/abstract/index/idArt/897646>

 1011   6  11



Background

Gallstone disease is a rare cause of mechanical intestinal obstruction; however, it is more common in the elderly, accounting for up to 25% of non-strangulated bowel obstructions [1]. Gallstone ileus is a rare complication of chronic calculous cholecystitis; the stone usually migrates through a cholecysto-duodenal fistula and impacts at the terminal ileum (ileocecal valve), which has the narrowest intestinal lumen [2]. Gallstone ileus poses a diagnostic challenge, especially within the elderly population, who often have many comorbidities [3]. Delay in the diagnosis of ileus increases the morbidity and mortality; therefore, an early and focused approach towards an accurate diagnosis is warranted.

Treatment of gallstone ileus may include enterolithotomy, cholecystectomy and repair of the cholecysto-enteric fistula in one stage, or enterolithotomy alone, depending on the general condition of the patient. Herein, we report an unusual case of gall stone ileus with a misleading presentation and co-incident irreducible hernia.

Case Report

A 72-year-old diabetic man presented to the Emergency Department with a 5-day history of intermittent peri-umbilical colicky pain, associated with bilious vomiting and obstipation. There was no history of similar episodes. He had no abdominal surgery in the past.

On general examination, the patient looked dehydrated. The abdomen was distended and a tender irreducible right inguinal hernia was noted. The significant laboratory results revealed leukocytosis (WBC 14 100/ μ L), elevated blood urea nitrogen (17.9 mmol/L), serum creatinine (153 μ mol/L), blood sugar (18.7 mmol/L), bilirubin15 (normal 1.7–17 μ mol/l), ALP 46 (45–115 U/L), ALT 21 (7–55 U/L), and amylase 25 (23–85 U/L). An abdomen plain X-ray showed multiple air levels at the mid-abdomen, no radiopaque shadow, and no air under the diaphragm (Figure 1).

A computerized tomography (CT) scan confirmed the diagnosis of irreducible hernia (Figure 2). Once stabilized, the patient underwent an uncomplicated right inguinal hernioplasty. Post-operatively, the patient continued to have abdominal pain and distension, and the nasogastric tube drainage revealed intestinal contents. A contrast-enhanced CT (oral and IV contrast) of the abdomen revealed a small bowel mass with proximal dilatation and air within the gall bladder (Figures 3, 4).

The patient underwent a laparotomy and a large gallstone (5×3×2.5 cm) was found impacted in the jejunum, 30 cm from the duodeno-jejunal junction (Figures 5, 6). The duodenum was

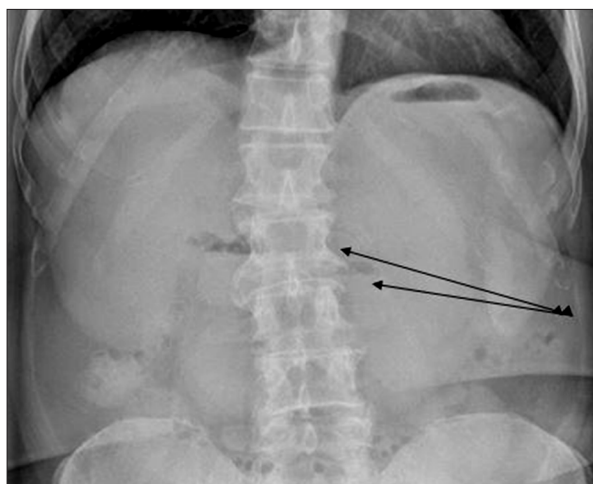


Figure 1. Plain abdomen x-ray: Multiple air levels at the mid-abdomen (arrows), no radiopaque shadow, and no air under the diaphragm.

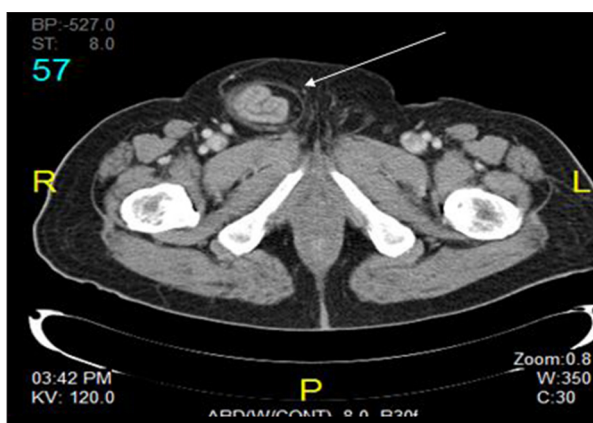


Figure 2. A CT scan with contrast showing an irreducible hernia (arrow).

found to be pulled up into the gallbladder fossa with dense adhesions suggestive of a cholecysto-duodenal fistula (corroborating the CT scan finding of air within the gall bladder). A longitudinal enterotomy was made to extract the stone and it was closed transversely. The post-operative recovery was uneventful. The patient was discharged home on the 7th post-operative day in a good general condition.

Discussion

Gallstone ileus accounts for 1–4% of mechanical small bowel obstruction [3–6]. However, the incidence rate may reach 25% among older patients (>65 years), with a female predominance [3–5].

Gallstone ileus is a rare complication of cholelithiasis, noted in only 2–3% of all cases associated with recurrent episodes of

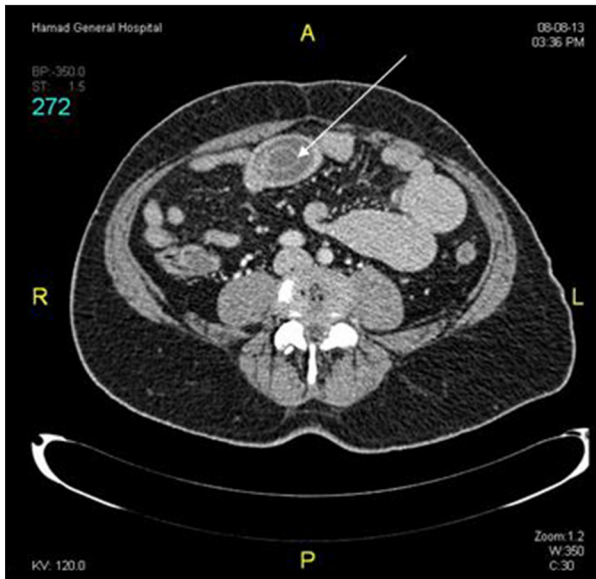


Figure 3. A CT scan with contrast showing an ectopic stone at the jejunum (arrow), and a dilated proximal small intestine.



Figure 5. An intraoperative obstructing gallstone at the jejunum (arrow).

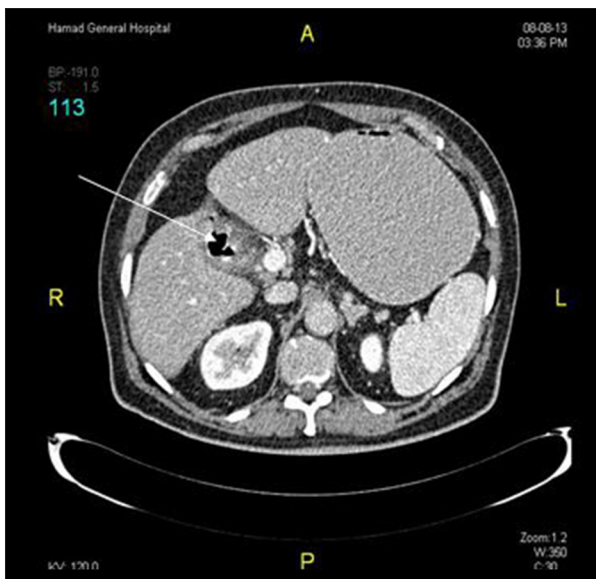


Figure 4. A CT scan with contrast showing air in the gallbladder (arrow).

cholecystitis [3,6]. However, misdiagnosis is common in gallstone ileus and carries a significant rate of complications with a high mortality rate (12–27%) [3].

The most common pathogenesis is attributed to erosion of the gallstone through the gallbladder into the duodenum, forming a cholecysto-duodenal fistula [7]. The gallstone may impact at any part of the gut, but in more than 90% of cases it lodges in the distal part of the ileum [8].



Figure 6. The extracted gallstone.

Symptoms of gallstone ileus may be vague, intermittent, or inconsistent [3–6]. Ayantunde et al. reported a prior history of gallstone disease in only 27% of cases [6]. The accurate preoperative diagnosis of gallstone ileus has been reported in 43–73% of cases, with a delay of 2–4.5 days between admission and surgical intervention [6]. Although plain abdominal X-ray is a main tool in the assessment of small bowel obstruction, it has a sensitivity of only 40–70% in the diagnosis of gallstone ileus [3]. Ultrasonography may offer better results than plain X-ray, but its sensitivity is less than 75%. CT scan offers overall sensitivity, specificity, and accuracy of 93%, 100%, and 99%, respectively [3].

The management of gallstone ileus depends on the size of the stone and the clinical condition of the patient. The main aim of the treatment is to relieve the intestinal obstruction and to minimize the complications. Correction of fluid and electrolyte

imbalance should be the first step to stabilize the patient's general condition.

The choice of surgical management is debatable and is largely determined by the general condition of the patient. Only enterolithotomy is considered adequate in elderly patients with multiple comorbidities [4,6,9]. However, one-stage surgery (enterolithotomy, cholecystectomy, and repair of the fistula) is only considered in young, fit, and hemodynamically stable patients [6,10]. Reisner et al. reported a 16.9% mortality rate of the single-stage procedure, compared to 11.7% for enterolithotomy alone [4]. As spontaneous closure of the fistula is noted in about 50% of patients with enterolithotomy alone, aggressive surgery seems unnecessary [9,11].

In our case, the early diagnosis of gallstone ileus was masked by the coincidence of irreducible inguinal hernia (the red-herring), and the misinterpretation of the CT scan findings, in addition to the lack of history of gallstone disease. The surgical procedure – a simple enterolithotomy – was chosen based on the patient's clinical condition and age. Apart from the morbidity associated with a prolonged hospital stay, the management was justified by the uneventful recovery.

References:

1. Lassandro F, Romano S, Ragozzino A et al: Role of helical CT in diagnosis of gallstone ileus and related conditions. *Am J Roentgenol*, 2005; 185(5): 1159–65
2. Summerton SL, Hollander AC, Stassi J et al: US case of the day. Gallstone ileus. *Radiographics*, 1995; 15(2): 493–95
3. Yu CY, Lin CC, Shyu RY et al: Value of CT in the diagnosis and management of gallstone ileus. *World J Gastroenterol*, 2005; 11(14): 2142–47
4. Reisner RM, Cohen JR: Gallstone ileus: A review of 1001 reported cases. *Am Surg*, 1994; 60(6): 441–46
5. Kirchmayr W, Mühlmann G, Zitt M et al: Gallstone ileus: Rare and still controversial. *ANZ J Surg*, 2005; 75(4): 234–38
6. Ayantunde AA, Agrawal A: Gallstone ileus: Diagnosis and management. *World J Surg*, 2007; 31(6): 1292–97
7. Abou-Saif A, Al-Kawas FH: Complications of gallstone disease: Mirizzi syndrome, cholecystocholedochal fistula, and gallstone ileus. *Am J Gastroenterol*, 2002; 97(2): 249–54
8. Garg MK, Galwa RP, Goyal D, Khandelwal N: Jejunal gallstone ileus: An unusual site of gallstone impaction. *J Gastrointest Surg*, 2009; 13(4): 821–23
9. Marko Doko M, Zovak M, Kopljar M et al: Comparison of surgical treatments of gallstone ileus: Preliminary report. *World J Surg*, 2003; 27(4): 400–4
10. Conzo G, Mauriello C, Gambardella C et al: Gallstone ileus: One-stage surgery in an elderly patient: One-stage surgery in gallstone ileus. *Int J Surg Case Rep*, 2013; 4(3): 316–18
11. Hsu K-F, Yu J-C, Hsieh C-B et al: Gallstone ileus with spontaneous resolution. *Rev Esp Enferm Dig*, 2011; 103(5): 277–78

Conclusions

In the setting of acute mechanical intestinal obstruction, gallstone ileus is a real possibility, despite the lack of clinical clues suggesting gallstone disease. Clinicians must watch out for red-herrings that may distract them from the correct diagnosis. A CT scan, which must be read carefully, remains the criterion standard for early and accurate diagnosis. The surgical procedure of choice should be that with the lowest risk of complications, dictated by the clinical condition of the patient. Moreover, early intervention improves the patient clinical outcome.

Acknowledgment

We thank all the surgical team and nursing staff who were involved in the patient care.

Statement

This case report was approved by the Medical Research Center at Hamad Medical Corporation (IRB #13345/13).