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## Gallstone ileus: A possible cause of bowel obstruction in the elderly population

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### ABSTRACT

**INTRODUCTION:** Gallstone ileus (GI) is characterized by a mechanical occlusion of the ileal lumen as a result of migration of one or more gallstones in the intestinal tract. Less than 1–4% of all cases of intestinal obstruction are derived from this etiology (1,2,3).

**CASE REPORT:** We present a case of small intestinal obstruction owing to a large gallstone in lower ileum in a 66 years old woman. The diagnosis was made by computed tomography, and treated successfully with an enterotomy, with a removal of a 5 cm gallstone, carried out through a longitudinal incision on the antimesenteric border. Post-operative course presented no adverse effects.

**CONCLUSION:** Gallstone ileus should be considered in case of bowel obstruction in the elderly population. Abdominal CT scan is the preferred investigation for a timely diagnosis.

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## 1. Introduction

This work has been reported in line with the SCARE criteria [1].

Gallstone ileus is an uncommon condition that may result when a gallbladder stone enters into the intestinal tract, usually as a result of a fistula between the gallbladder and the duodenum. It's accounting for only 1–4% of all intestinal obstructions. In patients with cholelithiasis only 0.3–0.5% can suffer with gallstone ileus [2]. Chronic irritation, inflammation and pressure effect by gallstone result in erosion of the gallbladder wall [3], leading to a fistula between the gallbladder and the nearest portion of the gastrointestinal tract, usually duodenum (cholecystoduodenal fistula). Through this communication, gallstones can pass into the gastrointestinal tract. As stones migrate, depending on their size, they can cause mechanical bowel obstruction, resulting in abdominal pain, distension, constipation and vomiting. The mortality reported ranges from 12 to 18% [4], particularly in older patient who often have comorbid illnesses. We reported a case of a 66 years old woman, who presented with signs of bowel obstruction, owing to a large gallstone in lower ileum.

## 2. Case report

A 66 years old woman with a medical history of type II D.M was admitted to our surgery department for abdominal pain. The

pain was acute, colicky in nature and radiated to the back. Except for a raised CRP level of 16 mg/L, high blood glucose level, all other investigations were within normal limits. The patient complained of constipation, nausea, vomiting and increased pain in her left abdomen. On clinical examination we observed a distended abdomen with tenderness, guarding and reduced bowel sounds. On rectal examination, there was no stool. Vital signs were within normal limits. The temperature was 38.5 °C, a pulse rate 100 beats per minute (bpm), a blood pressure 140/80 mm Hg. Laboratory examinations showed haemoglobin of 103 g/dl, leucocytes of 7000 cells per cubic millimeter, CRP 265 mg/L, and a normal liver function profile. A nasogastric tube was placed and 1.5 L of dark fluid came out.

Abdominal X-rays showed a subacute small bowel obstruction (Fig. 1) and a CT demonstrated a distended small bowel loops secondary to a calcified mass in the lower ileum (Fig. 2).

After proper preparation, the patient was taken up for surgery.

Enterotomy was performed and a 5 cm gallstone was successfully carried out through a longitudinal incision on the antimesenteric border and then closed transversely to avoid narrowing of the intestinal lumen (Heinicke-Mikulicz technique) (Fig. 3). The gallbladder was surrounded by an intense inflammatory reaction. Cholecystectomy and fistula repair have been delayed to a subsequent operation. Abdominal X-rays showed a subacute small bowel obstruction.

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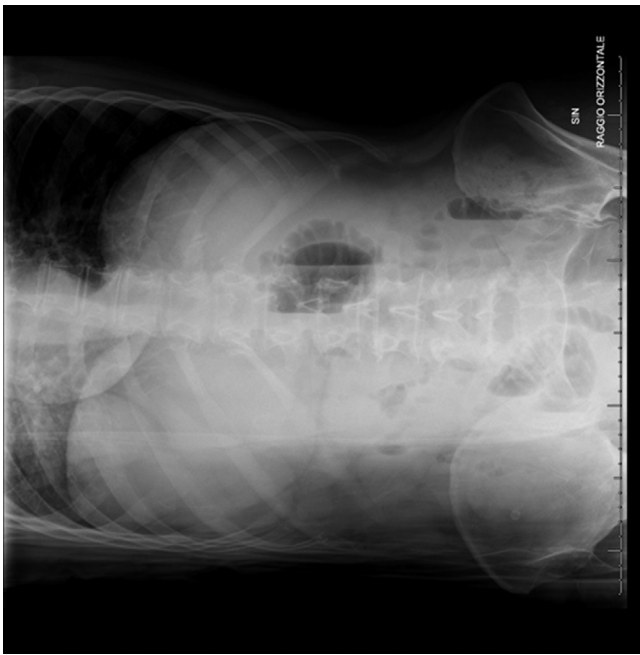


Fig. 1. X-ray shows abdominal levels.

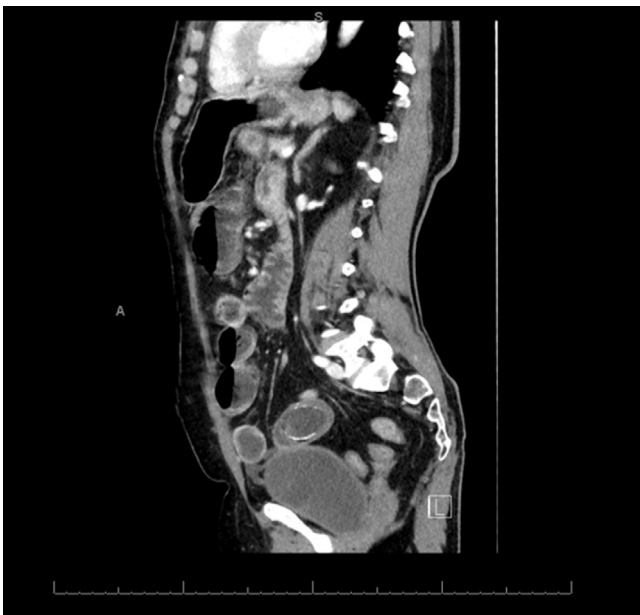


Fig. 2. CT scan shows gallstone in the ileus.

### 3. Discussion

GI is more common in women, and the ratio of females to males is 3.5–1 [5]. The gallstone enters the intestine through a fistula and it can impact anywhere in the gastrointestinal tract [6]. The mortality rates of 12–18%, reflects the comorbidities of these elderly patients. Most reports indicate that the diameter of the gallstone, in order to cause ileus, must be more than 2.5 cm and it usually impacts in the last loops of the ileum or in the ileocecal junction, where the intestinal lumen becomes narrow [7]. Obstructive symptoms are often intermittent and non-specific, so diagnostic delay is characteristic in this syndrome [8]. The physiopathogenesis of cholecysto-intestinal fistula is related to the ability of the organism to organize an inflammatory process on a dehiscence of the

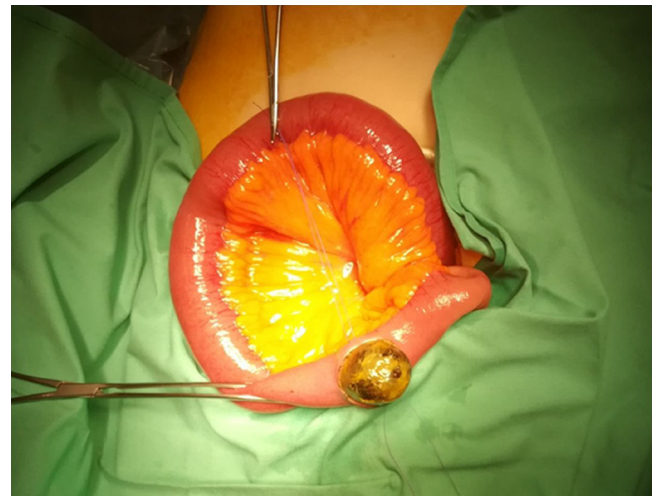


Fig. 3. Intraoperative finding.

gallbladder wall following the presence of endoluminal calculus. The inflammatory process may commonly lead to communication between gallbladder and duodenum or, rarely, communication between gallbladder and colon, stomach or distal ileal segments. Generally, the perforation generates a local inflammatory process which normally causes migration of surrounding soft tissues or of the nearest intestinal tract, including duodenum. In our case, the diagnosis was made by an abdominal X-ray and a Computed Tomography (CT) that showed bowel loops dilatation caused by an ectopic gallstone and air-fluid levels. The patient had a cholecystoduodenal fistula.

The clinical features of gallstone ileus are similar to those of mechanical bowel obstruction [9].

The most common clinical presentation is abdominal pain and vomiting (biliary vomitus and gastric dilatation in a proximal obstruction and, rarely, faecaloid vomitus in distal obstruction).

Treatment generally involves an exploratory laparotomy not only to remove the stone causing the obstruction, but to inspect all small intestine for additional calculi.

Removal of the stone via enterotomy is the technique of choice. Fistula treatment must be considered after resolution, if necessary. The possibility of recurrent cholecystitis and acute cholangitis has been highlighted in patients with unrepaired cholecystoenteric fistulas or retained gallbladders. Acute cholangitis has been reported in 11% of patients with cholecystoduodenal fistula and 60% with cholecystocolonic fistula [10]. Gallbladder cancer could be a long-term potential complication of biliary enteric fistula:

### 4. Conclusion

Gallstone ileus cases are increasing, especially in the context of an aging population in developed healthcare systems. The presentation of this interesting condition is varied and surgical management must be tailored to the individual patient. It is a difficult clinical entity to diagnose and therefore requires a high index of suspicion. Gallstones ileus must be considered in case of intestinal obstruction patients with a previous history of gallstone, especially in elderly females. Abdominal CT scan is the preferred investigation for a timely diagnosis.

### Conflicts of interest

None.

**Funding**

None.

**Ethical approval**

Our study is approved by ethical committee.

**Consent**

We obtained informed consent by patient.

**Author contribution**

Marco De Monti: ideation of study.

Giovanni Cestaro: data check and literature research.

Suleiman Alkayyali: patient's data collection and literature research.

Jacopo Galafassi: grammar check.

Fabrizio Fasolini: supervisor.

**Registration of research studies**

We present a case report.

**Guarantor**

Marco De Monti.

Giovanni Cestaro.

**References**

- [1] R.A. Agha, A.J. Fowler, A. Saeta, I. Barai, S. Rajmohan, D.P. Orgill, SCARE Group, The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (October) (2016) 180–186.
- [2] P.A. Clavien, J. Richon, S. Burgan, A. Rohner, Gallstone ileus, *Br. J. Surg.* 77 (1990) 737–742.
- [3] P.F. Fox, Planning the operation for cholecystoenteric fistula with gallstone ileus, *Surg. Clin. North Am.* 50 (1970) 93–102.
- [4] S.B. VanLandingham, C.W. Broders, Gallstone ileus, *Surg. Clin. North Am.* 62 (1982) 241–247.
- [5] S. Chatterjee, T. Chaudhuri, G. Ghosh, A. Ganguly, Gallstone ileus – an atypical presentation and unusual location, *Int. J. Surg.* 6 (2008) e55–e56.
- [6] W.J. Halabi, C.Y. Kang, N. Ketana, K.J. Lafaro, V.Q. Nguyen, M.J. Stamos, D.K. Imagawa, A.N. Demirjian, Surgery for gallstone ileus: a nationwide comparison of trends and outcomes, *Ann. Surg.* 259 (February(2)) (2014) 329–335, <http://dx.doi.org/10.1097/SLA.0b013e31827eefed>.
- [7] Z. Hussain, M.S. Ahmed, D.J. Alexander, G.V. Miller, S. Chintapatla, Recurrent gallstone ileus, *Ann. R. Coll. Surg. Engl.* 92 (2010) W4–W6.
- [8] C.M. Nun˜o-Guzma˜n, M.E. Marı˜nı-Contreras, M. Figueroa-Saı˜nchez, J.L. Corona, Gallstone ileus. Clinical presentation, diagnostic and treatment approach, *World J. Gastrointest. Surg.* 8 (1) (2016) 65–76.
- [9] O. Al-Obaid, Gallstone ileus: a forgotten rare cause of intestinal obstruction, *Saudi J Gastroenterol.* 13 (2007) 39–42.
- [10] X.-Z. Dai, G.-Q. Li, F. Zhang, X.-H. Wang, C.-Y. Zhang, Gallstone ileus: case report and literature Re- view, *World J. Gastroenterol.* 19 (33) (2013) 5586–5589.

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