

# Laparoscopic management of biliary ileus. A case report

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## Background:

The presence of mechanical intestinal obstruction due to a stone of biliary origin is rare in young male patients, the majority is caused by a biliodigestive fistula, generally cholecystoduodenal, in this case we present a brief review of the literature and report a clinical case of a 51-year-old male patient with a diagnosis of intestinal obstruction and a clear example of gallstone ileus who underwent laparoscopic surgery to resolve the obstruction.

## KEYWORDS:

Biliary ileus, intestinal obstruction, laparoscopy.

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## Case Report

General Surgery



**G**allstone ileus is a rare complication of cholelithiasis, it is more common in older patients, female, with a female to male ratio of 3.5-3.6:1 (1), with a history of cholelithiasis and several comorbidities. It represents 1-3% of intestinal obstructions, due to the impaction of a gallstone within the intestinal tract.

It is caused by the passage of a stone from the biliary tract to the intestinal lumen through an entero-biliary fistula. The most frequent fistulous tract is located between the gallbladder and the duodenum (1). Gallstones most frequently affect the terminal ileum (61%), followed by the jejunum (16%), the stomach (14%) and the large intestine (4%) at the rectosigmoid junction (2). Barnard syndrome occurs when the stone obstructs the ileocecal valve. Only 3% of patients have Bouveret syndrome, which is the result of the stone lodging in the duodenum and blocking the gastric outlet (1).

The clinical presentation can be acute, subacute or chronic. In the patient with acute biliary ileus, the patient presents with symptoms of intestinal obstruction, with abdominal distension, vomiting, constipation, and general malaise. Subacute biliary ileus presents with the absence of bowel movements, but with gas channeling. In the chronic presentation, or Karewsky syndrome, it is characterized by recurrent episodes of constipation caused by the passage of biliary stones through the intestinal lumen, with periods of asymptomatic time. It is important to

establish the clinical data since when an intraoperative diagnosis is made, the immediate complications are greater than with a preoperative diagnosis (3).

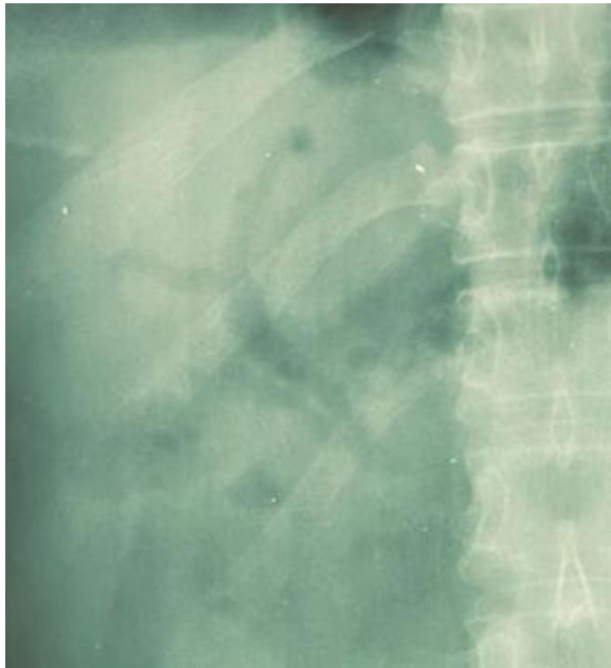
Imaging studies are the key to the diagnosis of biliary ileus. Rigler's triad consists of the presence of air-fluid levels, pneumobilia and ectopic biliary stone, in a simple abdominal X-ray (4). The presence of 2 of 3 signs establishes the diagnosis. Abdominal tomography with double contrast is considered the reference method for the diagnosis of biliary ileus, with a sensitivity above 90% since it identifies Rigler's triad in 77% compared to ultrasound (11.1%) and simple abdominal X-ray (14.81%) (5).

Surgical treatment of biliary ileus is performed as a result of its preoperative diagnosis or by intraoperative finding and the approach can be an enterolithotomy, alone, or surgery in one or two stages (1). Enterolithotomy alone is the extraction of a stone through an enterotomy, without performing fistulectomy or cholecystectomy (6). Single-stage surgery involves a particular biliary technique (cholecystectomy or cholecystostomy), with fistula closure and enterolithotomy. Two-stage surgery consists of enterolithotomy alone, with interval cholecystectomy plus fistula repair (1).

The use of upper endoscopy is reserved for patients with Bouveret syndrome, or colonoscopy when there is an obstruction in the ileum or colon (1).

Complications of biliary ileus if a rapid anamnesis is not performed can lead to perforation of

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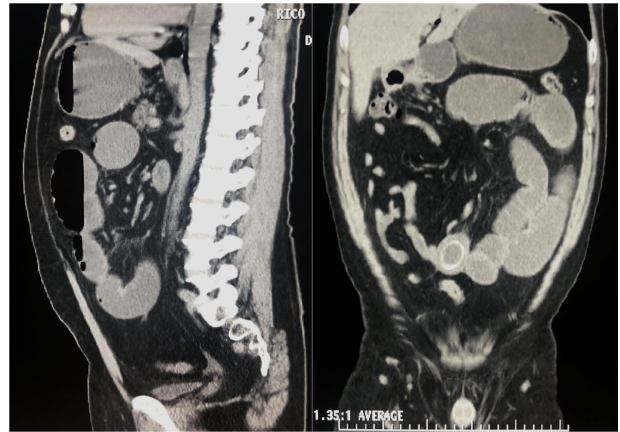


**Figure 1.** Plain abdominal X-ray showing the presence of air in the bile duct (pneumobilia).

the jejunum mainly or ileum due to an increase in pressure and direct mechanical damage to the mucosa, finally resulting in ischemia, necrosis and perforation especially in patients with the presence of diverticula (7,8).

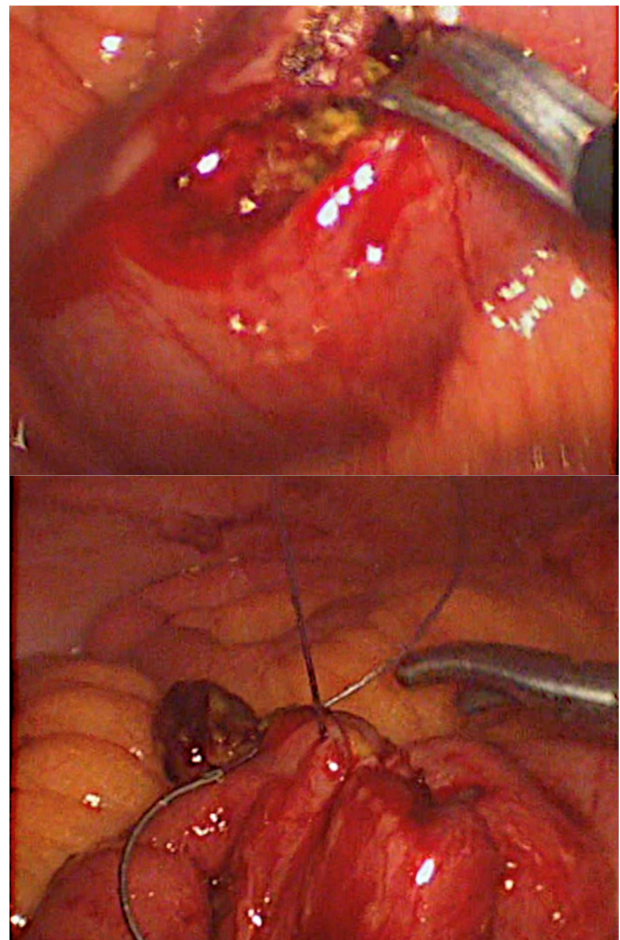
### Case report

We present the case of a 51-year-old male patient with no chronic-degenerative or surgical history, admitted for generalized abdominal pain with abdominal distension, accompanied by nausea and vomiting on 2 occasions. A diagnosis of intestinal occlusion of 5 days of evolution was made. It was decided to perform a CT scan in which an impacted stone at the intestinal level, pneumobilia and distention of intestinal loops were observed (Figure 1,2), fulfilling the criteria of biliary ileus, he was scheduled for laparoscopic surgery for the extraction of the stone, it was decided to place a nasogastric tube. 24 hours before performing the surgical procedure with the intention of achieving greater decompression, decreased intestinal distension and thus having better exposure to properly perform intestinal manipulation, the patient was prepared by following the pre-surgical protocol and plan. Diagnostic laparoscopy was performed finding dilated loops up to the gastric chamber, omental plastron in the sub-hepatic region, Parkland V gallbladder, a search was made from the ileocecal valve with gentle manipulation of the intestinal loops, an obstruction was found at 330 cm, identifying a projection of the impacted stone through the intestinal loop denoting the proximal dilation of



**Figure 2.** Computed tomography sagittal and coronal projection showing dilated small bowel loops with biliary stones inside.

the intestinal loop, hyperemia of the wall and a continuity after the projection with an intestinal loop of a smaller caliber, a 3 cm longitudinal enterotomy was performed and a stone of approximately 29 mm was removed, subsequent closure in two enterotomy planes in a transverse direction with 3-0 polyglycolic



**Figure 3.** Longitudinal enterotomy with the presence of biliary stones and subsequent closure in the transverse direction.

acid to reduce the risk of stenosis (Figure 3), a new diagnostic laparoscopy was performed confirming the absence of intestinal remains, a soft closed drain was placed in the pelvic cavity, and the absence of leakage was confirmed in enterotomy. The patient had a favorable evolution with relief of symptoms on the first postoperative day and adequately tolerating the start of oral diet with improved consistency. He was discharged with alarm data and with follow-up for closure of the biliodigestive fistula and thus a total resolution of the pathology preventing recurrence in a second surgical procedure.

## Conclusion

Gallstone ileus is a rare pathology in which it is important to perform and identify the clinical data of obstruction (4), which may be silent in these patients and therefore should be supported by imaging studies to demonstrate the etiology of the obstruction. In this case, with the presence of a gallstone in the jejunum, pneumobilia and dilated intestinal loops (Rigler's triad), it is demonstrated that laparoscopic intervention can resolve the intestinal obstruction with good results in the immediate postoperative period. This leads us to propose laparoscopic access as the treatment of choice in these cases (6,7). This is a safe route even in the presence of intestinal dilation, with a similar operating time to the open route, in addition to the widely described benefits of laparoscopy such as lower systemic inflammatory response, shorter hospital stay, less postoperative pain and better aesthetic result, to mention a few (8).

## Conflicts of interests

The authors of this article declare no conflicts of interest.

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