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*RESEARCH ARTICLE*

# A CASE REPORT ON BILIARY ILEUS AS A RARE TRIGGER FOR INTESTINAL OBSTRUCTION

**Youssef Ibneloualid, Mohamed Benchouk, Tariq Ahbala, Elhabib Lammat, Khalid Rabbani and Abdelouahed Louzi**
General Surgery Department, Mohammed VI University Hospital Center of Marrakech, Marrakech, Morocco.

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## Abstract

**Introduction:** Biliary ileus is a rare mechanical obstruction. It is caused by the entrapment of biliary macro-lithiasis in a portion of the digestive tract arising from a bilio-digestive fistula. We report a clinical case to better understand this disease, as well as to illustrate the diagnostic and therapeutic pitfalls, and to determine the current therapeutic strategy.

**Observation:** We report the case of a 71-year-old patient who was admitted to the emergency department for an occlusive syndrome consisting of cessation of matter and gas, vomiting and abdominal pain for 48 hours. An injected abdomino-pelvic CT scan showed a biliary ileus with 3 jejunal and ileal enclave lithiases giving a upper intestinal obstruction. There were no signs of acute cholecystitis. Management was straightforward with enterolithotomy alone after correction of hydroelectrolyte disorders. Postoperative management was straightforward.

**Conclusion:** Biliary ileus is a rare surgical condition. The high mortality rate in the management of this pathology means that enterolithotomy remains the least invasive and most recommended method.



## Introduction:-

Biliary ileus is an ancient pathology, described since 1654 by Dr. Erasmus BARTHOLIN, a Danish physician, on an autopsy [1]. It causes a mechanical obstruction due to the impaction of one or more ectopic gallstones at any level of the digestive tract, resulting from a bilio-digestive fistula. It is a rare pathology and accounts for 1-4% of all mechanical obstructions [2]. In the literature, the elderly female population is most concerned, with an average age of 65 years [2]. Currently, diagnosis is easy with abdominal CT scans, and management must be urgent in order to limit complications and mortality, which are very high. Several therapeutic strategies have been described, including enterolithitomy alone, the "one-stage procedure", bowel resection and, more recently, assisted laparoscopy and endoscopic treatment.

We report a case of biliary ileus in a 71-year-old patient admitted with upper intestinal obstruction.

**Case presentation**

A 71-year-old man with a pathological history of recurrent hepatic colic was admitted to the surgical emergency department five days after the onset of his symptoms, which included abdominal pain, vomiting, meteorism and

**Corresponding Author:-Youssef Ibneloualid**
Address:-Surgical Resident General Surgery, Mohammed VI University Hospital Center of Marrakech, Marrakech,Morocco.

cessation of bowel movements and gas. Clinical examination on admission revealed a conscious patient, hemodynamically stable (HD) and apyretic at 37°C. Abdominal examination revealed a slightly tender distended abdomen and an empty rectal ampulla on rectal examination. Biological tests revealed hemoglobin at 12g/dl, mild hyperleukocytosis at 11,000 elements/mm³ and platelets at 376,000 elements/mm³. The blood ionogram was normal, apart from a slight functional renal insufficiency with urea at 0.78g/dl and creatinine at 13 mg/l. An unprepared abdominal X-ray was performed, revealing hydro-aeric levels of the small intestine type.

The patient was conditioned and rehydration was started with placement of a nasogastric tube to compensate for gastric stasis, and monitoring of HD status and diuresis. In view of this unexplained subocclusion, an abdomino-pelvic CT scan was carried out, revealing distended small intestines, aerobilia (Figure 1), and the presence of a 3cm foreign body located in the small intestine (Figure 2), leading to the diagnosis of biliary ileus.

Under these conditions, a surgical indication was decided upon. The approach was a peri-umbilical median laparotomy. After grouping the 3 macrolithiases at ileal level, a longitudinal enterotomy was performed on the anti-mesenteric border, allowing their extraction (fig. 3, 4 and 5). Transverse ileal suture with separate stitches. The supra-mesocolic stage had not been manipulated, and the gallbladder and bilioduodenal fistula had not been explored, at the risk of creating further lesions.

The patient was then taken into intensive care. Post-operative management was straightforward, with resumption of transit on day 3 and normalization of renal function. The patient was discharged home on day 7 post-op.

## Discussion:-

The first descriptions of biliary ileus date back to 1654 [1]. It is a rare entity accounting for 1-4% of mechanical occlusions [2]. It occurs more frequently in women, with an average age of 65 years [2, 3, 4]. Several mechanisms may explain its occurrence. The most common is bilio-digestive fistula, which forms as a result of inflammatory changes and adhesions following episodes of acute cholecystitis [1]. This appears to be the case in our patient, in view of the episodes of hepatic colic reported by the patient. More rarely, lithiasis migrates into the intestinal lumen following procedures such as endoscopic sphincterotomy and cholecystectomy. However, occlusion is only possible if the stone is larger than 2.5 cm [5]. The average duration of symptoms before diagnosis is three days in the literature [6].

Biliary ileus is manifested by a characteristic radiological triad known as Rigler's triad: intestinal obstruction, aerobilia and visualization of a calculus in the digestive lumen [7]. Diagnosis is therefore made on abdominal CT scan with contrast medium injection, to visualize the stone, characterize it (site, size, presence of a fistula) and look for signs of complications (digestive suffering, pneumoperitoneum) [8, 9]. Multi-planar reconstructions most often enable visualization of a cholecysto-duodenal fistula and precise identification of the transitional zone (usually ileal) [10].

Gallstones can sometimes be multiple [10] and their mean size is 36mm [6], corresponding to the dimensions of the calculus in our observation. Topographically, the location of the gallstones, in decreasing order of frequency, is ileal, jejunal, gastric, colonic and duodenal [3, 7]. The therapeutic approach depends on several parameters. When gallstone is located in the colon, a wait-and-see attitude can be adopted. Indeed, cases of spontaneous stone evacuation have been reported in the literature [3]. However, it is important to ensure that there are no signs of intestinal distress or obstructions (such as colonic diverticula or tumours). When the gallstone is located in the small intestine, several procedures are possible, depending on the condition of the bowel: enterolithotomy or intestinal resection with immediate or deferred restoration of continuity. With regard to cholecystectomy and fistula treatment, there is no real consensus. They can be performed in the same operation (one-stage procedure) [11]. Nevertheless, large series have shown the superiority of fistula repair with remote cholecystectomy, given the comparative morbimortality (19% after one-stage procedure versus 0% for enterolithotomy followed by cholecystectomy and deferred fistula treatment) [12, 13].

The preferred approach is laparoscopy, which is less invasive [14]. Other therapeutic modalities are possible, such as endoscopic treatment, particularly in cases of Bouveret's syndrome [15], laser lithotripsy [16] or extracorporeal lithotripsy [17], but with the risk of distal ileus caused by stone fragments. In our study, the choice of approach is linked to the surgeon's habits.

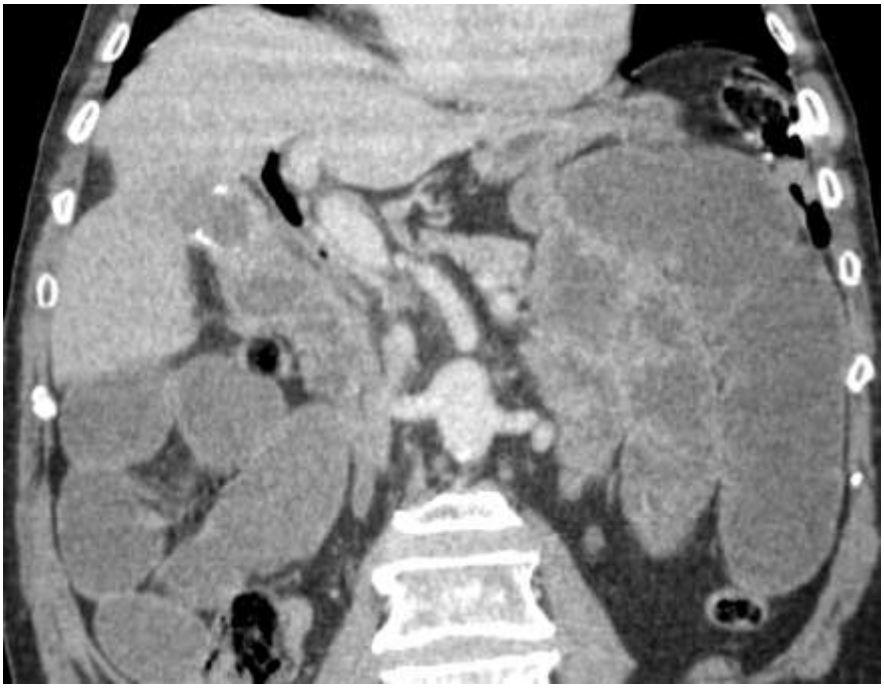

**Figure 1:-** a CT in coronal reconstructions, with injection of contrast product revealing distended small intestines and aerobilia.

**Figure 2:-**a CT in transversal reconstructions, with injection of contrast product showing presence of a foreign body located in the small intestine.

**Figure 3:-**Intra-operaive picture after grouping the 3 macrolithiases at ileal level.

**Figure 4:-** Longitudinal enterotomy on the anti-mesenteric border and extraction of gallstones.

**Figure 5:-** Extraction of 3 gallstones.

## Conclusion:-

Biliary ileus is rare. It manifests as an intestinal obstruction. Diagnosis is confirmed by abdominal CT scan. Treatment is usually surgical, depending on the characteristics of the stone and the condition of the intestinal tract. Enterolithotomy is the most frequently performed procedure. Cholecystectomy and treatment of the fistula are thus deferred. Early diagnosis reduces morbidity and mortality.

**Declaration of Competing Interest**
The authors report no declarations of interest.

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