



BILIARY ILEUS: A CASE REPORT AND REVIEW OF THE LITERATURE

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ABSTRACT

We report on a case of biliary ileus in a 74 year old woman presented in Emergency Center with vomiting, abdominal distention, absence of stool and flatus and abdominal pain. Biliary ileus is a very rare obstruction of gastrointestinal tract caused by gallstone that had migrated from gallbladder to stomach or intestine through bilioenteric fistula. The diagnostic procedures include anamnesis, physical examination, laboratory findings, erect abdominal X-ray and contrast-enhanced CT scan. Rigler's triad is the imaging diagnostic sign seen on abdominal X-ray and it consists of intestinal obstruction, pneumobilia and ectopic gallstone. The type of surgical intervention is determined by the clinical status of the patient, age and comorbidities. Enterolithotomy removes the cause of bowel obstruction and is performed in elderly patients, but in young, healthy patients it can be combined with cholecystectomy and fistula closure.

KEYWORDS : biliary ileus, gallstone, bilioenteric fistula, enterolithotomy

INTRODUCTION

Biliary ileus is a very rare obstruction of gastrointestinal tract caused by gallstone (one or more) that had migrated from gallbladder to stomach or intestine through bilioenteric fistula. It has been described by Dr Erasmus Bartholin¹ on an autopsy in 1654. and since then, this rare condition remains very intriguing and still controversial.

Recurrent episodes of acute cholecystitis lead toward adhesions between the gallbladder and digestive tract². Furthermore, Beltran and Csendes stated that an impacted stone creates mucosal ischemia and necrosis, leading to the formation of fistula with hepatic or common bile duct³. That very same mechanism of fistula formation can be applied to other biliary fistulas with gastrointestinal tract⁴.

The fistula between duodenum and gallbladder is the most frequent type of bilioenteric fistulas⁵. Fistulas between gallbladder and stomach or large bowel are less frequent. Biliary ileus is very rare complication of cholelithiasis – 0.3 up to 0.5%⁶. It is predominant in females, causing 1 - 4% of small bowel obstruction. In elderly patients (aged over 65 years) gallstone ileus is more frequent, accounting for approximately 25 % of all small bowel obstructions^{7,8}.

Mortality in patients with biliary ileus cannot be neglected since it is estimated from 12 to 27%, according to *Alexiou et al*⁹. Also, morbidity rates reaches up to 50%, due to advanced age of patients, present comorbidities, frequently delayed hospital admission and postponed onset of therapy⁶.

Clinical presentation may differ according to the place of obstruction. The most frequent place of obstruction is terminal ileum, while the Barnard's syndrome occurs when the gallstone obstructs the ileocecal valve¹⁰. Bouveret's syndrome refers to obstruction that is causing the gastric outlet syndrome, thanks to

stone lodging in duodenum^{2, 3, 10}. Colonic obstruction due to gallstone lodging is present in less than 4.8 %, according to the study by *Ishikura et al*¹¹. Presentation of biliary ileus can be acute, subacute and chronic⁴. The acute onset of biliary ileus is determined by bowel distention, vomiting and constipation. In the subacute presentation patient has no stool, but has flatus, which is referred as low-grade bowel obstruction. Finally, chronic presentation is characterized by recurrent episodes of pain which is caused by gallstone migration through bowel⁴.

The diagnostic procedures include anamnesis, physical examination, laboratory findings, erect abdominal X-ray and at last, but not the least, contrast – enhanced CT scan. Erect abdominal X-ray has sensitivity range from 40-70%^{12, 13}. Rigler's triad is the imaging diagnostic sign seen on abdominal X-ray and it consists of intestinal obstruction, pneumobilia and ectopic gallstone¹⁴. Pneumobilia itself is referred as Gotta-Mentschler sign⁴. The diagnosis is set when there are present two of those three signs^{15, 16}. The combination of ultrasound and erect abdominal X-ray has the sensitivity of 74%¹⁷. In their study, Lameris et al. showed that a conditional CT strategy (CT scan had been done only after negative or inconclusive ultrasound) has missed only 6 % of urgent cases¹⁸.

Contrast-enhanced CT scan is lead by experts as the most sensitive diagnostic approach, although formal guidelines are still lacking¹⁹.

CASE STUDY

We would like to report the case of 74 year old woman presented in Emergency Center with vomiting, abdominal distention, absence of stool and flatus and abdominal pain. The patient with these symptoms refused the suggested hospitalization one day before. Physical examinations showed the abdominal distention, the absence of peristaltic bowel movements (verified by auscultation) and diffuse abdominal pain on palpation. Erect abdominal X-ray showed air-fluid

levels, with pneumobilia -Gotta-Mentschler sign (fig.1).

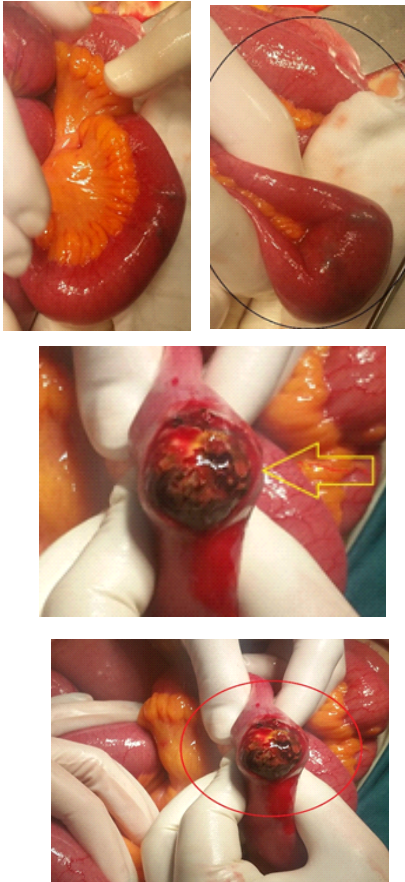
Figure 1. Erect abdominal X-ray showed air-fluid levels, with pneumobilia -Gotta-Mentschlers sign



As a diagnostic procedure, ultrasound showed distended small bowel, empty gallbladder and ascites. Patient had previous history of arterial hypertension, diabetes mellitus and cholelithiasis. Laboratory findings on admission showed elevated serum level of CRP (116.6 mg/L), as well as elevated urea (28.7 mmol/L) and creatinine (138 mmol/L) levels.

After the short preoperative preparation, the patient underwent surgical procedure. Intraoperative findings showed the distended small bowel, two palpable tumefacts in terminal ileum and numerous adhesions in the right hypochondrium.(fig.2)

Figure 2. Intraoperative finding



Considering the advanced age of patient, present commorbidities,

delayed admission and consecutive postponed onset of therapy, enterolithotomy and suture of terminal ileum have been done. The intestines were completely palpated to avoid leaving behind a non obstructive gallstone.

Patient was discharged on ninth day of hospitalization, without surgical complications. On the next medical check-up six months after surgical procedure, patient had no symptoms of bowel obstruction.

DISCUSSION

Biliary ileus is a very rare obstruction of gastrointestinal tract caused by gallstone (one or more) that had migrated from gallbladder to stomach or intestine through bilioenteric fistula. It has been described by **Dr Erasmus Bartholin¹** on an autopsy in **1654**. and since then, this rare condition remains very intriguing and still controversial.

The biggest controversy still remains the type of surgical procedure in the first operation. The treatment must resolve bowel obstruction, establishing adequate intestine function. Enterolithotomy removes the cause of bowel obstruction, while bowel resection is indicated only in the case of impaired vascularization and intestine necrosis.

The exact treatment of bilioenteric fistula remains unclear. **Reisner and Cohen⁷** in their study on more than 1000 cases of biliary ileus concluded that simultaneous surgery of bowel obstruction and bilioenteric fistula is associated with higher mortality (17%), compared to those without gallbladder removal or surgical resolution of bilioenteric fistula (11.7%). They claimed that prolonged surgery with cholecystectomy and/or bilioenteric fistula resolution is not suitable for elderly patients and often related to diverse variety of complications. Since our patient was an elderly lady, with several comorbidities, we decided to perform simple enterolithotomy, without cholecystectomy and resolving bilioenteric fistula.

One – stage surgery combines simultaneous resolution of bowel obstruction and cholecystectomy, with fistula closure. **Nuno-Guzmán et al.⁵** and **Williams et al.¹⁰** advocate this method because, according to them, it reduces the risk for gallbladder carcinoma and biliary ileus recurrence to 1%. **Riaz et al.²⁰** in their study evaluated patients with biliary ileus between 1990. and 2005. Five patients underwent enterolithotomy and five also underwent enterolithotomy combined with cholecystectomy and fistula repair as one – staged procedure. They concluded that the type of surgical intervention was determined by the clinical status of the patient. Enterolithotomy alone has been done in unstable patients, unlike one – staged procedure that has been done in strictly hemodynamically stable patients.

Considering this, it can be concluded that one – staged procedure is suitable only to hemodynamically stable patients, that are stabilized in preoperative period, with adequate cardiovascular and metabolic reserve. Also, surgeon must think of prolonged postoperative course and the need for admission in intensive care unit.⁴

Contrary to one –staged procedure, two - staged procedure combines enterolithotomy with cholecystectomy and fistula closure, but with time gap between those two surgical procedures. Two – staged procedure can be advocated in young, healthy patients that are likely to develop recurrent biliary ileus and biliary complications.⁶ The big advantage of this approach is that fistula closure can be done by experienced hepatobiliary surgeon, if needed.

One of the biggest issues considering biliary ileus is recurrence. According to **Mir et al.²¹**, who made a systematic review of literature from May 1912. to April 2015, there were 113 cases of recurrent biliary ileus. For the 106 patients the data was available for the type of primary surgical intervention: biliary ileus was treated in 92 cases

(86.7%) with enterolithotomy, while 5 people were treated conservatively. The time for biliary ileus recurrence is very important; the authors stated that recurrence emerged within the six months after operation in 91 cases (85%). After detailed analysis of observed data, they concluded that improvement of surgical techniques and perioperative care a delayed two – stage treatment (enterolithotomy and bilioenteric fistula resolution) may provide the best results in selected cases considering recurrent biliary ileus²¹.

CONCLUSIONS

Biliary ileus is a rare condition, predominant in patients with advanced age. Therefore, it is often misdiagnosed and treated incorrectly. For older patients, with present comorbidities, the safest procedure is enterolithotomy alone, in order to resolve bowel obstruction. In younger, otherwise healthy individuals, the safest way to treat is two – staged procedure that can be done by experienced hepatobiliary surgeon.

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