

Gallstone Ileus: An Unusual Cause of Small Bowel Obstruction: A Case Report

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Abstract: Gallstone ileus represents a rare complication of chronic cholelithiasis and is considered a mechanical bowel obstruction caused by one or more gallstones becoming lodged in the gastrointestinal tract. The etiology of gallstone ileus is due to the transit of a calculus through a cholecystointestinal fistula. In all cases of acute abdomen, diagnostic suspicion and appropriate first surgical treatment are important for an adequate clinical progression due to its low incidence. On other hand, due to the high incidence of gallstones, such situations may arise in ordinary clinical practices, and clinicians should evaluate gallstone ileus as a possible cause of bowel obstruction. However, because of the poor general health of ileus patients, choosing an appropriate treatment is challenging, and clinicians must make a decision on which surgery to perform. We present a case of an elderly patient who presented to our emergency department with gallstone ileus that received a prompt diagnosis and urgent surgical resolution.

Keywords: Gallstone Ileus • Small Bowel Obstruction • Surgery • Case Report

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INTRODUCTION

Gallstone ileus is a mechanical bowel obstruction caused by gallstone impaction in the gastrointestinal tract. This etiology is found in less than 1% of cases of intestinal obstruction [1,2]. This unique complication has been described in 0.3% to 0.5% of cholelithiasis patients [3,4]. The bilio-enteric fistula allows the problematic stone to enter the gastrointestinal tract. The stomach or duodenum, and less typically, the small and large intestines, are involved in more than 90% of individuals with gallbladder fistulas [1,2]. The symptoms and indications of gallstone ileus are mostly nonspecific [5,6], but gallstone advancement could result in alternating aggravation and relief of bowel obstruction and it is a common clinical manifestation. The majority of patients with gallstone ileus are elderly, have several comorbidities, are in poor general health, and have a delayed diagnosis, which can result in dehydration, shock, sepsis, or peritonitis [1].

CASE PRESENTATION

A woman 82 years old, with multiple heart and neurological comorbidities and a history of cholelithiasis and gallbladder disease, developed biliary vomiting, crampy abdominal pain, and bowel sub-obstruction 4 days before emergency department admission. Laboratory findings showed electrolytes and serum liver parameters in the normal range; blood count revealed signs of inflammation (WBC 25.700 g/l). At the abdominal CT scan, a laminated

calcified mass in the descending part of the duodenum (Figure 1) was identified. EUS detected a gallbladder with some fine stones, without signs of acute cholecystitis. Urgent surgery was indicated.

At laparotomy, a 5 cm obstructing foreign body was found in the medium-jejunum and pushed up to the distal ileum. A longitudinal incision was performed, and a gallstone was extracted (Figure 2). The gallbladder was left in place. The patient recovered uneventfully and was discharged on postoperative day 1.



Figure 1: Computed tomographic scan demonstrates a laminated calcified mass in the descending part of the duodenum.



Figure 2: Extraction of the gallstone from the distal ileum.

DISCUSSION

Gallstone ileus is a rare and peculiar complication of chronic cholelithiasis in which gallstone impaction within the gastrointestinal system causes a mechanical bowel obstruction. Intestinal obstruction caused by this aetiology accounts for less than 1% of all cases [1]. This condition has been found to be more common among the elderly, the majority of whom have concomitant multiple comorbidities.

Gallstone ileus is diagnosed based on clinical symptoms and imaging results. On a plain X-ray of the abdomen, the presence of a radio-opaque stone, pneumobilia, intestinal blockage, and a shift in the position of the stone on serial X-ray (Rigler's triad and tetrad) is considered diagnostic [7]. These are the qualities. However, are only found in about half of all patients [1]. The diagnostic sensitivity of ultrasonography when combined with plain X-ray observations is increased to 74% [7]. With a sensitivity and specificity of more than 90%, a contrast-enhanced CT scan is considered the investigation of choice [8]. The role of endoscopy in detecting the problematic stone and the cholecystoduodenal fistula has been described anecdotally [1].

The primary goal of operative treatment is represented by the relief of bowel obstruction, but surgery could be indicated for both stone extraction to resolve the ileus and closure of the fistula. The possible surgical procedures are:

- Simple enterolithotomy
- Enterolithotomy, cholecystectomy and fistula closure (one-stage procedure)
- Enterolithotomy with cholecystectomy performed later (two-stage procedure)

Bowel resection is not always necessary after enterolithotomy [1]. Simple enterolithotomy represents the mainstay of surgical treatment. Reisner and Cohen [9], in their review on 1001 cases, reported a mortality rate for a simple enterolithotomy of 11.7% with respect to 16.9% of mortality in patients undergoing simultaneous enterolithotomy and removal of gallbladder and bilio-enteric fistula (one-stage procedure). The authors concluded that simple enterolithotomy is both safe and effective in dealing with a fragile patient with multiple comorbidities with gallstone ileus.

The timing of surgery to remove the bilio-enteric fistula is debatable. It is frequently accompanied with significant morbidity and mortality, hence it is only considered in patients who would benefit from it in terms of preventing recurrence [10].

In a recent review, Inukai [11] analyzed the various

surgical procedures according to the gallstone impaction site in a recent review. The study concluded that in situations of duodenal impaction, the cholecystoenteric fistula can be closed in the same surgical field, and one-stage surgery results in a favorable outcome; thus, one-stage surgery is recommended. Natural closure of the cholecystoenteric fistula and low mortality is expected in situations of small bowel impaction; consequently, a two-stage operation, possibly using minimally invasive laparoscopy, may be undertaken. Finally, in cases where the colon is obstructed, natural closure of the cholecystocolonic fistula is unlikely, and patients are at high risk of reflux cholangitis from faecal fluid, so a one-stage operation is recommended [11].

CONCLUSION

In conclusion, gallstone ileus comprises less than 1% of gastrointestinal obstruction cases, with an increased prevalence in the elderly, generally with a neglected history of cholelithiasis. Due to the rarity of this urgent condition, there are no randomized studies that support a preferred

treatment. No formal recommendations exist on optimal management in an acute setting. Surgeons should judge the feasibility of surgery on the basis both of the impact site and patient's general condition. If possible, the large prospective studies are expected to define the best surgical management.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

AUTHOR CONTRIBUTIONS

All authors contributed significantly to the present case report and reviewed the entire manuscript.

CONSENT

The patient gave written informed consent to the publication of this case report and its accompanying images. On request, a copy of the written consent has been submitted to this Journal.

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