

A case of gallstone ileus with an unusual impaction site and spontaneous evacuation

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ABSTRACT

Gallstone ileus is an unusual cause of colonic obstruction. The formation of a fistula between the gall bladder and the bowel wall may allow a gallstone to enter the intestinal tract. Plain abdominal films, abdominal ultrasound and abdominal computed tomography aid in the diagnosis. Although surgery is the treatment of choice in cases of colonic gallstone ileus, colonoscopic removal of the impacted stone should be attempted. We describe the case of an 85-year-old man who presented with symptoms and signs of large bowel obstruction. Diagnostic evaluation revealed a large gallstone impacted in the sigmoid colon, which is a rather unusual impaction site. Despite our efforts we could not extract the stone endoscopically, mainly due to its large size. Yet, despite its large size, the stone was spontaneously evacuated a few hours later.

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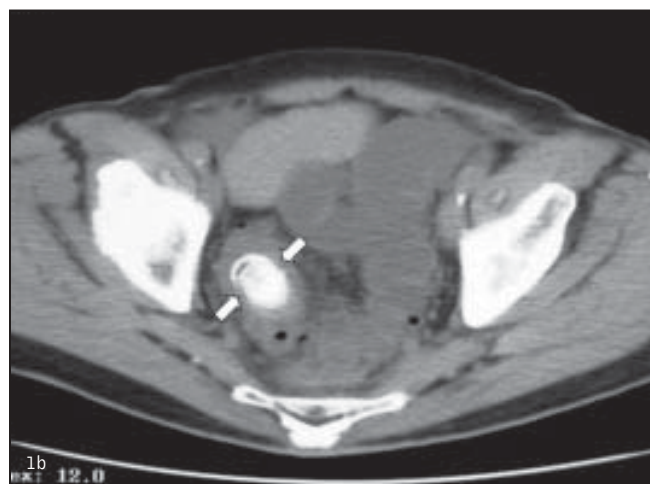
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Colonic gallstone ileus (GSI), an uncommon cause of large bowel obstruction, is a mechanical obstruction caused by intraluminal impaction of one or more gallstones which enter the colon usually via a cholecystocolonic fistula. In the elderly, GSI is a more frequent problem and is a cause of significant morbidity.¹ We describe a case of large bowel obstruction secondary to a large gallstone impacted in the sigmoid colon.

Case History

An 85-year-old man was admitted to our hospital with a three-day history of intermittent bouts of colicky abdominal pain, vomiting

and progressive abdominal distension. He had two episodes of acute cholangitis during the last year. He underwent endoscopic retrograde cholangiopancreatography with endoscopic sphincterotomy, and balloon extraction of gallstones from the common bile duct. He refused to undergo cholecystectomy. Abdominal examination revealed a non-tender soft abdomen, with visible peristalsis, and hyperactive bowel sounds on auscultation. Laboratory examination showed a white blood cell count of $11,500/\text{mm}^3$ (neutrophils 82%), normal serum liver enzymes and amylase values. Plain abdominal X-rays demonstrated pneumobilia, multiple air-fluid levels, and a calcified mass in the left iliac fossa. Computed tomography scan of the abdomen revealed pneumobilia, and the presence of a large calcified mass in the rectosigmoid area, suggestive of a gallstone (Figures 1a and 1b). Sigmoidos-



Figures 1a and 1b: Abdominal CT scan reveals (a) pneumobilia and (b) a large calcified mass in the rectosigmoid area (arrow)



copy was performed, and a large golden-green gallstone approximately 4 cm in size was visualized in the sigmoid colon. Multiple erosions were demonstrated at the impaction site in the rectosigmoid area. Attempts to capture the stone with a polypectomy snare, a Dormia basket and retrieval net failed. The patient was therefore referred for laparotomy after obtaining consent from the patient's guardian. However, one hour after the endoscopic procedure, the gallstone was spontaneously evacuated. Plain films of the abdomen in the following hours showed decompression of the bowel loops and no gallstone could be seen. The patient recovered uneventfully, but refused to undergo any further therapeutic management. He remains well on follow-up after 6 months.

Discussion

Gallstone obstruction of the large bowel is a rare condition, in which the stone almost always impacts at the level of the sigmoid colon, usually due to a pathologic narrowing at that point (e.g history of diverticulitis).²⁻⁶

Stones that impact within the colon enter the bowel via a cholecystocolonic fistula or less commonly via a cholecystoduodenal fistula.⁵ GSI is frequently preceded by an episode of acute cholecystitis. The resulting inflammation and adhesions facilitate the erosion of the offending gallstone through the gall bladder wall forming a cholecystoenteric fistula and allowing the passage of the gallstone.¹

The gallstone should be at least 2-2.5 cm in diameter to cause obstruction.¹ The site of impaction can be anywhere in the gastrointestinal (GI) tract. The terminal ileum and the ileocecal valve are the most common locations because of their narrow lumen and potentially less active peristalsis. Reisner and Cohen¹ reported that only in 4% of cases the stone was impacted in the colon, probably because most gallstones that are small enough to pass through the ileocecal valve readily pass through the rectum. Spontaneous evacuation of a gallstone which has caused obstruction is very uncommon.

Most patients with colonic GSI present with symptoms of large bowel obstruction. Only 25% of patients with GSI have history of biliary colic in the preceding one year.¹ The most important investigation in the evaluation of GSI is a scout film of the abdomen.⁷ The classic roentgenographic signs, described by Rigler et al, include intestinal obstruction, pneumobilia, aberrantly located gallstone and change of location of the previously identified stone on serial exams.⁸ Pneumobilia occurs only in one-third of the cases due to occlusion of the cystic duct or the common bile duct from the inflammatory process within the gall bladder.¹

Surgery is the treatment of choice. The appropriate surgical intervention for GSI is controversial. The choices are enterolithotomy alone or enterolithotomy in combination with cholecystectomy, division of the fistula and common bile duct exploration, if indicated.¹ Cholecystectomy in patients with GSI is usually technically demanding, due to the multiple epi-

sodes of cholecystitis, leading to the formation of dense adhesions between the gall bladder and the adjacent hollow viscera (mainly the duodenum and, more rarely, the colon), and eventually to the establishment of a pathologic communication between the gall bladder and the lumen of the GI tract (biliary-enteric fistula). This can explain why open cholecystectomy is often required in these patients. During the operation, the entire length of the bowel should be examined for additional stones, owing to a 10 to 40 % incidence of multiple stones within the GI tract.^{5,9} A one-stage procedure involving the removal of the gall bladder and the fistula has higher mortality, but the incidence of biliary complications can increase after enterolithotomy alone.¹ However, the majority of patients with GSI are elderly with concomitant diseases. Thus, a one-stage procedure should be preserved for low-risk patients. In view of the high mortality and morbidity rate, alternate procedures such as extracorporeal shock wave lithotripsy (ESWL), and electrohydraulic or mechanical lithotripsy have been suggested, but this depends on the site of the obstruction.¹⁰ In cases of colonic GSI, colonoscopic removal of the stone should be attempted but this procedure may not always be possible.

In our case the stone was lodged in the sigmoid colon, which is a rather unusual impaction site. Additionally, no pathologic narrowing could be identified by colonoscopy at the impaction site. Also, the patient had no history of diverticulitis. Despite our effort we could not extract the stone endoscopically, mainly due to its large size. Yet, after the endoscopic procedure, the stone was spontaneously evacuated. Probably, the colonoscopic procedure, although unsuccessful, facilitated the passage of the stone through the bowel.

Although gallstone obstruction of the colon is an unusual condition, it should be considered in the differential diagnosis of large bowel obstruction. Plain radiography, abdominal US and CT are very helpful in establishing the correct diagnosis. Though surgery is the treatment of choice, endoscopic removal of the impacted stone should be attempted, especially in elderly patients who due to concomitant diseases are unfit for surgery.

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