



## Colonic gallstone ileus: An unusual presentation of bowel obstruction

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### Abstract

Colonic gallstone ileus is a rare cause of large bowel obstruction caused by a gallstone migrating through a cholecystocolonic fistula. Its nonspecific symptoms often delay diagnosis, increasing morbidity and mortality. We report a 61-year-old man with constipation, abdominal distention, pain, and absent bowel movements. CT revealed a gallstone in the sigmoid colon. Colonoscopy confirmed a cholecystocolonic fistula in the transverse colon and an impacted gallstone in the sigmoid colon. The patient underwent urgent endoscopic stone retrieval followed by elective cholecystectomy, fistula takedown, and colotomy repair. This case emphasizes the need to consider this rare diagnosis.

**Keywords:** Gallstone ileus; Large bowel obstruction; Cholecystocolonic fistula.

### Introduction

Gallstone ileus, a rare condition occurring in 0.3-0.5% of patients with gallstones, represents approximately 1-4% of all cases of intestinal obstruction [1,2]. It is more commonly seen in elderly females, with an average age of 72 years [3]. This condition typically follows a diagnosis of acute cholecystitis, with persistent inflammation and adhesions being the contributing factors. Subsequently, pressure necrosis can develop in the gallbladder wall, leading to the formation of a biliodigestive fistula and the migration of one or more stones into the bowel [1]. Gallstone ileus within the colon is the rarest variant of this condition and is characterized by a stone migrating to the large bowel through a cholecystocolonic fistula. Here, we present a patient who presented with constipation and was found to have gallstone ileus with a stone lodged in the colon. This case report outlines the treatment approach and current management guidelines for this rare condition.

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### Case report

A 61-year-old male with a history of hypertension, hyperlipidemia, and coronary artery disease presented to the emergency department with a two-day history of constipation, abdominal distention, pain, and absence of bowel movements. On physical examination, the abdomen was distended, soft, and accompanied by diffuse abdominal tenderness. Laboratory investigations, including liver function tests, were within normal limits except for a white count of  $12.9 \times 10^9/L$ .

Abdominal ultrasound revealed multiple impacted gallstones within the gallbladder and a diffuse gallbladder wall with calcifications. CT abdomen and pelvis showed a stone-filled distended gallbladder, segmental colonic inflammation, and a stone within the sigmoid colon, along with sigmoid colitis (Figure 1). Subsequently, the patient underwent a colonoscopy, which revealed a large stone lodged in the distal sigmoid colon (Figure

2). During the colonoscopy, multiple attempts to retrieve the stone were unsuccessful. The patient was subsequently taken to the operating room and underwent flexible sigmoidoscopy, during which removal was attempted using a Roth net. After several failed attempts, the stone was eventually maneuvered towards the rectum and successfully retrieved using ring forceps (Figure 3).

A second colonoscopy was scheduled after the stone was removed. Two sessile, non-bleeding polyps were found in the ascending colon and removed using cold biopsy forceps. A 10 mm cholecystocolonic fistula was noted in the proximal transverse colon (Figure 4) and biopsied. Mild segmental inflammation, characterized by erythema, was observed in the rectosigmoid colon at the site of the previous gallstone impaction.

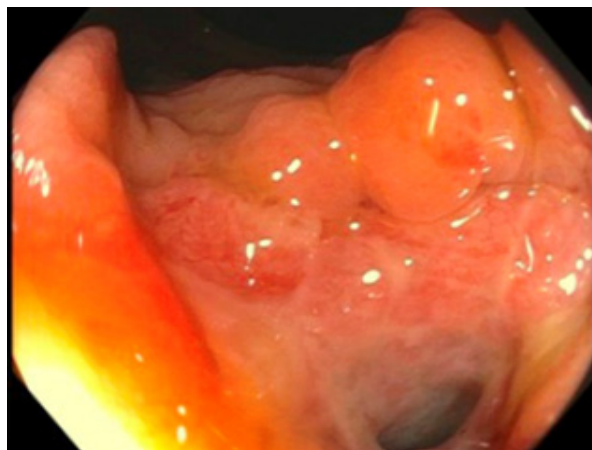
The patient was subsequently seen in the clinic for symptom evaluation and surgical planning. A period of observation is allowed for the resolution of inflammatory changes. After obtaining appropriate anesthesia clearance, the patient underwent a robot-assisted laparoscopic cholecystectomy, takedown of the cholecystocolonic fistula, and primary repair of the colotomy. The patient recovered well postoperatively and was discharged on the next day. Histopathological examination revealed chronic cholecystitis with cholelithiasis. The soft tissue from the fistula tract and the resected segment of colon, including the site of colotomy, demonstrated benign colonic tissue and a portion of benign liver disease.



**Figure 3:** Image depicting a 4.1×3.0×2.8 cm gallstone following transanal retrieval from the sigmoid colon.



**Figure 1:** CT showing a gallstone lodged within the sigmoid colon; left- coronal view, right - axial view.



**Figure 4:** 10 mm cholecystocolonic fistula within the transverse colon.



**Figure 2:** Stone within the recto-sigmoid colon.

### Discussion

Gallstone ileus is one of the rarest causes of large bowel obstruction. The most common location for a gallstone causing intestinal obstruction is the terminal ileum (50.0%–60.5%),

followed by the jejunum (16.1%–26.9%), duodenum (3.5%–14.6%), and colon (3.0%–4.1%) [4]. Due to its rarity and nonspecific clinical manifestations, large bowel obstruction secondary to gallstone ileus presents a diagnostic challenge. Patients typically present with abdominal pain, distension, vomiting, and constipation [2,5]. However, distinguishing features such as a history of cholelithiasis or previous biliary surgery may provide valuable clues. In cases of large bowel involvement, symptoms may mimic those of colonic malignancy or diverticulitis, further complicating the diagnostic process.

The diagnosis of large bowel obstruction secondary to gallstone ileus relies on a combination of clinical suspicion, radiological imaging, and colonoscopic findings. The gold standard for diagnosing colonic gallstone ileus is CT imaging, which has a sensitivity of 93% and a specificity of 100% [4]. Abdominal X-ray may reveal signs of bowel obstruction, such as dilated loops of bowel and air-fluid levels. However, the definitive diagnosis often requires more advanced imaging modalities such as CT scan or Magnetic Resonance Imaging (MRI) [6].

Currently, the management of large bowel obstruction secondary to gallstone ileus involves a multidisciplinary approach, including surgical and/or endoscopic interventions [1]. Management strategies include bowel cleansing enemas, endoscopic retrieval or lithotripsy, or laparoscopic surgery [7,8]. There is no consensus on the surgical management of gallstone ileus; however, the primary goal of treatment is to relieve the mechanical obstruction and prevent further complications such as bowel ischemia or perforation [6,8]. This can be achieved by enterolithotomy alone, or enterolithotomy plus cholecystectomy plus fistula closure (as a one-stage procedure), or enterolithotomy with cholecystectomy and fistula closure performed at a later date (a two-stage procedure) [6,8].

Common postoperative complications include acute renal failure, urinary tract infections, ileus, abdominal abscess, or anastomotic leaks [10]. In select patients with colonic gallstone ileus (such as our patient), an endoscopic approach can be deployed to remove the stone. Ultimately, the choice of intervention depends on the patient's clinical status, underlying comorbidities, and the extent of bowel involvement.

The prognosis of large bowel obstruction secondary to gallstone ileus depends on the timeliness of intervention and the presence of associated complications. Early recognition and prompt surgical intervention are associated with better outcomes and reduced morbidity and mortality [8]. However, delayed diagnosis or inadequate treatment can lead to complications such as bowel perforation, peritonitis, or sepsis, thereby significantly impacting patient prognosis [2]. Therefore, close monitoring and vigilant management are crucial in optimizing clinical outcomes in these patients.

### Conclusion

Large bowel obstruction secondary to gallstone ileus is an exceptionally rare clinical entity that poses significant diagnostic and therapeutic challenges due to its nonspecific presentation and resemblance to more common gastrointestinal pathologies. A high index of suspicion, particularly in patients with a history of cholelithiasis, is essential for early diagnosis. Cross-sectional imaging, particularly CT scans, plays a pivotal role in confirming the diagnosis, while Colonoscopy can serve both diagnostic and therapeutic. Treatment requires a multidisciplinary approach tailored to the patient's clinical condition, with the primary objective being prompt relief of obstruction followed by definitive surgical intervention.

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