



# Gallstone ileus of the colon: case report about an unusual cause of large bowel obstruction

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**Background:** Gallstone ileus is a rare complication secondary to gallstone disease and typically consists of the development of a cholecystoduodenal fistula that tends to occur in patients with a history of acute cholecystitis. Even more infrequent is the passage of stones directly into the colon causing a large bowel obstruction. Due to its rarity, there is currently no treatment consensus and management involves relief of obstruction with either endoscopic removal or surgical intervention. This case report exemplifies that conservative treatment can be attempted prior to considering surgical intervention.

**Case Description:** We present the case of an 88-year-old male who presented with 5 days of obstipation and was found to have a cholecystocolonic fistula and an impacted gallstone in the distal sigmoid colon on imaging. This was treated with endoscopic intervention by fragmenting the stone into smaller pieces which successfully relieved the blockage. The patient's diet was advanced and he was discharged home on post-procedure day one.

**Conclusions:** Gallstone ileus is primarily a disease of the elderly and therefore a conservative approach is an acceptable initial treatment option. This case demonstrates that a conservative approach can be effective in relieving obstruction in stable patients. This is desirable in the elderly population with significant comorbidities who have higher risks of surgical complications.

**Keywords:** Gallstone ileus; cholecystocolonic fistula; large bowel obstruction; case report

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## Introduction

Colonic gallstone ileus is a rare phenomenon of large bowel obstruction that occurs when a gallstone passes directly from the gallbladder to the colon via a cholecystocolonic fistula. This disease process is more common in the elderly and due to its diagnostic challenge and late presentation, there is higher associated mortality and morbidity (1-3). Here we present the case of an elderly male who presented with a large bowel obstruction secondary to a gallstone that fistulized into the transverse colon and subsequently became impacted in the sigmoid colon. We present the following article in accordance with the CARE reporting

checklist (available at <https://ales.amegroups.com/article/view/10.21037/ales-22-9/rc>).

## Case presentation

An 88-year-old male with history of hypertension, hyperlipidemia and recent stroke presented to our emergency room with dull lower abdominal pain over the last 2 weeks which had intensified over the last few days. His pain was associated with five days of obstipation and a few hours of emesis prior to arrival. He denied any previous abdominal surgeries and reports his last colonoscopy was 10 years ago and unremarkable. His labs were all within

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**Figure 1** CT scan demonstrating cholecystocolonic fistula (yellow arrow) and calcified mass (red arrow). CT, computed tomography.



**Figure 2** Obstructing gallstone on colonoscopy.

normal limits and vital signs were stable. On physical exam, the patient's abdomen was distended, tympanic on percussion with mild lower abdominal tenderness. Initially, the radiologist noted a 2.6 cm calcified descending colonic mass on computed tomography (CT) scan causing a large bowel obstruction. However, upon further review, pneumobilia was noted, leading to speculation the large, calcified mass was a gallstone and the patient had a cholecystocolonic fistula (*Figure 1*). The patient was admitted to the surgical service and kept strictly nil per os (NPO) the day of admission. Serial abdominal exams and lab work throughout his first hospital day remained stable. An abdominal ultrasound demonstrated collapsed gallbladder with no biliary duct dilation or concern for



**Figure 3** CT scan demonstrating persistent cholecystocolonic fistula (yellow arrow) and evacuation of gallstone. CT, computed tomography.

choledocholithiasis. Decision was made to proceed with colonoscopy the following morning. Upon starting the procedure, there was found to be a large obstructing stone located in the proximal sigmoid colon (*Figure 2*). Patient did not have evidence of diverticular disease or strictures; however, his sigmoid colon was tortuous with an acute angle at the rectosigmoid junction that the stone could not traverse. Multiple endoscopic instruments were utilized to mobilize the stone, including various forceps and snares. The Snaremaster™ (20 mm × 0.28 mm) electro-surgical snare was eventually used to break the stone into smaller pieces which successfully relieved the blockage. The entire procedure duration was over 60 minutes. Once all pieces of the stone were removed, the descending colon was evaluated where there was no evidence of necrosis or perforation. There was only mild inflammation noted around the area of the obstructing gallstone.

Patient was kept NPO post-procedure. The following day a repeat CT scan was performed which demonstrated mild colitis around the sigmoid colon where the stone was initially impacted but no evidence of remaining gallstones pieces or concerns for perforation (*Figure 3*). The patient's diet was advanced and he was discharged home on post-procedure day one.

Three months later, he was seen outpatient by his gastroenterologist for persistent abdominal pain. An magnetic

resonance cholangiopancreatography (MRCP) demonstrated choledocholithiasis with a stone seen in the lower common bile duct and he was sent to the emergency room and underwent endoscopic retrograde cholangiopancreatography (ERCP) and sphincterotomy the following day. He was kept overnight and the following morning, his bilirubin normalized and he was discharged home.

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

## Discussion

Gallstone ileus is a rare complication secondary to gallstone disease and typically consists of the development of a cholecystoduodenal fistula that tends to occur in patients with a history of acute cholecystitis. The fistula results in migration of stone(s) into the small bowel and, if large enough, will often become impacted typically within the terminal ileum at the ileocecal valve (3,4). It is much rarer to have a cholecystocolonic fistula develop, which allows for passage of stones directly into the colon. If large enough, these stones can lead to large bowel obstruction, as occurred with our patient.

Due to the rarity of colonic obstruction secondary to gallstones, there are no specific treatment guidelines established. The most common therapeutic approach seen in the literature for obstruction is surgical intervention (1-3,5). This is likely secondary to the indolent nature of presentation and acute worsening of symptoms prompting surgical intervention over endoscopy (2). A systematic review by Farkas *et al.* (6) highlights that management strategies vary considerably and there is currently no consensus in the literature with regard to conservative versus surgical intervention. They report that conservative management successfully treated 26% of patients and 74% ultimately underwent surgical intervention. Our case helps exemplify that conservative treatment should always be attempted first if the patient is stable without concern for perforation. If surgical intervention is required, it is commonly agreed upon by most authors to initially remove the stone by enterotomy or intestinal resection. In addition, repair of the fistula should only occur during a second

procedure. However, this remains a controversial debate, as a prolonged procedure increases morbidity for the patient, but the risk of further stone formation and cholangitis are reduced with a single procedure (7,8).

Gallstone ileus is primarily a disease of the elderly and therefore a conservative approach is an acceptable initial treatment option. Endoscopic retrieval can be attempted, however is rarely successful (3,5). The use of lithotripsy to fragment the stone has become a more common and successful technique used to evade surgery (9,10).

In our case, we were successfully able to relieve the obstruction by fragmenting the stone into multiple pieces and the patient was sent home the following day and did well post procedure. This exemplifies that conservative treatment should be attempted in patients that are stable prior to considering surgical intervention. Based on the patient's age, medical co-morbidities and family wishes, there is no plan at this time for him to undergo surgical intervention to take down the fistula or remove the gallbladder. If he were to present with concern for cholecystitis, patient would have a cholecystostomy tube placed to decompress the gallbladder over surgical intervention based on patient and family wishes.

Colonic gallstone ileus is a rare cause of large bowel obstruction. This condition is seen in older populations with associated co-morbidities and a high index of suspicion is required to make the diagnosis. Treatment involves relief of obstruction which can be performed with endoscopic removal or with surgical intervention. This report demonstrates that a conservative approach is effective in stable patients and is desirable in the elderly population.

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## Footnote

*Reporting Checklist:* The authors have completed the CARE reporting checklist. Available at <https://ales.amegroups.com/article/view/10.21037/ales-22-9/rc>

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