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## Colonic Gallstone Obstruction

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## Colonic Gallstone Obstruction

### Abstract

This report discusses a case of a 79-year-old Caucasian female who presented with large bowel obstruction. A significant CT findings of cholecystocolic fistula and an impacted gallstone at the junction of the descending and sigmoid colon. We present a case of colonic gallstone obstruction that was treated with endoscopic lithotripsy. This interventional approach is effective in stable elderly patients with high surgical risk and in patients with significant comorbidities.

### Keywords

gallstone complication, Cholecystocolic fistula, colonic gallstones, large bowel gallstones, gallstone ileus

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## Background

Gallstone ileus is a rare complication of cholelithiasis. It is defined as a mechanical intestinal obstruction secondary to gallstones impacting the gastrointestinal tract. This accounts for less than 4% of all small bowel obstructions and commonly occur in the elderly.<sup>1</sup> Due to the nonspecific symptomatology, delayed discovery, and high rates of misdiagnoses, this can be associated with high mortality ranging from 12% to 27%.<sup>2</sup> Gallstone ileus involving the colon on the other hand, is an extremely rare event compared to that of the small intestine. This is defined as a mechanical large bowel obstruction caused by the migration of a gallstone typically from a cholecystocolic fistula.

Surgical relief of obstruction through an enterolithotomy has been recognized as the mainstay operative treatment for small bowel obstruction caused by a gallstone. Alternately, some cases of gastrointestinal gallstones obstruction can undergo endoscopic detection and extraction in lieu of enterolithotomy. However, given its extremely uncommonness, no specific treatment guidelines or algorithms for large colon gallstone obstructions have been proposed.

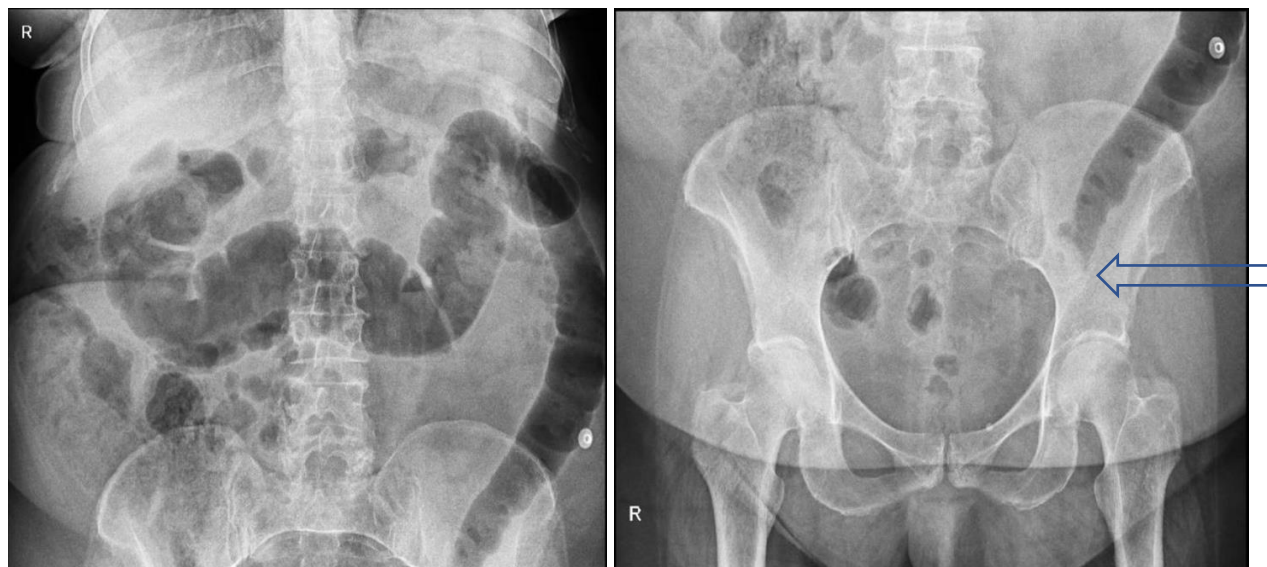
## Case presentation

This is a case of a 79-year-old female patient with a past medical history of HTN and HLD who presented with a month-long history of dull crampy lower left abdominal pain with intermittent nausea, vomiting, and constipation. She tried laxatives which worsened her symptoms and enemas provided no significant relief. Her last bowel movement was a month ago although she was passing some flatus. She complained of fatigue with an associated 10lbs unintentional weight loss over the past month. She denied any known history of biliary disease. She did not report any history of intra-abdominal surgeries, or colorectal cancer. Nonetheless, she could not recall her last screening colonoscopy.

She denied a history of smoking. Relevant family history was significant for cervical cancer in her mother. Pertinent physical examination findings include an obese female with a remarkable left lower abdominal tenderness. She was mildly distended with normoactive bowel sounds and without signs of peritonitis.

## Investigations

Vital signs showed elevated Blood pressure of 178/109. Her white cell count was  $10.3 \times 10^9/L$  with normal hemoglobin and hematocrit. Serum potassium was 3.3; the rest of the comprehensive metabolic panel were within the normal range. The stool occult blood test was negative. A plain abdominal film obtained.



*figure 1. - A plain abdominal film showing a bowel gas pattern in the colon with evidence of an obstructing body at the distal descending colon (arrow). There is no free air appreciated.*

A CT study of the abdomen and pelvis with IV contrast followed which demonstrated 2.5 cm obstructing calculi at the junction of the descending and sigmoid colon. A single calculus is seen at the neck of the gallbladder and air within the lumen of the gallbladder. Other findings include a scattered diverticulum in the descending colon with inflammatory changes.

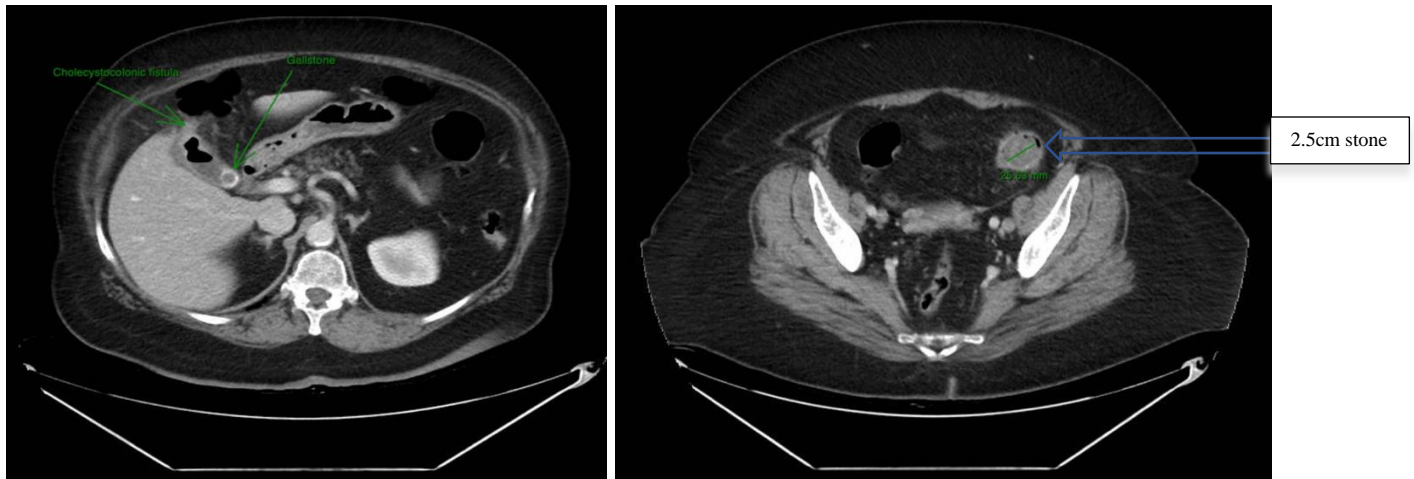


figure 2- Cholecystocolic fistula at the hepatic flexure with a 2.5cm impacted gallstone at the distal descending and proximal sigmoid colon. There is also a gallstone at the neck of the gallbladder with intra-luminal air within the of the gallbladder.

#### Treatment/Outcome

The main therapy for gallstone ileus is to ensure adequate resuscitation followed by relieving the obstruction. Our patient was made NPO, resuscitated adequately, and electrolyte/metabolic derangements were corrected. She then underwent a flexible sigmoidoscopy where an impacted stone in the descending colon was crushed with a lithotripter and the pieces retrieved (figure-3).

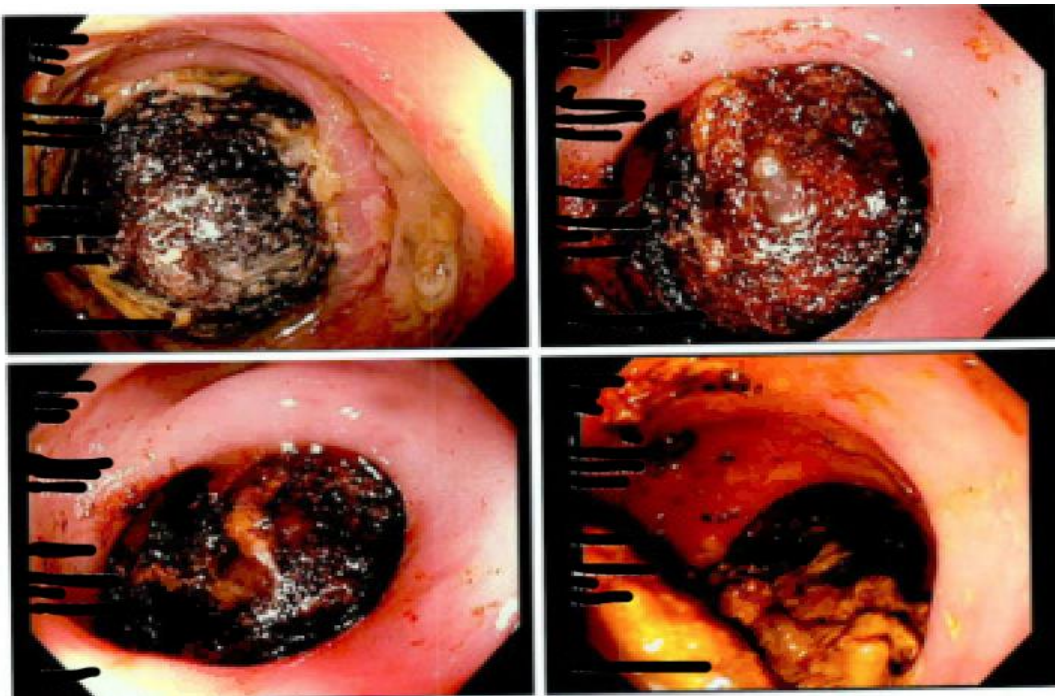


Figure 3 - impacted Gallstone in descending colon; crushed stone and retrieval of some fragments

Following the procedure, she had a symptomatic relief. She regained appetite and tolerated her dietary regimen. She was started on a laxative, antibiotic regimen for the diverticulitis and discharged on post-procedure day.<sup>3</sup>

#### Follow-up

A CT scan following the colonic lithotripter and stone extraction revealed a 14 mm calculus within the gallbladder and a mild streaky inflammatory change involving the mid to distal descending colon. A 6-week evaluation by colonoscopy revealed moderate diverticulosis of the descending and sigmoid colon without evidence of stricture or inflammation. However, a fistulous site in the proximal transverse colon was identified and tattooed. Two non-malignant polyps were removed from the transverse and sigmoid colon. Resection of the gallbladder with fistula and partial colectomy was offered to the patient. She elected to undergo surveillance and observation with re-evaluation in 6 months using a CT scan.

#### Discussion

Gallstone ileus is a rare complication of bowel obstruction usually with an initial inciting event of acute cholecystitis. With the inflammation and pressure involving the gallbladder and the surrounding structures, an offending gallstone may erode through the gallbladder wall into an adjacent gastrointestinal tract through fistula formation. The passage of the gallstone through the fistulous tract has two fates: it can either pass spontaneously through the rectum or it can impact anywhere along the gastrointestinal tract provided it is over 2.5 cm in size.<sup>4</sup>

The most commonly involved sites are the terminal ileum and the ileocecal valve. Other locations that can be involved include the colon secondary to cholecystocolic fistula with luminal narrowing or strictures caused by diverticula disease or neoplasms. The gold standard for diagnosis and to help delineate the gallstone and the fistulous tract is a CT scan (sensitivity of 93% and specificity of 100%).<sup>5</sup> There are no recognized management guidelines currently in the literature regarding colonic gallstone ileus/obstruction. Nonetheless, the mainstay goal of therapy involving gallstone ileus includes three key elements: relief of obstruction, cholecystectomy, and repair of the fistula.

Management strategies to help relieve the obstruction can range from open or laparoscopic surgical approaches to endoscopic retrieval.<sup>6-9</sup> Minimally invasive endoscopic stone detection and retrieval with or without lithotripsy can be performed depending on the location of the stone. The patient in this case report had an obstructing stone at the junction of the descending and sigmoid

colon. She underwent a therapeutic flexible sigmoidoscopy and the stone was crushed with a lithotripter and retrieved.

Once the obstruction is relieved, a repair of the cholecystocolic fistula and cholecystectomy is indicated. This can be done in a one-stage or two-stage procedure. There are no specific guidelines that provided an indication to perform a one stage versus two stage surgery. That is, relief of obstruction with repair of the fistula and cholecystectomy during the same admission versus relief of obstruction with cholecystectomy and fistula closure at a later date. Additionally, the optimal timing to perform a cholecystectomy and a repair of the fistula remains unclear.

### Conclusion

Colonic obstruction secondary to gallstones is extremely rare. While the mainstay treatment of GI obstruction caused by a gallstone is surgical enterolithotomy, nonetheless relief of the obstruction can be attained via an endoscopy with lithotripsy. This can be an effective method to relieve the obstruction without the need for surgical intervention especially in the elderly and those with high surgical risk.

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