

# Pathophysiology, Diagnosis, and Treatment of Colonic Gallstone Ileus in an Elderly Patient

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## ABSTRACT

Gallstone ileus is a rare entity, and an obstructing gallstone in the left colon is even less frequent. A 78-year-old man was evaluated for abdominal distension and pain, associated with a lack of bowel movements in the past 5 days. An abdominal computed tomography showed a cholecystocolonic fistula associated with a gallstone in the descending colon. During the operation, the gallstone was retrieved through a longitudinal colotomy proximal to the impaction site, which was then closed.

## INTRODUCTION

Gallstone ileus is a rare entity of acute obstructive abdomen that often occurs after a cholecystoenteric fistula between the gallbladder and the small bowel.<sup>1</sup> Colonic gallstone ileus due to a cholecystocolonic fistula represents only 4% of all the gallbladder stone ileus.<sup>2,3</sup> An abdominal computed tomography (CT) is the gold standard imaging method for its diagnosis with high sensibility and specificity rates.<sup>4,5</sup> Despite being controversial, surgical treatment is the gold standard management of this entity.

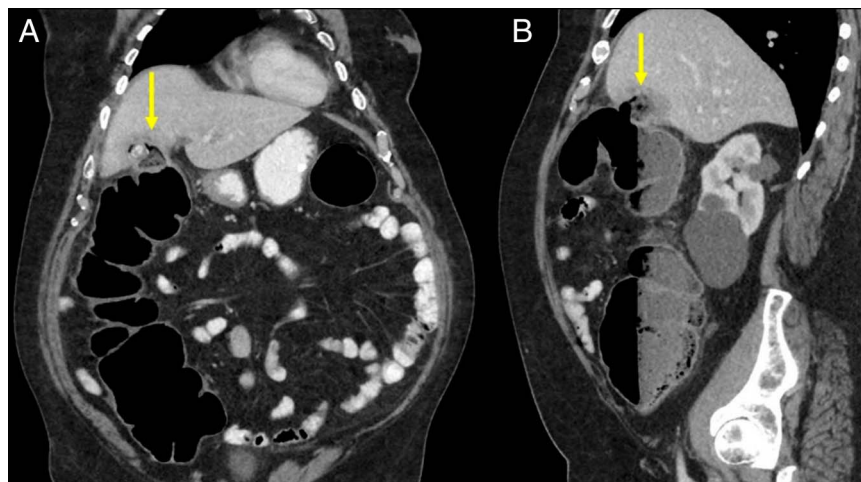
## CASE REPORT

A 78-year-old obese male patient was evaluated in the emergency department for abdominal pain and distension, associated with constipation in the past 5 days. The patient has a medical history of chronic obstructive pulmonary disease, atrial fibrillation, prostate cancer treated with leuprolide acetate, and diverticular disease with 2 previous episodes of acute diverticulitis managed with antibiotic therapy. An abdominal CT scan showed findings suggestive of cholecystocolonic fistula, associated with diffuse parietal thickening of the sigmoid colon and the presence of a 3 × 3 cm gallstone in the descending colon (Figures 1 and 2). Owing to abdominal tenderness, distension, and intractable obstructive symptoms, surgical management was decided. An infraumbilical median laparotomy was performed, and the gallstone was retrieved through a proximal enterolithotomy at the descending colon, which was then closed.

## DISCUSSION

Gallstone ileus is a rare entity of cholelithiasis representing 1%–4% of all cases of small bowel obstruction, it is more frequent in patients older than 65 years, and it is associated with high morbidity and mortality.<sup>1</sup> Colonic impaction represents only 4% of all the gallstone ileus, and it usually occurs in patients with gallstones greater than 2 cm and with an underlying colonic pathology such as diverticular disease with recurrent episodes of acute diverticulitis.<sup>1,2</sup> Biliary fistulas with the gastrointestinal tract occur after an episode of acute cholecystitis, previous abdominal surgeries, or iatrogenic abdominal traumas. These events generate inflammation and adhesion of the gallbladder to other abdominal structures, allowing the passage of the gallstone to the gastrointestinal tract.<sup>6,7</sup> Patients often present with symptoms of intermittent bowel obstruction, distension, abdominal pain, nausea, vomiting, and lack of bowel transit.<sup>3</sup>

An abdominal CT scan is the gold standard imaging method with a sensitivity and specificity of 93% and 100%, respectively.<sup>6,7</sup> The CT scan is useful to detect the size, the number and the morphology of the gallstones, and to identify secondary findings such as pneumobilia, mechanical ileus, biliary-enteric fistulas, or the presence of air in the gallbladder.<sup>8</sup> Although a radiological triad that

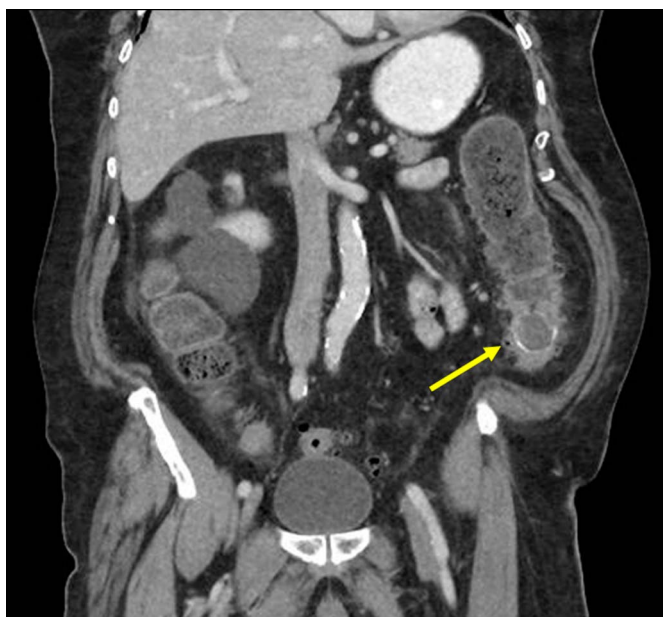


**Figure 1.** Abdominal computed tomography showing (A) cholecystocolonic fistula associated with diffuse parietal thickening of the sigmoid colon and (B) a gallstone in the descending colon.

consists of pneumobilia, a gallstone in an unusual location out of the gallbladder, and bowel dilatation has been previously described, this triad is seen in less than 50% of the cases of gallstone ileus.<sup>9</sup>

The controversy arises over the management of gallstone ileus. Although surgical repair is the standard of care, there are some disagreements regarding the extent of surgery. Although some surgeons prefer gallstone extraction, cholecystectomy, and fistula repair, others recommend only the gallstone extraction differing the fistula repair and cholecystectomy.<sup>1</sup> Reisner et al made a review of 1,001 cases of gallstone ileus, and they concluded that performing an enterolithotomy alone had lower mortality rates as compared to enterolithotomy and fistula repairing (16.9% vs 11.7%), and similar recurrence rates (5.3%

vs 6%).<sup>3</sup> Contrary to these findings, Rodríguez-Sanjuán et al analyzed 25 cases of gallstone ileus and found that a one-step procedure had lower morbidity.<sup>10</sup> Montgomery showed that the laparoscopic approach with enterolithotomy was associated with lower morbidity and mortality and early postoperative mobilization.<sup>11</sup> Similarly, Costi et al reviewed 231 cases of cholecystocolonic fistulas and showed that a laparoscopic approach was feasible and safe in centers with experienced surgeons.<sup>12</sup> The study also analyzed the feasibility of endoscopic management of this disease. Although, in most cases, the endoscopic retrieval of the gallstone was unsuccessful, the authors concluded that a colonoscopy should be considered in hemodynamically stable patients.<sup>12</sup> In conclusion, colonic gallstone ileus is a rare entity and its diagnosis is challenging. An abdominal CT scan is the gold standard imaging method for the diagnosis because it allows detecting ectopic gallstones and secondary findings such as pneumobilia or cholecystoenteric fistula. Surgical retrieval of the gallstone through a colotomy proximal to the impaction site is an effective treatment modality.



**Figure 2.** Presence of a gallstone in the descending colon (arrow).

## DISCLOSURES

Author contributions: All authors contributed equally to this manuscript. F. Laxague is the article guarantor.

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Informed consent was obtained for this case report.

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