

# Cholecystoduodenal Fistula with Gallstone Ileus Presenting as Upper Gastrointestinal Bleeding

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**Abstract:** Gallstone ileus is a rare presentation of cholelithiasis, which usually impacts at the narrowest part of the bowel, the ileocecal valve. This occurs as a result of a bilioenteric fistula where a gallstone enters the gastrointestinal tract. It may be encountered in elderly patients and predominantly in women. Abdominal computed tomography is the investigation of choice for diagnosis in majority of cases. Here, we present a 79 - year - old male patient with a choledochoduodenal fistula presenting as upper gastrointestinal bleeding and complicated by gallstone ileus.

**Keywords:** Cholelithiasis, Choledocholithiasis, Hematemesis, Gall bladder

## 1. Introduction

Gallstone ileus is a rare complication of gallstone disease. It occurs mostly after the formation of a bilioenteric fistula, especially with duodenum, allowing passage of gallstone into the intestinal lumen, causing small bowel obstruction [1]. Bleeding from biliary - enteric fistula can occur due to trauma of gallstone passage or by the irritation of acid and/or bile [1]. Surgical treatments may be in one stage or two stages.

## 2. Case Presentation

The patient was a 79 - year - old male with prior history of systemic disease. He was brought to the emergency department with 3 episodes of coffee brown coloured vomitus. There was no history of tarry stool or bloody stool passage. Physical examination was normal, except for tachycardia. Lab workup revealed haemoglobin 13 g/dl, S. creat 1.3. Patient was shifted to endoscopy after resuscitation. Endoscopy showed a large deep duodenal ulcer with adherent clot and a suspicious fistula (Fig 1 - 2) Computed tomography (CT) of the abdomen without contrast reported intraluminal calculus of 2.2 x1.8 cm in proximal jejunum and a cholecystoduodenal fistula (Figures 3 - 4). On day 2 patient had abdominal pain and distension. Repeat CECT abdomen showed distended small bowel loop (diameter of 35mm), intraluminal calculus of 27x22 mm at distal jejunal loop (Fig 5 - 7). Laparoscopy revealed impacted large calculus located in the mid jejunal segment with edematous and congested segment, collapsed distal bowel loops was noted. Laparoscopic assisted Enterotomy removal of gall stone and enterotomy closure was done on day 2 (fig 8 - 9). Cholecystectomy was not done. Post procedure patient was hemodynamically stable. He was discharged on day 5.

No further complication was observed in follow up visit

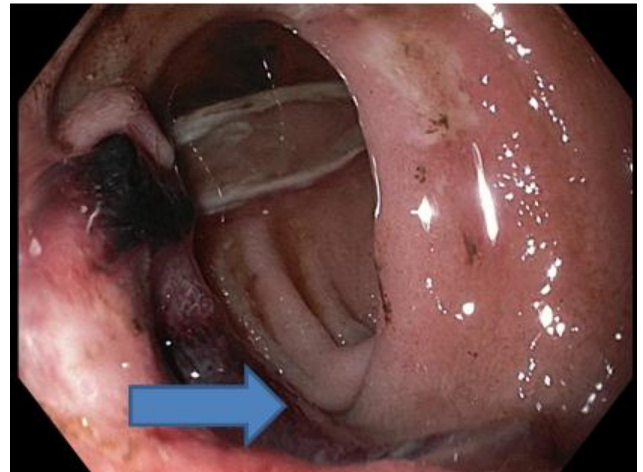


Figure 1



Figure 2

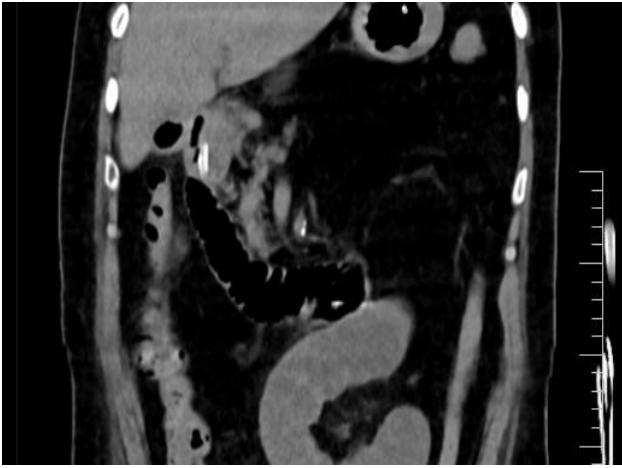


Figure 3

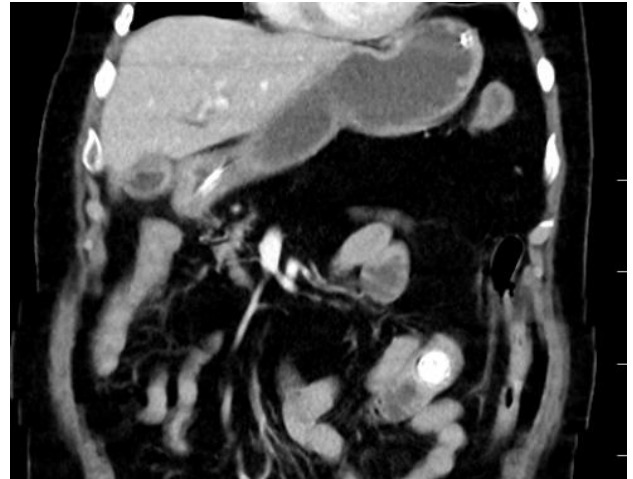


Figure 6



Figure 4

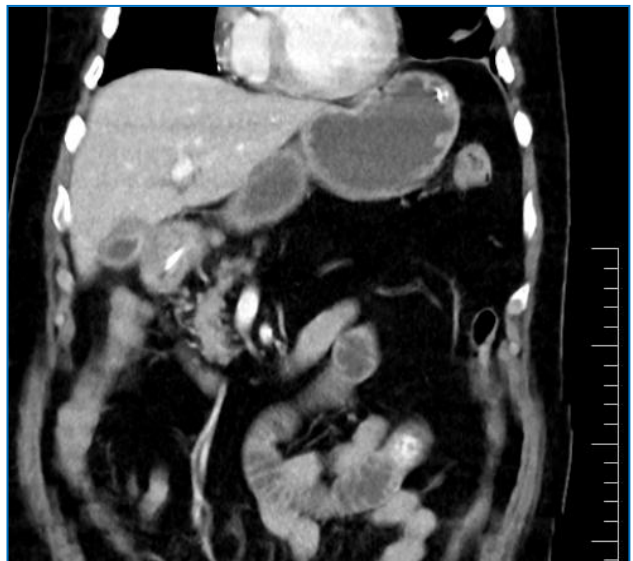


Figure 7



Figure 5



Figure 8

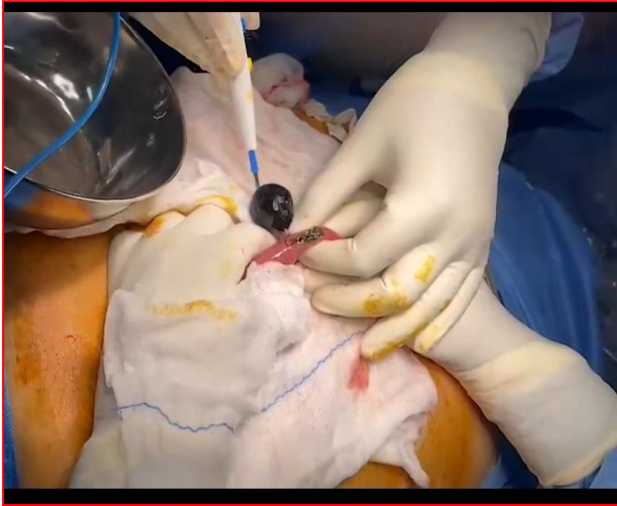


Figure 9

### 3. Discussion

Recurrent episodes of gallstone cholecystitis may result in larger gallstone formation and biliary - enteric fistula, complicated by gallstone ileus. The most common fistulas are cholecystoduodenal, and other types include cholecystocolic and cholecystogastric fistulas. The most common site of obstruction is at the ileocecal valve, especially when the stone size is  $> 2.5$  cm [3]. Prophylactic cholecystectomy is sometimes recommended in cases of large stones ( $>2.5$  cm). However, this increases the unnecessary operative risks and costs for patients with asymptomatic gallstones. Although these patients are at risk of developing biliary - enteric fistula and gallstone ileus, the actual incidence of this complication is not known [4], and probably rare.

Gallstone ileus mostly presents in the form of small bowel obstruction, which is characterized by abdominal distension, colicky abdominal pain, nausea, vomiting, and constipation. Although a history of previous biliary complaints are common in gallstone ileus, it is not a prerequisite. Only 50% of gallstone ileus were noted with a history of previous biliary symptoms [5]. In some cases, gallstone impaction may cause pressure against the intestinal wall and proximal bowel distension, resulting in necrosis of the bowel wall followed by perforation and peritonitis, which increase the mortality rate [6].

The typical radiographic features of gallstone ileus include small bowel obstruction, pneumobilia, and gallstone in the gastrointestinal tract that changes location on the serial radiographs [7]. CT scanning is widely used as the investigation of choice as in any other cause of acute abdomen, especially in intestinal obstruction with high sensitivity (90 - 93%) and specificity (100%) for gallstone ileus. In addition, CT scanning can also provide an accurate level of bowel obstruction that can be helpful in operative management and can further define the size and structure of the ectopic stone [8]. Upper gastrointestinal tract series using an oral contrast agent can also allow detecting the fistulous path extending between the gallbladder and the gastrointestinal tract, visualized as contrast accumulation within the gallbladder [9].

Cholecystoduodenal fistula rarely causes gastrointestinal bleeding, which occurs mostly due to erosion the cystic artery by a duodenal ulcer or by a gallstone. Bleeding associated with cholecystoduodenal fistula usually requires surgery because significant bleeding from the cystic artery is unlikely to be resolved by conservative management or endoscopic hemostasis [10].

The best management of gallstone ileus remains controversial. Enterotomy and stone extraction can resolve intestinal obstruction. Residual stones within the gall bladder may increase the risk of a recurrent attack of gallstone ileus, and even the risk of gallbladder cancer if recurrent cholecystitis has occurred.

For these reasons, two alternative methods of operation are introduced, which include a one - stage procedure as enterolithotomy, cholecystectomy, and fistula repair at the same time of operation; and a two stage procedure as enterolithotomy and interval cholecystectomy with fistula repair when the patient has recovered from the acute episode [11].

Reisner and Cohen compared mortality in patients who underwent enterolithotomy alone with those who underwent enterolithotomy, cholecystectomy, and fistula repair, which is one - stage surgery. The results showed that patients who underwent enterolithotomy alone had a mortality rate of 11.7% and patients who underwent one - stage surgery had a mortality rate of 16.9%. Although the recurrence rate for gallstone ileus is approximately 5%, enterolithotomy alone is the treatment of choice in gallstone ileus, especially in patients with hemodynamically unstable or significant comorbidities [12].

### 4. Conclusions

Gallstone ileus and gastrointestinal bleeding are rare but important complications of cholelithiasis with cholecystoduodenal fistula. Good judgment in selecting the surgical procedure is required, especially in elderly patients with a high incidence of comorbidities.

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