

CASE REPORT

Cholecystocolic fistula diagnosis with hepatobiliary scintigraphy: A case report

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Introduction

Cholecystoenteric fistulas are uncommon complications of gallstone disease with variable clinical presentation and are often detected only during surgery. The most common site of fistulous communication is cholecystoduodenal followed by cholecystocolic, and the least common is cholecystogastric fistula.^{1,2} Despite being the second most common type of cholecystoenteric fistula, it is diagnosed preoperatively only in 7.9% of patients.³ Failure to diagnose this condition preoperatively may result in the conversion of a routine cholecystectomy to a more complicated surgery, with an increased probability of complications. We report a patient with cholecystocolic fistula who presented with chronic watery diarrhea in whom the presence of fistula was suspected on the basis of pneumobilia and confirmed preoperatively by hepatobiliary scintigraphy (HBS).

Abstract

We report a 62-year-old woman who presented with chronic watery diarrhea and weight loss. During evaluation, she was found to have pneumobilia in the absence of gallstones, raising the suspicion of bilioenteric communication. Computed tomography demonstrated adherence of the gallbladder to the adjacent transverse colon. Hepatobiliary scintigraphy demonstrated the presence of a cholecystocolic fistula. A planned uneventful open cholecystectomy with resection of fistulous tract and closure of colonic opening was performed, resulting in the complete resolution of clinical symptoms.

Case Report

A 62-year-old woman presented with painless watery diarrhea of 2 years duration with significant weight loss. She denied any prior history suggestive of biliary pain. General physical examination and abdominal examination was unremarkable. Her stool microscopy examination did not demonstrate any ova or parasites, IgA tissue transglutaminase (TTG) was normal, and human immunodeficiency virus (HIV) serology was nonreactive. Liver function test showed normal serum bilirubin, liver enzymes, albumin, and international normalized ratio (INR). She had normal gastroduodenoscopy. Ultrasonography of the abdomen showed the presence of pneumobilia in the absence of gallstones. Contrast-enhanced computed tomography of the abdomen showed pericholecystic inflammation with possible fistulous communication between the gallbladder and the hepatic flexure of the colon (Fig. 1). Colonoscopy showed a fistulous opening in

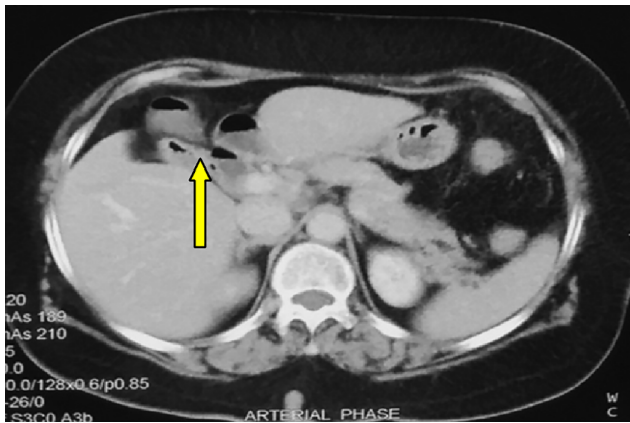


Figure 1 Contrast-enhanced computed tomography abdomen showing pneumobilia with suspicious cholecystocolic fistula.

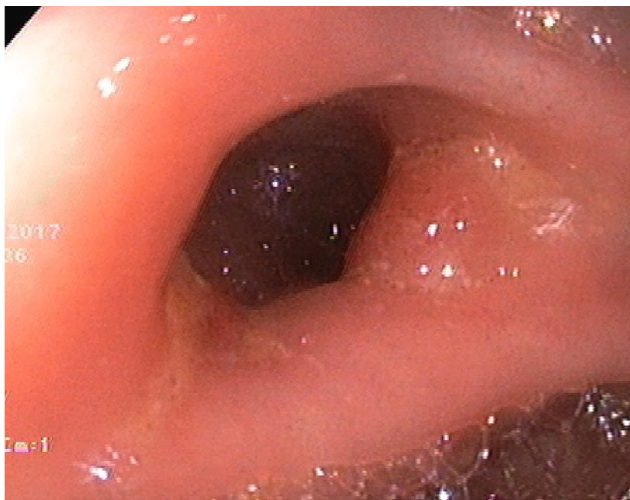


Figure 2 Colonoscopy showing a fistulous opening in the hepatic flexure.

the transverse colon (Fig. 2). HBS confirmed the fistulous communication between the gallbladder (GB) and the hepatic flexure of colon and delayed passage of contrast into the duodenum (Fig. 3). During surgery, multiple adhesions between the gallbladder and the hepatic flexure of colon, along with the fistulous tract, were noticed. Open cholecystectomy with resection of the fistulous tract with adhesiolysis and closure of the colonic opening was performed. Intraoperative cholangiogram did not indicate any obstruction in the biliary system. Histopathological examination of the resected specimen showed evidence of chronic cholecystitis and excluded any evidence of associated malignancy. Post-surgery, at 6-month follow up, she did not have diarrhea and gained weight.

Discussion

Cholecystocolic fistula is the second most common type of cholecystoenteric fistula, secondary to cholelithiasis, trauma, prior surgery (specifically gastric surgery), diverticular disease and

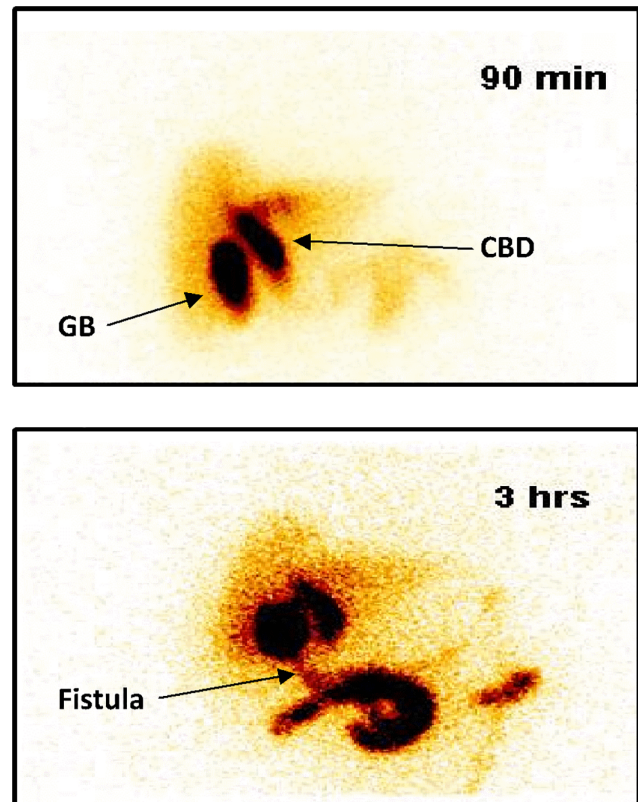


Figure 3 Hepatobiliary scintigraphy showing fistulous communication between the gallbladder and colon. CBD, Common bile duct; GB, Gallbladder.

peptic ulcer disease, and gallbladder carcinoma.^{1,2} It is most frequently described in females, with a ratio of 3:1, and at an average age of 68.9 years.^{1,4,5} It is postulated that inflammation of the gallbladder due to cholecystitis results in adhesion of the GB to contiguous organs such as the duodenum and colon. Recurrent inflammation then results in ulceration and ischemia of the GB wall and the adjacent organs, resulting in further erosion and ultimate fistula formation.⁶ Although no gallstones were identified in our patient, she might have had gallstones in the past, and after inciting an inflammatory process leading to the development of the cholecystocolic fistula, the gallstone might have passed through the fistula. Our patient did not experience any biliary colic episode as the inflammation was chronic and low grade in histopathological examination. This is the probable reason for fistula formation in our patients as she did not have any other risk factors.

Although the majority of patients with cholecystocolic fistula are asymptomatic and are diagnosed intraoperatively, they can present mostly with diarrhea and less commonly with right upper abdominal pain, fever, and jaundice.^{2,5,7} Cholecystocolic fistula may rarely present with lower gastrointestinal hemorrhage, extraperitoneal abscess, or sepsis.² Savvidou *et al.* proposed a triad of pneumobilia, chronic diarrhea, and vitamin K malabsorption to be pathognomonic of a cholecystocolic fistula.⁸ However, due to the lack of studies to validate this triad, only diarrhea is

be considered the key symptom of cholecystocolic fistula.⁹ Due to the irritant effects of bile acids on the colon as it was delivered beyond the distal ileum, the site for bile acid reabsorption, diarrhea and weight loss are the most frequent symptoms of a cholecystocolic fistula. Presence of pneumobilia in a patient of chronic diarrhea and weight loss, indications of the possible co-existence of a cholecystoenteric fistula, should be ruled out.

Computed tomography (CT), as well as plain radiography, ultrasonography, barium enema, magnetic resonance imaging, endoscopic ultrasound, HBS and colonoscopy, can be used, with variable success, in the preoperative diagnosis of cholecystocolic fistula.^{1,2,7,10} In most centers, ultrasonography is used as diagnostic test for gallstone disease before cholecystectomy, and this might be the reason for the low diagnosis rate of cholecystocolic fistula preoperatively. When suspected, HBS—as demonstrated in our case—can be very useful in preoperative diagnosis. None of the available diagnostic tools alone consistently leads to the identification of a cholecystocolic fistula. Preoperative diagnosis was made after several diagnostic tests were performed until one of them identified the fistula.²

Cholecystectomy with resection of the fistulous tract has been considered the standard treatment and can be performed laparoscopically. A laparoscopic approach may decrease the length of hospital stay and improve outcomes. However, lack of preoperative diagnosis increases the conversion rate to open cholecystectomy in 55% and results in a high complication rate and a longer unanticipated operating time.^{2,3,5} In difficult cases, the surgeon may be required to perform partial colonic resection.²

In conclusion, cholecystocolic fistula is a rare complication of gallstone disease. The presence of pneumobilia and chronic diarrhea should alert the surgeons regarding the possible coexistence of

a cholecystoenteric fistula. HBS is useful in establishing the diagnosis of cholecystoenteric fistulas preoperatively, which will assist the surgeons in planning the surgery appropriately.

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