An Uncommon Complication of a Motor Vehicle Accident, Diagnosed via ERCP

by David T. Chao, Victoria O'Connor, Karl K. Kwok

Cholecystocolonic fistulas are a rare complication of gallstone disease that are typically incidentally discovered intraoperatively while patients are undergoing cholecystectomy. We present a case of an incidental finding of a cholecystocolonic fistula diagnosed unequivocally while undergoing endoscopic retrograde cholangiopancreaticography to evaluate a biliary stricture that developed after a motor vehicle accident.

INTRODUCTION

Cholecystoenteric and cholecystocolonic fistulas are uncommon complications of gallstone disease. Symptoms are often absent or subtle and nonspecific, and abdominal imaging may fail to identify the presence of the fistula. Consequently, the majority of patients are diagnosed intraoperatively creating a difficult dilemma for the surgeon.

Case Report

A 61-year-old woman with no significant medical history was a restrained passenger in a motor vehicle accident with rollover approximately one year prior to presentation. She was discharged from the emergency room in stable condition after evaluation did not reveal any evidence of blunt force trauma.

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Approximately eight months after the motor vehicle accident, the patient presented to an outside hospital with painless jaundice. She was otherwise asymptomatic, denying diarrhea, abdominal pain, nausea, and vomiting. Emphysematous cholecystitis was diagnosed on computed tomography (CT) scan of her abdomen with pericholecystic inflammatory changes, gallbladder wall thickening, air within the gallbladder lumen, and intrahepatic pneumobilia. No gallstones were noted. The patient underwent an endoscopic retrograde cholangiopancreatography (ERCP) which revealed a common bile duct stricture, that was brushed and stented. Bile duct brushings revealed atypical cells.

Re-evaluation of her common bile duct stricture with endoscopic ultrasound (EUS) and repeat ERCP was recommended. During EUS, the gallbladder was identified with some difficulty, after repeated imaging of the expected area of the gallbladder based on anatomical landmarks. Additionally, the distal bile duct appeared to have a discrete hypoechoic mass lesion, which was sampled with fine needle aspiration.

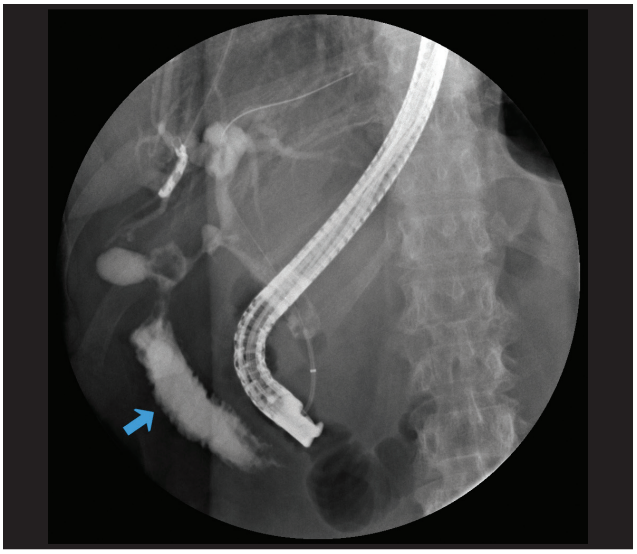

Figure 1. On initial cholangiogram, contrast is visualized pooling into tubular structure (blue arrow) later determined to be the transverse colon on subsequent imaging.

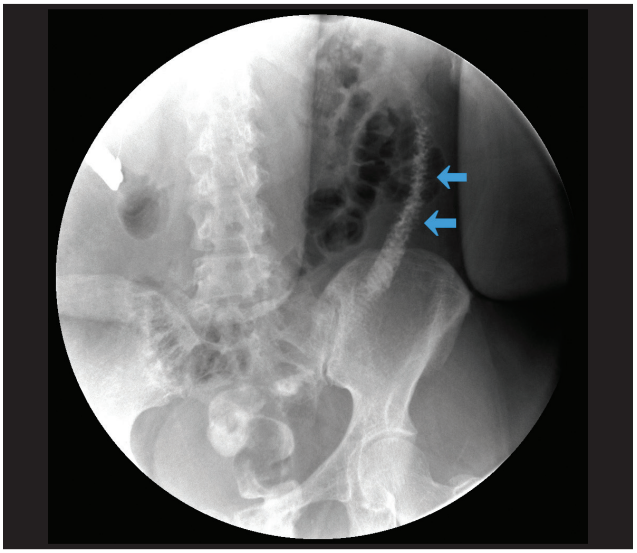

Figure 2. Subsequent cholangiogram led to visualization of contrast flow into the descending and sigmoid colon (blue arrows), and eventually to the rectum.

On cholangiogram, abnormal pooling of contrast into a tubular structure not obviously representative of the diseased gallbladder was noted (Figure 1). Although there were initial concerns of a spontaneous perforation, the contrast disappeared in less than 30 seconds, and could not be located. Repeat cholangiogram demonstrated antegrade contrast flow first into the gallbladder, then into the descending colon, sigmoid colon, and rectum (Figure 2), which was consistent with a cholecystocolonic fistula.

The patient underwent combined surgical repair of the cholecystocolonic fistula, as well as pancreaticoduodenectomy. Final pathologic diagnosis revealed no evidence of malignancy.

DISCUSSION

Cholecystocolonic fistula is a communication which originates from the gallbladder and extends typically to the proximal transverse colon at the hepatic flexure. It is the second most common cholecystoenteric fistula after cholecystoduodenal fistulas.[1] Women appear to be more affected than men in a 2.47:1 ratio with the majority of patients diagnosed when they are 60 to 70 years old.[2] However, cases have been described in patients younger than 40 years old and thus the diagnosis should be considered in all age groups.

Often considered a late sequelae of gallstone disease, cholecystocolonic fistulas complicate approximately 1 in 1000 cases of acute cholecystitis.[3] They are thought to develop secondary to chronic inflammation involving the gallbladder wall from cholelithiasis that cause pressure necrosis, erosion, and eventual fistulization. Cholecystocolonic fistulas have also been associated with peptic ulcer disease, malignancy, and abdominal trauma.[4] A review of 231 published cases of cholecystocolonic fistulas found an increased association with gallbladder cancer.[2]

The diagnosis is typically made incidentally, since patients with cholecystocolonic fistulas are either asymptomatic or develop symptoms insidiously. If symptoms are present, patients will most commonly complain of chronic watery diarrhea secondary to bile salt malabsorption.[2] Diversion of bile salts directly into the colon bypasses the terminal ileum, which disrupts enterohepatic circulation of bile salts and reduces absorption of vitamin K. Other nonspecific symptoms may include abdominal pain, nausea, vomiting, jaundice, and fevers. When symptoms develop more acutely, cholecystocolonic fistulas may present with large bowel obstruction (secondary

to gallstones >2.5cm causing luminal obstruction in the distal or sigmoid colon).[5,6,2] Laboratory testing may reveal cholestatic liver chemistry elevations or coagulopathy that corrects with parenteral vitamin K administration. Standard diagnostic imaging including CT, magnetic resonance imaging (MRI), and ultrasound have poor sensitivity may not reveal presence of a cholecystocolonic fistula 50% of patients.[7] The presence of pneumobilia in conjunction with an elevated protime in a patient presenting with diarrhea should raise suspicion for the presence of a cholecystocolonic fistula.[7]

Treatment is surgical and typically consists of a cholecystectomy en bloc with partial colectomy followed by either primary repair of the colonic wall defect or primary anastomosis of the colon. Formation of a diverting end ileostomy may be needed, but is generally not required in patients with good nutritional status who undergo tension-free anastomosis without serious intra-operative deviations from the planned operation. As cases of cholecystocolonic fistula are often times not detected pre-operatively in patients undergoing cholecystectomy, incidental discovery of a cholecystocolonic fistula presents surgeons with the intraoperative challenge of performing a much more complex operation than initially planned.

In conclusion, cholecystocolonic fistula is a rare complication of gallstone disease that should be considered in the differential diagnosis of unexplained chronic watery diarrhea, particularly in patients with known cholelithiasis. In this case, a pre-operative cholangiogram helped definitively define the disease process that was otherwise rather subtle on cross sectional imaging. Without evidence of gallstone disease on abdominal imaging, we suspect the patient may have developed her biliary stricture and cholecystocolonic fistula from abdominal trauma sustained during the motor vehicle accident. ■

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