

Laparoscopic management of cholecystocolic fistula: case report and review literature

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Abstract

Cholecystocolic fistula is a rare complication of gallbladder disease. Its clinical presentation is variable and nonspecific, and the diagnosis is made, mostly, incidentally during intraoperative maneuver. Cholecystectomy with closure of the fistula is considered the treatment of choice for the condition. With an increasingly reproducible tendency to the use of laparoscopy, laparoscopy for resolution of cholecystocolic fistula is not only feasible, but also offers a shorter stay at hospital and a milder postoperative period when compared to laparotomy. Here we present a case report of cholecystocolic fistula repaired with laparoscopy.

KEY WORDS: Cholecystocolic fistula, cholecystectomy, laparoscopy

Introduction

In laparoscopic surgery for biliary disease, cholecystoenteric fistula is an incidental finding in 0.5–7% of cases and occurs at a general rate of 0.2–0.4% at autopsy, as reported by Nadu et al.^[1] Other researchers have found the incidence of cholecystoenteric fistulae to be 2%.^[2] Frequently, cholecystoenteric fistulae are asymptomatic and do not reliably appear on radiographs and thus are not found until laparoscopy. Previously, such a lesion represented a contraindication to laparoscopic cholecystectomy. As a result of increased surgical expertise, however, laparoscopic repair of incidental cholecystoenteric fistulae is now possible.

This study presents the case of a cholecystoenteric fistula in a 45-year-old woman. The clinical presentation, etiology, and pathophysiology are briefly reviewed. The surgical technique for laparoscopic repair and outcome are also discussed.

Case Report

A 45-year-old female patient presented in outpatient department (OPD) of surgery department with the chief complaints of pain in right hypochondrium with features of obstructive jaundice and off and on episodes of diarrhea since 1.5 months.

Patient was admitted and investigated and managed symptomatically initially. Her blood investigations were found to be Hb 10.5 gm/dL, TLC 11500/mm³, DLC P₆₅L₃₀M₃E₂%. Her LFT demonstrated serum bilirubin as 1.8 mg/dL, AST/ALT 103/256 U/L, alkaline phosphatase 718 U/L.

USG whole abdomen of patient showed dilated common bile duct (CBD) of about 8 mm with dilatation of intrahepatic biliary radicals (IHBR) but no cause of dilatation was seen, with features of cholecystitis and cholelithiasis. Following which magnetic resonance cholangiopancreatography (MRCP) of the patient was done in which there was dilatation of CBD with obstruction of distal CBD with spasm of sphincter with no stone/fistula. ERCP with sphincterotomy of the patient was carried out but no CBD stent was placed by the gastroenterologist. Post-ERCP second day patient's TLC was 13800/mm³. Patient was kept on conservative management for next 72 h followed by serum alkaline phosphatase evaluation which was found to be 812 U/L on third post-ERCP day. However, her bilirubin level was 0.8 mg/dL on third post-ERCP day.

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Figure 1: Dense adhesions between gall bladder and transverse colon.

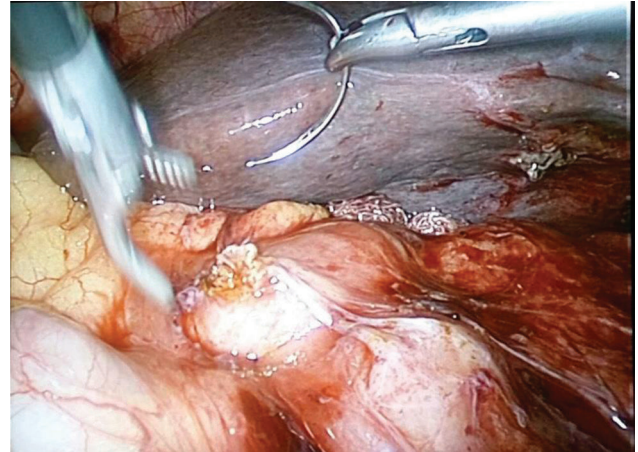


Figure 4: Repair of fistulous opening in transverse colon by endosuturing with vicryl 2-0 RB needle.

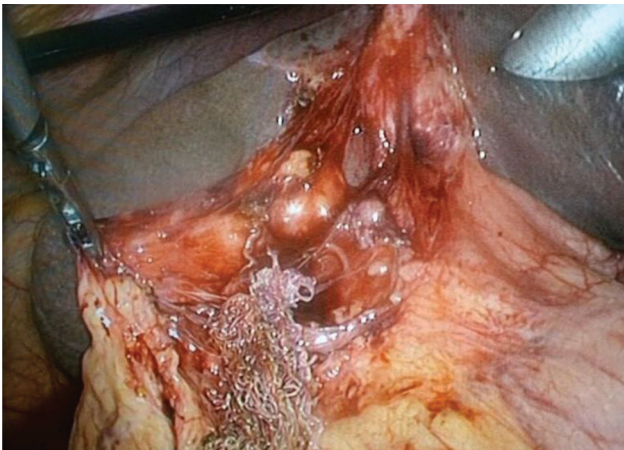


Figure 2: Adhesions being removed from gall bladder and transverse colon.

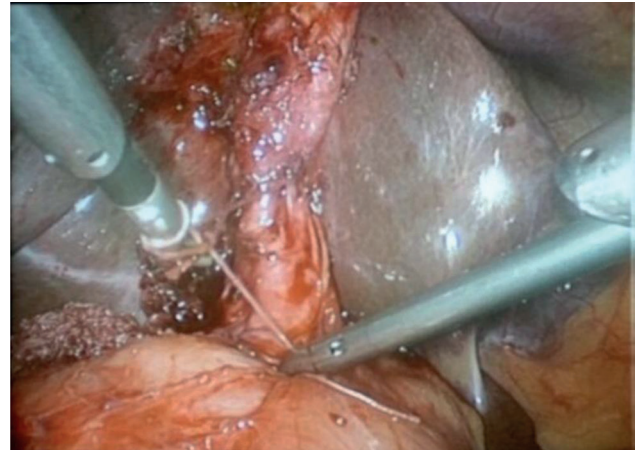


Figure 5: Cystic duct ligation by endoknotting.



Figure 3: After complete dissection of gall bladder.



Figure 6: Final picture after cholecystectomy (ligature and transfixation suture of dilated cystic duct visible).

Eventually patient was planned for laparoscopy followed by "laparoscopic cholecystectomy" and additional procedures, if needed.

Laparoscopy was carried out with patient in general anesthesia in supine position. Four ports were made two 10 mm (umbilical and epigastric), and two 5 mm ports (in right mid-clavicular and right anterior axillary line). Patient's gallbladder was inspected and gallbladder was found to be in close proximity with the transverse colon, duodenum, and gastric region with dense adhesions [Figures 1 and 2]. Adhesions were cleared with scissors (sharp dissection) and hook with electrocautery and a communication was found between fundus of gall bladder and transverse colon [Figure 3]. Duodenum and gastric area cleared off from gallbladder and cholecystectomy was performed. Cystic duct was dilated so it was transfixed with endosuturing with vicryl 2-0 RB and a ligature was also placed beforehand proximal to it with endoknotting over the cystic duct [Figure 5]. A cuff of gallbladder tissue was left with the transverse colon fistulous opening and it was repaired with endosuturing with 2-0 vicryl RB [Figure 4]. A drain was left in situ in gallbladder bed [Figure 6]. Patient tolerated the procedure well and total duration of surgery was 110 min.

Postoperative period was uneventful and there were no complications. Patient's LFT also started improving after second postoperative day with serum bilirubin 0.8mg/dl and Alkaline phosphatase 415 U/L. Patient passed flatus on fourth postoperative day, orally allowed and was discharged on fifth postoperative day after removal of drain. Her alkaline phosphatase on fifth postoperative day was 180 U/L.

Patient came for follow up after 1 week and sutures were removed. After 2 weeks during follow up her serum bilirubin was 0.8 mg/dL and her alkaline phosphatase was 106 U/L. Abdomen was soft and no features of localized peritonitis were found.

Discussion and Review Literature

Spontaneous enterobiliary fistula is a complication typically associated with gallstones (90% cases).^[3] They have also been reported with abdominal trauma, Crohn's disease, and malignancies of the biliary tract, bowel, and head of pancreas.^[4,5] The formation of enterobiliary fistula usually follows stone obstruction of cystic duct. Subsequently, recurring episodes of untreated cholecystitis produces adhesions between gallbladder and intestines.^[6] Perforation of the adhesion results in a fistula tract. Due to its physical proximity, the duodenum is the most common site of intestines involved. Fistula between the hepatic flexure of colon and gallbladder is a much rarer event, comprising only 10–20% of all enteric fistulas.^[7,8]

Cholecystocolonic fistulas (CCFs) are rare complications of gallstones with a variable clinical presentation. Despite modern diagnostic tools, CCFs are often asymptomatic and it is difficult to diagnose them preoperatively.^[8,9] Biliary-enteric fistulae have been found in 0.9% patients undergoing biliary tract surgery.^[10] The most common site of communication of

the fistula is the cholecystoduodenal (70%), followed by the cholecystocolic (10–20%), and the least common is the cholecystogastric fistula.^[11,12]

CCFs secondary to gallbladder carcinoma are extremely rare and have been reported in very few studies.^[13] Most CCFs are late complications of gallstone diseases, but can also develop following carcinoma of the gallbladder when the necrotic tumor penetrates into the adjacent colon.

CCFs often presents with diarrhea, abdominal pain, nausea, weight loss, lower gastrointestinal bleeding, and dyspeptic symptoms. The fistula can alter the normal bile acid circulation, resulting in malabsorption. When loss of bile acid becomes greater than compensatory increase in bile synthesis, solubilization of dietary fat becomes compromised, leading to steatorrhea. Bile acids can also stimulate mucosa directly to secrete water and electrolytes.^[14] CCFs can present as small bowel obstruction by the gallstone (gallstone ileus). Obstruction is rare in the large bowel, usually requiring a preexisting narrowing of the colon.^[15,16] Cases have been reported with stone impaction at the rectosigmoid diverticulae, causing large bowel obstruction.

Diagnosis of CCFs preoperatively is difficult due to the unspecific and variable nature of symptoms. Early preoperative identification could reduce morbidity and mortality. Diagnosis can be made by barium enema, endoscopic retrograde cholangiopancreatography (ERCP), CT scan, and ultrasound.^[17] However, most cases are identified intraoperatively during laparoscopic surgery, similar to our patient.

Standard treatment of CCFs is open cholecystectomy and closure of fistula. As a result of increasing surgical expertise, laparoscopic surgery can now be used in fistula treatment, with decrease pain and hospital stay for the patients. Results have shown no significant difference in intraoperative and postoperative complications with the proper surgical technique.^[17,18,19] With an increasingly reproducible tendency to the use of laparoscopy, minimal invasive surgery for resolution of CCF is not only feasible, but also offers a shorter stay at hospital and an uneventful postoperative period when compared to laparotomy.^[19]

Although surgery is treatment of choice, endoscopic sphincterotomy and CBD stone extraction have been shown to cause spontaneous healing of fistulas. Such procedure is reserved for treatment of patients who are unable to undergo surgery. Elderly patients are poor candidates for surgery, because mortality associated with operation can range from 10% to 20%, compared to less than 1% for uncomplicated gallbladder disease.^[20]

Conclusion

In a patient of obstructive jaundice if serum alkaline phosphatase is raised without significant increase in the level of serum bilirubin with imaging studies suggestive of dilated CBD without choledocholithiasis, it is suggestive of extraluminal compression of CBD which can be very well seen during

laparoscopy and managed accordingly and CCF along with dense adhesions over Calot's triangle is one of the cause which we have described. CCF is a rare complication of gallstones. The most common presentation is diarrhea, but symptoms can be unspecific and variable. As a result of increased surgical expertise, however, laparoscopic repair of incidental CCF is now possible.

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