

Cholecystocolic Fistula: A Rare Complication Of Gallbladder Surgery

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Abstract

We report a case of cholecystocolic fistula complicating cholecystostomy in a patient presented for surgery five month after an attack of acute cholecystitis and ERCP induced pancreatitis.

INTRODUCTION

Although cholecystoenteric fistula is a well-recognized complication of biliary lithiasis, it is a rare complication of gall bladder surgery. As the signs and symptoms of these fistulas are nonspecific, post-operative diagnosis is difficult and most of them pass undiagnosed.

CASE PRESENTATION

A 50-year-old lady was admitted to KFMC as a case of gallstones for laparoscopic cholecystectomy. She gave history of admission 5 month before with an attack of acute cholecystitis. At that time, the ultrasound showed thickened gallbladder wall with multiple gallstones and suspicion of CBD stones (figure 1). The liver enzymes were elevated; serum bilirubin was 21.9u/L and alkaline phosphatase 246u/L. The first ERCP attempt failed due to difficulty in cannulation of the CBD. Post ERCP she had an attack of acute pancreatitis. Her serum bilirubin mounted up to 55.7u/L and serum amylase to 1059u/L. She had another successful ERCP trial with sphincterotomy and clearance of CBD. Unfortunately, she refused early (same admission) surgery and discharged herself against medical advice.

Figure 1

Figure 1



On this admission, she presented with recurrent pain in the right hypochondrium, fat intolerance and intermittent fever and sweating. On examination, she had mild fever with a temperature of 37.8°C. Murphy's sign was negative and the gallbladder was not palpable. Her liver function test and blood investigations were within normal values. Her repeat ultrasound showed an over-distended gallbladder which appeared as multiloculated mass lesion with thick wall measuring 1½cm and containing numerous gallstones of different sizes. The CBD was visualized and it was of normal caliber and contained no stones. There was 2.5 x 2.5cm well-defined hyperechoic lesion representing a liver hemangioma. (Figure 2).

Figure 2

Figure 2



She was taken for laparoscopic cholecystectomy. On insertion of the laparoscope, there was extensive adhesion between the omentum and the visceral surface of the liver involving the transverse colon. The procedure was immediately converted to open surgery with subcostal Kocher's incision. A mass was found involving the gallbladder, the omentum, transverse colon and the duodenum. The fundus of the gallbladder was necrotic with pus within the center of the mass. The attempt to dissect down to the Calot triangle was difficult and unsafe due to tough adhesions and completely obscured anatomy. The pus was sucked out. The necrotic fundus was debrided and the gallstones were removed. After thorough washout, a Foley catheter was introduced in the gallbladder and inflated. The gallbladder was loosely closed around the catheter. A Redivac drain was inserted in the subhepatic and subdiaphragmatic region and the wound was closed in layers.

Postoperatively, the output via Foley catheter and Redivac drainage was minimal. The patient remained afebrile and LFT, U/E and CBC were within normal limits. We preferred to leave the catheter and the drain until the situation would be cleared by a postoperative ERCP and catheter cholangiography. A Foley catheter cholangiogram was attempted and it showed the contrast within the gallbladder remnant but the outlines of the CBD were not seen (potential occlusion of cystic duct). She was discharged on the 10th postoperative day with the catheter in situ and booked for an ERCP.

A repeat catheter cholangiogram after 5 weeks showed a fistulation between the gallbladder remnant and the hepatic

flexure of the colon (Figure 3).

Figure 3

Figure 3



An ERCP was done a week after the catheter cholangiogram and showed the papilla of Vater with reasonable size papillotomy. Selective CBD cannulation revealed a somewhat dilated CBD and CHB. There was no CBD stenosis and no retained stone. The remaining part of the gallbladder was not seen and there was no fistulous communication. (Figure 4). The catheter was removed.

Figure 4

Figure 4



The patient was closely followed up in the outpatient clinic. After two years of follow-up she remained asymptomatic and healthy.

DISCUSSION

The timing of surgery for patients with acute cholecystitis is debatable. Cholecystectomy traditionally has been performed 6-12 weeks after the acute episode to allow the inflammatory process to resolve before the procedure (interval surgery) (1).

Early laparoscopic surgery is safe and feasible in patients with acute cholecystitis. If early intervention (less than 72 hours after symptoms started) can be achieved, "oedema planes" present during this period allow the gallbladder to be dissected laparoscopically. Although it is desirable to operate within this time period, it is often difficult to do so in clinical practice (2).

Early laparoscopic cholecystectomy for management of acute cholecystitis has both medical and socioeconomic benefits and is the preferred approach for patients managed by surgeons with adequate experience in laparoscopic cholecystectomy (3) and will necessarily remove the current problem of patients developing recurrent symptoms while awaiting delayed surgery. Although acute cholecystitis resolves with conservative treatment in most patients, empyema or perforation of an ischaemic area may develop, resulting in a pericholecystic abscess, bile peritonitis or a cholecysto-enteric fistula (4). Elder et al. studied the impact of patient delay and physician delay on the outcome of laparoscopic cholecystectomy for acute cholecystitis. He found that a long time between onset of symptoms and presentation is associated with advanced disease (5).

Patients with documented or suspected common bile duct stones can be treated with pre-operative ERCP clearance of the CBD followed by laparoscopic cholecystectomy, or by laparoscopic or open cholecystectomy combined with CBD exploration. The working group of UK guidelines for the management of acute pancreatitis recommends that after an attack of mild acute pancreatitis, patients with gall stones should undergo definitive treatment in order to prevent recurrence of pancreatitis. There is a significant risk of further acute pancreatitis which may be severe and life-threatening. The working group felt strongly that definitive treatment should not be delayed more than two weeks after discharge from hospital, and that it is preferable to achieve this goal during the same admission to avoid potential delay from cancellation. Such delay exposes the patient to a risk of

potentially fatal recurrent acute pancreatitis (6).

Since Marion Sims described the technique of cholecystostomy in 1878 (7), its role in management of gallstones disease was significantly diminished after Langenbuch performed the first cholecystectomy in early 1882 (8). The value of cholecystostomy in a poor-risk patient or in a healthy patient with a difficult technical problem appears to be established (9,10) and still remained acceptable in these situations. Recently, the technique of percutaneous cholecystostomy was developed and greatly replaced the open technique as it is an effective and safe procedure with low morbidity and mortality (11).

Biliary-enteric fistulas comprise <1% of all biliary disorders and may form between any part of the extra-hepatic biliary tree and an adjacent portion of the gastrointestinal tract (12).

Cholecystoenteric fistula is a well-recognized complication of biliary lithiasis. Fistulous tracts from the gallbladder are associated with gallstones in 90% of cases (13). However, peptic ulcer disease, abdominal trauma, Crohn's disease, and malignancies of the biliary tract, bowel and head of pancreas have also been implicated as causes (14,15,16). The duodenum is the most common portion of the intestine involved. The next frequent site is the hepatic flexure of the colon (17) and cholecystocolic fistula accounts for 10 to 20% of all enteric fistulas (18,19).

Pre- and post-operative diagnosis of cholecystocolic fistula is difficult. Many of the signs and symptoms of these fistulas are nonspecific (20). The majority of patients with cholecystocolic fistulas are elderly and there is a female preponderance (6:1). The condition usually has a benign clinical course. Many chronic internal biliary fistulas are asymptomatic and may close spontaneously. Diarrhoea is the most common presenting symptom and the typical clinical features of gallbladder disease are absent.

Although the literature is crowded with reports about spontaneous cholecystocolic fistulas complicating cholelithiasis, to our knowledge few cases of cholecystocolic fistulas complicating biliary surgery were reported. This may be in part due to failure to suspect them postoperatively and to difficulties in their diagnosis. In 1963, Peter Hutchin et al. reported a case of cholecystocolic fistula complicating cholecystostomy (21).

The diagnosis of spontaneous biliary-enteric fistula is suggested by air in the biliary tree, which is present in as

many as 50% of patients (22). Barium studies may demonstrate the passage of contrast into the biliary tree. ERCP is the most important diagnostic tool in order to identify the presence of biliary-intestinal fistula. If the cystic duct is obstructed, gallbladder and fistula will not be visualised by ERCP (as in our case). Biliary nuclear scintigraphy may delineate the fistula but false-positive and false-negative studies have been reported (4)

Suspected cholecystocolic fistulas occurring after biliary surgery can be confirmed by ERCP which delineate the fistulous tract in absence of cystic duct obstruction. Tube cholangiogram can readily demonstrate cholecystocolic fistulas and it should be done in all patients who had cholecystostomy before removing the cholecystostomy tube, especially if the tube was left for long time.

Two therapeutic approaches are possible in the case of cholecystocolic fistula: Surgery, usually combining cholecystectomy and extraction of common bile duct stones with the treatment of the fistula, may be performed systematically or in case of failure of sphincterotomy. On the other hand, endoscopic sphincteromy during endoscopic retrograde cholangiography, by reducing increased biliary pressure, may be sufficient to achieve spontaneous closure of the fistula in an elderly or high risk patient (23).

SUMMARY

Cholecystocolic fistulae can complicate difficult biliary surgery (cholecystostomy and partial cholecystectomy). As the symptoms are mild, most of them pass undiagnosed. ERCP may fail to demonstrate the fistula in presence of cystic duct obstruction. Tube cholangiogram should be performed in all patients who had cholecystostomy or percutaneous drainage of the gallbladder prior to removal of the tube. Diagnosed cholecystocolic fistulae can be treated surgically or conservatively.

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