

Day-Case Laparoscopic Management of a Spontaneous Cholecystocutaneous Fistula

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ABSTRACT

Background: Cholecystocutaneous fistula is a rare complication of chronic gallstone disease. We present a case of cholecystocutaneous fistula successfully managed with day-case laparoscopic cholecystectomy.

Case Outline: An 80-year-old man initially presented with acute biliary sepsis, was treated conservatively, and later developed a right upper quadrant swelling in keeping with an abscess. He re-presented with bilious drainage from the old wound site.

Results: A sinogram demonstrated a cholecystocutaneous fistula. Day-case laparoscopic cholecystectomy was performed, and the fibrous tract was divided.

Discussion: This rarely seen condition can be safely managed, in suitable patients, as a day-case procedure.

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Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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INTRODUCTION

Cholecystocutaneous fistula was first described by Thileus in 1670. External biliary fistulae are rare and are usually a complication of gallstones. The incidence of cholecystocutaneous fistulae is falling due to prompt treatment.¹ We describe the first reported cholecystocutaneous fistula managed as a day case.

CASE REPORT

An 80-year-old man with a history of hypertension, heart failure, and Paget's disease of bone was originally admitted to the surgical assessment unit with right upper quadrant pain, vomiting, raised inflammatory markers, and abnormal liver function tests.

He underwent ultrasonography of the abdomen, which showed a distended thick-walled gallbladder, multiple gallstones, a common bile duct (CBD) diameter of 10 mm, and mild intrahepatic duct dilatation, in keeping with

distal CBD obstruction complicated by cholangitis and an element of cholecystitis. The patient failed to respond to intravenous antibiotics and underwent endoscopic retrograde cholangiopancreatography (ERCP), which revealed a mildly distended CBD with a filling defect, most likely representing a small calculus. A stone in the lower CBD was removed following sphincterotomy and balloon trawl, and the final images showed satisfactory drainage. Following the ERCP, he improved clinically and was discharged home.

The patient was readmitted nearly 3 months later with a tender, warm, fluctuant abdominal wall swelling suggestive of an abdominal wall abscess. An ultrasonogram of the abdomen showed a nearly 7 × 9 × 4 cm predominantly cystic mass on the anterior abdominal wall, in keeping with an abscess, with no obvious communication to the abdominal cavity. He underwent incision and drainage of the abscess, where a large cavity superficial to the rectus muscle was identified. Following the operation, he was discharged home.

During follow-up to ensure resolution of the abdominal wall abscess, a computed tomography scan was requested to investigate anemia. This showed marked sigmoid diverticulosis but normal appearances of the gallbladder.

Almost 4 months later, the patient was admitted with a 2-day history of bile-stained discharge from the site of the old abdominal wound. He had no abdominal pain or fever and was systemically well, with unremarkable blood results.

A sinogram was performed that showed contrast passing through a tract in the abdominal wall into the gallbladder, along the cystic duct and CBD into the duodenum, demonstrating a cholecystocutaneous fistula (**Figure 1**).

The fistula output reduced, and he was discharged home.

The patient was seen in clinic, where we explained the complex nature of the anatomy and offered laparoscopic cholecystectomy. He was happy to undergo the operation.

Laparoscopic cholecystectomy was undertaken. A thick-walled gallbladder and small fibrotic tract extending from the fundus of the gallbladder to the abdominal wall were found. The fibrous tract was divided, gallbladder adhesions were released, and laparoscopic cholecystectomy was completed as normal. Histology of the specimen revealed chronic cholecystitis. He was successfully discharged the same day.



Figure 1. Sinogram.

DISCUSSION

A cholecystocutaneous fistula is an abnormal communication between the gallbladder and skin.

The incidence of cholecystocutaneous fistulae in the early 21st century is falling, with approximately 25 cases described in the past 20 years. The fall in incidence is most likely due to earlier and more effective management with imaging, intravenous antibiotics, and surgery.²

In the modern era, a fistula is usually the consequence of chronic gallstone disease,³ where perforation of the gallbladder results in adherence to the abdominal wall.² Occasionally, the condition can arise as a consequence of iatrogenic injury, other trauma, or cholangiocarcinoma.¹

The condition typically presents as a painless draining sinus tract in the right upper quadrant of the abdomen, although different sites can be involved such as the gluteal region, umbilicus, right iliac fossa, right lumbar region, and the left hypochondrium.¹

Patients affected are typically older women (>50 years), and implicated predisposing factors include steroid treatment, polyarteritis nodosa, typhoid, bacterial dissemination, and trauma.³

Imaging techniques used in the diagnosis of biliary fistulae include ultrasonography, computed tomography,³ and fistulography.⁴

Management of cholecystocutaneous fistula, in the acute phase, includes analgesia and appropriate antibiotics. Definitive management has included a variety of techniques; laparotomy, excision of fistula tract and cholecystectomy,¹ open cholecystectomy,² computed tomography-guided drainage,³ ERCP,⁵ and laparoscopic cholecystectomy⁴ have all been reported.

In this case, the patient was initially treated by the on-call surgeon, who thought that due to the patient's age and comorbidities, conservative management was appropriate with ERCP and CBD clearance.

At the time the patient presented with bile-stained discharge from the fistula tract, he was systemically well with normal inflammatory markers and normal bilirubin. The sinogram showed contrast passing freely from the gallbladder into the duodenum. As the patient had undergone ERCP and sphincterotomy at the time of initial presentation, it was thought that a further ERCP would not benefit the management of the fistula.

Fistula formation involves the adherence of the gallbladder to the anterior abdominal wall and possibly pericholecystic structures, which potentially complicate cholecystectomy. In the clinic, the likely complex nature of the operation was explained to the patient, including an increased risk of damaging the adjacent structures or conversion to an open procedure. The laparoscopic cholecystectomy was performed by an upper gastrointestinal team with suitable experience to safely attempt the procedure.

Laparoscopic cholecystectomy for biliary fistula confers the advantages of shorter hospital stay and shorter convalescence over open techniques. Our patient was treated as a day case, further reducing inpatient stay, costs, and returning the patient home quickly.

CONCLUSIONS

Day-case laparoscopic cholecystectomy can be a safe and feasible treatment for patients with cholecystocutaneous

fistula. We would recommend that, when possible, patients with this condition are treated as day cases.

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