

## Cholecystoduodenal Fistula related Acute Cholecystitis

Anil Ergin, Yahn Iscan, Mehmet Mahir Fersahoglu, Nuriye Esen Bulut, Huseyin Ciyiltepe

From, Department of General Surgery, Istanbul Fatih Sultan Mehmet Education and Research Hospital, Health Sciences University, Istanbul, Turkey.

**Correspondence to:** Dr. Anil Ergin, Istanbul Fatih Sultan Mehmet Education and Research Hospital, C-block, 4<sup>th</sup> Floor Atasehir/ Istanbul, Turkey. Email– dranilergin@gmail.com

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### ABSTRACT

Cholecystenteric fistulas are abnormal formations that occur spontaneously between the gallbladder and the gastrointestinal tract. Asymptomatic cases can be diagnosed incidentally as well as during surgery in patients with acute abdomen diagnosis. We present a case of cholecystoduodenal fistula detected in a patient who underwent laparoscopic exploration with a preliminary diagnosis of gallbladder perforation. Cholecystoduodenal fistulas are difficult to diagnose preoperatively and are very rare hepatobiliary emergency surgery cases.

**Key words:** Cholecystenteric fistula, Cholecystoduodenal fistula, Laparoscopic cholecystectomy

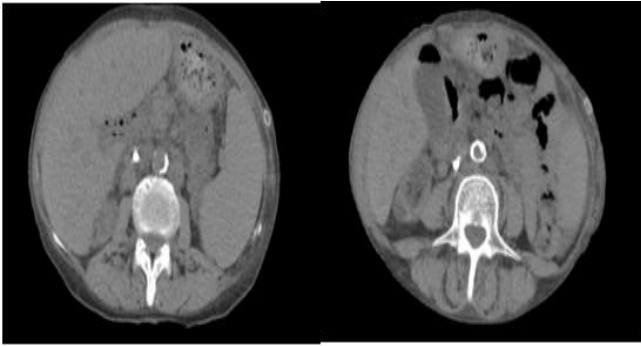
Since the early 1990s in symptomatic cholelithiasis surgery, laparoscopic cholecystectomy (LC) has become a widely accepted technique. It has been accepted as the gold standard method for the treatment of gallbladder disease [1]. It offers several advantages over open cholecystectomy and decreases the cost of pain relief medication used postoperatively and provides a short recovery time. In addition, mortality and morbidity rates are superior to open cholecystectomy [2]. Cholecystenteric fistulas are a rare and late complication of cholelithiasis. It is defined as a spontaneously formed canal between the inflamed gallbladder and the surrounding gastrointestinal tract [3]. As a result of the studies performed in the extended cholecystectomy series, the rate of cholecystenteric fistula was found to be between 0.5% and 0.9% [4,5]. It is known that cholecystoduodenal fistulas are the most common type of cholecystenteric fistulas. This type is seen approximately 75% - 80% and cholecystocytic fistulas are the second [5]. Since the symptoms of cholecystenteric fistula are very similar to the symptoms of acute cholecystitis, it is difficult to diagnose in the preoperative period and is usually incidentally detected [6]. We present a case report of the patient who

underwent emergency surgery due to preoperative diagnosis of sac perforation and the detection of peroperative cholecystoduodenal fistula.

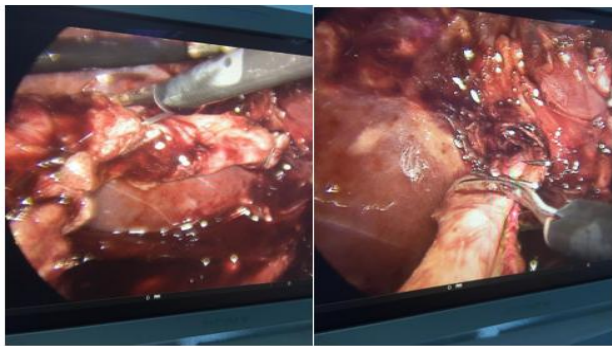
### CASE REPORT

A 58-year-old female patient was admitted to the emergency department with complaints of abdominal pain, nausea, and vomiting for three days. On examination, widespread tenderness, rigidity and rebound tenderness in the abdomen were detected. The vital signs measured in the emergency department were recorded as SPO2: %99, pulse: 107/min, 36.7 °C, and TA: 108/71 mm/Hg. The patient had a history of total hysterectomy and bilateral salpingo-oophorectomy, left nephrectomy and partial gastrectomy due to peptic ulcer perforation, and chronic renal failure, atrial fibrillation, and hypertension diagnosis.

The patient was advised for computed tomography (CT) scan of the abdomen which showed a minimal free peritoneal fluid appearance in the liver vicinity while prevalent air densities were detected in the intrahepatic biliary tract (Figure 1).



**Figure 1: Air view in gallbladder fundus and intrahepatic area in the computerized tomography**



**Figure 2: Area of duodenal fistula repaired by laparoscopy**

In abdominal ultrasonography; the transverse diameter of the gallbladder was hydroptic with a diameter of 40 mm, the wall of the gallbladder was slightly edematous and the wall thickness was measured 4mm. The heterogeneous hyperechoic image associated with the wall in the lumen of the sac was evaluated for sludge in the foreground. In addition, air-compatible hyperechogenic images were observed in the gallbladder wall and intrahepatic bile ducts and interpreted as emphysematous cholecystitis or perforation. Laboratory values were determined as WBC: 4700/mm<sup>3</sup>, CRP: 32 mg / dl, AST: 61 U / L, ALT: 50 U / L, Total Bilirubin: 0.9 mg / dl, Direct Bilirubin: 0.3 mg/ dl, GGT: 41 U / L, CL : 94 mmol / L, creatinine: 4.87 mg / dl, LDH: 245 U / L, lipase: 4 U / L, NA: 128 mmol/ L, HGB: 11.7 g / dl, HCT: 35.6%, PLT: 76000/mm<sup>3</sup>, INR: 1.89. As a result of these findings, the patient was interned for surgery with ASA 4E risk score and acute cholecystitis diagnosis. On laparoscopic exploration, the stomach, duodenum, and omentum were found to be highly adherent on the gallbladder. When the adhesions were separated, the spontaneously formed a canal between the duodenum and the gallbladder was seen. The canal of cholecystoduodenal

fistula was resected and cholecystectomy was performed. Mini-laparotomy and graham patch omentopexy were applied to the perforation area on the duodenum (Figure 2). The patient was admitted to the intensive care unit in the postoperative period. She was discharged on the fifth postoperative day without any problems.

## DISCUSSION

Bilioenteric fistulas are a very rare complication of gallstones. Studies have shown that the incidence of bilioenteric fistula over 60 years of age is increasing [6,12]. The most common defined symptoms of cholecystenteric fistulas are; right hypochondrium pain, jaundice, cholangitis, gastrointestinal bleeding, weight loss, nausea, vomiting, diarrhea, fat intolerance, and gallstone ileus. Since the Computed Tomography shows the pneumobilia and the porcelain sac that is attached to the gastrointestinal organs more clearly, it is the best choice among imaging methods. However, because its symptoms are nonspecific, preoperative diagnosis is very difficult and it is a pathology usually diagnosed during surgery. In one study, only 2 of 12 patients diagnosed with cholecystenteric fistula were detected preoperatively (16.6%). Surgical treatment of cholecystenteric fistulas includes dissection of adhesions, cholecystectomy, and resection of the fistula tract [7].

Glenn et al. argued that cholecystenteric fistulae should be treated with open cholecystectomy followed by the closure and removal of the fistula tract. It is suggested that open surgery will be more appropriate if the patient has severe intra-abdominal adhesions and if more than one fistula tract is present [8]. ERCP procedure is also a method used in the diagnosis of cholecystoduodenal fistulas. But this process is not very successful at the stage of diagnosis; the ability to diagnose especially in the incomplete fistula tract is very poor [9]. Although there are several advantages of laparoscopic repair, it is known that the rate of return to open surgery is still high [10]. The most common causes of returning to open operation are bleeding, intestinal suture application laparoscopically is difficult and the circumference of the gallbladder is inflated [11]. Xiang-yang Li et al reported that return to open surgery increased mortality and morbidity in debilitated patients and argued that the following factors should be found for successful laparoscopic treatment. In all stages of the operation, proper vision should be provided, the surgeon should have advanced laparoscopic experience and laparoscopic suture ability, and the fistula

tract should be able to follow all the traces of the gallbladder and gastrointestinal tract. The study also stated that if the exploration of the Callot triangle is not anatomically possible, partial cholecystectomy is an effective option for safe surgery [12].

In this case, after detecting the cholecystoduodenal fistula tract, the tract excision, and mini-laparotomy for duodenal fistula opening repair were performed. The reason for this is to keep the duration of anesthesia short due to more co-morbidity the patient has and to prevent related complications.

## CONCLUSION

Cholecystoduodenal fistulas are difficult to diagnose preoperatively and very rare hepatobiliary emergency surgery cases. Case series finished with laparoscopy are presented in the literature, however in this case report, the fistula line was detected laparoscopically, but the duodenal fistula line was repaired by laparotomy in order to prevent prolongation of the surgery period in the patient with high comorbidity.

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