

# Laparoscopic Repair of Cholecysto-enteric Fistula: Report of Two Cases

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## Abstract

Laparoscopic procedure is the gold standard for gallstone diseases. Cholecysto-enteric fistula is a rare complication of gallstone diseases and mostly diagnosed during laparoscopic cholecystectomy or open procedure. These conditions can also be treated by laparoscopic method. Out of 4 cases, 2 have been treated by laparoscopic procedure. One is cholecysto-gastric fistula and other is cholecysto-duodenal fistula. To close and dissect the tract the authors used suture and plastic clip instead of linear transecting stapler device to cut down cost and minimize the port size without compromising safety.

**Key words:** fistula, cholecysto-enteric, gallstone, laparoscopy.

## INTRODUCTION

Cholecysto-enteric fistula is an unusual rare complication associated with cholelithiasis affecting both the biliary and the gastro-intestinal tracts. They also occur secondary to abdominal trauma, Crohn's disease, peptic ulcer disease, and malignancies of biliary tract, bowel, and head of pancreas.<sup>1</sup> The estimated incidence of biliary fistula is reported to be 0.1% to 0.5% in autopsy series and 1.2% to 5.0% in large series of cholecystectomies.<sup>2</sup> Of these, 75% are cholecysto-duodenal, and only 10–20% are cholecysto-colonic fistulae. Cholecysto-duodenal fistulas are the most common, followed by cholecysto-colonic and cholecysto-gastric fistulas in descending order.<sup>3</sup> It has been suggested that the laparoscopic approach is contraindicated in the presence of a cholecysto-enteric fistula.<sup>4</sup> With increasing expertise and accumulating experience of surgeons, some patients with bilio-enteric fistulae have been reported to have undergone laparoscopic cholecystectomy in the past few years.<sup>5–8</sup> During last 6 years the author encountered four bilio-enteric fistulas. Two of them were treated laparoscopically and two were treated by open surgery. Uneventful recovery was observed in all of them. The author's aim is to emphasize laparoscopic option because it is less invasive, more safe, and feasible.

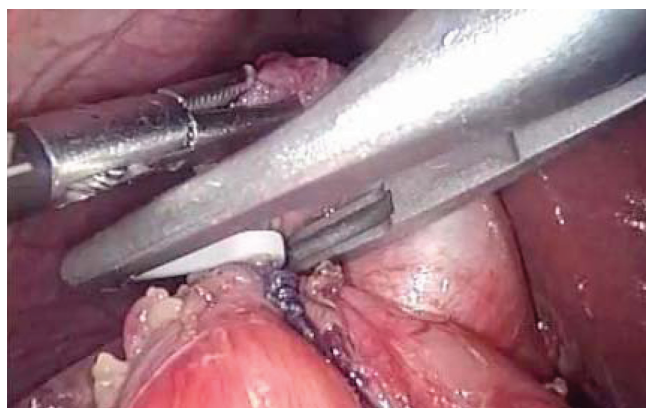
## Case 1

A 35-year-old diabetic woman with a history of biliary colic with cholelithiasis was admitted for a routine, elective laparoscopic cholecystectomy. Her physical findings, routine blood count, and liver function tests were within normal limit. A sonogram demonstrated a small contracted gallbladder with significant wall thickening. The patient underwent elective laparoscopic cholecystectomy. Intraoperatively, dense adhesions were noted between the fundus of the gallbladder

and the body of the stomach. A combination of sharp and blunt dissection discloses the fistulae track (Fig. 1), which was approximately 7 mm in diameter and was mobilized circumferentially. The fistulous track was secured by ligating with 1-0 Vicryl (Ethicon Inc., Mumbai, India) by extra corporeal ligatures very close to stomach wall (Fig. 2). The ligature was re-enforced by applying plastic clip to avoid knot slippage. Because the length was very short the other end of the track close to the gallbladder wall was dissected using a scissor leaving a 2 mm stump on the gastric wall. The ligature or the plastic clip was relied to close the gastric part of the fistula. The cholecystectomy was then completed uneventfully, and the gallbladder was sent for histo-pathologic examination. No drain was left in the abdomen. The operating time was 90 mins. Her recovery was uneventful. The nasogastric tube was removed on the second day, and the patient was discharged from the hospital on the third day. Two weeks later the patient was found to be doing well,



**Figure 1:** Demonstration of cholecysto-gastric fistula track



**Figure 2:** Demonstration of application of vascular clip close to the side of stomach

able to take all foods without difficulty, and was allowed to resume full activity.

## Case 2

A 45-year-old woman was referred to the author for chronic cholecystitis with cholelithiasis. She had a history of occasional epigastric pain varying with diet for last 6 months. Intensity of pain was not so high but associated with bloating and nausea. She had no significant medical or surgical history. The abdomen was soft, normal bowel sound with no epigastric or right hypochondriac tenderness on palpation. Laboratory findings were unremarkable. A sonogram demonstrated contracted gallbladder containing multiple stones.

The patient was scheduled for elective laparoscopic cholecystectomy. Pneumoperitonium was established using a Veress needle. A standard four-port approach and a 30-degree telescope were used. At the outset, dense adhesions were noted between the body of the gallbladder and the first part of the duodenum. A combination of sharp and blunt dissection was performed to break these adhesions. During dissection, a fistula track was identified connecting gallbladder and duodenum (Fig. 3). The track was secured as in case 1 report. Cholecystectomy was then completed uneventfully. A drain was left in the abdomen and was removed on the next day. The operation time was 90 mins. The nasogastric tube was removed on the second postoperative day and the patient was discharged from hospital on the third day. The patient became free from symptoms on a routine follow-up examination 8 months after the surgery.

## DISCUSSION

Preoperative diagnosis of cholecysto-enteric fistulae is difficult due to unspecific and variable nature of symptoms.



**Figure 3:** Dissection along the gallbladder side of fistula

Most of these cases present with signs and symptoms similar to those of chronic cholecystitis. As a result, most cases are identified intra-operatively during laparoscopic cholecystectomy or open procedure. Although preoperative diagnosis of this condition is uncommon, many cases have been reported.<sup>5,8,9</sup> Diagnosis can be made by barium enema, endoscopic retrograde cholangiography (ERCP), computed tomography scan, and ultrasound & magnetic resonance (MR) cholangiography. Very high index of suspicion needs to be diagnosed preoperatively but mostly it is diagnosed intra-operatively during laparoscopic cholecystectomy.

It would have been better if we could have done early preoperative detection so that it could reduce morbidity and mortality.

The authors present two patients with chronic gallbladder disease, one of them found to have cholecysto-gastric fistulae and other one had cholecysto-duodenal fistulae at the time of laparoscopic cholecystectomy.

The reported incidence of internal biliary fistulas is 2% of total biliary disease.<sup>10</sup> The most common type of cholecysto-enteric fistulae is cholecysto-duodenal fistulae (70–75%), followed by cholecysto-colic fistulae (10–20%), and least common cholecysto-gastric fistulae (5%).

During the previous five-year period, the author encountered four cholecysto-enteric fistulae. Of them, one is cholecysto-gastric fistula and other three is cholecysto-duodenal fistulae. Two of them were treated by laparoscopic procedure.

Some authors have reported laparoscopic repair of cholecysto-duodenal, cholecysto-colic, and cholecysto-gastric fistulae earlier.<sup>8–13</sup> But in most of the patients, an endoscopic transecting stapler was used, which involved increased cost. The authors used #1-0 vicryl to ligate the fistulae tract and plastic vascular clip to make the closer of the tract more secure. This procedure allows us to cut down operating time

and cost without compromising safety. Although it is an indication to convert to open surgery, with growing experience, improved expertise and instrumentation have made laparoscopic repair of cholecysto-enteric fistulae a reality. Conversion of laparotomy should be made if difficulties arise at any stage during operation.

The aim of this article is to highlight the rare findings of cholecysto-enteric fistula during laparoscopic cholecystectomy and its laparoscopic management.

## References

1. LeBlanc KA, Barr LH, Rush BM. Spontaneous biliary enteric fistulas. *South Med J.* 1983;76:1249–52.
2. Elsas LJ, Gilat T. Cholecystocolonic fistula with malabsorption. *Ann Intern Med.* 1965;63:481–6.
3. Hernandez C, Heuman D, Vlahcevid ZR. Pathophysiology of disease associated with deficiency of bile acids. In: *Principles and practice of gastroenterology and hepatology.* New York: Elsevier Science Publishing; 1988. pp. 384–95.
4. US National Institutes of Health. Gallstones and laparoscopic cholecystectomy. NIH Consensus Statement. 1992;10(3):1–20.
5. Nuzzo G, Giuliani F, Tebala GD, Vellone M. Laparoscopic management of cholecystogastric fistula. *Endoscopy* 1997;29:226
6. Prasad A, Foley RJE. Laparoscopic management of cholecysto-colic fistula. *Br J Surg.* 1994;81:1789–90.
7. Oka M, Yoshimoto Y, Ueno T, Yoshimura K, Maeda Y, Tangoku A. Treatment of cholecystoduodenal fistula by laparoscopy. *Surg Laparosc Endosc.* 1999; 9: 213–6.
8. Hida Y, Morita T, Fujita M, Miyasaka Y, Katoh H. Laparoscopic treatment of cholecystocolonic fistula: report of a case preoperatively diagnosed by barium enema. *Surg Laparosc Endosc Percutan Tech.* 1999; 9: 217–9.
9. Nakamura M, Hamanaka Y, Kawamura A, Suzuki T. Successful preoperative diagnosis of a cholecystogastric fistula using endoscopic retrograde cholangiography: report of a case. *Surg Today* 1997;7:567–70.
10. Yamashita H, Chijiwa K, Ogawa Y, Kuroki S, Tanaka M. The internal biliary fistula—reappraisal of incidence, type, diagnosis and management of 33 consecutive cases. *HPB Surg.* 1997;10(3):143–7.