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Case Report

Laparoscopic Treatment of Cholecystoduodenal Fistula: A Case Report

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Abstract Cholecystoduodenal fistula (CDF) is an uncommon condition and usually found incidentally during the operation. Generally, it is considered contraindicated to laparoscopic surgery because of its difficult approach and it needs advanced laparoscopic instruments to handle. However, with meticulous steps of procedure, this condition may be managed laparoscopically without using advanced laparoscopic instruments.

The author reported a case of 49 years old woman who presented with long history of epigastric pain. The ultrasound demonstrated a 2 cm gallstone within the thick-walled gallbladder. At the operative field, cholecystoduodenal fistula was accidentally encountered, however the procedure could be carried out successfully without conversion to open surgery.

Keywords: Laparoscopic treatment, Cholecystoduodenal fistula

Introduction

Cholecystoduodenal fistula (CDF) is rare and late complication of biliary tract disease with reported incidence ranging from 0.15%-5%[1]. Gallstone with chronic cholecystitis is the primary cause, associated with 75% of CDF[2]. Without specific symptom to exclude CDF from cholecystitis, the diagnosis is usually found intraoperatively. At the beginning of laparoscopy time, this condition is considered contraindicated for LC[3]. Bleeding, severe adhesions and difficult intracorporeal suturing are factors that converted laparoscopic surgery to open surgery. However, with progression in endoscopic technology especially the invention of endoscopic stapling device[4,5] and the increasing technical skill of laparoscopic surgeons, CDF had been successfully managed trans-laparoscopic in several cases. Later, many authors had reported the use of hand sewn technique instead of using stapling devices[1,16].

A Case Report

A 49 years old woman presented with epigastric pain for ten years and during the past two months, she experienced a severe epigastric pain with radiating to RUQ. After investigated with ultrasound, the imaging revealed thick walled gallbladder with one 2 cm gallstone. The abdomen was soft, depressible without palpable mass. CBC showed no leukocytosis. She was scheduled for elective laparoscopic cholecystectomy.

Operative Note

There was a lot of filmy adhesions and yellow fibrin adhered between liver edge and lateral abdominal wall. The omentum and the second part of duodenum were firmly attached to the gallbladder (Figure 1). The duodenum was sharply and bluntly dissected from the gallbladder but failed to separate apart.

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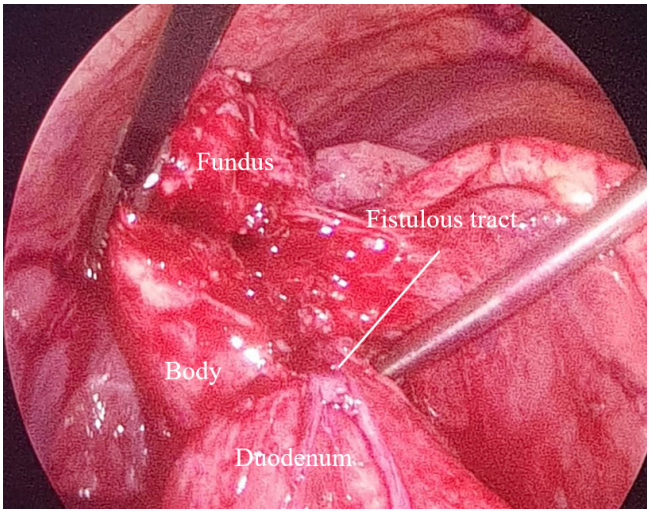


Figure 1 Dense adhesion between gallbladder and 2nd part of duodenum

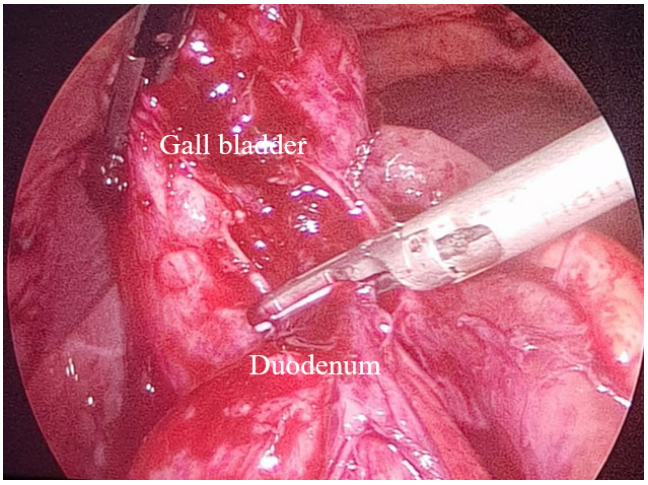


Figure 2 Transection of fistulous tract

Cholecystoduodenal fistula was suspected. The thick adhesion was then transected with Harmonic scalpel, trying to cut onto the gallbladder side and leave some part of the gallbladder to the duodenum (Figure 2). After the duodenum was freed from the gallbladder, there was a two-centimeter defect on its wall (Figure 3,4). A small amount of clear gastric content contaminated the operative field. The defect was interruptedly closed with Vicryl 3/0, four stitches (Figure 5). An 18F nasogastric tube was inserted into the stomach and 1,000 ml of NSS was loaded to test for leakage. (This personal experience technique that had been used in laparoscopic repair of perforated peptic ulcer for 50 cases and detected the leakage in 2 cases). With no evidence of fluid leak, NSS was sucked out and NG tube was removed.

The infundibulum of the gallbladder was identified and retracted laterally. The peritoneum overlying the infundibulum was peeled off, down to the cystic duct. Once the disproportion size between infundibulum and cystic duct was identified, the dissection was stopped, no further dissection was tried to identify the common bile duct. The cystic duct was clipped and transected with Harmonic scalpel. The gallbladder was skeletonized with Harmonic scalpel and removed. The cystic artery was not tried to identify as routine. The operative field was irrigated with NSS and bleeding point was checked and stopped. One Jackson-Pratt drain was placed at hepatorenal area. The operative time took about 145 minutes.

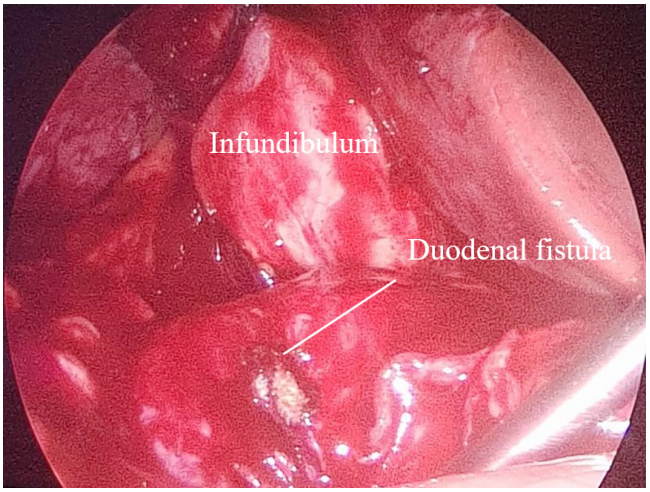


Figure 3 Fistula at the 2nd part of duodenum

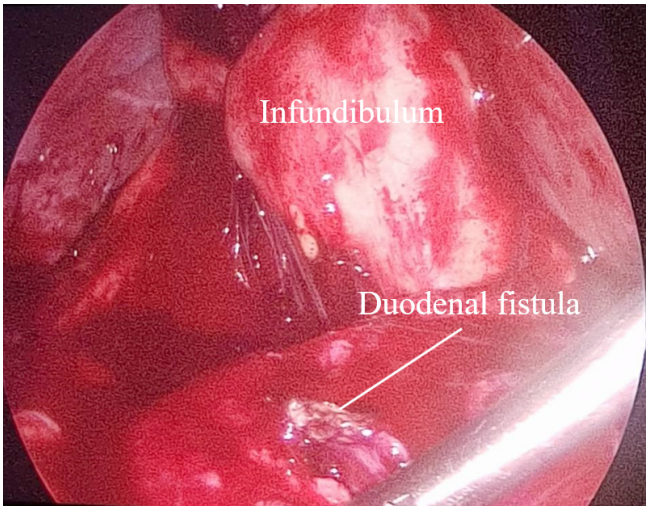


Figure 4 Suction inserted into the 2nd part of duodenum

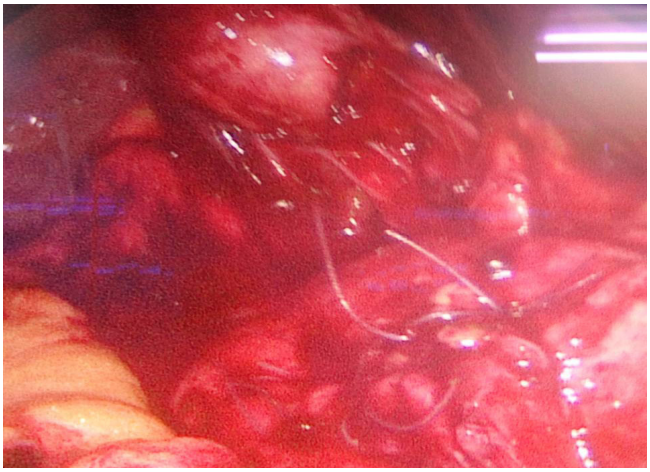


Figure 5 Hand-sewn repaired with Vicryl 3/0

The patient was allowed to sip water immediately after she fully gained conscious and liquid diet was tried on first post-op day[17]. On the second post-op day, the patient could tolerate soft diet well and the drain showed small amount of serous fluid. The drain was then removed and the patient was allowed to discharge. She had a good recovery without an unusual event. The pathological diagnosis was acute and chronic cholecystitis and reactive lymphoid hyperplasia in cystic node.

Discussion

Cholecystoenteric (CEF) fistula is a rare complication, account for 0.5% - 1.9% of biliary disease[6]. Cholecystoduodenal fistula is the most common of CEF, accounted for 77% - 90% of cases, followed by cholecystocolic (8% - 26.5%), choledochoduodenal (5%) and cholecystogastric (2%)[7,8]. The stone in the Hartmann's pouch caused inflamed gallbladder and adhered to adjacent organs. The stone eroded gallbladder wall and contagious organs and caused spontaneous fistula formation[9]. Because of its nonspecific symptoms, diagnosis the disease is very difficult. However, long episodes of cholecystitis more than 5 years, gallbladder wall thickening more than 3mm, atrophic gallbladder with or without pneumobilia and unidentified borderline between gallbladder and part of intestinal tract on CT scan should raise suspicious for the presence of cholecystoenteric fistula[6,10]. In suspicious cases, oral infusion of GI ultrasound contrast medium is a simple, practical, non-invasive, an effective method of diagnosing CDF[11].

Failure to diagnose preoperatively, the surgeon should keep in mind that once the operative findings showed dense inflammatory adhesions around the contracted and fibrotic gallbladder and firmly attached to adjacent organs, might lead to the diagnosis of CDF. The conversion rate to open surgery is high, most likely due to failure to disconnect the two structures, bleeding and difficult intestinal suturing[12-14]. However, since the introduction of laparoscopic staples CDF could be managed laparoscopically and the procedure was no longer contraindicated[15]. Along with progression in laparoscopic technique, some experienced authors successfully repaired the defect with hand sewn techniques [10,16].

Xiang-yang Li et al[10] reported a large series of 10,588 patients underwent laparoscopic cholecystectomy and 23 cases were cholecystoduodenal fistula. They advised the keys to a successful laparoscopic treatment: each meticulous step must be performed under clear vision, the surgeon must be experienced in laparoscopic suturing and if the anatomical structure of the gallbladder triangle is not clear, partial cholecystectomy is a safe and effective procedure.

Conclusion

The author reported a case of cholecystoduodenal fistula, which was an incidental finding. However, the procedure could be performed successfully under basic surgical techniques and basic laparoscopic instruments.

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บทคัดย่อ **รายงานการรักษาภาวะถุงน้ำดีเชื่อมต่อกับลำไส้เล็กดูโอดีนัมด้วยวิธีการผ่าตัดผ่านกล้อง**

วันชัย มานะกิจศิริสุทธิ, พบ.

กลุ่มงานศัลยกรรม โรงพยาบาลสวรรค์ประชารักษ์ จ.นครสวรรค์

ภาวะถุงน้ำดีเชื่อมต่อกับลำไส้เล็กดูโอดีนัมเป็นภาวะที่พบได้น้อย ส่วนใหญ่จะพบโดยบังเอิญในขณะทำผ่าตัดถุงน้ำดีผ่านกล้อง และอาจถือเป็นข้อห้ามของการผ่าตัดผ่านกล้อง เนื่องจากลักษณะกายวิภาคที่ผิดปกติ และอาจต้องใช้เครื่องมือชนิดพิเศษช่วยในการผ่าตัด อย่างไรก็ตาม การมีทักษะและประสบการณ์การผ่าตัด ภาวะนี้สามารถทำการผ่าตัดผ่านกล้องได้ โดยใช้เครื่องมือผ่าตัดชนิดธรรมดา

ผู้ป่วยหญิงอายุ 49 ปี มาด้วยอาการปวดท้องเรื้อรังบริเวณลิ้นปี่ การตรวจด้วยคลื่นเสียงความถี่สูงพบนิ่วในถุงน้ำดีขนาด 2 ซม. ถุงน้ำดีมีผนังหนา ในขณะทำการผ่าตัดผ่านกล้อง พบว่าถุงน้ำดีมีพังผืดยึดติดแน่นกับลำไส้เล็กดูโอดีนัมและมีรูทะลุเชื่อมต่อกัน ได้ทำการตัดรอยเชื่อมและถุงน้ำดีออกร่วมกับเย็บซ่อมรูทะลุที่ลำไส้เล็กดูโอดีนัมโดยการใช้เครื่องมือผ่าตัดชนิดธรรมดา

ภาวะถุงน้ำดีเชื่อมต่อกับลำไส้เล็กดูโอดีนัมเป็นภาวะที่มักพบโดยบังเอิญในขณะทำผ่าตัด สามารถทำผ่าตัดผ่านกล้องได้ โดยไม่จำเป็นต้องเปลี่ยนไปเป็นการผ่าตัดแบบเปิด และสามารถใช้เครื่องมือชนิดธรรมดาในการทำผ่าตัดได้