

A Rare Case of Cholecystoduodenal and Cholecystocolic Fistula with Gallstone Ileus

Abstract

Cholecystoduodenal and cholecystocolic fistula (CCF) is a rare condition, occurring in patients with cholelithiasis. Multiple complex fistulas are even rare. This is a case study done to detail such a rare case, very few such cases have been reported in the past studies, with cholecystoduodenal and CCF with gallstone ileus. We present the case of an 80-year-old, female diagnosed with intestinal obstruction. Intraoperatively, the gallbladder (GB) fundus forms a CCF and the body of the GB with the first part of the duodenum forms cholecystoduodenal fistula. Gallstone ileus found impacted in jejunum 35 cm distal to DJ junction. Resection of fistula tracts with primary repair of the transverse colon was done with Graham's patch repair of duodenum and fundus first cholecystectomy. Cholecysto-duodeno-colic fistulas complicated with gallstone ileus are very rare. In the case of gallstone ileus, the surgical treatment is an emergency and the only therapeutic option.

Keywords: Biliary-enteric fistula, gallstone ileus, gallstones

Introduction

Biliary fistula is an abnormal communication between the biliary system and an organ, cavity, or free surface. Biliary fistula is further classified as external (biliary-cutaneous) or internal (biliobiliary and bilioenteric).^[1]

Cholecystoduodenal fistula is the most frequently encountered type of cholecystoenteric fistula (CEF), comprising 75% to 80% of all such fistulas, followed by cholecystocolic fistula (CCF).^[2] Which represents 8%–26.5% of cholecystoenteric fistulas^[3] and 2% to 5% are cholecystogastric. Multiple or complex fistulae (e.g. cholecysto-duodeno-colic) are extremely rare and only seven such cases have been reported.^[4,5] Two isolated fistula, gallbladder (GB)-duodenum, and GB-colon have not been reported to date to our knowledge.

The pathogenic sequence of events for calculous biliary tract disease consists of pressure necrosis and erosion of part of the biliary tract wall into an adjacent structure to which it has become adherent in the course of repeated bouts of inflammation, often with distal biliary tract obstruction.^[6]

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Gallstone ileus is a mechanical intestinal obstruction due to gallstone impaction within the gastrointestinal tract. Modern series of bowel obstructions report gallstone ileus to be a very uncommon cause (well under 1%).^[7] The classic plain abdominal film triad of small bowel obstruction, pneumobilia, and ectopic gallstone is considered pathognomonic of gallstone ileus;^[8] however, the triad is encountered in only 30% to 35% of cases.^[9] Calculi large enough to obstruct the intestine usually do so in the distal ileum, and rarely do so in the jejunum. Surgical management includes enterolithotomy with cholecystectomy and closure of cholecystoenteric fistula (one-stage procedure) or enterolithotomy with cholecystectomy and fistula repair later (two-stage procedure). The approach can be open or laparoscopic.^[10]

The aim of this article is to present the case report of a patient with cholecystoduodenal and cholecystocolic fistula in the same patient manifested with gallstone ileus.

Case Report

Surjit Kaur, an 80-year-old female presented to the emergency surgery ward, with complaints of vomiting and pain in the upper abdomen for more than 2 weeks and had visited many hospitals for the same. The patient had obstipation for 2 days. An

How to cite this article: Walia DJ, Singla A, Singh S, Dua J. A rare case of cholecystoduodenal and cholecystocolic fistula with gallstone ileus. *Int J App Basic Med Res* 2023;13:121-3.

Darshan Jit Singh Walia,
Anand Singla,
Sandeep Singh¹,
Jasmeen Dua¹

Departments of General Surgery and ¹Department of Medicine, GMC and Rajindra Hospital, Patiala, Punjab, India

Submitted: 18-Nov-2022

Revised: 08-Feb-2023

Accepted: 15-Feb-2023

Published: 17-Jul-2023

Address for correspondence:

*Dr. Sandeep Singh,
House No. 73, Street
No. 9A, Anand Nagar B,
Patiala - 147 001, Punjab,
India.
E-mail: sandeep193s7@gmail.
com*

Access this article online

Website:
<https://journals.lww.com/IJAB>

DOI:
10.4103/ijabmr.ijabmr_598_22

Quick Response Code:



episode of pain in the right hypochondrium was present 6 years back. She was diagnosed with acute cholecystitis and managed conservatively then.

Examination revealed mild distension of the abdomen with generalized tenderness, more in the upper abdomen showing signs of intestinal obstruction. On chest auscultation, bilateral crepts were present.

Her blood workup was unremarkable. Ultrasound was suggestive of cholelithiasis, with multiple stones in GB lumen and wall thickness of 3.5 mm, common bile duct (CBD) of 8 mm at the porta. There were multiple dilated gut loops with maximum diameter of 3.3 mm, showing slow peristalsis, filled with echogenic material and minimal ascites.

The patient was put on conservative management on intravenous (IV) antibiotics, NPO and IV fluids, nasogastric tube drainage, and contrast-enhanced computed tomography whole abdomen was done, suggestive of pneumobilia, with fistulas communication between bowel wall and GB, and a hyperdense focus of 12 mm × 12 mm in dimension in the small bowel with proximal dilated gut loop of 3.8 cm, indicative of gallstone ileus.

On emergency laparotomy, the omentum and bowel were adherent to GB. A hard impacted stone was found in the jejunum [Figure 1], around 35 cm from the duodenojejunal junction distal to which the gut collapsed. After meticulous dissection, the transverse colon was found adherent to GB fundus forming a CCF measuring 5 mm × 5 mm [Figure 2]. On further dissection, another fistulous communication between the body of the GB and the first part of the duodenum was found measuring 20 mm × 15 mm confirmed by passage of probe through the GB after opening and evacuating gallstones [Figure 2 and 3]. Adhesiolysis was done and fistula was excised. Primary repair of the transverse colon was done in two layers after freshening the margin with Graham's patch repair of the duodenum and fundus first cholecystectomy. The mesentery near the impacted site of the stone was inflamed and the stone could not be pushed forward, no other calculus could be palpated in the rest of the small or large gut. An enterotomy was done and multifaceted cuboid stone measuring 30 mm × 30 mm was retrieved and the wall of the jejunum was closed in two layers. The abdomen was closed in layers and postoperative recovery was uneventful.

Discussion

Gallstone ileus is a mechanical bowel obstruction caused by a biliary calculus originating from a bilioenteric fistula.^[1] Majority of gallstone ileus cases occur in already-known cholelithiasis patients after being asymptomatic for long periods of time.^[12] Large gallstone enters the bowel through the formation of an internal biliary fistula with the intestine after local inflammatory processes persisting for a long period of time. As a sequela, patients may develop sepsis,



Figure 1: Impacted gallstone at the jejunum

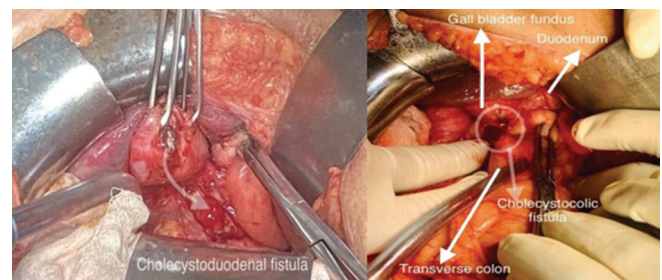


Figure 2: Cholecystocolic fistula and cholecystoduodenal fistula

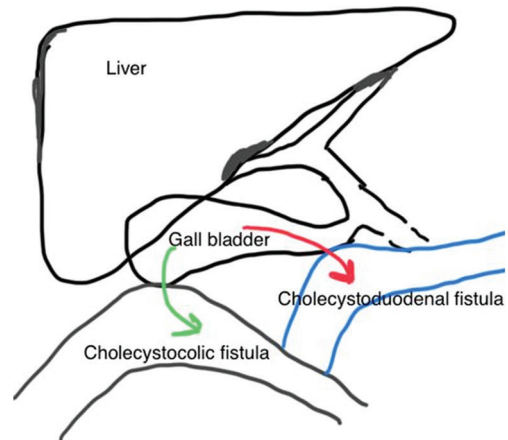


Figure 3: Illustration of case

diarrhea, cholangitis, and intestinal obstruction, as in our patient.

Gallstone ileus is a rare cause of obstruction. Usually, bilioenteric fistula is single, and multiple/complex cholecystoenteric fistula is a rare complication of cholelithiasis. Our patient had two separate fistulae, i.e., cholecystoduodenal with body of GB and CCF with fundus of GB.

Patients usually have a history of cholecystitis, as seen in our patient and were asymptomatic for years. There is

a female predominance with approximately a 3:1 ratio.^[13] and most of these patients are elderly.^[10] Our patient was an elderly female as well.

Despite modern imaging studies, preoperative diagnosis is mostly elusive. In one case series, preoperative diagnosis of cholecystoenteric fistula was achieved in only 8%–17% of cases.^[14] Most of the cases are diagnosed intraoperatively. Operating surgeons need to have high suspicion for diagnosis in patients presenting with obstruction and history of cholecystitis. Computed tomography, magnetic resonance cholangiopancreatography, gastroscopy, and barium enema or meal follow-through are standard in suspicious cases, but even failure to detect the fistula in these modalities has been reported.

The standard treatment of internal biliary fistula is cholecystectomy and repair of the fistulous opening.^[15] In our case, the fistulous tract was excised, and primary repair of the colon and duodenum along with cholecystectomy was done.

Conclusion

Gallstone ileus is a rare cause of obstruction and a surgical emergency. It should be kept in the differential diagnosis in the elderly population presenting with a history of cholecystitis and when recurrent attacks were left unoperated and not promptly treated. Cholecysto-duodenal-colic fistula is not commonly encountered and should be kept in mind and looked for by a surgeon in cases with dense adhesion between gut loops and GB.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Safaie-Shirazi S, Zike WL, Printen KJ. Spontaneous enterobiliary fistulas. *Surg Gynecol Obstet* 1973;137:769-72.
2. Glenn F, Reed C, Grafe WR. Biliary enteric fistula. *Surg Gynecol Obstet* 1981;153:527-31.
3. Angrisani L, Corcione F, Tartaglia A, Tricarico A, Rendano F, Vincenti R, *et al.* Cholecystoenteric fistula (CF) is not a contraindication for laparoscopic surgery. *Surg Endosc* 2001;15:1038-41.
4. Suci BA, Hălmăciu I, Vunvulea V, Trâmbițaș C, Pisciă R, Lata L, *et al.* Gallstone ileus caused by a cholecysto-duodeno-colic fistula, case report and literature review. *ARS Med Tomitana* 2017;23:170-4.
5. Bhat GA, Jain R, Lal P. Cholecystoduodenocolic fistula: An unexpected intraoperative finding, a surgical challenge. *Int J Clin Med* 2016;7:261.
6. Glenn F, Mannix H Jr. Biliary enteric fistula. *Surg Gynecol Obstet* 1957;105:693-705.
7. Ayantunde AA, Agrawal A. Gallstone ileus: Diagnosis and management. *World J Surg* 2007;31:1292-7.
8. Borman CN, Nole JF. Gallstone obstruction pathogenesis and roentgen manifestation. *J Am Med Assoc Chicago* 1941;117:1753-9.
9. Balthazar EJ, Schechter LS. Air in gallbladder: A frequent finding in gallstone ileus. *AJR Am J Roentgenol* 1978;131:219-22.
10. Huang SF, Han YH, Chen J, Zhang J, Huang H. Surgical management of cholecystoenteric fistula in patients with and without gallstone ileus: An experience of 29 cases. *Front Surg* 2022;9:950292.
11. Halabi WJ, Kang CY, Ketana N, Lafaro KJ, Nguyen VQ, Stamos MJ, *et al.* Surgery for gallstone ileus: A nationwide comparison of trends and outcomes. *Ann Surg* 2014;259:329-35.
12. Costi R, Randone B, Violi V, Scatton O, Sarli L, Soubrane O, *et al.* Cholecystocolonic fistula: Facts and myths. A review of the 231 published cases. *J Hepatobiliary Pancreat Surg* 2009;16:8-18.
13. Gibbons CP, Ross B. Cholecystoduodenocolic fistula and gallstone ileus. *Postgrad Med J* 1984;60:698-9.
14. Gonzalez-Urquijo M, Rodarte-Shade M, Lozano-Balderas G, Gil-Galindo G. Cholecystoenteric fistula with and without gallstone ileus: A case series. *Hepatobiliary Pancreat Dis Int* 2020;19:36-40.
15. Duzgun AP, Ozmen MM, Ozer MV, Coskun F. Internal biliary fistula due to cholelithiasis: A single-Centre experience. *World J Gastroenterol* 2007;13:4606-9.