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Management dilemma of cholecysto-colonic fistula: Case report

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ABSTRACT

INTRODUCTION: Cholecystocolonic fistula is a rare condition and is found in roughly 1 in every 10,000. It represents 6.3% to 26.5% of all cholecystenteric fistulas (Chowbey et al., 2006; Angrisani et al., 2001; Yamashita et al., 1997). Cholecystocolonic fistula is the second most common intestinal fistula after cholecystoduodenal fistula (Costi et al., 2009). Rarity of this condition, atypical presentation, diagnostic and management challenges, makes it a unique surgical entity.

CASE PRESENTATION: A 77-year old male presented with progressive abdominal distension and diarrhea. After initial evaluation, a cholecystocolonic fistula was suspected. Further diagnostic studies including Hepatobiliary Imino-Diacetic Acid (HIDA) scan and Endoscopic Retrograde Cholangiography (ERC) revealed complete occlusion of the cystic duct that could not be relieved. Shortly after, the patient developed septic shock likely of biliary origin and required an urgent open partial cholecystectomy and segmental resection of the involved colonic segment.

DISCUSSION: In this particular case, the acute presentation together with the inflammatory features around the gallbladder pointed toward an acute inflammatory process and therefore we have tried to delay any operative intervention to allow the inflammation to subside and avoid operating in an inflamed field. Furthermore, our aim was to relieve any sort of biliary obstruction to allow the fistula –if present– to heal by minimizing bile flow through the fistula. Relieving biliary obstruction was not successful in our patient.

CONCLUSION: Based on our experience with this particular case, we could safely conclude that an operation for cholecystocolonic fistula presence in the setting of biliary obstruction that failed decompressive attempts should be performed in an urgent fashion to avoid biliary sepsis development.

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1. Introduction

Cholecystocolonic fistula is a rare condition and is found in roughly 1 in every 10,000 cholecystectomies and it is more common in females. Mean age of presentation is 68.9 years [1]. It represents 6.3%–26.5% of all cholecystenteric fistulas [2–4]. Symptoms are minimal and usually non-specific. Preoperative diagnostic tests usually fail to identify the fistula and the diagnosis is usually made intraoperatively. Cholecystocolonic fistula is the second most common intestinal fistula after cholecystoduodenal fistula [1]. Rarity of this condition, atypical presentation, diagnostic challenge, and management complexity makes it a unique surgical entity. Report of this condition has been limited to case reports and series. To date, no “consensus” has been developed to address the optimal surgical management of cholecystocolonic fistula. By reporting our experience, we aim to present the challenges we were faced with during management of cholecystocolonic fistula. We also aim to outline the decision-making process based on the presenting symptoms,

diagnostic tests, and intraoperative findings. Report of further cases is extremely encouraged and required to help with developing a “consensus” on how to manage this rare surgical entity. This case has been reported in compliance with the SCARE criteria [8].

2. Case report

A 77 year-old, schizophrenic, male who lives in an assisted living facility presented to our emergency department with a 7-day history of progressive abdominal distension with increased abdominal girth, and diarrhea that increased in severity to the degree that he was having bowel movements every hour and he was incontinent the day before presenting to the hospital. The patient was a poor historian and most of the history was obtained from the assisted-living facility nurse accompanying him. A history of infrequent vomiting that coincided with the onset of other symptoms in addition to weight loss and anorexia was provided. Of note, no abdominal pain was present at the time of the presentation. Medical and surgical history is otherwise insignificant. Apart from abdominal distension, the rest of his physical examination was normal. Laboratory evaluation was significant for mild metabolic alkalosis and slight elevation of C-reactive protein (16 mg/L; normal is

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Fig. 1. Shows a contracted gallbladder containing stones.



Fig. 2. Shows gas within the gallbladder (Circle).



Fig. 3. Shows an area of inflammatory reaction between the hepatic flexure and the gallbladder (arrow).



Fig. 4. Hepatobiliary Imino-Diacetic Acid (HIDA) scan shows “no filling” of the gallbladder.

less than 8 mg/L). The rest of the laboratory evaluation (complete blood count, electrolytes panel, and liver function tests) was within normal limits.

Computed tomography (CT) of the abdomen revealed a contracted, thick gallbladder containing stones and few gas bubbles (Figs. 1 and 2). Presence of cholecystocolonic fistula was suspected but no clear fistulous communication could be identified (Fig. 3). We decided to admit the patient for observation and serial abdominal examination. The patient abdominal distension did not resolve with conservative management. His abdominal examination remained normal as well as his laboratory values. After 5 days of persistent abdominal distension and diarrhea we proceeded with obtaining a Hepatobiliary Imino-Diacetic Acid (HIDA) scan to visualize any fistulous communication between the hepatic flexure and colonic flexure. HIDA scan did not reveal any filling of the gallbladder and suggested occlusion of the cystic duct (Fig. 4). We

proceeded with Endoscopic Retrograde Cholangiography (ERC) to further delineate the anatomy and look for cholecystocolonic fistula presence. The common bile duct, right hepatic duct, and left hepatic ducts were free of stones or any evidence of obstruction. The cystic duct was completely occluded and neither a fine wire nor contrast could pass beyond the site of obstruction (Fig. 5). Therefore, no comment could be made regarding the presence or absence of cholecystocolonic fistula since contrast did not make it to the gallbladder because of cystic duct occlusion. Sphincterotomy was performed as well and a pancreatic stent was placed.

About 20 h after ERC completion, the patient developed fevers, hypotension, and tachycardia and was transferred to the Intensive Care Unit (ICU). After adequate resuscitation and hemodynamic stability, CT scan of the abdomen was obtained which showed free

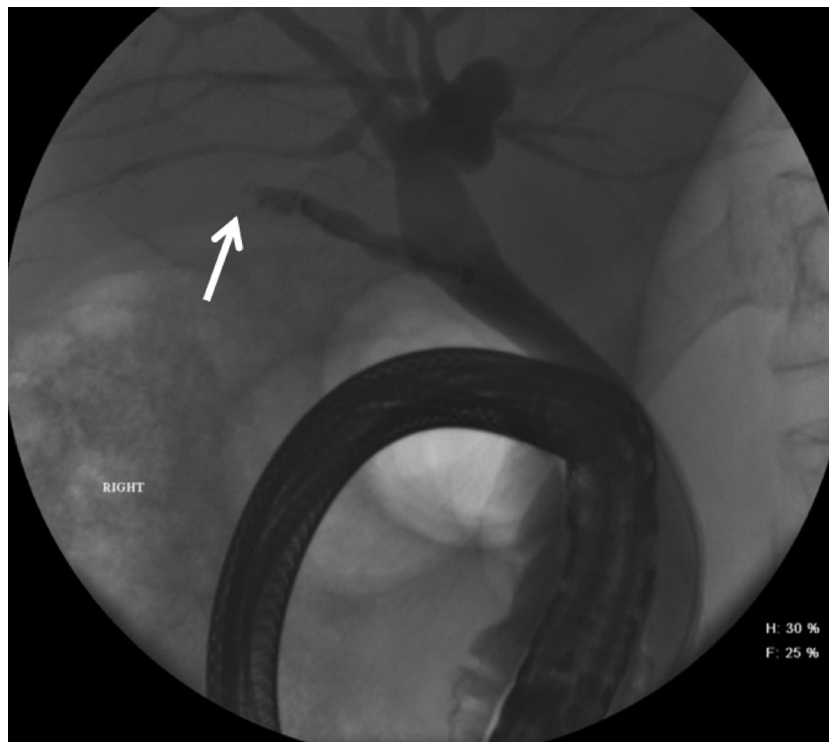


Fig. 5. Endoscopic Retrograde Cholangiography (ERC) shows abrupt cessation of contrast flow in the cystic duct (arrow) with no contrast flow into the gallbladder. The rest of the biliary tree is patent with free flow of contrast.

intraabdominal fluid of unclear origin. Serum Amylase and Lipase levels were within normal limits. In lights of change in clinical status and high suspicion of biliary sepsis from the presumed fistulous connection with the colon, the patient was taken to the operating room for open abdominal exploration.

During the operation, no evidence of hollow viscus perforation was identified. The hepatic flexure was adherent to the gallbladder and the undersurface of the liver. After careful dissection, a fistulous tract was identified between the gallbladder and the hepatic flexure which was subsequently divided. Two stones were retrieved from the contracted gallbladder. An exposed colonic mucosa was biopsied and sent for frozen section analysis to exclude the presence of carcinoma. Frozen section confirmed the absence of any neoplastic changes; a finding that was confirmed with subsequent comprehensive pathological evaluation. Given the significant inflammatory changes involving the gallbladder, complete cholecystectomy was neither safe nor technically feasible. Therefore, partial cholecystectomy with fulguration of the remaining mucosa was performed. Frozen section examination of the removed part of the gallbladder again excluded the presence of neoplastic changes but did reveal acute and chronic cholecystitis. The involved segment of the hepatic flexure was tangentially resected without narrowing the colonic lumen. External drainage tube was placed to monitor for bile and/or enteric leak during the Post-Operative period. The patient remained hospitalized for two weeks before discharge for episodic nocturnal desaturation that was attributed to central sleep apnea. Three weeks after discharge from the hospital, he developed right upper quadrant abscess that was successfully treated with antibiotics and percutaneous drainage. Patient course remained uneventful during the follow up duration (1 year).

3. Discussion

In this report, we are describing a challenging case, with diarrhea and abdominal distension being the only symptoms. In this

particular case, the acute presentation together with the inflammatory features around the gallbladder pointed toward an acute inflammatory process involving the gallbladder. We have tried to delay any operative intervention to allow the inflammation to subside and avoid operating in an inflamed field. But before that, we wanted to confirm the presence of cholecystocolonic fistula given the implication of this diagnosis on the management plan. Furthermore, our aim was to relieve any sort of biliary obstruction to allow the fistula –if present- to heal by minimizing bile flow through the fistula and allowing the bile to flow down its normal path. Many authors reported spontaneous resolution of cholecystocolonic fistula after biliary decompression [5,6]. Relieving biliary obstruction was not successful in our patient.

The worsening clinical situation of the patient in addition to failed attempts to decompress the gallbladder forced us to perform a semi-emergent operation. Given the need for a shorter operative time, a hostile operative field, and a high conversion rate from laparoscopic to open procedure in the setting of cholecystocolonic fistula [1], we felt it is safer to proceed with open abdominal exploration instead of laparoscopic approach.

Cholecystocolonic fistula is different from cholecystoduodenal fistula in that the gallbladder in cholecystocolonic fistula is communicating with a bowel lumen with a very high bacterial load. This makes the risk of biliary sepsis higher in patients with cholecystocolonic fistula. Cholecystocolonic fistula should be thought of as a two-way communication between the gallbladder and the colonic lumen. Bile acids could flow from the gallbladder to the colonic lumen and result in choleraic diarrhea as was first described by Hofmann [7]. Sometimes, stones could pass and result in obstruction in rare occasions. More importantly, bacteria could flow from the heavily loaded colon to the sterile biliary system and result in various clinical forms of cholangitis including septic shock from biliary sepsis. The latter represents a surgical emergency and necessitates immediate intervention. Our patient developed biliary

sepsis soon after ERC. It is unclear to us whether ERC contributed to the onset of biliary sepsis in this patient or not.

From our experience with this particular patient, we tend to agree with the results from the available literature that biliary decompression can facilitate cholecystocolonic fistula resolution and healing. Nevertheless, we tend to disagree with conservative management when there is evidence of biliary obstruction that could not be relieved. In these situations, the risk of biliary sepsis from colonic bacteria translocation is real and the resultant biliary sepsis is not without its deleterious physiologic changes and unfavorable consequences. We could safely conclude that an operation for cholecystocolonic fistula in the setting of biliary obstruction that failed attempts at decompression should be performed in an urgent fashion to avoid biliary sepsis development and its deleterious physiologic consequences. We hope reporting this case will encourage report of further cases with the ultimate goal of developing a consensus outlining the “optimal surgical management” of this rare surgical entity.

Conflicts of interest

None.

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Ethical approval

IRB-approval was obtained.

Consent

Consent was given before writing this manuscript.

Author contribution

Waleed Gibreel: Collection of data, review of the literature, and manuscript writing.

Lawrence Greiten: Collection of data, review of the literature, and manuscript writing.

Ahmed Alsayed: Review of the literature, manuscript review and editing.

Henry Schiller: Manuscript writing and editing. Supervising all steps of research.

Registration of research studies

<http://www.researchregistry.com/browse-the-registry.html#home/addregistration>.

Case report does not need registration.

Guarantor

Waleed Gibreel.

Henry Schiller.

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