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Colo-Cholecystic Fistula Secondary to Diverticular Disease: A Case Report

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August 26, 2024

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Keywords: Diverticulum; Diverticular diseases; Biliary Fistula; Radiology; Imaging

Introduction:

Fistulous communication between the colon and the biliary tree, or cholecysto-colic fistula (CCF), is a rare clinical entity that poses diagnostic and therapeutic challenges for clinicians. It accounts for 8-26.5% of all cholecystoenteric fistulas (CEF) (1-3), making it the second most common type of CEFs after cholecystoduodenal fistulas. The incidence of CCF in patients undergoing cholecystectomy is reported to be 0.06-0.14% (2-4). CCF usually occurs in the background of a gallbladder pathology, most commonly gallstones (4,5). Other etiologies include surgery (6,7), cholecystostomy (8) and abdominal wounds (9, 10). Diverticular disease, a common gastrointestinal disorder predominantly affecting the elderly, is characterized by the presence of diverticulae, small pouch-like protrusions, in the colonic wall. Despite its prevalence, the development of a

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colo-cholecystic fistula in the setting of diverticular disease remains a seldom-reported occurrence in medical literature. To the best of our knowledge, two cases of CCF developing as sequelae of colonic pathologies have been reported (11, 12). One of these reported colonic diverticulosis as the etiological factor of CCF (12).

In this report, we present a rare case of colo-cholecystic fistula secondary to diverticular disease of the ascending colon, emphasizing the clinical, radiological, and therapeutic aspects of this unique presentation. Through a comprehensive review of the literature, we aim to enhance understanding of this rare condition, its pathogenesis, diagnostic approach, and optimal management strategies.

Case History:

A 74 year old male with diabetes mellitus, hypertension and ischemic heart disease, presented as an outpatient to the ultrasound clinic of Aga Khan University Hospital, Karachi with the complaint of lower urinary tract symptoms.

Methods:

Ultrasound kidneys and bladder was performed which showed a soft tissue density polypoidal mass along the right lateral wall of the urinary bladder.

As part of the primary team's management plan, CT abdomen and pelvis with contrast was performed which showed a large polypoidal lesion arising from the base of urinary bladder, indenting and possibly infiltrating the prostate.

However, an additional finding of an abnormal linear air-containing tract was identified arising from the ascending colon, extending up to the gallbladder. Another abnormal communication was noted in the region of fundus of the gallbladder with the adjacent hepatic flexure. Air was also seen in the normally distended gallbladder (Figures 1-3). Multiple tiny diverticulae were also seen arising from the ascending colon (Figure 4). These findings were concluded to be resulting from a colo-cholecystic fistula involving the ascending colon secondary to diverticulitis.

Two small fluid collections were also identified adjacent to the gallbladder fossa (Figure 4-5). Patient was then electively admitted to the hospital for cystoscopy and transurethral resection of bladder tumor was planned.

Patient was started on chemoradiotherapy for bladder carcinoma. However, since the patient did not complain of any related symptoms, no intervention was done for the colo-cholecystic fistula.

Conclusion and result:

Follow-up CT a year later showed that the fistulous tract between the ascending colon and the biliary tree had healed, and air in the gallbladder lumen had resolved (Figures 6-7).

Discussion:

Colo-cholecystic fistula is a complex pathological entity often presenting with nonspecific symptoms, making its diagnosis challenging. While the majority of cases are attributed to gallstone disease or inflammatory bowel conditions, the association with diverticular disease is infrequently encountered. To the best of our knowledge, only a single such case has been documented in medical literature where the patient experienced fever and raised white cell counts, and subsequently had to undergo open cholecystectomy (12). On the other hand, in our case, the fistulous communication was symptomless and discovered as an incidental finding. Furthermore, follow-up imaging showed that the fistula had healed in interval.

Since CCFs have no specific symptoms or signs, they are often overlooked unless complications occur. These complications include gallstone ileus, ascending cholangitis, or hemorrhage.

Common symptoms of CCFs include pain in the right upper quadrant, nausea, vomiting, and intolerance to fatty meals. These symptoms are characteristic of cholecystitis and are of no help in diagnosing CCF.

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Diagnostic evaluation of colo-cholecystic fistula often necessitates preoperative and intraoperative evaluation. Preoperative diagnosis of CCF is made in only 7.9% of the cases (3). Radiological investigations including x-ray (13), ultrasound (1), barium enema (14), CT (15) and scintigraphy (16) have been useful in identifying CCF. Ibrahim et al. demonstrated intraoperative diagnosis of CCF by intraoperative cholecystography (17).

Therapeutic management of colo-cholecystic fistula primarily entails surgical intervention, aimed at cholecystectomy and colonic resection (18). Laparoscopic techniques have gained prominence in recent years, offering advantages of minimally invasive surgery, reduced postoperative pain, and shorter hospital stays (19). Nevertheless, the choice of surgical approach should be tailored to individual patient factors, including the extent of disease involvement, presence of complications, and surgical expertise.

Our report underscores the significance of recognizing colo-cholecystic fistula as a potential sequelae of diverticular disease, despite its rarity. Through a comprehensive understanding of its pathogenesis, clinical presentation, and diagnostic approach, clinicians can facilitate prompt recognition and appropriate management, thereby optimizing patient outcomes. Further research endeavors are warranted to elucidate the underlying mechanisms and refine therapeutic strategies for this intriguing clinical entity.

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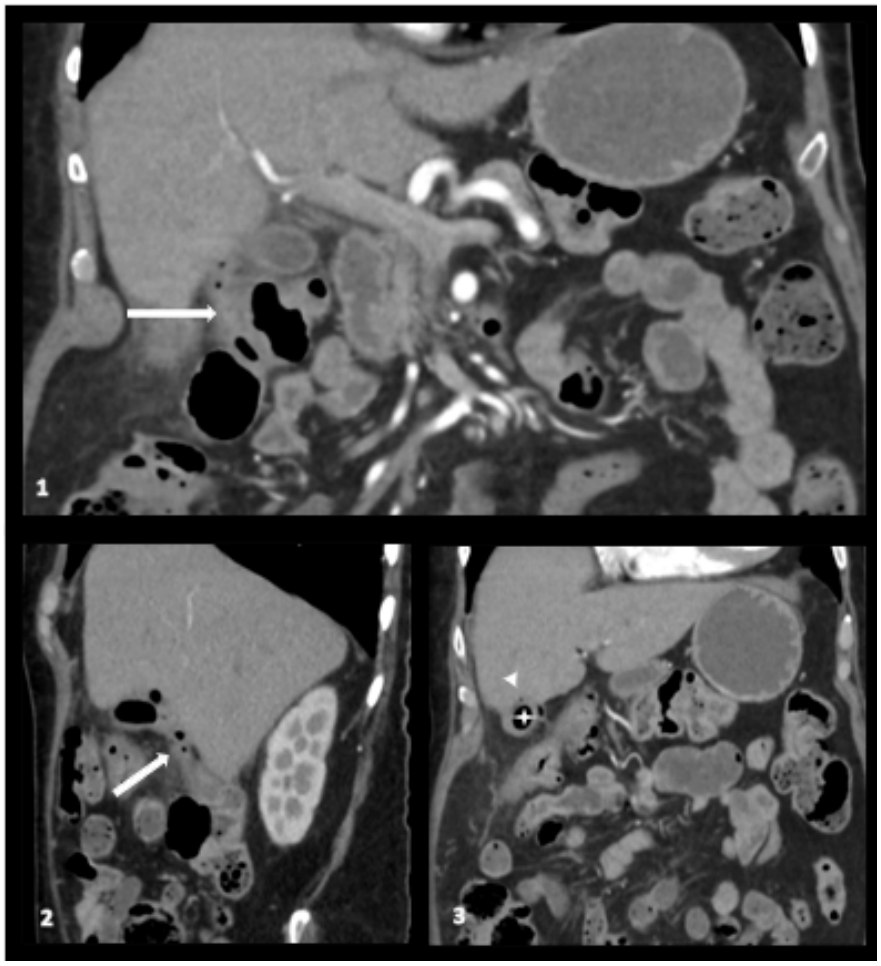
Images/Figures:



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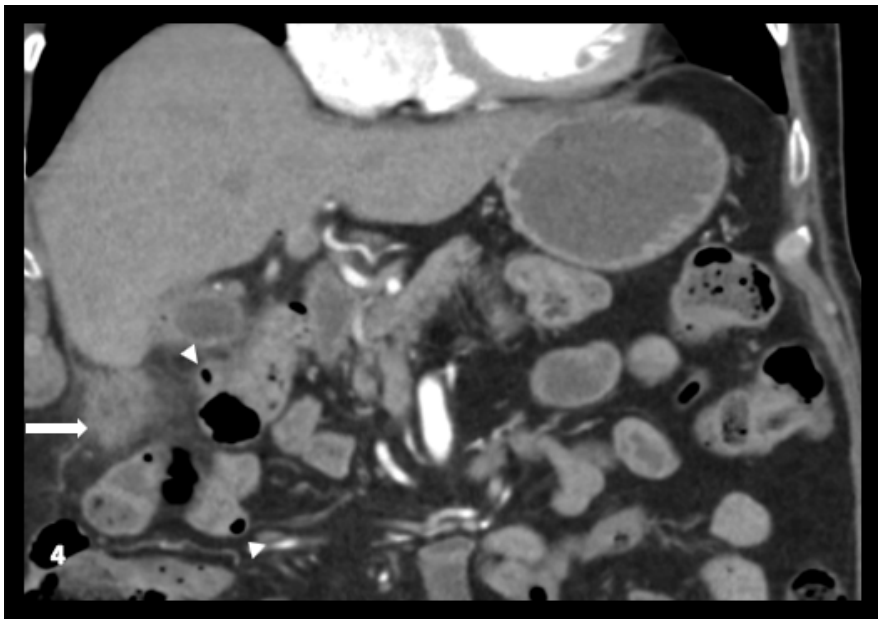


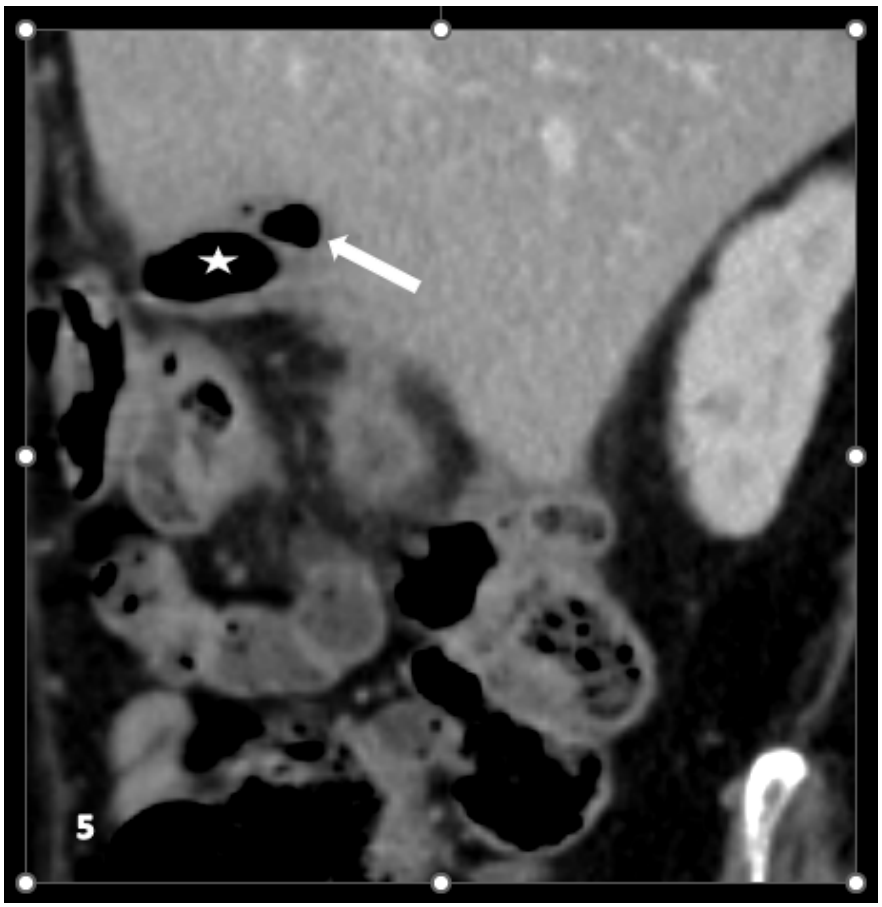
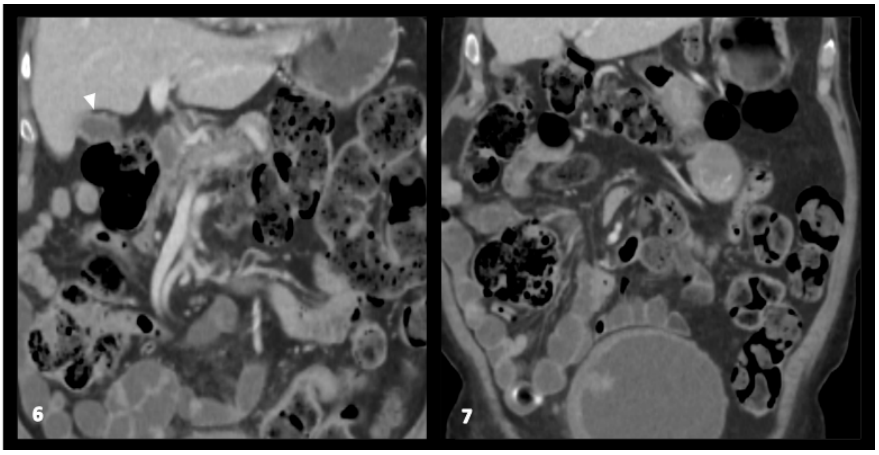


Fig- 5. Small pericholecystic collection containing air (arrow), Gallbladder (star)



Conflict of interest: None.

Data availability: Data will be made available upon request.

Funding: None.

Consent: Written informed consent was obtained from the patient before the study for the publication of this case report.

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