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Case Report

Cholecystoduodenal fistula: a rare cause of gastric outlet obstruction-case report and imaging findings

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ABSTRACT

Cholecystoduodenal fistula (CDF) is a rare complication of chronic gallstone disease, characterized by an abnormal communication between the gallbladder and duodenum. It is often asymptomatic but may present with complications such as gastric outlet obstruction (GOO), gallstone ileus, or cholangitis. Due to its nonspecific clinical presentation, CDF is often diagnosed incidentally on imaging or during surgery. In rare cases, it can lead to GOO, usually due to chronic inflammation-induced duodenal stenosis. Early recognition is crucial to prevent complications and guide appropriate management. We present the case of a 66-year-old male with a history of gallstone disease who developed progressive nausea, vomiting, and weight loss over two months. Abdominal examination revealed mild epigastric tenderness. Routine blood investigations were unremarkable. Contrast-enhanced CT abdomen showed pneumobilia, a contracted gallbladder with a direct fistulous communication to the duodenum, and significant enhancing thickening of the pyloroduodenal region, suggesting chronic inflammation-induced GOO. Upper gastrointestinal endoscopy confirmed pyloric stenosis without an obstructing gallstone. The patient underwent laparoscopic cholecystectomy with fistula closure and gastrojejunostomy, with significant symptomatic improvement postoperatively. This case highlights the suspicion of CDF in cases of unexplained GOO with pneumobilia.

Keywords: Cholecystoduodenal fistula, Pneumobilia, Gastric outlet obstruction, Gallstone, Cholangitis, Endoscopy, Laparoscopic cholecystectomy, Gastrojejunostomy

INTRODUCTION

Cholecystoduodenal fistulas (CDF) are abnormal connections between the biliary system and the gastrointestinal tract, typically developing as a rare complication of long-standing, untreated gallstone disease.[1] While these fistulas most commonly occur spontaneously, they can also result from chronic inflammation, infection, or malignancy. Their clinical presentation varies widely, ranging from asymptomatic cases to severe, life-threatening complications. Depending on the site of communication, CDFs may lead to symptoms such as recurrent cholangitis, bowel obstruction, or malabsorption. In some instances, they can result in significant morbidity, necessitating prompt diagnosis and appropriate intervention to prevent the further complications.

CASE REPORT

A 66-year-old male with a history of gallstone disease who presented with progressively worsening nausea, vomiting, and weight loss over two months. On abdominal examination, mild epigastric tenderness was noted. Routine blood tests were within normal limits. Contrast-enhanced CT of the abdomen revealed pneumobilia, a contracted gallbladder with a direct fistulous connection to the duodenum, and marked thickening of the pyloroduodenal region, indicative of chronic inflammation leading to GOO. Upper gastrointestinal endoscopy confirmed pyloric stenosis in the absence of an obstructing gallstone. The patient subsequently underwent laparoscopic cholecystectomy with fistula closure and gastrojejunostomy, resulting in significant symptomatic relief postoperatively.

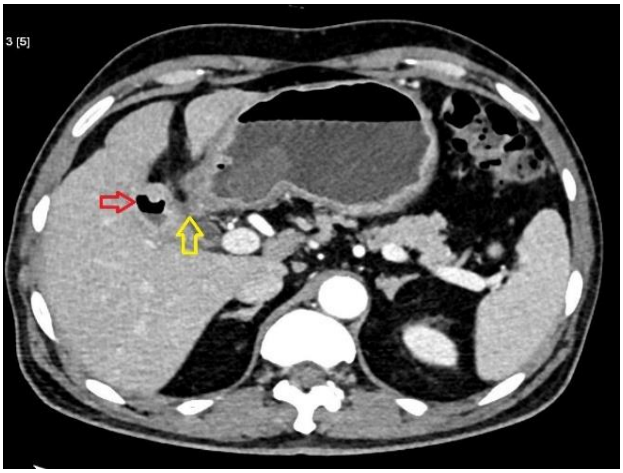

Figure 1: CECT axial section showing pneumobilia in contracted gallbladder (red arrow) and CDF (yellow arrow).

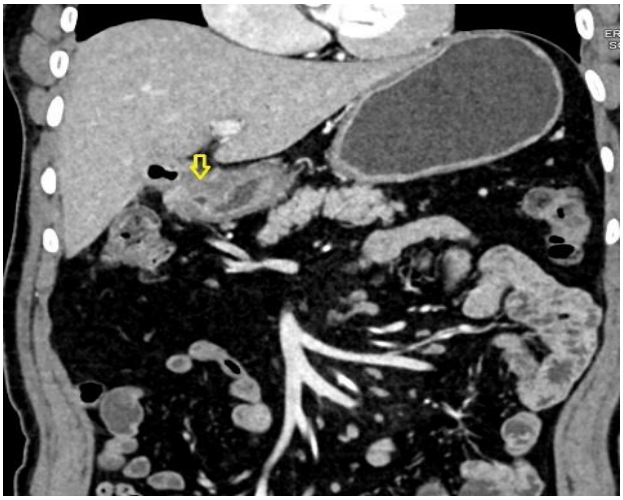

Figure 2: CECT coronal section of CDF (yellow arrow).

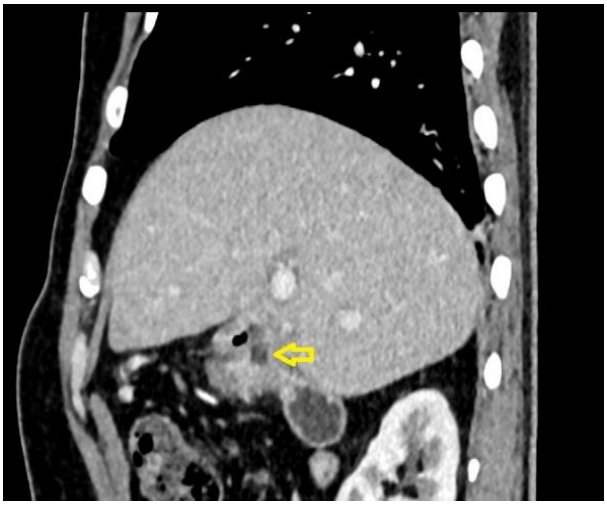

Figure 3: CECT sagittal section showing fistulous connection between the gallbladder and duodenum-CDF (yellow arrow).

DISCUSSION

CDF-induced GOO is a rare but serious complication, often misdiagnosed as primary peptic ulcer disease or malignancy. Imaging modalities like CT and MRCP play a crucial role in diagnosis. While some cases require only cholecystectomy with fistula repair, pyloric obstruction often necessitates additional procedures like gastrojejunostomy.

Internal biliary fistulas are a rare condition, with a prevalence of less than 0.3% among patients, making them an uncommon but significant complication of biliary tract diseases.[2]

CDFs are the most common type of internal biliary fistulas, accounting for approximately 60% of cases. Less frequently, other variants include cholecystocolic fistulas, which occur in around 15% of cases, followed by cholecystogastric and choledochoduodenal fistulas, each comprising approximately 5%.

The relative distribution of these fistulas highlights the varying anatomical sites of abnormal communication between the biliary system and the gastrointestinal tract, with CDFs being the predominant type due to the close proximity of the gallbladder and duodenum, often facilitated by chronic inflammation and the gallstone disease.[3]

The preoperative diagnosis should primarily rely on the detection of pneumobilia through an abdominal CT scan, which should raise suspicion of either a cholecystoenteric fistula or Mirizzi syndrome. If a prior CT scan is available, the presence of a cholecystoenteric fistula can still be suspected, even in cases where large gallstones appear reduced in size or are absent.

In situations where CT findings are inconclusive, additional imaging techniques such as ERCP, DIC-CT, or enterography may be utilized to confirm the diagnosis.[4,5]

CONCLUSION

CDF should be considered a differential diagnosis in patients presenting with pneumobilia, particularly in the setting of chronic gallstone disease or a history of recurrent biliary colic. Given its often subtle or nonspecific clinical presentation, maintaining a high index of suspicion is crucial, especially in patients with unexplained gastrointestinal symptoms. Early recognition of this entity allows for timely surgical intervention, including cholecystectomy and fistula repair, thereby preventing disease progression and reducing the risk of life-threatening outcomes.

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REFERENCES

1. Jung HI, Ahn T, Cho SW, Bae SH, Lee MS, Kim CH. Incidental cholecystojejunal fistula treated with successful laparoscopic management. Ann Surg Treat Res. 2014;87(5):276-8.
2. Brown KK, Cunningham KJ, Howell A, Vance JE. A rare case of cholecystoduodenal fistula with rapid distal gallstone migration. Am J Case Rep. 2021;22:e929150-1.
3. Clavien PA, Richon J, Burgan S, Rohner A. Gallstone ileus. Brit J Surg. 1990;77(7):737-42.
4. Young A, Yusuf GT, Fang C, Metafa A, Gupta S, Sidhu PS. Cholecystoduodenal fistula identified on oral contrast-enhanced ultrasound. J Ultrasound. 2022;25(2):339-42.
5. Malik A, Fawwaz BA, Michael M, Akram MO, Khan AH. Endoscopic retrograde cholangiopancreatography (ERCP): used to diagnose and treat cholecystoduodenal fistula, a rare clinical entity. Cureus. 2021;13(10):e18962.

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