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BENIGN CHOLEDOCHODUODENAL FISTULA WITH DISTAL COMMON BILE DUCT STRICTURE MIMICKING MALIGNANCY: A CASE REPORT

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ABSTRACT

Choledochoduodenal fistula (CDF) is a rare clinical entity that may mimic malignant distal common bile duct (CBD) obstruction. Differentiating benign strictures with fistula formation from malignancy is often challenging and requires multimodal evaluation. A 50-year-old Southeast Asian male of Bangladeshi origin presented with chronic left upper abdominal pain. Imaging revealed intrahepatic calcifications, distal CBD cutoff with upstream biliary dilatation, and pneumobilia, suggestive of a possible distal CBD stricture or malignancy. ERCP demonstrated two aberrant openings proximal to the expected ampullary site: the proximal opening drained bile and cholangiography confirmed a CDF; the distal opening led to the pancreatic duct. The ampullary orifice could not be cannulated. Upper GI endoscopy confirmed a fistulous opening in the duodenal bulb with surrounding mucosal thickening. Histopathology of duodenal biopsies showed low-grade dysplasia, while bile cytology was negative for malignancy. CT and EUS supported a benign smooth distal CBD stricture with effective decompression via the fistula. The patient was managed conservatively with a proton pump inhibitor and later underwent elective cholecystectomy for biliary sludge. Follow-up endoscopy at six months revealed a persistent but less prominent fistulous opening with nonspecific duodenitis and no dysplasia. This case highlights a rare benign CDF with a distal CBD stricture closely mimicking malignancy. Recognition of such presentations is important to avoid unnecessary radical interventions, as conservative management may result in favorable outcomes.

KEYWORDS: Choledochoduodenal fistula; Common bile duct stricture; ERCP; Endoscopic ultrasound; Benign biliary obstruction

A 50-year-old Southeast Asian male of Bangladeshi origin presented with chronic left upper abdominal pain. Initial evaluation at a primary care facility, including an abdominal ultrasound, revealed intrahepatic calcifications. Magnetic resonance cholangiopancreatography (MRCP) demonstrated an abrupt cutoff of the distal common bile duct (CBD), with upstream biliary radicle dilatation, an overdistended gallbladder, and pneumobilia. These findings were suspicious for a distal CBD stricture or underlying malignancy.

Liver function tests were within normal limits except for a mildly elevated gamma-glutamyl transferase (GGT). The patient was referred for endoscopic retrograde cholangiopancreatography (ERCP) for further evaluation.

During ERCP, two aberrant openings were identified proximal to the expected location of the ampulla. The more proximal of the two openings was approximately 2 mm in diameter and showed active bile drainage. Cannulation of this opening was successful, with bile aspiration and a cholangiogram demonstrating a dilated biliary system and free contrast flow into the duodenum, consistent with a choledochoduodenal fistula (CDF). The distal aberrant opening led into the pancreatic duct. Cannulation of the ampulla was unsuccessful, and no bile was observed at the ampullary site, likely due to decompression through the fistula.

A screening upper gastrointestinal endoscopy confirmed a fistulous opening in the first part of the duodenum, just beyond the pylorus, with surrounding mucosal thickening. Biopsies were obtained from this area. The procedure was subsequently aborted, and the patient was observed post-procedure and discharged in stable condition.

Post-procedural computed tomography (CT) of the abdomen confirmed intrahepatic and extrahepatic biliary dilatation with a distal CBD stricture at the level of the superior pancreatic head, as well as pneumobilia. The fistulous tract was not visualized on CT.

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Histopathological examination of the duodenal biopsy revealed low-grade dysplasia. Bile cytology demonstrated only cellular debris without malignant cells.

An elective endoscopic ultrasound (EUS) was later performed. Findings were consistent with prior imaging: mild CBD dilation (7 mm), smooth tapering of the intrapancreatic CBD, gallbladder sludge without calculi, and no evidence of chronic pancreatitis. Mild central intrahepatic biliary dilatation was again noted.

Based on the absence of malignancy, the smooth morphology of the biliary stricture, and functional biliary drainage via the fistula, the patient was managed conservatively. He was started on a proton pump inhibitor and subsequently underwent elective cholecystectomy due to persistent biliary sludge. Recovery was uneventful.

At six-month follow-up, repeat upper GI endoscopy showed a persistent duodenal fistulous opening with reduced mucosal swelling. Repeat biopsy demonstrated mild nonspecific duodenitis with focal gastric metaplasia, and no dysplasia.

This case highlights a rare presentation of a benign choledochoduodenal fistula with a distal CBD stricture mimicking malignancy, ultimately managed conservatively with favorable outcome.

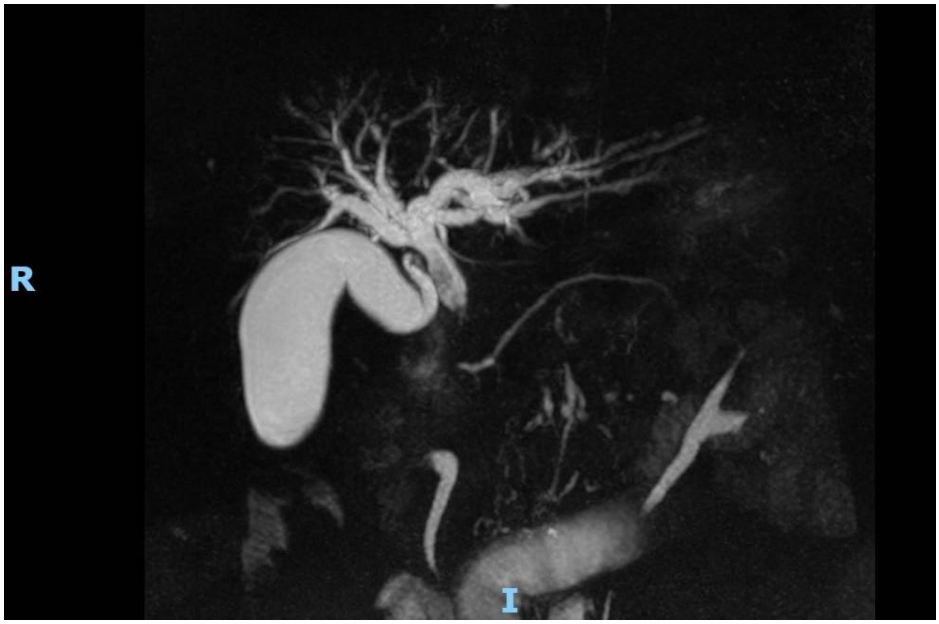

Figure 1: MRI images showing dilated biliary system at time of presentation

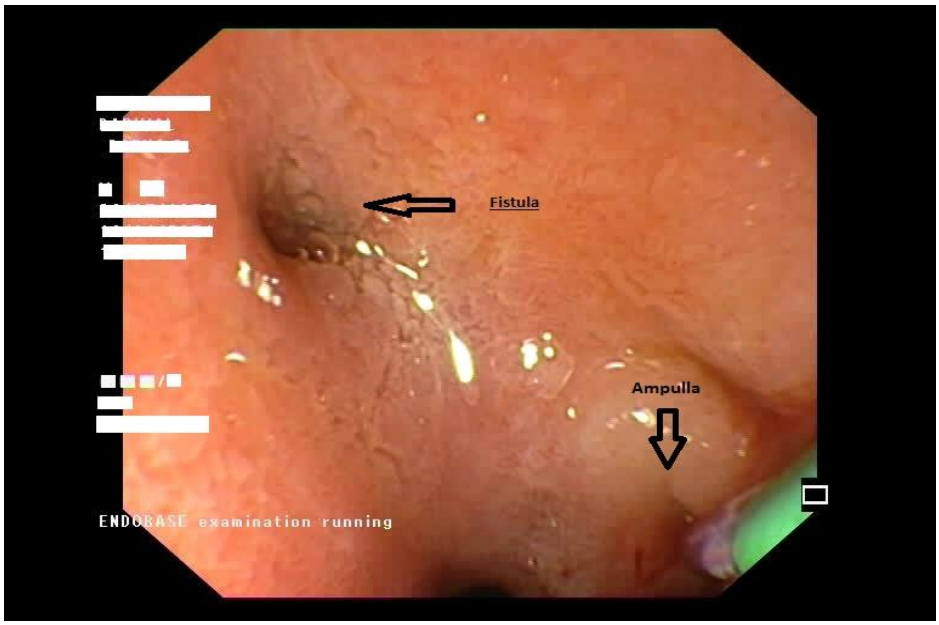

Figure 2: Endoscopic image of fistula opening

DISCUSSION

Choledochoduodenal fistula (CDF) is a rare type of biliary–enteric fistula, representing only 3–20% of cases (Feller *et al.*, 1980; Chaouch *et al.*, 2018). The majority are cholecystoduodenal, while ulcer-related CDFs account for only 6–10% (Fedidat *et al.*, 2016). Gallstone-induced inflammation is the most frequent cause, whereas duodenal ulcer penetration into the common bile duct remains uncommon (Feller *et al.*, 1980).

Clinically, CDF is often asymptomatic or presents with nonspecific complaints such as dyspepsia, abdominal pain, or cholangitis. Pneumobilia without prior instrumentation is an important diagnostic clue (Lee *et al.*, 2014; Patel *et al.*, 2015). Liver function abnormalities are inconsistent and usually mild.

Diagnosis relies on imaging and endoscopy. CT and MRCP can demonstrate pneumobilia, biliary dilatation, and occasionally the fistulous tract (Fedidat *et al.*, 2016). Duodenoscopy or ERCP provides definitive confirmation by visualizing the abnormal opening and demonstrating contrast passage between the bile duct and duodenum (Fedidat *et al.*, 2016).

Management depends on etiology. Ulcer-related CDFs usually respond to medical therapy with acid suppression, with surgery reserved for complications (Chaouch *et al.*, 2018). In contrast, gallstone-related CDFs are commonly treated surgically with cholecystectomy and fistula repair (Feller *et al.*, 1980; Fedidat *et al.*, 2016). Endoscopic closure has been attempted in select cases but is not widely practiced (Patel *et al.*, 2015).

In summary, CDF should be suspected in patients with unexplained biliary dilatation and pneumobilia in the absence of prior procedures. Conservative management is appropriate for ulcer-related cases, whereas stone-related CDFs usually require surgery.

CONCLUSION

This case emphasizes the importance of considering benign etiologies such as choledochoduodenal fistula in patients presenting with findings mimicking distal CBD malignancy. A thorough endoscopic and radiological evaluation is crucial to avoid unnecessary aggressive surgical intervention, as conservative management may achieve good outcomes.

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