

Opium-related sphincter of Oddi dysfunction causing double duct sign

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ABSTRACT

Double duct sign where there is a simultaneous dilatation of both the common bile duct (CBD) and pancreatic duct is usually associated with sinister causes like malignancies of pancreatic head or ampulla. Occasionally, benign causes like chronic pancreatitis or sphincter of Oddi dysfunction (SOD) may cause double duct sign. Chronic opium abuse is a rare cause of the double duct sign, and endoscopic ultrasound (EUS) findings of this rare entity have been occasionally reported. We report about a 54-year-old male with a history of chronic alcohol and opioid abuse evaluated for episodes of abdominal pain and found to have opioid-related SOD and improved with biliary sphincterotomy. EUS was done to rule out malignancy and revealed hypoechoic prominence around terminal CBD suggestive of hypertrophied muscle.

Key words: Chronic pancreatitis, endoscopic ultrasound, opium

INTRODUCTION

The double duct sign is a simultaneous dilatation of both the pancreatic duct (PD) and the common bile duct (CBD) and is usually a result of narrowing of terminal parts of both the ducts due to various causes including encasement of the CBD and main PD by a pancreatic head tumour, ampullary carcinoma, pancreatitis and periampullary stenosis.^[1] Uncommon reported causes include lymphoma, metastasis, Kaposi sarcoma, and retroperitoneal fibrosis.^[1,2] We report a 54-year-old male who came with abdominal pain and was found to have an unusual etiology of double duct sign.

CASE REPORT

A 54-year-old man presented to us with right upper abdominal pain of 4 months duration. The pain was episodic, severe and used to last around ½ h and occurred in relation to meals. There was no associated vomiting, jaundice, fever, loss of weight or appetite. His physical examination was non-contributory. He had a history of chronic alcohol abuse as well as oral opium ingestion for last 25 years. He used to daily consume oral powdered form of opium husk (vernacular *Bhukki*). His hemogram, kidney function tests and upper gastrointestinal endoscopy were normal. Blood tests revealed a serum bilirubin of 1.0 mg/dL (Normal, 0.2-1.4 mg/dL), aspartate aminotransferase of 47 U/L (Normal 1-35 U/L), alanine aminotransferase of 41 U/L (Normal, 1-35 U/L) and alkaline phosphatase 156 U/L (Normal, 20-128 U/L). Abdominal ultrasound revealed a dilated anechoic CBD with mild central intra-hepatic biliary radical dilatation and dilated PD. Contrast enhanced computed tomography of the abdomen showed a double duct sign with CBD dilated until lower

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end and a dilated PD [Figure 1]. Side viewing endoscopy revealed a prominent papilla [Figure 2]. Endoscopic ultrasound (EUS) using a linear echoendoscope (GF-UCT 180 linear echoendoscope, Olympus Corp, Tokyo) revealed simultaneous dilatation of the CBD and PD (double duct sign) with anechoic lumens of both the ducts. The ampullary region revealed a prominent hypoechoic layer suggestive of muscular hypertrophy [Figure 3]. The pancreatic parenchyma was normal. A diagnosis of opium-induced sphincter of Oddi dysfunction (SOD) was made, and patient underwent biliary sphincterotomy with improvement in his symptoms and normalization of his liver enzymes. The ampullary biopsy was inconclusive. Post sphincterotomy spy glass cholangioscopy (Boston Scientific Corp, Natick, Mass) was also done for evaluation of the bile duct mucosa at the terminal end and it revealed normal mucosa [Figure 4]. He was referred for de-addiction and was asymptomatic after 3 months follow-up.

DISCUSSION

Sphincter of Oddi dysfunction is a benign, non-calculous obstruction at the major duodenal papilla that can produce variable clinical symptoms including pancreaticobiliary pain, cholestasis, and/or pancreatitis. Opiates produce multiple pharmacologic effects in the gastrointestinal tract with constipation being the most common.^[3] It has also been shown to increase the contraction of sphincter of Oddi. It can increase the sphincter tonicity and result in SOD. Constant prolonged use of this drug might be responsible for the contraction and permanent dysfunction of the sphincter of Oddi and SOD due to chronic opium use is now recognized as a distinct clinical entity.^[4]

Clinical features of this entity are variable and may consist of anorexia, weight loss, constipation and abdominal tenderness.^[3-5] The endoscopic visualization



Figure 1. Abdominal computed tomography showing dilated common bile duct (arrow)

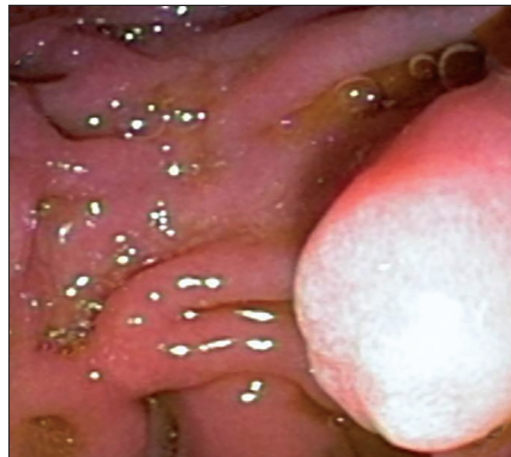


Figure 2. Side viewing endoscopy revealing a bulky papilla

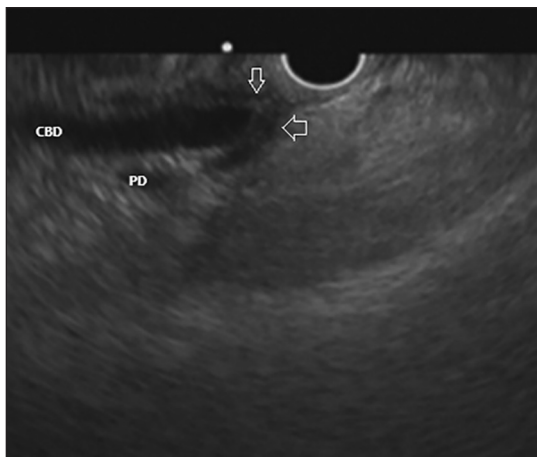


Figure 3. Endoscopic ultrasound showing dilated common bile duct and pancreatic duct with hypoechoic prominence at lower end (arrow)

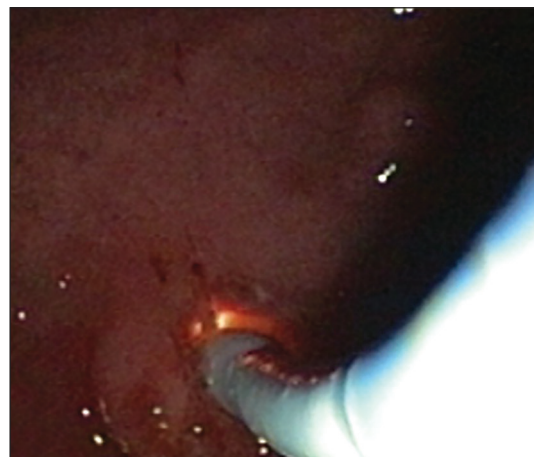


Figure 4. Spy glass done for evaluation of common bile duct. The papilla wide opened by biliary sphincterotomy

of the second part of the duodenum may reveal a prominent papilla, but even ulcerative and tumorous changes are common in opium related SOD and therefore it is important to carefully exclude the malignancy.^[3] EUS is an important investigation for excluding the malignancy as even small lesions in the ampullary area can be detected by a carefully performed EUS. EUS can also help in the detection of hypertrophy of the muscular sphincter of Oddi as was seen in the index case.^[6]

The response to biliary sphincterotomy in such cases is excellent as was in the present case.^[7] The case is reported because opium abuse is an uncommon cause of SOD and the history of opium abuse must be sought in patients with unexplained biliary dilatation or dual duct dilatation and residing in areas where opium abuse is common. Furthermore, EUS provides an excellent modality to rule out small malignant lesions resulting in double duct sign.

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