

Unusual cause of CBD Dilatation

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Abstract

Periampullary diverticulum (PAD) usually an incidental CT finding and majority of times with no clinical complaint. Its importance and sequel on biliary dilation are not obvious. The aim of our case report is to explain the result of abnormal dilation of the common bile duct (CBD secondary to the presence of a PAD [1,2].

Keywords

Ampulla of Vater; Diverticulum; Duodenum; Complications; Jaundice; Periampullary

Abbreviations

PAD: Periampullary diverticulum

EUS: Endoscopic Ultrasound

MRI: Magnetic Resonance Imaging

MRCP: Magnetic Resonance cholangiopancreatography

GB: Gall Bladder

O/E: On Examination

Introduction

Duodenal diverticula are mostly true or primary diverticula representing extra luminal mucosal outpouchings devoid of muscle layer and is the second most common site of intestinal diverticulum formation after the colon, and it is mainly non-congenital lesion. It is solitary in 90% of cases and located in the second part of duodenum in and mostly in second part of duodenum adjacent to ampulla of vater in about 75% of patients [1]. It is called periampullary, peripapillary or paravaterian diverticula when they occur within 2 to 3 cm from the ampulla of Vater. The incidence of PAD has been reported to be between 0.16 to 22% in the literature, depending on the type of imaging study [1-3].

Case

A 50 year old lady known to have dyslipidemia and Diabetes mellitus on medication, presented with long h/o nonspecific abdominal pain with vomiting associated with fatty food. No change of urine or stool color. No other comorbidity or surgeries.

O/E-

- Not in pain
- Abdomen soft, mild epigastric tenderness
- Labs: Normal. Bilirubin Normal

Imaging Work-up-US requested to R/O Gall stones: Revealed non-complicated Gall stones and prominent CBD (Images not shown).

MRI and MRCP

Revealed mild dilatation of extra and intrahepatic bile ducts. Gallstones-Smooth tapering of the distal CBD. No CBD stones. No CBD mass. Prominent PD at head of pancreas, otherwise pancreas and rest of PD appears unremarkable. Evidence of periampullary diverticulum contains air and heterogeneity. The dilated ducts likely secondary to mass effect of the intra pancreatic-duodenal diverticulum. EUS recommended (Figure 1).

EUS-From CERNER

EUS-Revealed normal ampulla, just beyond ampulla there is large periampullary diverticulum. Dilated CBD measures about 7.8 mm (Figure 2). PD is dilated and measures approximately 4.4 mm in the head region but normalizes in the rest of the pancreas. Pancreatic parenchyma within normal.

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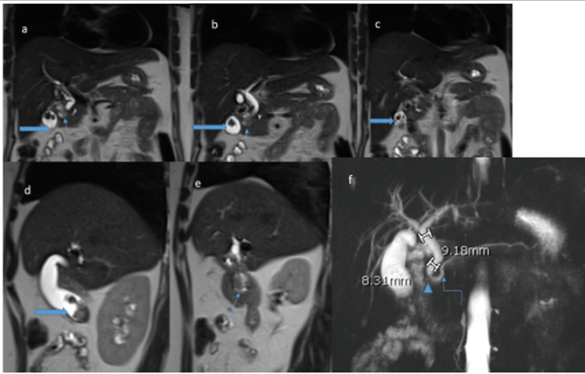


Figure 1: T2 Haste coronal (a, b & c) sagittal (d & e) and MRCP (f) Revealed normal ampulla (triangle in image # f), just beyond ampulla there is perampullary diverticulum in the head region (curved arrow in image # f) but normalizes in the rest of the pancreas. Distended GB with gall stones (Thick transverse arrow in Image # a, b, c & d). No pericholecystic fluid

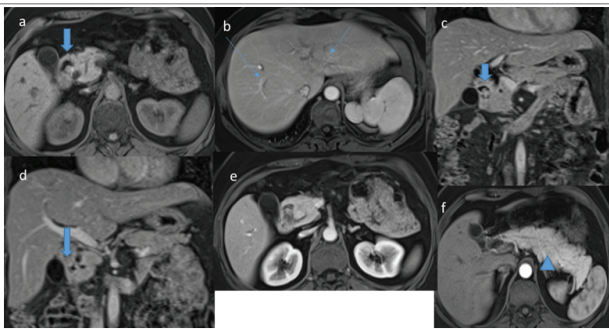


Figure 2: T1 fat sat axial (a) shows normal maintained T1 fat sat bright signal of pancreatic head with small area of heterogeneous signal showing mildly high signal and anterior low signal at duodenopancreatic groove. Post contrast axial (b, e & f) and coronal (c & d) Revealed normal pancreas, just beyond ampulla there is perampullary diverticulum (thick vertical arrow in image c & d). Dilated CBD and minimally dilated IHBR (shown by thin arrow in # b). Prominent PD in head region but normalizes in the rest of the pancreas

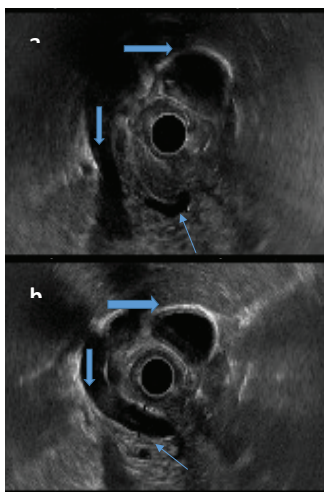


Figure 3: EUS: Revealed normal ampulla, just beyond ampulla there is large perampullary diverticulum (thick transverse arrow in image a & b). Dilated CBD measures about 7.8 mm (thick vertical arrow in image a & b). PD is dilated and measures approximately 4.4 mm (thin arrow in image a & b). In the head region but normalizes in the rest of the pancreas. Pancreatic parenchyma within normal

IMP

Large periampullary diverticulum with normal ampulla. Dilated CBD and PD appears secondary to periampullary diverticulum. No stone or narrowing of CBD. Normal pancreas.

IMP of EUS: Large periampullary diverticulum with normal ampulla. Dilated CBD and PD appears secondary to periampullary diverticulum. No stone or narrowing of CBD. Normal pancreas (Figure 3).

Discussion

Primary or true duodenal diverticula (PAD) represent mucosal outpouchings with connecting tract to the duodenum and usually in second part of duodenum medially and mainly asymptomatic as well as diagnosed incidentally in the different imaging study done to other reason. Their incidence varies from 0.16 to 22% depending on the diagnostic modalities used (barium meal, CT abdomen, even CT KUB (done for evaluation of urinary tract stone) endoscopic retrograde cholangiopancreatography or autopsy) and increases with age [3]. They are classified mainly into three types according to the relation of the papilla to the diverticulum. In type I, which is the most common, the major papilla is located within the diverticulum, in type II the papilla is located in the margin of the diverticulum, while in type III it is located near the diverticulum [2,3].

On barium studies, periampullary diverticula are typically demonstrated as contrast-filled outpouchings arising from the medial side of the descending duodenum. Filling defects, if present, commonly represent food fragments, retained air or the protruding into the diverticulum ampulla. On computed tomography scans periampullary diverticula are characterized by the presence of air-contrast level within a juxta duodenal outpouching. On MR imaging, the T2-weighted images show a hyperintense fluid level with signal void above it due to the presence of air as in this case. MRCP is the method of choice when assessing the consequences of a diagnosed diverticulum on the CBD and to differentiate the diverticulum from pseudocysts or cystic tumors of the pancreatic head. CT and MRI also help to evaluate complications and other pathology.

The majority of periampullary diverticula are asymptomatic and diagnosed incidentally when imaging done for other reason; however, biliopancreatic complications such as recurrent biliary calculi, obstructive jaundice (Lemmel's syndrome) [2], cholangitis, acute or chronic pancreatitis can result from mechanical compression by a large, distended due to poorly emptying diverticulum or due to motility dysfunction of the sphincter of Oddi, reflux of intestinal content into the ducts and bacterial overgrowth [1-3]. Complications related to inflammation such as diverticulitis, hemorrhage, perforation or fistula formation may also occur. If there is no air or contrast within diverticulum it appears same as duodenopancreatic groove pancreatitis and correlation with serum amylase is required. In addition, we once again provide further suggestion that PAD is associated with increased incidence of cholelithiasis [1].

In this case patient was asymptomatic apart from her long history of nonspecific abdominal pain with vomiting which was associated with fatty food. No change of urine or stool color. No other comorbidities or surgeries. Not jaundiced and all other blood work up was normal apart from her known hyperlipidemia and diabetes. This was her first presentation in hospital outpatient department.

Conclusion

PAD are found mostly in elderly patients and may result in non-pancreaticobiliary or pancreaticobiliary complications. We present a patient who presented with other complaint with no

jaundice and found periampullary duodenal diverticulum causing secondary biliary dilatation. The presence of a periampullary diverticulum should be suspected in elderly patients coming with picture of obstructive jaundice complicated or not without CBD stones or gallstones or focal mass. Non-invasive imaging studies should be the choice of imaging modality for the diagnosis of a periampullary diverticulum causing obstructive jaundice, and invasive procedure such as surgical or endoscopic interventions should be used wisely for the effective and safe treatment of these patients.

References

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