

MEANDERING MAIN PANCREATIC DUCT AS A CAUSE OF IDIOPATHIC RECURRENT ACUTE PANCREATITIS - A CASE REPORT

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ABSTRACT

Meandering main pancreatic duct is an uncommon anatomical variation of main pancreatic duct characterized by abnormal curvature of the main pancreatic duct in pancreatic head. It comprises of two types (loop type and reverse Z-type) and can be underlying cause for idiopathic recurrent acute pancreatitis. We report a case of meandering main pancreatic duct in a 26-year-old female who presented with multiple episodes of idiopathic recurrent acute pancreatitis.

Keywords: MMPD, Meandering main pancreatic duct, Pancreatic ductal variation, anatomic variation of pancreas, Idiopathic recurrent acute pancreatitis, IRAP.

Introduction

Meandering main pancreatic duct (MMPD) is an anatomical variant of main pancreatic duct, which is characterized by abnormal configuration of the pancreatic duct i-e loop type and reverse Z-type; in the region of pancreatic head.¹⁻⁵ It can be underlying cause for idiopathic recurrent acute pancreatitis (IRAP).^{1,2} This uncommon variation of pancreatic duct is diagnosed on endoscopic retrograde cholangiopancreatography (ERCP) or magnetic resonance cholangiopancreatography (MRCP).²

Case Presentation

We present here, a case of idiopathic recurrent acute pancreatitis in a 26-year-old female who presented to the emergency department with complaints of severe epigastric pain radiating to the back and nausea for 1 week. The pain was of a continuous type and was not associated with any food intake or periodicity. The patient gave history of two similar episodes of epigastric pain associated with hypera-

mylasemia over a period of last 2 years, which were treated conservatively as acute pancreatitis. Her lab workup was done which showed increased amylase (2,117 IU) and lipase (720 IU). Ultrasound examination revealed swollen pancreas in the region of body and tail associated with adjacent peripancreatic fluid representing acute pancreatitis. Gallbladder and common bile duct were normal. For further evaluation to access the cause of recurrent acute pancreatitis and to rule out any congenital ductal anomaly such as annular pancreas or pancreatic divisum CT scan and MRCP were performed. CT scan was done on 16 slice Toshiba scanner which showed diffusely swollen pancreas associated with adjacent peripancreatic fat stranding, moderate ascites and bilateral pleural effusion and dilated pancreatic duct in the region of pancreatic head. Findings were suggestive of moderate acute pancreatitis with modified CT severity index of 6 (Fig. 1). MRCP was performed on 1.5 Tesla GE scanner with slice thickness of 1.6 mm which showed diffusely swollen pancreas more in the region of body and tail associated with moderate ascites and mild bilateral pleural effusion. There was abnormal curvature of main pancreatic duct forming

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Figure 1: Axial CECT abdomen shows swollen pancreas with adjacent fat stranding and ascites. Dilated pancreatic duct can also be seen in the region of pancreatic head.

a loop in the region of head of pancreas representing meandering main pancreatic duct (MMPD). The main pancreatic duct was also dilated in the region of pancreatic head, which measured 0.5 mm. There was also dilatation of side branches which were draining into the main pancreatic duct. Gallbladder and common bile duct were normal without any evidence of calculus or sludge. Findings were suggestive of acute pancreatitis with meandering main pancreatic duct (Fig. 2).

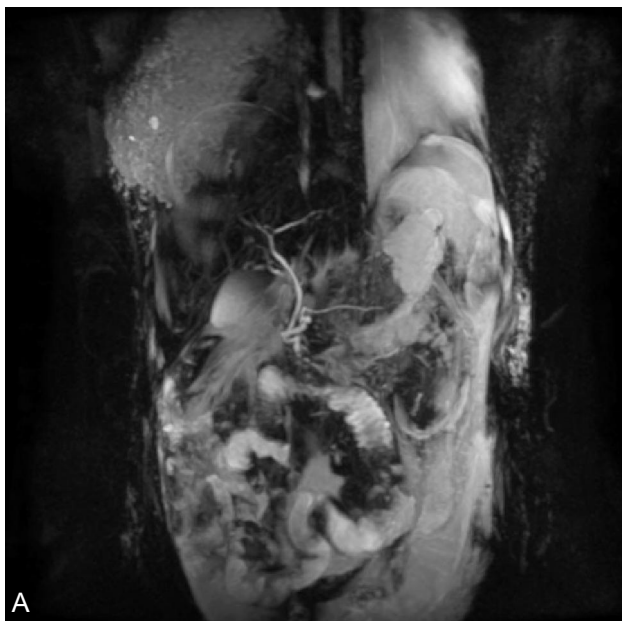


Figure 2A: 3D Coronal MRCP RTr ASSET reveals abnormal curvature of main pancreatic duct forming a loop in the region of head of pancreas which is also dilated; dilatation of side branches can also be seen draining into the main pancreatic duct.

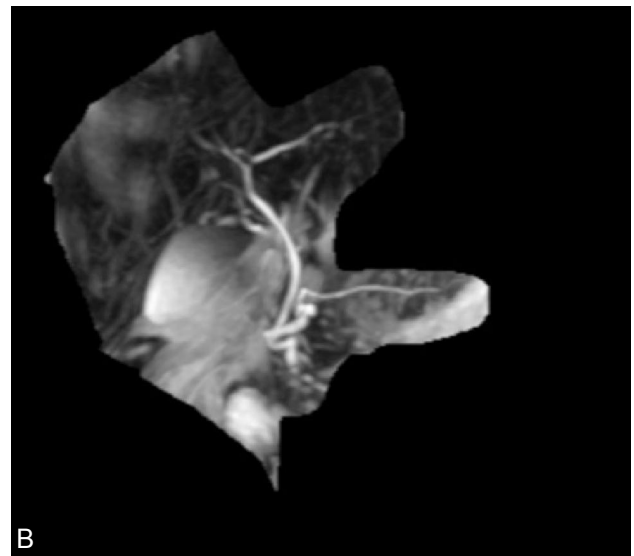


Figure 2B: 3D processed image of MRCP reveals abnormal curvature of main pancreatic duct forming a loop in the region of head of pancreas which is also dilated; dilatation of side branches can also be seen draining into the main pancreatic duct.

Discussion

The main pancreatic duct normally forms a curve of obtuse angle from tail to the major duodenal papilla.¹ Occasionally, there is abnormal curvature of main pancreatic duct forming a loop or reverse-Z curve in the region of pancreatic head with normal pancreatobiliary junction, which is called meandering main pancreatic duct (MMPD).^{1,2} The incidence of MMPD has been reported as 2.2 % and 40 % in community population and patients with IRAP respectively.¹ The exact etiology and mechanism by which MMPD is associated with recurrent acute pancreatitis are not yet well understood. However, mechanical obstruction theory has been proposed in the literature but not postulated as a pathophysiology.¹⁻³ Mechanical obstruction theory suggests that MMPD causes ductal hypertension, which in turn causes pancreatitis.² This theory may be supported by a few cases reported in literature. One of them showed reverse-Z type MMPD accompanied by Wirsungocoele.¹ Another study showed prominent MPD (4.3 mm) and its side branches;² similar to the findings of our case. Coronal 3D MRCP images can easily and accurately pick up this anomaly.⁴ On the other hand, the role of ERCP in diagnostic or therapeutic procedure is not standardized due to less successful cannulations and insufficient data.²

Currently, the patients with MMDP having recurrent acute pancreatitis are managed on the same guidelines and those treated with pancreatitis related to other causes because the pathophysiology of pancreatitis in MMPD patients is not clear.²

Conclusions

MMDP is an uncommon variation of pancreatic ductal anatomy but relatively common in patients with IRAP. It is important to be familiar and diagnose this less known anatomical variation as it may be predisposing factor to IRAP.

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