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Isolated Partial Dorsal Pancreatic Agenesis Detected Incidentally by Contrast-Enhanced Computed Tomography

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ABSTRACT:
Agenesis of the dorsal pancreas is a rare congenital pancreatic malformation because of failure in the development of the dorsal bud of the pancreas resulting in absent corpus and cauda of pancreas. Patients with agenesis of the dorsal pancreas often present with non-specific abdominal symptoms and very often it is an incidental finding. Here, we report the contrast enhanced imaging details of this rare entity in a 63 year old woman that was detected incidentally on computed tomography and there was no other co-existing anomaly.

KEYWORDS: Computed tomography, contrast enhanced, pancreatic agenesis, partial, dorsal.

INTRODUCTION:

Dorsal pancreas agenesis is an exceedingly uncommon congenital anomaly. It can manifest as partial or complete absence of the dorsal pancreas [1]. Patients with dorsal pancreatic agenesis may exhibit no symptoms or present with various clinical manifestations such as abdominal pain, weight loss, diabetes mellitus, pancreatitis, bile duct obstruction, duodenal obstruction, or, rarely, pancreatic exocrine insufficiency and pancreatic adenocarcinoma [2]. We present a case where dorsal pancreatic agenesis which was incidentally detected during imaging.

CASE REPORT:

A 63-year-old female presented to our hospital with history of weight loss along with the history of diabetes mellitus on oral hypoglycemic agents for more than 30 years. Routine blood investigations and serum amylase were normal. Contrast-enhanced computed tomography demonstrated the absence of neck, body, and tail of pancreas while head and uncinate process of the pancreas were observed to be normal in size, density, and enhancement pattern. There was no evidence of focal solid mass or other visceral malformations, neither was there a past history of acute/chronic pancreatitis. Based on the aforementioned observations patient was diagnosed with agenesis of the dorsal pancreas.

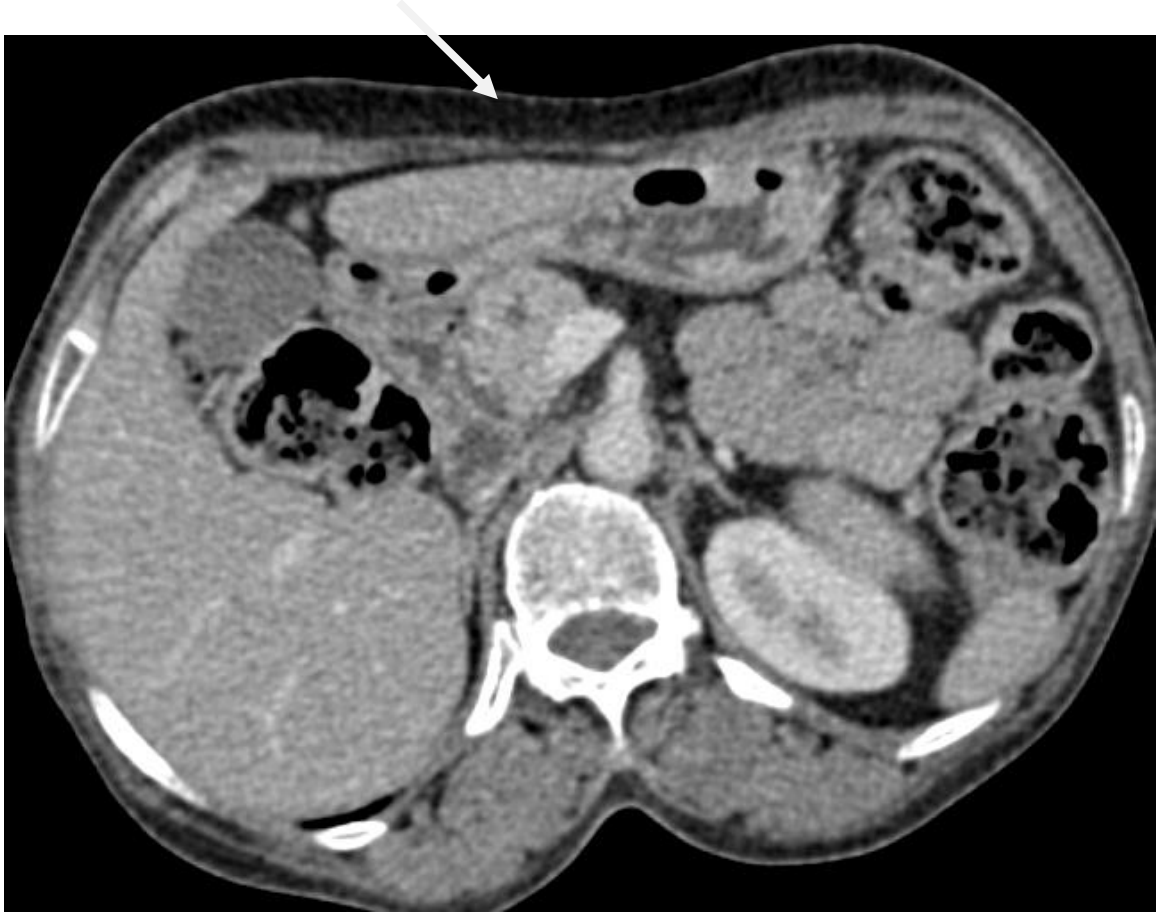

Figure 1 Axial contrast enhanced computed tomography image shows normal size pancreatic head (Arrow mark) and jejunal loops (arrow head) in pancreatic bed anterior to splenic vein .(Siemens CT Definition AS 128 slice CT (2017).Protocol: 50 mAs, 1mm Slice thickness.

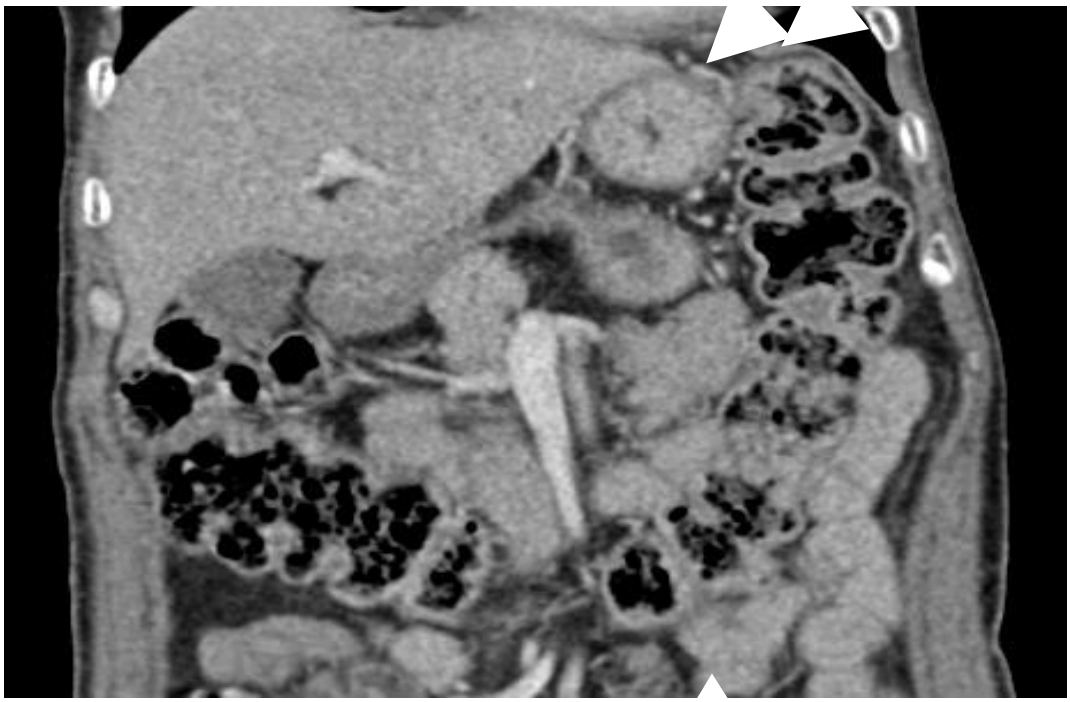

Figure 2 sagittal contrast enhanced computed tomography image shows normal size pancreatic head (Arrow mark) and jejunal loops (arrow head) in pancreatic bed anterior to splenic vein .(Siemens CT Definition AS 128 slice CT (2017).Protocol: 50 mAs, 1mm Slice thickness.

DISCUSSION:

The pancreas appears at approximately 5th week of gestation in the form of two
Separate endodermal buds (ventral and dorsal) from caudal region of the embryonic foregut [1, 2]. After clockwise rotation of the ventral bud around the caudal part of the foregut, there is fusion of the dorsal pancreas and ventral pancreas. Finally, the ventral and dorsal pancreatic ducts fuse, and the pancreas is predominantly drained through the ventral duct, which joins the common bile duct (CBD) at the level of the major papilla. The dorsal duct empties at the level of the minor papilla [3].Failure in development due to aberrant embryogenesis may cause partial or complete agenesis of the dorsal pancreas, which was first reported in 1911 during an autopsy. The minor papilla, the accessory pancreatic duct, the body, and the tail of the pancreas were not present in cases of complete dorsal agenesis, whereas the neck and proximal body of the pancreas, along with the minor papilla and remnants of the accessory pancreatic duct, were present in cases of partial agenesis [4]. Other abnormalities often associated with agenesis of the dorsal pancreas include heterotaxy, polysplenia syndrome, ectopic spleen, bowel malrotation, coarctation of the aorta, tetralogy of Fallot, atrioventricular valvular abnormalities, and total anomalous pulmonary venous connection. [3]. Contrast-enhanced computed tomography was the mainstay of diagnosis and showed a normal pancreatic head and uncinate process and absence of pancreatic body and tail with presence of small bowel loops in pancreatic bed.

DIFFERENTIAL DIAGNOSIS:

Pseudo-agenesis of the dorsal pancreas, characterized by atrophy of the body and tail of the pancreas due to chronic pancreatitis, and distal pancreatic lipomatosis should be considered as main differential diagnoses for agenesis of the dorsal pancreas [5].These conditions can be differentiated from agenesis of dorsal pancreas by a careful medical history and appropriate imaging studies. Multidetector CT (MDCT) is useful for distinguishing distal pancreas agenesis from distal pancreatic lipomatosis. In distal pancreas agenesis, the dorsal duct is absent or very short, and the pancreatic bed may be occupied by the stomach or intestine (dependent stomach or intestine signs) [6]. In contrast, the dorsal duct is usually present in lipomatosis and pseudo-agenesis. MDCT findings of the dorsal duct and dependent stomach or intestine help differentiate between these conditions. Asymptomatic patients typically do not require treatment.

CONCULSION:

In conclusion, isolated partial dorsal pancreatic agenesis is an uncommon congenital condition frequently discovered incidentally through advanced imaging, such as contrast-enhanced computed tomography. This anomaly may be asymptomatic or present with vague abdominal symptoms, emphasizing the need for comprehensive diagnostic evaluation. For asymptomatic patients, management generally involves conservative care, with imaging being essential for accurate diagnosis and differentiation from other pancreatic disorders.

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