



Radio-Diagnosis

PANCREATIC DIVISUM DIAGNOSED ON CECT: A CASE SERIES

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ABSTRACT Pancreatic divisum is the most common congenital ductal anomaly of the pancreas, caused by failure of fusion of the dorsal and ventral ducts during embryogenesis. Although often asymptomatic, it may predispose patients to recurrent acute or chronic pancreatitis. We present a series of four cases evaluated on contrast-enhanced CT (CECT), highlighting typical imaging features and associated possible complications. Recognition of this anomaly on routine CECT can help guide further evaluation with MRCP/ERCP and influence clinical management.

KEYWORDS : Congenital Anomaly, CECT, Pancreas, Pancreatic Divisum, Recurrent Pancreatitis

INTRODUCTION

Pancreatic divisum is reported in approximately 5–10% of the population and represents the most frequent congenital anomaly of the pancreatic ductal system [1]. In this anomaly, the dorsal duct (duct of Santorini) drains the majority of the pancreas into the minor papilla, while the ventral duct (duct of Wirsung) drains only the inferior head and uncinatus process into the major papilla [2]. (See fig-1) The condition is usually asymptomatic, but relative stenosis at the minor papilla may predispose to recurrent episodes of pancreatitis or chronic pancreatic changes [3]. While MRCP is the most sensitive modality for demonstrating ductal anatomy, CECT may show indirect features, associated complications, and is often the first-line imaging in acute settings [4].

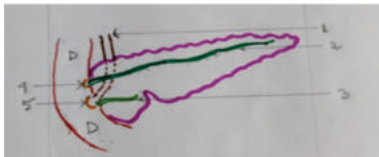


Fig-1: Schematic diagram showing pancreatic divisum. Legend: 1. Common bile duct (CBD), 2. Dorsal pancreatic duct (duct of Santorini), 3. Ventral pancreatic duct (duct of Wirsung), 4. Minor papilla, 5. Major papilla, 6. D- Duodenum.

Case Series

Case 1

A 68-year-old male has presented with epigastric discomfort. He had undergone an ultrasound of abdomen- which was normal. There were no significant abnormality detected in this scan in relation to his presenting complaints. CECT showed a non-dilated but elongated dorsal duct extending to the minor papilla, without visualization of ductal fusion with the ventral system. The ventral duct was seen joining the common bile duct and draining separately [Fig 1A-1C]. It was diagnosed as a case of- Pancreatic divisum (Type I).



Fig-2A: Axial CECT image showing the common bile duct (red arrow) and the elongated dorsal pancreatic duct (sky-blue arrow)



Fig-2B: Axial CECT image showing the common bile duct (red arrow) draining into major papilla



Fig-2C: Axial CECT image showing the non-dilated elongated dorsal duct (sky-blue arrow) draining into the minor papilla.

Case 2

A 65-year-old female with recurrent abdominal pain. She has recently been diagnosed as carcinoma of cervix. CECT abdomen & thorax was advised to look for any metastasis, though no such lesion was seen. CECT abdomen demonstrated a non-dilated elongated dorsal duct draining into the minor papilla [Fig-3B], without fusion with the ventral duct. Ventral duct drained with CBD [Fig-3A]. It was also diagnosed as- Pancreatic divisum (Type I).



Fig-3A: Axial CECT image showing the common bile duct (red arrow), dorsal pancreatic duct (sky-blue arrow), and ventral pancreatic duct (green arrow).

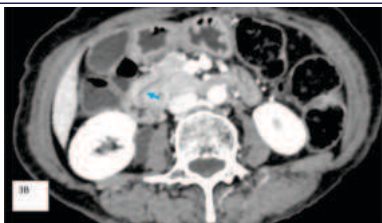


Fig-3B: Axial CECT image showing the non-dilated elongated dorsal duct (sky-blue arrow) draining into the minor papilla.

Case 3

A 57-year-old male with vague upper abdominal pain. He was diagnosed as a case of left sided colocolic intussusception. CECT also revealed that CBD is prominent & dorsal pancreatic duct running toward insertion point maintaining some distance from CBD (fig-4A). It also showed the non-dilated elongated dorsal duct draining into the minor papilla [fig-4B], with no fusion with the ventral duct. Ventral duct drained with CBD. We diagnosed it as- Pancreatic divisum (Type I).

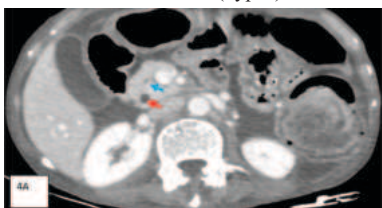


Fig-4A: Axial CECT image showing the common bile duct (red arrow), dorsal pancreatic duct (sky-blue arrow)

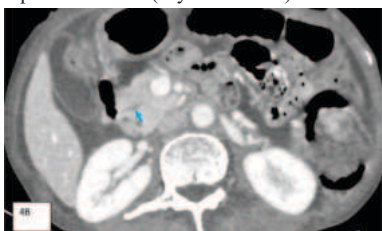


Fig-4B: Axial CECT image showing the non-dilated elongated dorsal duct (sky-blue arrow) draining into the minor papilla.

Case 4

A 67-year-old female with intermittent abdominal pain. No abnormality in relation to her complaints was detected in CECT abdomen. But, it showed that both dorsal & ventral ducts running parallelly (fig- 5A) as well as an elongated dorsal duct draining into the minor papilla, without ductal fusion (fig-5B). Ventral duct drained along with CBD. Pancreatic divisum (Type I) was diagnosed.



Fig-5A: Axial CECT image showing the ventral pancreatic duct (green arrow) and the dorsal pancreatic duct (red arrow) in a parallel direction.

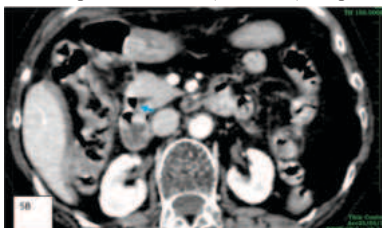


Fig-5B: Axial CECT image showing the non-dilated elongated dorsal duct (sky-blue arrow) draining into the minor papilla.

DISCUSSION

Pancreatic divisum is the most common congenital ductal anomaly, resulting from embryological failure of fusion between the dorsal and

ventral ducts [1, 2]. In this anomaly, most of the pancreas drains via the dorsal duct into the minor papilla, while the ventral duct drains only the inferior head and uncinate process.

Most individuals remain asymptomatic, but minor papilla stenosis can impair drainage, predisposing some to recurrent acute or chronic pancreatitis [3, 4]. Reported symptomatic cases account for only 5–10%.

Three variants are described: Type I (classic) with complete non-fusion (seen in all our cases), Type II with absent ventral duct, and Type III with a small filamentous connection between ducts [2].

While MRCP and ERCP remain the gold standards, CECT may suggest the diagnosis indirectly by showing ductal anatomy and related complications [2, 5]. Asymptomatic cases need no treatment, whereas symptomatic patients may benefit from minor papilla sphincterotomy, endoscopic stenting, or surgery [5].

CONCLUSION

Pancreatic divisum, though often incidental, can predispose patients to recurrent or chronic pancreatitis and its complications. CECT, while less sensitive than MRCP, provides valuable information in acute settings and can suggest the diagnosis when carefully interpreted. Awareness of this anomaly and its potential sequelae is essential for guiding further evaluation and management.

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