

Pancreas Divisum: an occasional finding

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Section: Abdominal imaging

Imaging Technique: MR

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Case Type: Clinical Cases

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Patient: 50 years, female

Imaging Findings:

The patient underwent MR examination to study the biliary system because of recurrent abdominal pain and dyspepsia: a pancreas divisum (type 1) was detected as an additional finding.

Discussion:

Pancreas divisum is the most common congenital anomaly of the human pancreas (incidence ranging from 4 to 14%), in which the dorsal and ventral pancreatic glands drain separately into the duodenum: the predominant drainage (body and tail) is performed by the dorsal duct of Santorini through the minor papilla, the head is drained by ventral duct of Wirsung through the major papilla. Pancreas divisum has been reported in association with annular pancreas and hereditary pancreatitis. Pancreas divisum presents three variants: - Type 1 or classical divisum: there is total failure of fusion - Type 2: dorsal drainage is dominant in the absence of Wirsung's duct - Type 3 or incomplete divisum: a small communicating branch is present. The diagnosis of pancreas divisum is usually performed at ERCP (endoscopic retrograde colangio-pancreatography), which allows to selectively evidence ventral and dorsal pancreas by injecting contrast respectively through major and minor papilla. The ventral pancreas is identified as a complete drainage system, in which the main duct and its branches are small with characteristic arborizations. Even if this radiological appearance is typical of pancreas divisum, it may be mimicked by acquired lesions such as previous partial pancreatectomy, previous traumatic pancreatic transection, obstruction of the Wirsung's duct resulting from irreversible damage by recurrent pancreatitis, pseudocyst, calculi obstructing the duct, and, most importantly, pancreatic carcinoma. Therefore, to make a differential diagnosis, it is important to perform contrast injection even through minor papilla during ERCP. Careful study and analysis of the duct terminus, as well as correlation with non-interventional imaging modalities (EUS, CT, MRI), can usually resolve the confusing appearance seen at ERCP, particularly at the moment MRCP must be considered the best diagnostic technique for Pancreas Divisum. Clinical relevance of pancreas divisum is the subject of a controversy: is significant an association with pancreatitis, or is it an incidental finding? Some authors observed that the incidence of pancreas divisum is slightly increased (12-26%) in subjects with idiopathic pancreatitis. Post-mortem series and pancreatograms pointed out that pancreatitis of a pancreas divisum is limited to dorsal part of the gland: it is suggested that in some patients with this anomaly the duct of Santorini and the minor papilla are too small compared with the large amount of secretions, leading to a relative outflow obstruction from the dorsal pancreas; this condition of chronic stasis of pancreatic fluid causes chronic recurrent abdominal pain or "retention pancreatitis". Patients with pancreas divisum that develop pancreatitis tend to be younger, more often female, less often drunker (alcoholism, by making the viscosity of the pancreatic salivary higher, increases the risk of pancreatitis). These

observations lead to consider the possibility that pancreas divisum could be a risk factor for pancreatitis.

Differential Diagnosis List: Pancreas Divisum

Final Diagnosis: Pancreas Divisum

References:

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Pancreas divisum: is it a normal anatomic variant?

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Pancreas Divisum: opinio divisa.

Gut 2000 Sep; 47: 317-319. (PMID: [10940261](#))

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Figure 1

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Description: MIP reconstructed MRCP image showing a Pancreas Divisum with crossing of dorsal pancreatic duct and common bile duct; dorsal pancreatic duct flows into minor papilla

Origin:

Figure 2

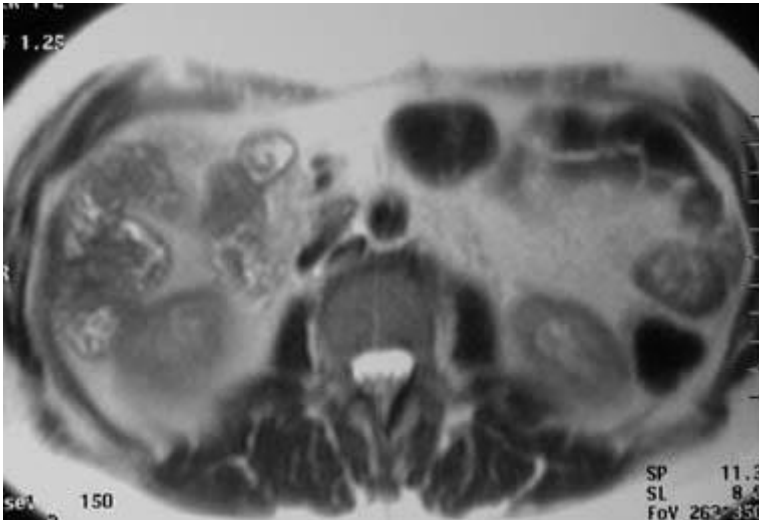
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Description: Source MRCP image better demonstrating the opening of dorsal pancreatic duct in duodenum at the level of minor papilla. The luminogram makes it possible to see the intestinal malrotation. **Origin:**

Figure 3

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Description: It is possible to notice the aplasia of pancreatic uncinate process, quite commonly associated to Pancreas Divisum, and the intestinal malrotation. **Origin:**