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Case Report

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Type 3-Pancreatic Divisum presenting as Recurrent Abdominal Pain

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ABSTRACT

A previously well 8-year-old girl presented with recurrent bouts of upper abdominal pain mostly post-prandial in nature. She was seen on multiple occasions with recurrent episodes of the same and was treated as "Acute gastritis "with multiple courses of Proton pump inhibitors (PPI). Her response to the pain was short lived and re-occurred frequently only to be prescribed again with another course of PPI's.

Her evaluation by the paediatric gastroenterologist showed a Complete blood count, Liver function tests, Serum Amylase and Lipase were all within normal limits. Upper Gastrointestinal Endoscopy revealed a normal mucosa up to the 2nd part of Duodenum and her biopsy of the Oesophagus, antrum and Duodenum were all normal.

Her upper Gastrointestinal Endoscopy revealed two ducts of Pancreas which indicated the likelihood of a probable pancreatic divisum. The child underwent a MRCP (Magnetic resonance cholangiopancreatography) which revealed a filamentous accessory pancreatic duct and a Main pancreatic duct which confirmed the diagnosis of Type 3 pancreatic divisum. She was prescribed oral pancreatic supplements and is being followed up for monitoring her growth and prevention of recurrence.

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Case Presentation

An 8-year-old girl presented with a 2-year, history of recurrent abdominal pain which was localized in the upper epigastric region and was not related to food, activity or sleep. She was treated recurrent short courses of acid blockers and antacids. Her relief was short lived and she had the pain recurring in a few weeks' time. She was referred to the pediatric gastroenterologist due to the recurrence of pain.

Her initial laboratory investigations (as listed below) were all completely well within normal range.

- Complete blood count
- Liver function tests
- Serum Amylase
- Serum Lipase
- Serum Calcium
- Lipid Profile
- Free T4 and TSH

She underwent an Upper Gastrointestinal Endoscopy which revealed an accessory duct raising the possibility of Pancreatic Divisum (Figure 1). The child underwent a MRCP (Magnetic resonance cholangiopancreatography) which revealed a filamentous accessory pancreatic duct and a Main pancreatic duct which confirmed the diagnosis of Type 3 pancreatic divisum. (Figure 2-Coronal section and Figure 3-Sagittal Section).

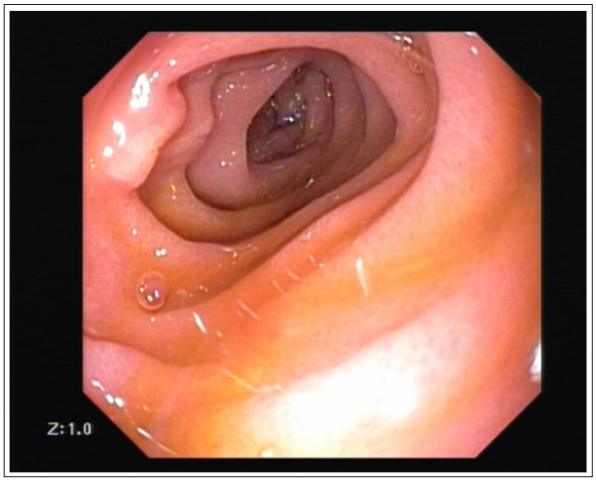

Figure 1: Upper Gastrointestinal endoscopy showing pancreatic ducts

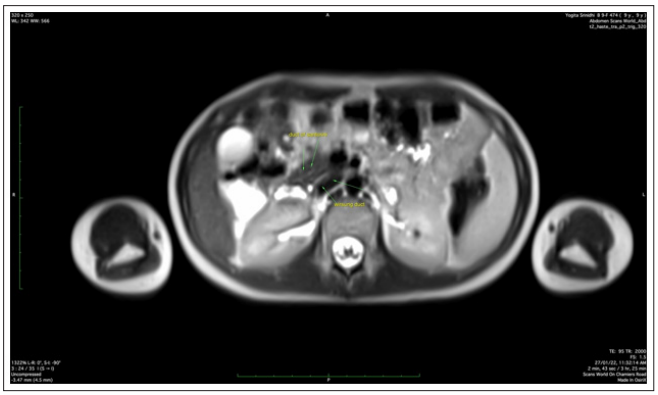

Figure 2: Coronial Section showing the MRCP findings of the Dorsal and Ventral ducts indicating Type 3 Pancreatic Divisum

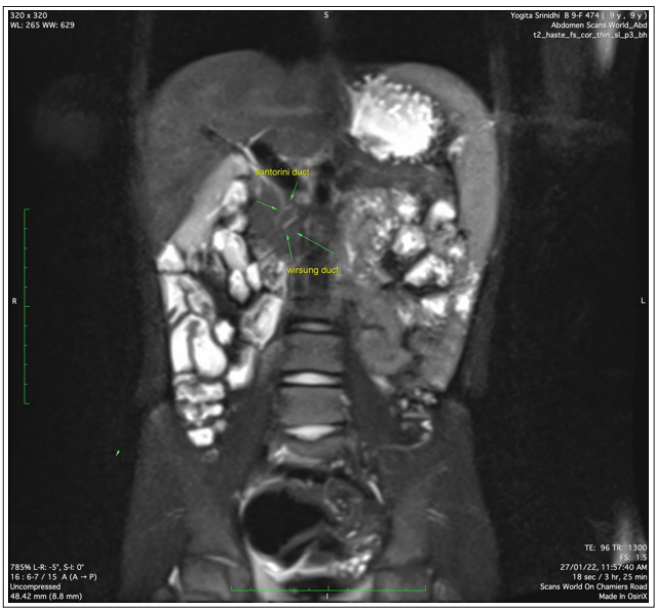

Figure 3: Sagittal Section showing the MRCP findings of the Dorsal and Ventral ducts indicating Type 3 Pancreatic Divisum

She was commenced on Pancreatic supplements and nutritional counselling was done. She will be followed up regularly to assess her growth and monitoring.

Discussion

Recurrent pancreatitis may be due to multiple factors and anatomical malformations of the pancreas needs to be ruled out as part of the evaluation [1].

Pancreas divisum (PD), caused by the failure of ventral and dorsal pancreatic buds to fuse, is a common congenital anomaly of the pancreas. Pooled analysis of 23 autopsy studies demonstrates a PD incidence of 7.8% (95% CI 6.8–8.8) [2].

Apart from Pancreatic Divisum genetic mutation for recurrent pancreatitis seems to play a vital part in bringing on recurrence of acute pancreatitis [2]. SPINKK1, PRSS1 and CFTR mutations must be screened for recurrent and hereditary pancreatitis. This has been attributed to recurrent pancreatitis in children with PD in larger cohorts [3].

Magnetic resonance cholangiopancreatography or MRCP is a non-invasive radiological study that can visualize the pancreatic ducts without the use of contrast material. MRCP scan is the most sensitive test for pancreatic divisum [4]. In this case, MRCP showed evidence of a type III pancreatic divisum as evidenced by a short communication existing between the dorsal (the most prominent duct) and ventral duct. In addition, MRCP also exhibited dilatations of the dorsal duct showing chronic pancreatitis (Figure 2). The dorsal duct as it failed to fuse with the ventral duct, drains directly into the duodenum through the minor papilla. While the ventral duct joins the common bile duct and drains into the duodenum through the major papilla. The dorsal duct functions as a major source of drainage in pancreatic divisum, as shown below (Figure 3). The relatively small diameter of the minor papilla increases the pressure in dorsal pancreatic duct, resulting in obstruction of pancreatic exocrine secretions, ductal distention and recurrent pancreatitis [5,6]. Management may include ERCP/ surgery for recurrent pancreatitis [7,8].

Conclusion

The pancreas is a vital organ and pancreatic diseases are rare in children but they appear to be becoming more prevalent in our current era. Many researches have indicated the need to extrapolate information surrounding recurrent and hereditary pancreatitis with genetics and imaging. Low-fat diet, cessation of risk factors, regular exercise seem to be the mainstay of treatment. This child will be regularly followed up to ensure growth and monitoring. New genetic causes associated with pancreatitis or being identified but there is a significant proportion where the aetiology of pancreatitis in children remains indeterminate.

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