

## An Unusual Cause of Acute Pancreatitis: Annular Pancreas and Papillary Opening of the Cystic Duct

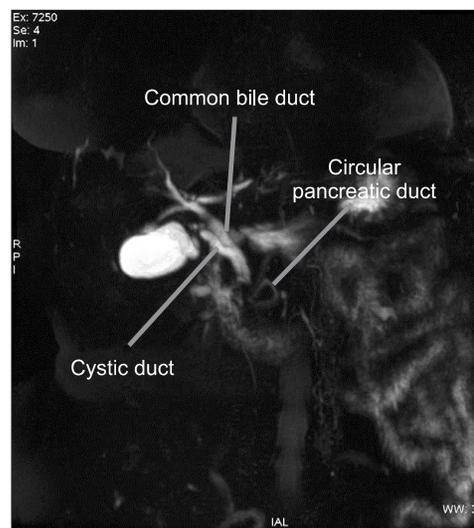
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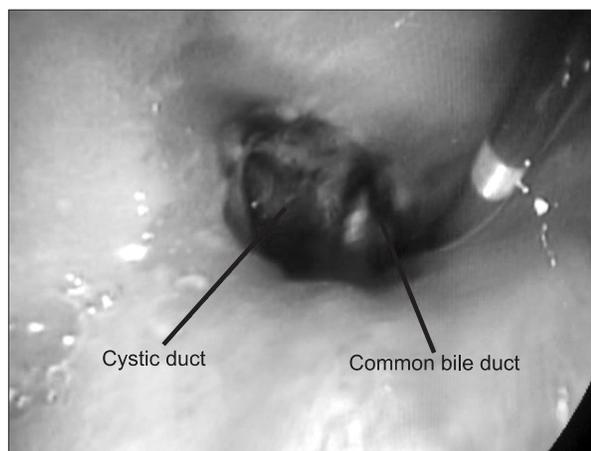
Annular pancreas is a rare congenital anomaly in which the pancreatic tissue forms a complete or partial ring around the descending duodenum. Findings in an autopsy series indicated a prevalence of 5 to 15 cases per 100,000 adults. There are two peaks of presentation, first in infancy (52%) and second in the fourth decade of life (48%).<sup>1,2</sup> Opening of the cystic duct to the papilla without combining with common biliary duct is also extremely rare. We report the case of a patient with annular pancreas associated with an unusual biliary anomaly which complicated by pancreatitis.

A 45-year-old woman was admitted to the gastroenterology department with acute epigastric pain radiating to her back. Her past medical history was unremarkable. She abstained from all alcohol consumption. On physical examination, her epigastric

area and right upper quadrant was tender. Body temperature was 39°C. Laboratory tests showed of white blood cell count 18,000/ $\mu$ L, amylase 2,200 IU/L (reference range, 43 to 116 IU/mL), lipase 493 IU/L (reference range, 20 to 280 IU/mL), ALP 290 IU/L (reference range, 30 to 120 U/mL), GGT 100 IU/L (reference range, 0 to 55 U/mL), total bilirubin 2.5 mg/dL (reference range, 0.1 to 1 mg/dL), direct bilirubin 2 mg/dL (reference range, 0.1 to 0.4 mg/dL). C-reactive protein level was 10.2 mg/dL (normal, <0.1). Hepatic enzymes, serum calcium and triglyceride were all within the normal range. Abdominal ultrasonography showed acute mild swelling of the pancreas. Abdominal computed tomography (CT) scan confirmed the diagnosis of acute pancreatitis and revealed a ring of inflammatory tissue surrounding the second duodenum, leading to the diagnosis of annular pancreas. Common bile duct was running around the second duodenum and combining with the main pancreatic



**Fig. 1.** Magnetic resonance cholangiopancreatography showing a circular pancreatic duct and distal opening of the cystic duct.



**Fig. 2.** Endoscopic appearance of the papilla at endoscopic retrograde cholangiopancreatography showing the opening of the cystic duct. The guide wire was placed in the common bile duct.

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Received on September 16, 2011. Revised on September 30, 2011. Accepted on October 14, 2011.

pISSN 1976-2283 eISSN 2005-1212 <http://dx.doi.org/10.5009/gnl.2012.6.3.403>

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duct on magnetic resonance cholangiopancreatography (MRCP) (Fig. 1). At endoscopic retrograde cholangiopancreatography (ERCP), opening of the cystic duct was seen at papilla (Fig. 2). ERCP and MRCP showed no biliary stones or biliary dilatation. Medical treatment based on her symptoms was then begun. The treatment progressively reduced the pain and no complications occurred. She was discharged 10 days later. The patient remained healthy and symptom-free in the follow-up of 6 months.

Annular pancreas is due to an embryologic migration fault and has been associated with other congenital anomalies as in our patients.<sup>3</sup> Annular pancreas usually presents as duodenal obstruction in infancy. However, some patients remain asymptomatic until well into adulthood, when the disorder manifests as abdominal pain, or pancreatitis.<sup>4</sup> In most cases, the initial CT scan confirms the diagnosis of pancreatitis resulting from an annular pancreas since a ring of inflammatory pancreatic tissue is revealed surrounding the duodenum as in our case. The diagnosis of annular pancreas is based on MRCP, which shows a channel running around the second duodenum and emptying into the main pancreatic duct as in our patient.<sup>5</sup> ERCP and MRCP shows a duct with a characteristic circular pattern around the duodenum. With medical treatment, the clinical course of the pancreatitis is generally favorable. Therefore, in case of failure of the medical treatment, pancreaticoduodenectomy may be required to treat complications such as relapsing pancreatitis, chronic pancreatitis, or future malignancies.

In conclusion, annular pancreas is a rare congenital anomaly that causes pancreatitis in the adults. Associated biliary anomalies should be considered in cases with annular pancreas when performing ERCP to prevent several complications.

#### CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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