

Annular Pancreas Accompanied by an Ectopic Pancreas in the Adult: A Case Report

Both annular pancreas and ectopic pancreas are rare lesions. It is generally believed that they are congenital malformations that depend upon the development of the pancreas from three anlagen, i.e., the right ventral, left ventral, and dorsal pancreatic buds. There have been many hypotheses regarding the development of annular pancreas and ectopic pancreas as an embryological malformation (1-4).

A 74-year-old man was admitted for evaluation of pain in the right upper abdomen. Abdominal ultrasonography showed strong echos with acoustic shadows in both the gallbladder and the common bile duct (CBD). Endoscopic retrograde cholangiopancreatography (ERCP) showed that the pancreatic duct encircled the second portion of the duodenum (Figure 1). The CBD was dilated and contained some floating stones. A polyp measuring 8 mm in diameter was found about 1 cm distal to the major papilla (Figure 2). At laparotomy, a ring of pancreatic tissue was seen to encircle the second portion of the duodenum. Cholecystectomy, choledochotomy, and lithotomy of the CBD, along with polypectomy of the duodenum, were performed. The polyp was defined as a submucosal tumor in which anatomical and vascular continuity with the pancreas was lacking. Pathological examination showed that the polyp was an ectopic pancreas of the duodenum. In addition, the existence of a number of pancreatic polypeptide (PP) cells was demonstrated by immuno-peroxydase stain (DAKO PAP® Kit Systems) for PP.

According to Hara and Tsutsumi (5), ectopic pancreas may be divided into two types: the ventral type, which is obtained in positive PP cells, and the dorsal type that has few PP cells. It was therefore considered that in the present case the annular pancreas originated from the right ventral bud, in the manner of Lecco's theory (1), and the ectopic pancreas was derived from a persistent left ventral bud. This association of annular pancreas with ectopic pancreas is extremely rare, contradicting a general rule (3) that the pancreas itself is normal in cases in which ectopic pancreas is found.

References

1. *Lecco TM*: Zur Morphologie des Pancreas Annulare. Sitzungsber. Akad. Wiss. Math.-Nat. Kl. 1910; 119: 391-406.
2. *Barbosa JJ de C, Dockerty MB, Waugh JM*: Pancreatic heterotopia: review of the literature and report of 41 authenticated surgical cases, of which 25 were clinically significant. *Surg Gynecol Obst* 1946; 82: 527-542.
3. *Brooks JR*: Congenital malformations. In: Brooks JR, ed.: *Surgery of the pancreas*. Philadelphia: Saunders, 1983: 418-423.
4. *Kopelman H*: Congenital anomalies. In: Walker WA, Durie PR, Hamilton JR, et al. eds. *Pediatric gastrointestinal disease*. Philadelphia: Decker, 1991: 1171-1178.
5. *Hara M, Tsutsumi Y*: Immunohistochemical studies of endocrine cells in heterotopic pancreas. *Virchows Arch Pathol Anat* 1986; 408: 385-394.



Figure 1: A cholangiopancreatogram via the major papilla shows the pancreatic duct encircling the duodenum and a dilated common bile duct. The inferior caputular branch is not shown.



Figure 2: An endoscopic picture shows a duodenal polyp measuring about 8 mm in diameter, with its surface being smooth and neither reddish nor erosive.

H. Nakajima¹, M. Kambayashi¹, H. Okubo¹, Y. Masuko¹, S. Yamada¹, Y. Hata¹, T. Oku¹, T. Takahashi², T. Takahashi³

¹ Department of Surgery

² Department of Pathology, Kushiro Rosai Hospital, Kushiro, Japan

³ Department of Surgery, Kitasato University School of Medicine, Kanagawa, Japan

Corresponding Author

H. Nakajima, M.D.
Department of Surgery
Kushiro Rosai Hospital
13-23 Nakazono-cho
Kushiro 085, Japan
Fax: +81-154-257308