



A rare cause of acute pancreatitis - annular pancreas: A case report

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ABSTRACT

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Annular pancreas (AP) is a rare congenital anomaly of the pancreas that is characterized by the presence of duodenum that encircled by pancreatic tissue. Very few cases of pancreatitis due to this anomaly have been reported previously. Annular pancreas can be diagnosed by Upper Gastrointestinal (UGI) direct graphy series, Computerized Tomography (CT) scan, Magnetic Resonance Cholangiopancreatography (MRCP), Endoscopic Retrograde Cholangiopancreatography (ERCP) or during surgical procedure. The treatment of pancreatitis due to annular pancreas is usually surgical. In this case report we present a patient with pancreatitis due to AP who has treated without surgical procedure.

Keywords:

Acute pancreatitis
Annular pancreas
Cholangiopancreatography
Endoscopic Retrograde
Magnetic Resonance

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1. Introduction

Annular pancreas is an unusual congenital anomaly of pancreas, which consists of a ring of pancreatic tissue encircling the descending part of the duodenum, completely or partially (Brönniman et al., 2010). Although many theories have been told which were based on embryology, there is no consensus. But molecular investigations confirmed that this is originating of annular tissue from the ventral pancreatic bud (Etienne et al., 2012). The true incidence of this anomaly is unknown because of the different findings in Endoscopic Retrograde Cholangiopancreatography (ERCP) and autopsy series, 0.4% and 0.005%-0.015%, respectively (Sandrasegaran et al., 2009). Here we report a case of acute pancreatitis due to annular pancreas that was diagnosed by using Computerized Tomography (CT) scan, ERCP and

followed up and treated safely without surgical procedure. Treatment of pancreatitis due to annular pancreas (AP) is also favorable with medical treatment. Emergency physicians should consider this alternative in the treatment of pancreatitis due to AP.

2. Case report

A 41-year-old man was admitted to emergency department with complaint of epigastric pain for two days. He did not complain of vomiting and nausea. The arterial hypertension was noted in his medical history and he was taking perindopril 5 mg/day (PO). On the medical examination; his fever was 36 °C and the other vital signs were stable (heart rate: 72 beats/minute, arterial blood pressure: 120/80mmHg, finger pulse oxygen saturation: 98%). Abdominal examination revealed

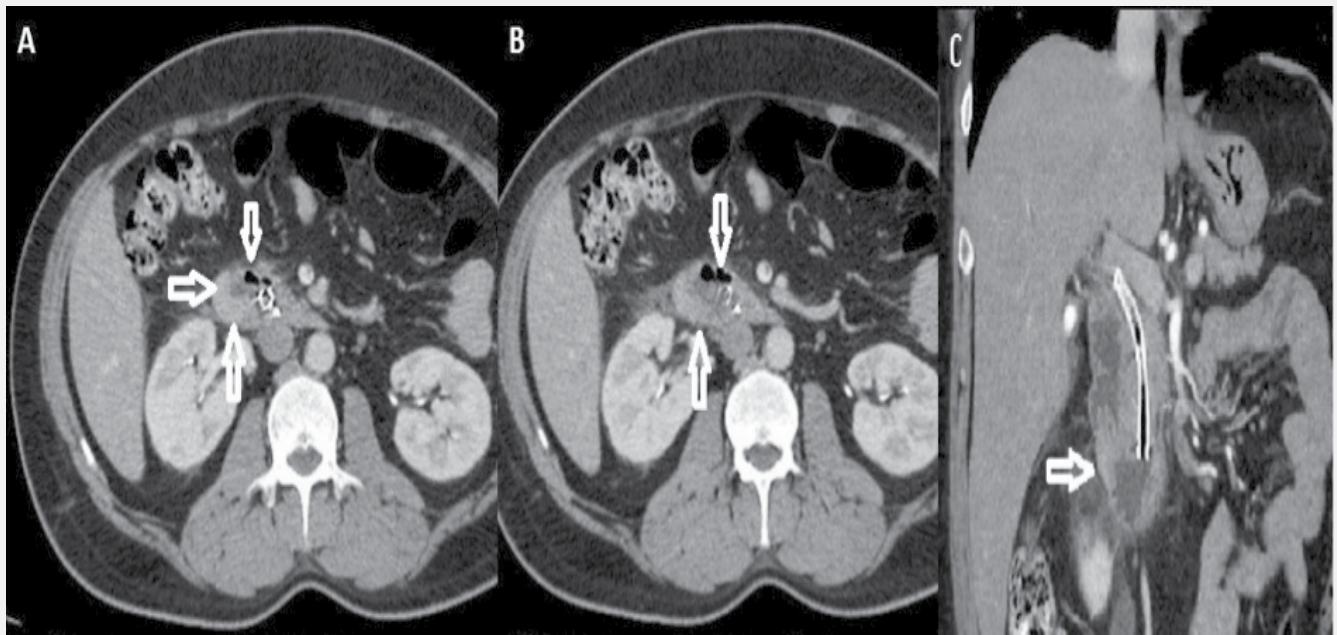


Fig. 1A, B, C. Contrast enhanced CT consecutive axial (A, B) and coronal images (C) shows 2nd part of duodenum (A, B, long arrows) completely surrounded by pancreatic tissue (A, B, C, small arrows) consistent with annular pancreas causing peripancreatic stranding because of acute pancreatitis (A, B, arrow heads).

epigastric tenderness but no defense and rebound. Complete blood count parameters were normal. In the biochemical analyze of the blood; the level of amylase and lipase were both elevated [1399 U/L (normal range 28-100 U/L) and 1383 U/L (Normal range: 13-60 U/L) respectively]. Liver enzymes and bilirubin values were in normal range. An abdominal contrast enhanced CT scan revealed an annular pancreas encircling the second part of the duodenum and confirmed the diagnosis of acute pancreatitis (Fig. 1A, B, C).

Fluid replacement, analgesics and nutritional therapy was initiated in the treatment of acute pancreatitis. Double-contrast Upper Gastrointestinal (UGI) examination showed that the second part of the duodenum is narrowed (Fig. 2).

Stenosis in the distal common bile duct and minimal dilatation in the intrahepatic bile ducts was observed in linear Endoscopic Ultrasound (EUS) examination (Fig. 3).

There was no detected no stone in the biliary tract. ERCP demonstrated a significant structure in the area of approximately 2 cm of common bile duct (Fig. 4).

Biliary balloon dilatation was performed and metallic and plastic sent were placed into the choledoc duct and wirsung duct respectively (Fig. 5).

A biopsy of the narrow region of the common bile duct was performed and the result of the pathological examination was reported no tumoral tissue. Double-contrast UGI examination showed that the second part of the duodenum is narrowed. The diagnosis of pancreatitis due to AP was confirmed by the light of these findings. The patient's symptoms were resolved completely on the day of 3rd of his medical therapy which consisted of fluid replacement, analgesics and nutrition. A surgical procedure was not preferred in the treatment of our case because of the following conditions; it was one of the rare cases that was treated as medically instead of surgical procedure in the acute pancreatitis (localized, not widespread) due to annular pancreas. In the treatment; good response to medical and endoscopic sphincterotomy treatments have

prevented the need of surgical procedure and also possible complications of a surgery such as pancreatic fistula, stomal ulceration. The patient discharged from hospital after 3 days. The follow up period of the patient still continues and he visits the outpatient clinic regularly.

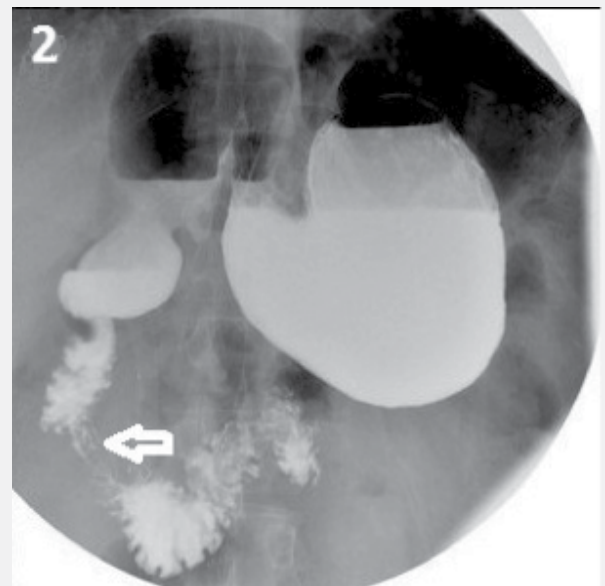


Fig. 2. Double-contrast upper GI examination upright view demonstrated narrowed 2nd part of duodenum.

3. Discussion

Annular pancreas is a rare congenital anomaly characterized by the presence of pancreatic tissue that encircling the duodenum and it was described first by Tiedemann at the time of an autopsy in 1818 (Tiedemann, 1818). The diagnosis of annular pancreas is established by imaging modalities and the exclusion of other diseases that have similar clinical findings.

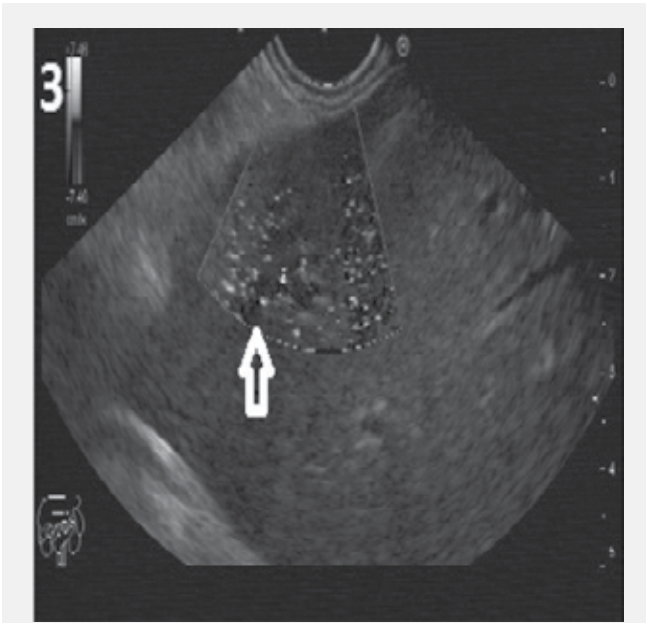


Fig. 3. Patient's EUS examination show that stenosis in the distal common bile duct and minimal dilatation in the intrahepatic bile ducts.

Although it usually diagnosed by UGI series and CT, MRCP, ERCP and EUS may also be helpful (Papachristou et al., 2007). The UGI series may show an annular filling defect across the second part of the duodenum and symmetrical dilatation of the proximal duodenum. CT scan shows the pancreatic ring encircling the duodenum. ERCP can also help in the diagnosis but it is not a feasible diagnostic alternative in the presence of duodenal obstruction by the pancreatic ring.

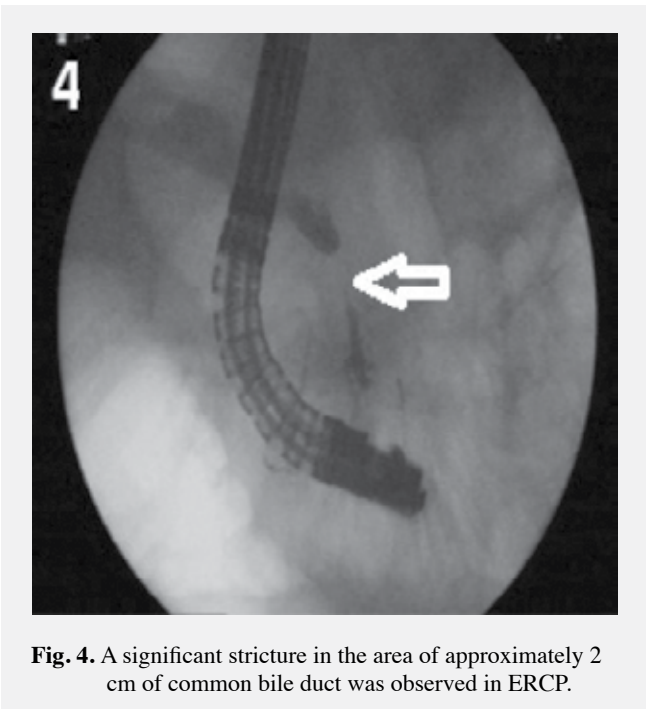


Fig. 4. A significant stricture in the area of approximately 2 cm of common bile duct was observed in ERCP.

The treatment of annular pancreas is surgical and the aim of surgery is to relieve duodenal or gastric outlet obstruction. The preferred surgery approach is bypass surgery of the annulus. The surgical procedures consisted of duodenoduodenostomy, gastrojejunostomy, duodenojejunostomy (Thomford et al., 1972) or pancreaticoduodenectomy (Shan et al., 2002). Pancreaticoduodenectomy should be preferred in patients with associated complications of AP. e.g., chronic annular pancreatitis, pancreatic fistula formation, pancreaticolithiasis in annulus or suspected coexisting malignancies (Shan et al., 2002). Endoscopic sphincterotomy or biliary stenting can be made in patients with obstructive jaundice due to annular pancreas (Kiernan et al., 1980). In our case, endoscopic sphincterotomy and biliary stent placement in addition to medical treatment was therapeutic, such as intravenous fluid replacement and opioid (fentanyl).

In conclusion, annular pancreas is a rare malformation of pancreas that can present at any age from infancy to the adulthood. It should be kept in mind when signs and symptoms of a proximal intestinal obstruction is detected and less frequently in the presence of acute pancreatitis. We think that, patients with mild acute pancreatitis due to annular pancreas, without serious complications, can be followed up with medical treatment and/or endoscopic treatment without need of surgical procedures. In the treatment of the complications due to AP, it must be considered by emergency physicians; there are other alternatives such as medical procedures except surgical procedures.

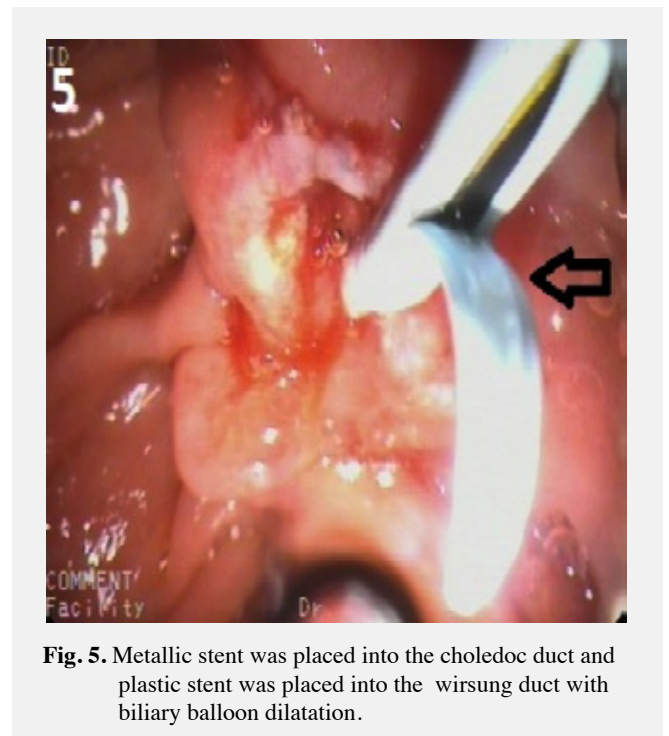


Fig. 5. Metallic stent was placed into the choledoc duct and plastic stent was placed into the wirsung duct with biliary balloon dilatation.

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