

Annular Pancreas Causing Gastric Outlet Obstruction in Adult: A Case Study

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Abstract: Annular pancreas is one of rare congenital anomalies that rarely manifest in adult. We hereby discuss our experiences with one of the presentation of annular pancreas. A 20 years male presented with pain abdomen symptom of gastric outlet obstruction, radiological investigation reported as chronic pancreatitis, on high level of suspicion exploratory laprotomy done with finding of annular pancreas. Bypass surgery done. Patients discharged uneventful.

Key words: Annular pancreas, gastric outlet obstruction, CT scan, exploratory laprotomy.

I. Introduction

Annular pancreas is a congenital anomaly that consists of a ring of pancreatic tissue partially or completely obstructing second part of duodenum. It is formed due to failure of the ventral bud to rotate. Thus, it elongates and encircles the upper part of the duodenum, it can present in a wide range of clinical severities and can affect neonates to the elderly like peptic ulcer, pancreatitis, obstructive jaundice, gastric outlet obstruction etc, thereby making the diagnosis difficult, although diagnosis of annular pancreas can be made preoperatively by upper gastrointestinal endoscopy, CT scan, Endoscopic retrograde cholangiopancreatography (ERCP) and Magnetic resonance cholangiopancreatography (MRCP). 40% of diagnosis requires surgery for confirmation.

II. Case Report

A 26 years male complain of pain in abdomen which radiate to back since one year and multiple episodes of vomiting, projectile in nature, non bilious, sour in taste containing partially digested food since fifteen days. On examination patients was conscious, cooperative and oriented. On palpation abdomen was soft, no palpable lump and any enlarged organs was palpable. On CT abdomen report, whole of the pancreas was patchy calcified and reported as chronic pancreatitis but clinically gastric outlet obstruction was not correlated with radiological reports. Hence planned for exploratory laparotomy and other hematological and biochemical parameters are within normal limit. Per operative following were noted, pancreatic head was found to be bulky of size 6*5 cm, firm in consistency and mobile. Whole of pancreas consist with multiple hard calcified nodule of size 0.5 cm. There was pancreatic tissue completely encircled across the descending portion of duodenum. Side to side retrocolic iso-peristaltic gastrojejunostomy done. Post operative was uneventful and patients discharged after sixteen days of hospital stay, follow up was uneventful.

III. Discussion

Annular pancreas is a congenital anomaly consisting of a ring of pancreatic tissue partially or completely encircling the descending portion of the duodenum.¹ The condition was first described by Tiedemann^{2,3} in 1818 and named “annular pancreas” by Ecker^{1,3,4} in 1862. The pancreas is normally formed from the fusion of the dorsal and ventral pancreatic buds between the first 4–8 weeks of embryonic life. Annular pancreas results due to failure of the ventral bud to rotate and elongates to encircle the upper part of the duodenum. Annular pancreas is one of few medical conditions that can present with a wide range of clinical severities. It affects neonates to the elderly, thereby making the diagnosis difficult.⁵ Annular pancreas is an uncommon congenital condition in adults. Five theories have been suggested to explain the pathogenesis of annular pancreas, although various abnormalities appear to be involved in the developmental process.⁶⁻⁹ Annular pancreas represents a spectrum of diseases. Autopsy series indicated a prevalence of 5–15 cases per 100 000 adults. There are 2 peaks of presentation – in infancy (52%) and in the fourth decade of life (48%).¹⁰ This anomaly is frequently associated with other congenital anomalies in adults, and malrotation, duodenal web, and Schatzki ring were some of the more common anomalies. Long Cheng et al. reported a case of annular pancreas concurrent with pancreaticobiliary maljunction presenting with symptoms in an adult patient.¹¹ The annulus itself can be complete, partial, intramural, or extramural.

A literature review revealed 160 cases of annular pancreas and 76 cases of duodenal webs in adults. They all showed that the diagnosis is often overlooked in favor of gastric outlet obstruction. Duodenal webs can be mistaken for scarring from duodenal ulcer disease¹² Therefore, annular pancreas should be considered as a possible cause of adult duodenal obstruction. In a review by Zyromski et al.¹³ the commonest presentation in 24% of patients is due to gastric outlet obstructive symptoms; 75% had abdominal pain as the primary complaint; 11% presented with jaundice; 22% with acute pancreatitis, a finding that is possibly related to the high incidence of pancreas divisum (29%), with variable duration of symptoms from a few months to several years. The diagnosis of annular pancreas can be made preoperatively using numerous radiologic and endoscopic studies, including upper GI tract studies and computed tomography (CT). However, in over 40% of cases, the diagnosis is only made at laparotomy.^{5,14}

In CT and magnetic resonance imaging (MRI), a ring of pancreatic tissue is seen surrounding the descending duodenum, in continuity with the pancreatic head¹⁵⁻¹⁷ and a magnetic resonance cholangiopancreatography (MRCP) or an endoscopic retrograde cholangiopancreatography (ERCP) can identify the annular pancreatic duct encircling and extending to the right side of the duodenum.¹⁷ The treatment of symptomatic, obstructing annular pancreas has classically been surgical. The preferred treatment is a bypass operation such as gastro- or duodenojejunostomy, but some cases were treated by division of the annulus with transverse duodenoplasty, duodenoduodenostomy, or Whipple's procedure in extreme cases, depending on the case and the intra-operative findings.^{10,14,18}

IV. Conclusion

Annular pancreas is a congenital anomaly present uncommonly in adult with variable presentation includes peptic ulcer disease, obstructive jaundice, chronic pancreatitis, gastric outlet obstruction etc. Radiological investigation was not very sensitive investigation to diagnose. In suspicion of diagnosis exploratory laprotomy and thereby preoperative finding are diagnostic. Bypass surgery is the mainstay of treatment.

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