

Case Report

Annular pancreas in adults: single unit experience from a tertiary care centre of Northern India

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ABSTRACT

Annular pancreas is a rare congenital anomaly which usually presents with gastrointestinal symptoms early in life. In adults mostly it remains asymptomatic or may present with abdominal or features of duodenal obstruction the increased diagnosis of which is attributed to the improved imaging modalities. We hereby report our experience of adult annular pancreas in whom clinical presentation initially mimicked gastric or duodenal outlet obstruction. Adult annular pancreas was diagnosed with the aid of computed tomography of the abdomen and treated successfully with Roux-en-Y isoperistaltic gastrojejunostomy.

Keywords: Adult annular pancreas, Gastric outlet obstruction, Gastrojejunostomy

INTRODUCTION

Annular pancreas is a rare anomaly in which a thin band of pancreatic tissue completely or partially encircles the second part of the duodenum resulting in varying degrees of obstruction.¹ It was initially believed that the majority of the cases of annular pancreas present early in life, but it has now been observed that it presents in equal frequency in both adults and children. In a case series of 103 patients with annular pancreas by Zyromski et al it was seen that 55 were adults and 48 were children.² In adults, the most common presentation was pain in 75% and only 11 % presented with obstructive symptoms. We present our experience of adult annular pancreas presenting as gastric outlet obstruction.

CASE REPORT

Case 1

A 27 year old gentleman presented to the Surgery outpatient department with complaints of recurrent

episodes of non-bilious vomiting since one month. He also had history of altered blood vomiting 2 episodes in the past 1 month. There was no history of pain. He had not taken any long term medication. He had no history of any caustic ingestion. There was history of weight loss of 11 kg in last 6 months. He had no comorbidities. His BMI was 17.4 kg/square meter. Abdomen was scaphoid, umbilicus central and inverted, no scar/ sinus/ dilated veins/ visible peristalsis. On auscultation, succussion splash could be elicited. There was no free fluid in the abdomen. On evaluation, Hemoglobin was 8.2 g/dl, Total leukocyte count was 6700/cu.mm. Arterial blood gas revealed a pH of 7.38. His kidney function tests and liver function tests were within normal limits. An Upper GI endoscopy was done which showed a normal gastric mucosa with a tight stricture at the second part of duodenum and a dilated first part of duodenum and stomach. A contrast enhanced computed topography of the abdomen showed abrupt focal narrowing at the second part of duodenum and pancreas seen circumferential encasing this segment for a length of approximately 2.5 cm with maintained fat planes between the pancreas and the duodenum (Figure 1) CT

Angiography of the abdomen revealed no significant abnormality.



Figure 1: Contrast enhanced CT scan abdomen showing pancreatic tissue encircling the second part of duodenum (arrow).

He was considered for surgery. Intraoperatively, annular pancreas was seen causing more than 50% compression of lumen of second part of duodenum with dilated first part of duodenum (Figure 2). No other congenital malformation identified. Roux-en-Y iso-peristaltic gastrojejunostomy with Cholecystectomy was done. Post operatively patient recovered well and discharged on post-operative day 5.



Figure 2: Rim of pancreatic tissue encircling the second part of duodenum.

Case 2

A 20 years male patient presented surgery outpatient department with complaint of colicky pain in epigastric region for past 5 months with recurrent episodes bilious vomiting and loss of weight. There was no history of fever, jaundice, loss of appetite, loose stools, urinary disturbance or any respiratory complaints. Patient was a known case of celiac disease diagnosed one and half

years back and was on gluten free diet. There is no history of any surgical procedure done in past. His BMI was 12.1 kg/square meter. Chest and Cardiovascular findings were normal. On abdominal examination, abdomen was scaphoid with midline umbilicus. No hepatosplenomegaly or lump was palpable. Nasogastric tube insertion was done which drained bilious content. In view of poor nutritional status parenteral nutrition was started. Upper GI endoscopy was performed which showed deformed pylorus with ulcerations, dilated first part of duodenum with extreme angulation between first and second part of duodenum through which scope was not negotiable. Contrast enhanced CT scan of abdomen showed over distended stomach with mildly inflamed wall. Diffuse atrophic changes of pancreas with prominent pancreatic duct (2-3mm). prominent CBD (7.5-8mm) at porta with gradual distal tapering.

MRCP showed complete annular pancreas causing compression at 2nd part of duodenum with dilatation of 1st and 2nd part of duodenum and stomach. Prominent CBD (8mm) with distal smooth tapering. Mild atrophy changes seen in pancreas with prominent 3.5 mm main pancreatic duct (Figure 3).

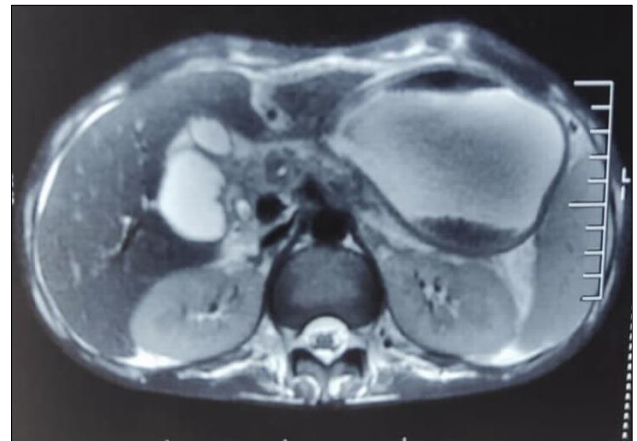


Figure 3: Complete annular pancreas causing compression at 2nd part of duodenum with dilatation of 1st and 2nd part of duodenum and stomach.

Patient underwent Exploratory Laparotomy with Cholecystectomy with Roux-en-Y Gastrojejunostomy. Intraoperatively, dense adhesions were seen in the region of porta, pancreas and duodenum after Kocherisation. Thickened 1st and second part of duodenum and pylorus with gastric wall was appreciated. 3rd segment of duodenum was normal. CBD was normal. Isoperistaltic Roux-en-Y gastrojejunostomy was performed. Patient was discharged on day 6.

Case 3

A 56 years male presented surgery outpatient department with complaints of pain and vomiting. Pain was episodic, colicky in nature, mild to moderate in intensity and

poorly localised in upper abdomen. Vomiting was non-bilious. On examination, patient was thin built with BMI of 18.75kg/m². On examination the abdomen was flat, with central umbilicus. Abdomen was soft and no mass or organomegaly could be appreciated.

Ultrasonography of the abdomen was suggestive of cystitis with mild inter-bowel free fluid. Contrast enhanced CT of the abdomen showed multifocal arterial non-rim enhancing lesion (4.2X1.6cm) with centripetal filling involving segment V and VIII of liver – hemangioma. It also suggested that the head of pancreas surrounded the 2nd part of duodenum without any narrowing of duodenum (Figure 4). MRCP reported pancreatic parenchyma completely encasing the 2nd part of duodenum with no upstream dilatation of proximal duodenum. A diagnosis of annular pancreas was made and the patient was taken up for exploratory laparotomy

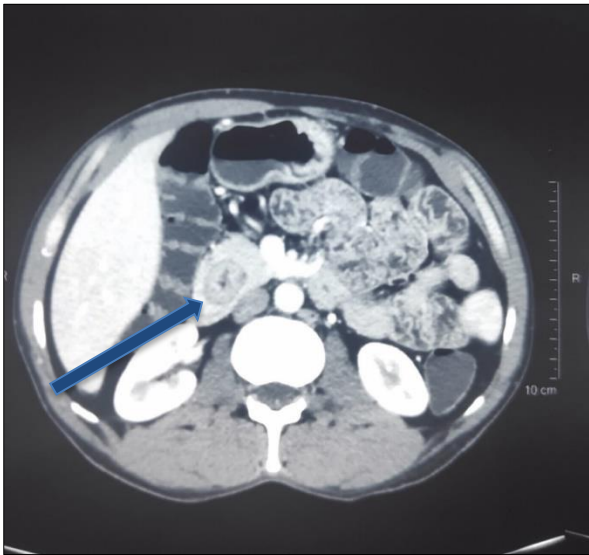


Figure 4: CECT abdomen showing 2nd part of duodenum encased by the pancreatic parenchyma (arrow).

Intra-operatively pancreatic tissue was seen encasing the 2nd part of duodenum with no proximal distension of duodenum. The patient underwent Roux-en-y gastrojejunostomy with open cholecystectomy. His post-operative period was uneventful.

DISCUSSION

Annular pancreas is a rare congenital abnormality which is more common in males. Frequency is 1: 20,000 births. It may occur as complete ring 25% or partial ring in 75% of cases.³ Development of pancreas occur around fifth week of gestation from one dorsal and two ventral buds that first appear as evaginations of the primitive foregut. Annular pancreas occurs because of failure of ventral bud to rotate with duodenum, causing envelopment of duodenum.⁴ Congenital anomalies associated with annular pancreas include Down syndrome, intestinal

atresia, pancreatico-biliary malrotation, and pancreas divisum.⁵ The clinical presentation and the treatment varies between adults and children. When Gastrointestinal obstruction is the most common presenting symptom in children, adults usually present with pain. In the case series of annular pancreas by Zyromski et al 75% of the adults presented with pain and only 24% presented with gastrointestinal symptoms like vomiting.² In our study all the three patients presented with gastric outlet obstruction. However, the presenting complaint in this case was multiple episodes of non-bilious vomiting. Jimenez et al stated that preampullary obstruction causing non bilious vomiting was more common in annular pancreas than in other causes of duodenal obstruction (94% vs 10%) as observed in this case.⁶ The classic “Double bubble Sign” is seen in plain radiographs in patients with Annular pancreas. In our patients CECT whole abdomen confirmed the diagnosis of annular pancreas which was confirmed intra operatively. In the case series by Zyromski et al the diagnosis of annular pancreas was made by ERCP in 47%, Abdominal CT in 18%, MRCP in 16% and intraoperatively in 13%. The presence of pancreatic tissue on cross sectional imaging posterolateral to the second part of duodenum has a sensitivity of 92% and specificity of 100%.^{3,7} The definitive treatment for annular pancreas is Surgery. However an attempt to divide the annulus risks the formation of pancreatic fistula (Kiernan et al).⁸ There are no fixed guidelines in deciding the surgical procedure in adults with annular pancreas. In the case series by Zyromski et al, Duodenal bypass was performed in 24% of the adults and 100% of the children. Though duodenal bypass procedures are conventional surgical treatment for annular pancreas, duodenum is less mobile in adults and hence gastrojejunostomy is preferred. Therefore, operative approach should be individualized for every patient.

CONCLUSION

Adult annular pancreas is a rare congenital anomaly. Adult patients presenting with gastric outlet obstruction should be thoroughly investigated by radiological imaging and upper gastrointestinal endoscopy to rule out underlying malignancy. High clinical index of suspicion is required for diagnosis of annular pancreas in adults as the condition can be safely treated by surgical approach.

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