Uncommon Cause of Duodenal Obstruction in a Young Adult

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Abstract

Annular Pancreas is a rare embryological abnormality characterised by the presence of a pancreatic tissue of variable width completely or partially obstructing the second part of duodenum. It is formed due to failure of normal migration of the ventral pancreatic bud, which results in a part of pancreatic tissue encircling the duodenum. It is one of the few medical conditions which can present itself in a wide range of clinical severities and can affect neonates and the elderly, thereby making the diagnosis difficult. We hereby report the case of a 27 year old male who presented with a 6 months history of pain upper abdomen and recurrent episodes of vomiting who at laparotomy was found to have Annular Pancreas. The case is reported hereby to have this rare diagnosis in mind while dealing with a recurrent symptomatology pertaining to upper gastrointestinal tract especially when all the common imaging modalities are non contributory.

Case Report

A 27 year old male presented with a 6 months history of pain upper abdomen and recurrent episodes of vomiting. The pain was present on and off. It was burning in nature, mild to moderate in intensity, poorly localised in the upper abdomen and was relieved by vomiting. Vomiting was recurrent, bilious and non projectile. There was no history of hematemesis. The patient had a history of pulmonary kochs 15 years ago for which he had received a 9 months course of ATT. On examination the patient was of thin built. General physical examination was essentially normal. Abdominal examination did not reveal any mass or any organomegaly and did not contribute significantly. Routine investigations revealed no specific abnormality. Ultrasonography of the abdomen was normal. Barium meal follow through of the patient revealed a mildly dilated stomach with narrowed segment at the post bulbar area. There was a doubtful area of narrowing in the proximal ileal region. UGI endoscopy revealed an injected D1 mucosa with multiple small irregular ulcers. There was luminal narrowing at the level of D2 arising as a result of extrinsic compression. CT did not show any significant lymphadenopathy or any mass lesion. Laparotomy was undertaken which showed that the second part of duodenum was completely encircled by a band of pancreatic tissue causing partial obstruction confirming the diagnosis of Annular Pancreas. A flimsy band of adhesion was present between proximal ileum and parietal peritoneum. A diamond shaped duodeno duodenostomy was done alongwith adhesiolysis of the flimsy band. The patient had a normal post operative course. He was discharged on the 7th post op day on full oral diet. The patient was completely asymptomatic on follow up and had gained weight.

Discussion

Annular Pancreas is a rare occurrence in adults. It was first reported by Tiedermann in 1818 and named as Annular Pancreas by Ecker in 1862 (1). The first surgical treatment for an obstructive annular pancreas was performed by Vidal in 1905. That the condition is rare was supported by Vasconcelos and Sadek who reported a single case in 22,243 autopsies(2). Many theories have been postulated to explain the origin of Annular Pancreas. Leeco’s and Baldwin’s theories are the most acceptable among all. Leeco postulated that it is the adherence of the ventral pancreatic bud to the duodenal wall and subsequent failure of its migration which causes formation of Annular Pancreas. Baldwin however reported that this condition arose because of the abnormal movement of the ventral pancreatic bud(3). D2 is involved in 74 % of the cases (4). Only 737 cases have been reported in the English literature till date with a slight female preponderance. Majority of the reported cases have been reported in the infant/newborn population. In infants/newborns the main mode of presentation is that of duodenal obstruction. In this scenario it may often be present with various other congenital abnormalities. The spectrum of clinical presentation in adult population is however quite variable. It may present as duodenal obstruction, pancreatitis (acute, chronic, recurrent) or may manifest with symptomatology of peptic ulcer disease. It may rarely be associated with obstructive jaundice and even rarely malignancy(5). Even in this era of radiological sophistication, diagnosis may require surgical confirmation in more
than 40% of the cases.(6). Each imaging modality has its own limitations. The use of CECT in infants is limited by the paucity of abdominal fat which serves as a reference for enhancement. The use of CECT in adults is limited by the narrowness of the ring and by the fact that the pancreatic ring may lie intra murally in the duodenum without any plane existing in between. ERCP is invasive and can precipitate/exacerbate pancreatitis, besides the presence of a narrowed lumen may preclude its use. Use of MRCP is limited by the fact that it requires a dilated ductal system (7). Surgical intervention is required whenever AP is symptomatic. In those who present as duodenal obstruction a simple enteric diversion procedure is done, with duodeno-duodenostomy being the preferred procedure. It has the advantage of being the most physiological by having the least blind loop segment. Gastrojejunostomy (with or without gastric resection) requires an additional vagotomy especially in the young because of the propensity to cause stomal ulcerations. Inflammations and adhesions in the C loop may preclude the possibility of a duodeno-jejunostomy.

Pancreatic resection although done is associated with a higher incidence of complications as pancreatitis, pancreatic fistulae and pancreatic insufficiency. Even the minor degrees of pancreatic leaks that go unnoticed on a gross level can cause an intense local inflammatory response which can mimic and reproduce the symptoms for which the surgery was undertaken. Pancreatic resection is advisable in those rare cases were malignancy cannot be excluded. (8)

**Conclusion**

A diagnosis of Annular Pancreas should be kept in mind even in the adult population. Early surgical intervention with duodeno- duodenostomy is recommended.

**References**


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Illustrations

Illustration 1

UGI Barium Study

Upper GI barium study of the pyloro duodenal area revealing narrowing of duodenum at the post bulbar area
Illustration 2

Intraoperative Picture

Operative photograph showing the complete ring of pancreatic tissue encircling the second part of duodenum
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