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CASE REPORT

Annular Pancreas in Infancy

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Abstract: Annular pancreas is a rare congenital disorder where the symptoms that appear in this patient are symptoms of obstruction caused by the presence of pancreatic tissue that forms a ring around the descending part of the duodenum. The annular pancreas has a ratio of 1:20,000 births that may show stenotic or obstructive symptoms early in life. With a plain abdominal radiograph taken in the erect position, a “double bubble” appearance is seen, which is typical of the annular pancreas. In this case**,** A boy 10 month, with chief complaint vomiting, with containt vomiting every time he eat (breast milk). It had been suffered since he was born. Patient was born by midwife, aterm. Since he born, patient used took antivomitus from pediatric. Patient has been documented by barium meal to hospitalization, and was differential diagnosed with obstruction partial duodenum; duodenal web; pyloric stenosis; annulare pancreas with right scrotalis hernia. In these patient the treatment with perform Duodeno-Jejunustomy.

Keywords: Annular pancreas, double bubble, Duodeno-Jejunustomy

INTRODUCTION

Anatomically, the pancreas is connected to the small intestine via the duodenum. The pancreas is responsible for secreting the hormone insulin into the bloodstream to convert glucose into energy. In addition, the pancreas also secretes digestive enzymes into the intestines to directly help the process of digestion of food.

The main characteristic feature of annular pancreas (Lat. *pancreas anulare* ; *anulus* – a ring, the duodenum.[2] *anularis* – ring shaped) is a band or a ring of pancreatic tissue around Congenital abnormalities in annular pancreas have obstructive symptoms due to the presence of ectopic pancreatic tissue surrounding the descending duodenum.

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symptoms early in life. Pancreatic tissue surrounding the descending duodenum may form a complete (25%) or partial (75%)

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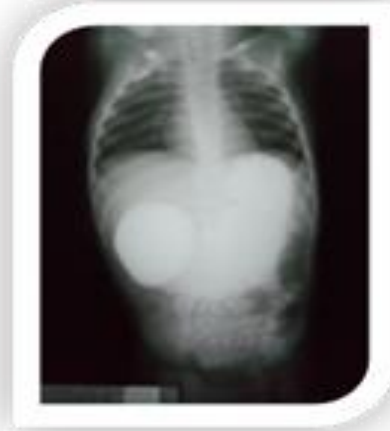

Figure 1. Plain abdominal radiograph in the erect position, a “double bubble” appearance is seen.

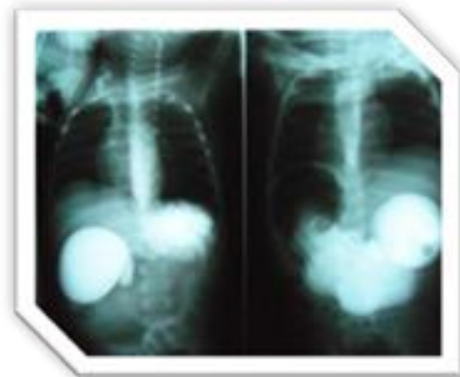

Figure 2. Barium meal radiograph. Examination by including oral contrast (NGT attached) appears to contrast filling the enlarged gastric lumen, the position and shape of normal gastric. Further contrast seemed to fill duodenum. Duodenal appear enlarged, contrast restrained long enough to be passed, there are still quite a contrast after reaching distal long. Looks contrast filling the intestines. Contrast looks to fill the right scrotum.

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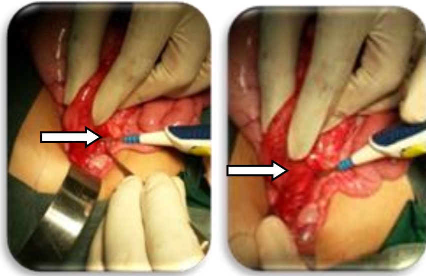

Figure 3. The pancreas lies the C loop of the within duodenum

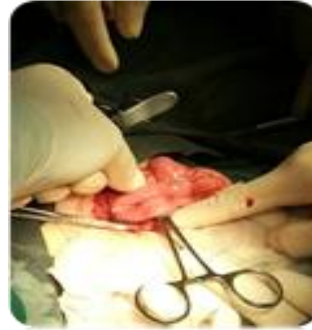

Figure 4. The treatment of annular pancreas with duodeno-jejunustomy procedures

DISCUSSION

The human pancreas is of endodermal origin and is first detectable by the fifth week of gestation, originating as paired evaginations of the foregut. The pancreas is retroperitoneal and runs obliquely upward from right to left. The head of the pancreas lies within the C loop of the duodenum, and lies just anterior to the body of the second lumbar vertebra and aorta. The uncinate process projects out from the posteromedial portion of the head, and behind the superior mesenteric artery and vein. The neck of the pancreas is defined as the portion of the pancreas anterior to these vessels. The body and tail are to the left of these vessels. The body and tail are closely adjacent to the posterior wall of the stomach and to the spleen.[4]

Normally the pancreas develops from the ventral anlage with the duct of Wirsung and is carried dorsally around the duodenum through selective growth of the left half of the circumference of the duodenal wall.[5]

There are various theories that explain the occurrence of an annular pancreas. There are three main theories that explain the pathophysiology of annular pancreas: (1) Lecco's theory states that the occurrence of annular pancreas due to rotation of the duodenum of pancreatic tissue from the ventral side can be carried with the second part of the duodenum, with its free end then fused superiorly to the head of the pancreas, creating an annular deformity. Adherence of the ventral

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bud to the duodenal wall prior to rotation, resulting in istence and encirclement of the duodenum. (2) Persistence and enlargement of the left ventral bud (Baldwin's theory). Baldwin proposed that the annulus was caused by normal atrophy of the left ventral anlage. (3) Hypertrophy and fusion of the ventral and dorsal buds before rotation of the gut, resulting in complete encirclement of the duodenum.[3,6]

Annular pancreas is classified into two classes, namely complete annular pancreas and incomplete annular pancreas. In a complete annular pancreas, the site of the pancreatic parenchyma or annular duct surrounds the second part of the duodenum. In incomplete annular pancreas, the annulus does not surround the duodenum completely but extends posterolaterally or anterolaterally to the second part of the duodenum or anterior and posterior to the duodenum. The occurrence of annular pancreas around the second part of the duodenum is 74%, around the first part is 21% and very rarely around the third part.[3,6]

DIAGNOSIS

The primary symptomatology of annular pancreas results from duodenal obstruction. Generally, the patients can present with bilious vomiting if the obstruction is distal to the ampulla of vater.[4]

The severity of clinical symptoms in annular pancreas is influenced by the degree of constriction of the duodenum surrounding the pancreatic tissue. Symptoms only occur in about a third of people who have this condition. A doctor may be able to find signs of an annular pancreas while the baby is still in the womb: (1) Excess amniotic fluid, called polyhydramnios, (2) Excess fluid in the abdomen, called ascites, (3) Intestines dilate. In newborns, symptoms of an annular pancreas may include: vomit that is yellow or green, which means it contains bile, difficulty eating or signs of blockage in the intestines, such as difficulty passing stools.

The diagnosis of annular pancreas can be established by supporting examinations such as abdominal ultrasound, abdominal X-ray, abdominal CT Scan. With an

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abdominal X-ray in an upright position, the presence of a "double bubble" image can identify an annular pancreas, but it can also be found in other congenital abnormalities such as atresia, perforation of the mucosal diaphragm and intestinal rotation and adhesions. Duodenography with radiopaque material allows the differential diagnosis of the anomaly.[3]

TREATMENT

Treatment of annular pancreas is surgical. There are several surgical procedures used. Treatment involves surgically bypassing the lesion with a side-to-side duodenoduodenostomy or possibly a duodenojejunostomy as a second alternative. The previously reported surgical results were satisfactory, particularly the duodeno-jejunal and duodenoduodenal anastomoses, which are simple operations that are frequently performed and have the best results.[3,4]

CONCLUSION

Annulare pancreas case is rare case. This patient with chief complaint vomiting since he born should be suspicious has annulare pancreas. Diagnosis should be enforced from the beginning.

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