Annular Pancreas

Annular pancreas is a congenital anomaly of the pancreas that results from fusion of the ventral and dorsal pancreatic buds during embryological development. This may cause circumferential duodenal compression. Annular pancreas is associated with down syndrome and can present with polyhydramnios in utero, poor feeding postnatally, and vomiting. On imaging, a characteristic double bubble sign may be apparent. Surgery is the only definitive treatment for this disease.



PLAY PICMONIC

Characteristics

Congenital Anomaly
Animal-anomalies with Pregnant-woman
This condition is a congenital anomaly. This can occur due to an abnormality in the rotation of the embryonic buds of the pancreas, specifically the ventral and dorsal buds. They can fuse and form a ring around the second part of the duodenum and thus can lead to its compression or atresia.

Fusion of Ventral and Dorsal Pancreatic Buds
Fusing of Vent and Dorsal-fin Pancreas Buds
During the formation of the pancreas, if there is a failure of rotation, a fusion between the ventral and dorsal buds can cause the pancreas to form a ring around the duodenum.

Circumferential Duodenal Compression
Dodo being Circumferentially Compressed
The malformation and fusion of the pancreatic buds can compress the second part of the duodenum. This can lead to complications such as duodenal stenosis and atresia.

Associations

Down Syndrome
Child with Down Syndrome
This condition has been found to be correlated with down syndrome. While the exact mechanism of the association is not well understood, patients with down syndrome are more likely to develop this anomaly.

Clinical Features

Polyhydramnios
Polly-fluid-in-womb
Polyhydramnios is defined as an amniotic fluid level index of greater than 25cm, or a single deepest pocket of fluid greater than 8cm. Conditions that can contribute to polyhydramnios include esophageal atresia, maternal diabetes, or maternal infections. With the duodenum being compressed, it may be difficult for the fetus to swallow amniotic fluid, thus accumulating in the stomach, esophagus, and outside the fetus.

Poor Feeding
Baby Throwing Away Bottle
During the process of feeding in the early postnatal state, the child might be unable to keep down food. This may be due to duodenal atresia secondary to annular pancreas. The food cannot pass through the infant's GI tract and thus will be regurgitated.

Sign up for FREE at picmonic.com

Vomiting

Vomit

Vomiting may be seen in patients with an annular pancreas. The pancreas can compress the duodenum, potentially preventing food boluses from passing into the lower gastrointestinal tract and resulting in vomiting.

Diagnosis

Double Bubble Sign

Double Bubbles

Imaging techniques can be used to aid in the diagnosis of annular pancreas. Annular pancreas presents with compression of the second part of the duodenum. On abdominal radiograph, one air bubble in the stomach and one in the duodenum can be visualized. This is known as the double bubble sign.

Management

Surgery

Surgeon

Surgery is the only definitive management in patients with annular pancreas.

Sign up for FREE at picmonic.com