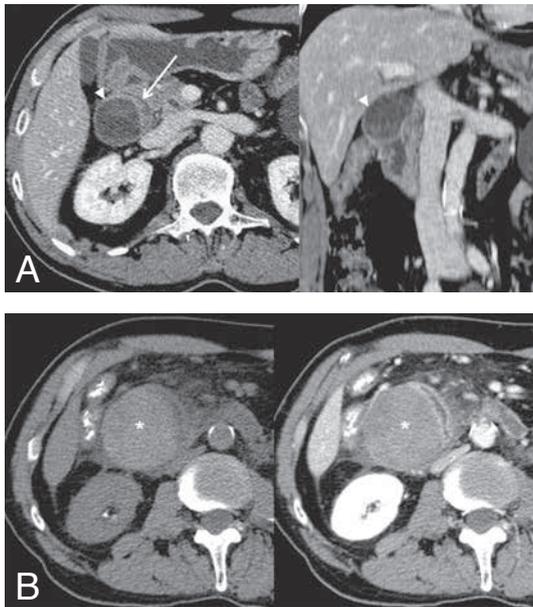


IMAGES IN CLINICAL RADIOLOGY



Duodenal duplication cyst complicated by hemorrhage

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A 61-year-old male presented to the hospital with a 5-day history of epigastric pain, vomiting and regurgitation. The physical examination was positive only for upper abdominal tenderness. Laboratory findings were unremarkable.

Ultrasound examination was negative for gallstones or biliary dilatation. Abdominal contrast-enhanced CT showed a rim-enhancing cystic structure (mean internal density: 13 HU) (Fig. A, arrowhead) lateral to the lumen of the descending duodenum, which was narrowed and internally displaced (Fig. A, arrow). During hospitalization the patient's clinical status deteriorated, with worsening of abdominal pain, which granted repetition of the CT. This showed that the peri-duodenal cystic lesion had significantly increased in size, and the contents were now high-attenuating (mean internal density: unenhanced scan – 66 HU, contrast-enhanced scan – 71 HU), in keeping with intra-lesional hemorrhage (Fig. B, asterisk).

The lesion was surgically excised. The histopathological study was consistent with a duodenal duplication cyst complicated with hemorrhage due to the presence of ectopic gastric mucosa.

Comment

Duodenal duplication cysts represent 4-5% of duplications in the gastrointestinal tract, and are thought to develop due to incomplete recanalization of the foregut during embryological development. They usually arise in the medial wall of the second and third portions of the duodenum, and typically do not communicate with the duodenal lumen. The cyst is generally lined by duodenal mucosa, but gastric mucosa and pancreatic tissue may be present in up to 15% of cases.

Most duplication cysts manifest during the first year of life with symptoms of bowel obstruction. They seldom are symptomatic in adulthood, and are usually found incidentally at endoscopy or imaging performed for other reasons. However, they may be clinically silent for many years, and present in the adult usually with symptoms of obstruction or a palpable abdominal mass. If heterotopic gastric mucosa is present in the cyst wall, ulceration may occur, and the cyst may present with bleeding or perforation. Jaundice can occur due to biliary obstruction. Infected duodenal duplication cysts and pancreatitis due to compression or communication with the pancreatic duct have also been described. Rarely, carcinoma may develop inside a duplication cyst.

On ultrasound, the lesion is hypo/anechoic and the wall of the cyst has a characteristic bowel wall appearance consisting of an echogenic inner mucosa surrounded by a thin hypoechoic halo of muscular layer; peristaltic waves through the cyst may also be seen. At CT, it usually manifests as a well-circumscribed fluid-filled structure with a thick slightly enhancing wall. Areas of high attenuation within the cyst may be evident, resulting from hemorrhage or proteinaceous material. Pancreatic ductal dilatation due to obstruction may also be noted. Infection may be suspected when the cyst shows a thick enhancing wall or septa and surrounding inflammatory changes. The presence of enhancing solid vegetation or mural nodules should raise concern for malignant transformation.

Surgical excision is the treatment of choice, in order to alleviate symptoms, prevent pancreatitis and eliminate the risk of malignant transformation. However, when cyst removal is not possible, subtotal resection and/or internal derivation should be performed.

Reference

1. Jayaraman M.V., Mayo-Smith W.W., Movson J.S., Dupuy E.D., Wallach M.T.: CT of the Duodenum: An Overlooked Segment Gets Its Due. *Radiographics*, 2001, 21: S147-S160.