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ALCOHOLIC PANCREATITIS AND MIDGUT MALROTATION

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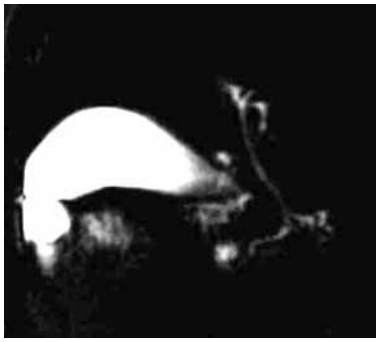
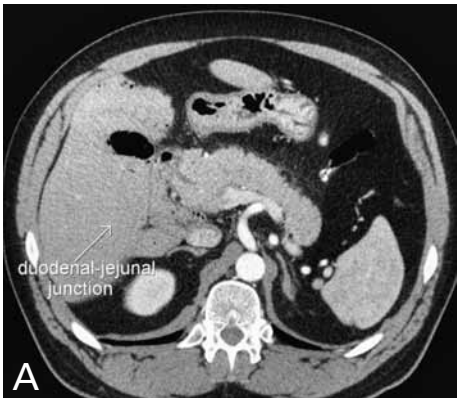
Key-word: Pancreatitis

Background: A 47-year-old male patient was referred to the hospital with severe epigastric pain for 2 days, starting after the celebration of Queen's Day. A chronic intermittent high alcohol intake was suspected. The patient had experienced several similar episodes of pain in the past year. Besides an increased serum amylase and gamma-glutamyltransferase (GGT) there were no other significant abnormalities on clinical and chemical examinations. Abdominal ultrasonography (US) was performed, which showed a slightly enlarged pancreas.





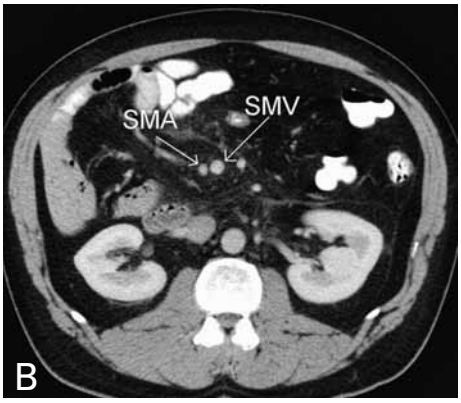


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Fig.	2A	2B
	2C	2D

Work-up

MRCP (Fig. 1) shows normal aspect of the gallbladder and bile ducts. No stones nor congenital pancreatic duct anomalies are visible.

Contrast-enhanced CT scan of the abdomen (Fig. 2) shows on A, transverse section at the level of the pancreas, a normally enhancing, but enlarged pancreas with peripancreatic fat stranding as a sign of pancreatitis. No evidence for pancreatic necrosis or cysts. Abnormal position of the duodenal-jejunal junction: this junction fails to cross the midline and lies on the right side of the abdomen. Transverse section at the level of the mesenteric root (B) demonstrates abnormal position of the superior mesenteric artery (SMA) and the superior mesenteric vein (SMV): the SMV lies to the left of the SMA. Transverse section at the level of the mid-abdomen (C) and MPR image in the coronal plane (D) visualize abnormal position of the large bowel and small intestine: the entire large bowel lies on the left and the small intestine lies on the right side of the abdomen.

Radiological diagnosis

The diagnosis of *alcoholic pancreatitis* was made on the basis of clinical history, chemical examinations and the findings on imaging. Congenital malrotation of the midgut was an incidental finding, which may have been of influence on the pancreatitis.

Discussion

Malrotation of the midgut occurs in approximately 1/500 live births. Midgut malrotation is a result of either incomplete or non-rotation of the fetal intestines around the superior mesenteric artery during the 5th to 11th week of embryonic development. Most patients with malrotation present with symptoms within 4 weeks after birth and up to 80% are diagnosed by the age of 1 year. Only a small group of patients – the precise numbers are unclear – remain asymptomatic for life or present at a later stage with acute or chronic vague abdominal pain. Most pediatric patients have acute symptoms with abdominal pain and bilious vomiting due to small bowel obstruction caused by Ladd bands. Ladd bands are abnormal fibrous bands which fixate the bowel to the abdominal wall. Other, less common presentations include malabsorption, peritonitis, biliary obstruction, solid food intolerance, chronic diarrhea from protein losing enteropathy, (recurrent) pancreatitis and vague chronic abdominal pain in older patients. In pediatric patients with suspected malrotation, upper gastrointestinal barium series are accurate in the detection of congenital malrotation. In adult patients midgut malrotation is not often considered due to the non-specific presentation and the low frequency in this age group. Therefore, the diagnosis is often made incidentally on routine US, CT or laparoscopy. The radiologist should be aware of this possible condition and be able to recognize some signs that give a clue in the direction of the diagnosis. Like upper gastrointestinal barium studies, CT shows an abnormal position of the bowel. The duodenal-jejunal junction (ligament of Treitz) fails to cross the midline and lies below the level of the duodenal bulb. Another important imaging finding on cross-sectional imaging (CT, US) is the abnormal relationship between the SMA and the SMV in patients with malrotation. An abnormal position of the SMV, either anterior or to the left of the SMA, is suggestive of malrotation but can also be seen in normal patients. In some patients with congenital malrotation there is an underdevelopment or absence of the uncinate process of the pancreas. Volvulus is a serious complication of malrotation which causes small bowel ischemia and is recognized by the whirlpool sign which is caused by the vessels twisting around the mesentery. A dilated duodenum indicates obstruction by Ladd bands. The most common surgical treatment of malrotation with or without volvulus is the (laparoscopic) Ladd's procedure, first described by William E. Ladd in 1936. This procedure involves a detorsion of the volvulus, division of the Ladd bands and widening of the mesenteric base. Apart from alcohol abuse, malrotation should be considered as a cause of recurrent pancreatitis. In two reported cases of intestinal malrotation and recurrent pancreatitis, the patients were adolescents and successfully treated with laparoscopic Ladd's procedure. Because our patient was free of complaints at the time of diagnosis, a conservative treatment was followed.

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