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Gastric volvulus associated with agenesis of the left lobe of the liver in a child: a case treated by laparoscopic gastropexy

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Abstract Association of gastric volvulus with agenesis of the left lobe of the liver is very rare and mostly reported in adults. We report a case of gastric volvulus associated with agenesis of the left lobe of the liver in a child, which was successfully treated by laparoscopic gastropexy.

Agenesis of the left lobe of the liver in association with gastric volvulus is an uncommon congenital anomaly, and it has very rarely been reported in the literature [1-4]. The association between these 2 diseases is not believed to be coincidental. We present a case of gastric volvulus associated with agenesis of the left lobe of the liver in a child.

1. Case report

A 3-year 9-month-old boy was admitted to our hospital with intermittent abdominal distension. He was born at 29 weeks' gestation with a birth weight of 1.5 kg and had medical care in the neonatal intensive care unit for 1 month. After discharge, he was admitted 3 times because he had symptoms of abdominal distension, vomiting, and feeding difficulty. On admission, physical examination revealed a distended abdomen, and abdominal radiography showed marked distension of the stomach and small and large bowel (Fig. 1). Barium enema showed a redundant and high-arched transverse colon, and abdominal computed tomography revealed nonvisualization of the left lobe of the liver, left portal vein, and left hepatic vein, suggesting agenesis of the left lobe of the liver (Fig. 2). An upper gastrointestinal study showed organoaxial gastric volvulus (Fig. 3A).

A diagnosis of gastric volvulus associated with agenesis of the left lobe of the liver was made, and therefore, laparoscopic gastropexy was performed. One 10-mm camera port was placed at the umbilicus, and two 5-mm working ports were placed in the midclavicular line, near the level of the umbilicus on both sides. Laparoscopic examination revealed agenesis of the left lobe of the liver and excess

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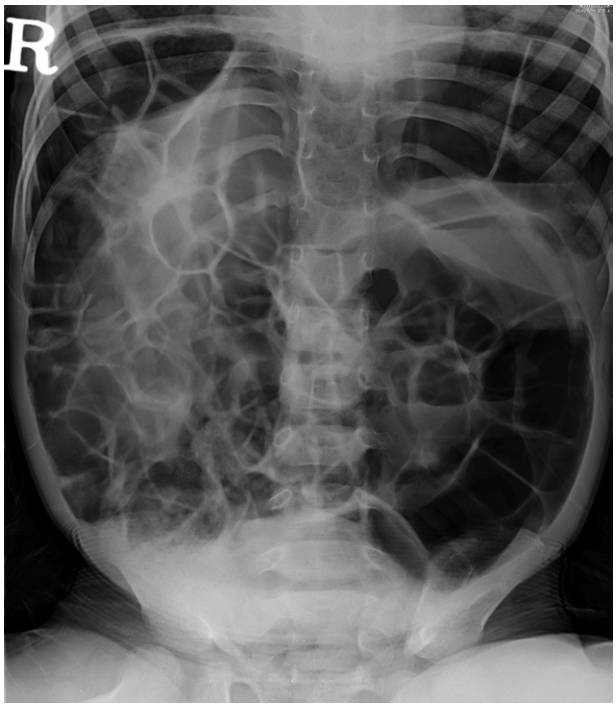

Fig. 1 Abdominal radiography showing distension of stomach and small and large bowel.

mobility of the stomach with lack of the gastrohepatic ligament. The omentum was scarce of fat, and the gastrocolic ligament was underdeveloped, too. The transverse colon was anterior and cephalad to the stomach.

The gastric fundus was fixed to the diaphragm by one 3-0 polypropylene suture, and the greater curvature of stomach was fixed to the anterior abdominal wall by vertical multiple 3-0 polypropylene sutures. Postoperatively, the patient had an uneventful recovery, and his symptoms improved rapidly. A barium meal was performed 3 months later and confirmed the normal position of the stomach (Fig. 3B). There had been no recurrence of symptoms 10 months after surgery.

2. Discussion

Agenesis of the left lobe of the liver is a rare congenital anomaly and occasionally found through diagnostic imaging of the abdomen or autopsy [5-7]. The causes of agenesis are not well known, but in many cases, the supposed etiology is the dysgenesis of the hepatic primordium during development [7].

Abdominal computed tomography or ultrasonography has shown absence of the liver to the left of the gallbladder fossa, a lack of visualization of the faciform ligament [8], absence or a reduction in the number of arteries supplying the left lobe [9], and tonguelike projection of the caudate lobe [6]. Upper gastrointestinal studies, in cases of absence of the left lobe of the liver, have shown an unusual U-shaped configuration of the stomach [8,10], significant mobility of the stomach [11], and a high position of the duodenal bulb [10]. In addition, a redundant and arched transverse colon is also a diagnostic feature [2,3].

Acquired absence of the left lobe of the liver is not so uncommon. It may be difficult to determine in any individual case whether this absence is congenital or acquired because a severe atrophy may mimic an agenesis [5]. Atrophy usually does not occur on a developmental basis but as a secondary to occlusion of the portal vein, bile duct obstruction, postnecrotic cirrhosis, and severe malnutrition [5,6]. In our case, we believed it was a congenital anomaly because the patient had such an early onset of symptoms and no other history of illness to make us suspect atrophy of the left lobe of the liver.

Although agenesis of the left lobe of the liver is of no clinical significance in itself, associated diseases were reported such as peptic ulcer disease, chronic cholelithiasis, hiatal hernia, congenital diaphragmatic hernia, and gastric volvulus [1,10,12].

Reports of gastric volvulus associated with agenesis of the left lobe of the liver are very rare, and all the cases described were in adults [1-4]. To our knowledge, this association has not been reported in a child previously. The association of these 2 diseases could be related to the absence of the gastrohepatic ligament. It can be hypothesized that the absence of the gastrohepatic ligament induced the loosening of other anatomical attachments of the stomach and thus resulted in abnormal mobility of the stomach.

Although nonoperative treatment has been suggested, most cases of gastric volvulus need surgical treatment to avoid recurrences and complications [13]. Some authors recommend an associated fundoplication to prevent gastroesophageal reflux. However, primary gastropexy without fundoplication is reported as an acceptable procedure

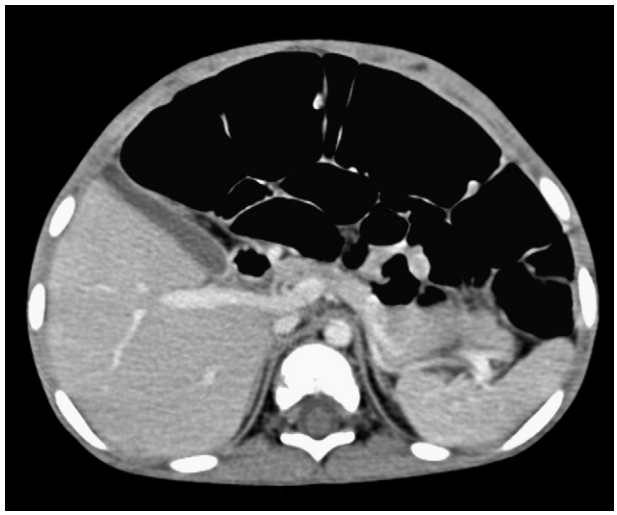

Fig. 2 Abdominal computed tomography showing nonvisualization of left lobe of the liver.

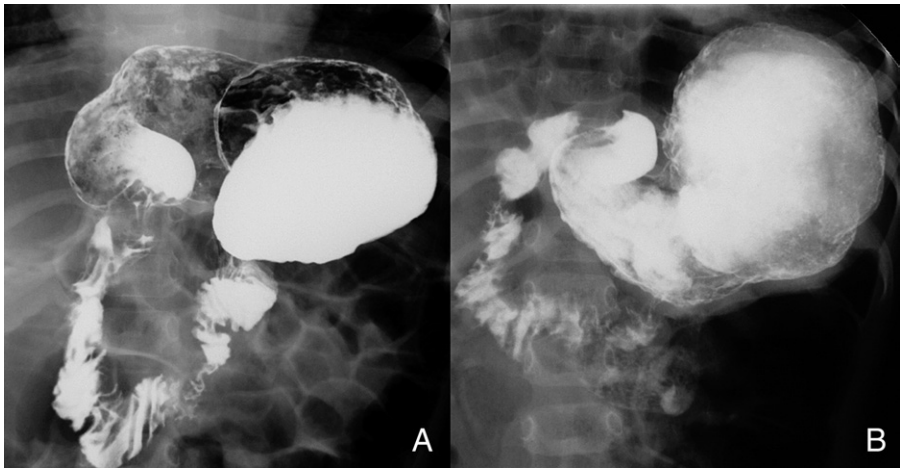

Fig. 3 Upper gastrointestinal study showing organoaxial gastric volvulus (A) and, 3 months after surgery, showing normal position of stomach (B).

because of the low frequency of gastroesophageal reflux after gastropexy alone [13,14]. In our experience, laparoscopic gastropexy is a good option of an operation for confirming the diagnosis and treating this rare anomaly.

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