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Successful laparoscopic partial gastrectomy and spleen-preserving distal pancreatectomy for gastric duplication cyst connecting with the pancreatic tail

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ABSTRACT

INTRODUCTION: Gastrointestinal duplication cyst is a congenital rare disease that may occur in any region from mouth to anus. Among them, gastric duplication cysts are very rare.

CASE REPORT: Here we report A 23-year-old Japanese man who visited our hospital to evaluate an abdominal tumor. Abdominal computed tomography showed a well-circumscribed homogenous low-density mass measuring 6.2 × 6.0 cm between the pancreatic tail and the upper posterior wall on the gastric greater curvature, and the mass seemed to originate from the pancreatic tail. We found intraoperatively that the mass adhered to the stomach and pancreatic tail strongly, so we performed laparoscopic partial gastrectomy and spleen-preserving distal pancreatectomy. Pathological findings showed that the lining epithelium of the cystic mass consisted of the gastric foveolar epithelium with fundic glands. Furthermore, the pancreatic tissue of the pancreatic tail and the muscular layer of the cystic mass were intermingled.

DISCUSSION: GDCs are usually diagnosed at a younger age and in adults, they are very rare. Therefore, surgical resection is considered to be the best treatment due to the difficulty of diagnosis, and also that it mimics a pancreatic cystic tumor, and malignant transformation. Complete resection of the cyst is the ideal technique and laparoscopic surgery should be selected whenever possible.

CONCLUSION: We experienced a case of GDC continuous to both stomach and pancreatic tail. Laparoscopic surgery is safety and useful even if GDC is continuous with both the stomach and the pancreas.

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1. Introduction

Gastrointestinal duplication cyst is a congenital rare disease that may occur in any region from mouth to anus. Among them, it most commonly occurs in the ileum and ileocecum and gastric

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duplication cysts(GDC) are very rare [1,2]. Due to their position and mass effect, GDCs are usually diagnosed in a younger age. The most common location of GDCs is along the greater curvature [3] and continuation to both stomach and pancreas is extremely rare. We experienced an adult case of a Gastric duplication cyst(GDC) continuous to both stomach and pancreas, on which laparoscopic surgery was performed.

2. Case report

A 23-year-old Japanese man visited our hospital to evaluate an abdominal tumor detected incidentally by MRI. He is a radiologist. As MRI's machine was newly purchased, he underwent MRI examination as a test. The patient had no past medical history and the abdomen was flat and no definite mass was palpable. Laboratory studies showed within normal range, and carbohydrate antigen

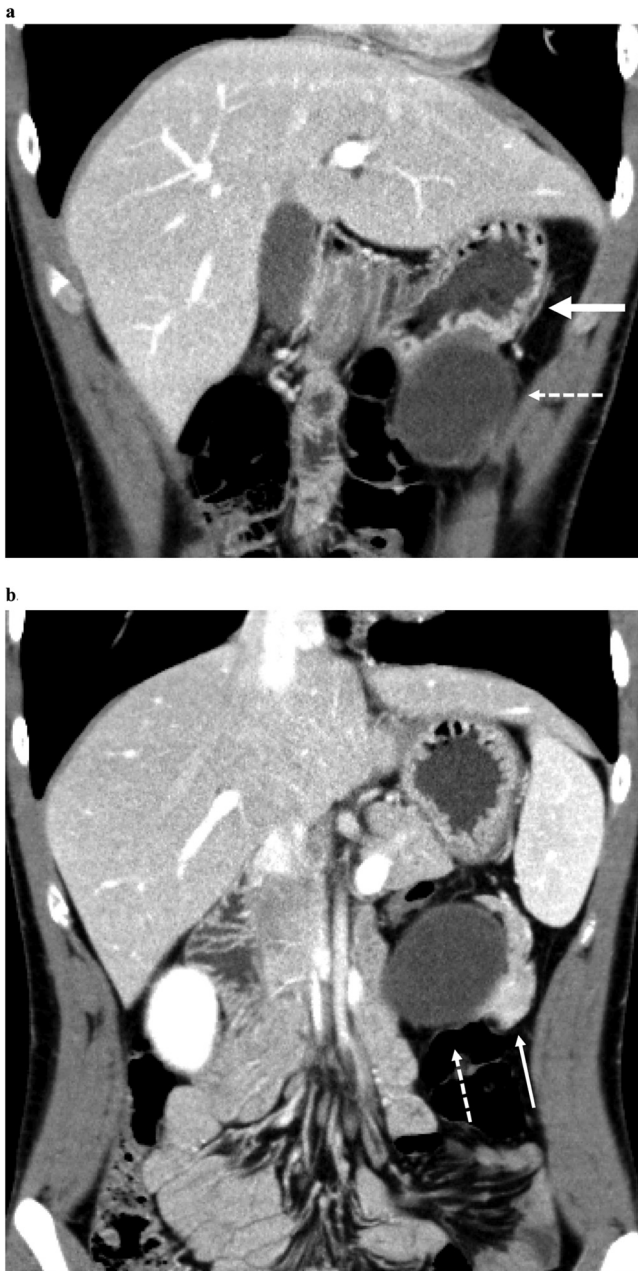


Fig. 1. (a,b) CT shows a well-circumscribed homogenous low-density mass measuring 6.2×6.0 cm (dotted arrow) between the upper posterior wall on the gastric greater curvature (thick arrow) and the pancreatic tail (thin arrow). The mass seems to originate from the pancreatic tail. The pancreatic tail stretches to the caudal side.

19-9 or carcinoma embryonic antigen was unremarkable. Abdominal ultrasonography (AUS) showed a low echoic lesion measuring 5.6×4.5 cm adjacent to the stomach. Abdominal computed tomography (CT) showed a well-circumscribed homogenous low-density mass measuring 6.2×6.0 cm between the pancreatic tail and the upper posterior wall on the gastric greater curvature, indicating that the mass originated from the pancreatic tail (Fig. 1a,b). The wall of the mass was not enhanced, and the pancreatic tail stretched to the caudal side (Fig. 1b). Magnetic resonance imaging (MRI) showed a homogenous low intensity mass on T1-weighted imaging and a homogenous high intensity mass on T2-weighted imaging. Magnetic resonance cholangio-pancreatography showed no communication between the tumor and main pancreatic duct. Endoscopic ultrasonography (EUS) demonstrated a cystic mass adjacent to the stomach wall showing a heterogenous low-echoic

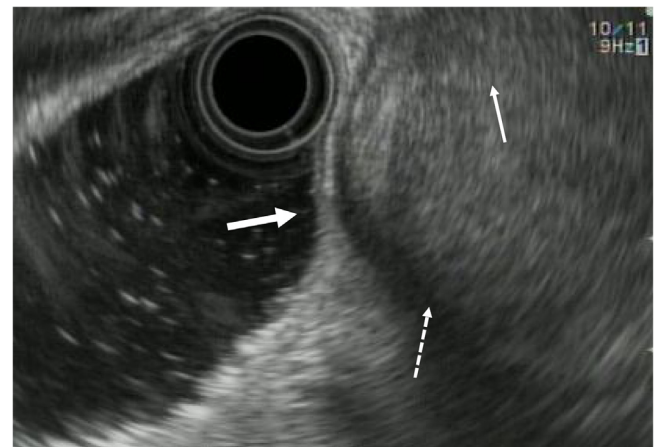


Fig. 2. EUS shows a cystic mass adjacent to the stomach wall (thick arrow) and a heterogenous low-echoic lesion (dotted arrow) is circumscribed by a high-echoic thin wall.

lesion circumscribed by a high-echoic thin wall (Fig. 2). From these findings, the tumor was suspected to be a gastrointestinal duplication cyst arising from the pancreatic tail or gastric wall; however, mucinous cystic neoplasm could not be ruled out.

To achieve complete resection, we decided to perform laparoscopic extirpation. We created a pneumoperitoneum through the umbilicus by open technique and a 10-mm trocar under direct vision and a total of five trocars were used. Intraoperatively, a soft 6.0 cm \times 6.0 cm mass adhered to the upper posterior wall on the gastric greater curvature and shared a smooth lining with the surface of the stomach (Fig. 3a). Furthermore, the mass was tightly adhered to the pancreas (Fig. 3b). Since it was difficult to separate the tumor from both the stomach and the pancreas, we performed laparoscopic partial gastrectomy and spleen-preserving distal pancreatectomy. Both connecting parts between the cyst and the stomach wall, and between the pancreatic tail were transected with using Endo GIA™ Reloads with Tri-Staple™. The specimen was placed in a bag (Endo Catch Gold, Covidien, Mansfield, MA, USA) and removed via an umbilicus incision.

The postoperative course was uneventful and the patient was discharged on the fifth postoperative day.

Pathological findings

Macroscopically, the specimen was a unilocular cyst, $6.0 \times 5.6 \times 4.0$ cm in size (Fig. 4) and the cyst did not communicate with the gastric lumen or pancreatic duct. The lining epithelium consisted of gastric foveolar epithelium with fundic glands (Fig. 5a). Furthermore, pancreatic parenchyma of the pancreatic tail and muscular layer of the cystic mass were intermingled (Fig. 5b). The cyst had no communication with the pancreatic duct.

3. Discussion

Gastrointestinal duplication cysts may occur in any region from mouth to anus and are present in 1 out of 4500–10 000 live births [4]. Among them, they most commonly occur in the ileum and ileocecum. GDCs are very rare and account for 3.8–17% of gastrointestinal duplications [1]. Due to their position and mass effect, GDCs are usually diagnosed in a younger age and 80% of patients are under the age of 12. The most common location of GDCs is along the greater curvature [3] and continuation to both the stomach and the pancreas is extremely rare.

Despite the development of laparoscopic surgery with advances in equipment and technology, our search in the English-language literature revealed only 10 cases of laparoscopic surgery for GDC (Table 1. [5–13]). Furthermore, to the best of our knowledge, this

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