—Case Report—

A rare case of the pancreas with heterotopic gastric mucosa detected by EUS (with video)

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ABSTRACT

Pancreas with heterotopic gastric mucosa is a rare congenital malformation and hardly be detected.In the embryonic stages, primitive gut, including foregut, midgut and hindgut, originated in the gastrula endoderm. Stomach and pancreas were stemed from the ending of foregut. When abnormal differentiation occurred, pancreatic tissue was usually ectopic to the stomach, but heterotopic gastric mucosa of the pancreas was rare. This malformation was usually confirmed by post-operative pathology. We report a case of congenital malformation of heterotopic gastric mucosa of pancreas detected by EUS and contrast enhanced EUS. The manifestations in EUS are different from the pancreatic cyst lesion.

Key words: EUS, heterotopic gastric mucosa, pancreas

INTRODUCTION

Pancreas with heterotopic gastric mucosa is a rare congenital malformation. The detection of this condition is difficult and usually requires confirmation by postoperative pathology tests. We report a case of congenital malformation of heterotopic gastric mucosa of the pancreas detected by EUS and contrast-enhanced EUS. This case showed that EUS is superior to computed tomography (CT) and magnetic resonance imaging (MRI) at identifying heterotopic gastric mucosa or other malformations of pancreatic cystic diseases. Therefore, EUS examination may prevent misdiagnosis and unnecessary surgeries.

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CASE REPORT

In June 2016, a 19-year-old male developed acute abdominal pain after consumption of alcohol. The patient did not complain about fever, nausea, vomiting, diarrhea, or jaundice. He had a history of alcohol drinking and no history of smoking. After admission to our facility, he signed an informed consent form and received examination and treatment. The results of the laboratory examination showed that the levels of blood amylase, lipase, carcinoembryonic antigen, CA125, and CA199 were normal. Abdominal CT scan revealed a cystic structure located in the pancreatic tail with a size of 6.5 cm × 4.6 cm and regular

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margin of margin enhancement in both arterial and portal venous phases [Figure 1a]. Magnetic resonance cholangiopancreatography showed that this location was not communicating with the pancreatic duct [Figure 1b and c]. In addition, EUS examination provided the following information: (1) uniform ultrasound echo in the pancreatic parenchyma and no expansion of the pancreatic duct; (2) cyst-solid space-occupying lesion with a size of 4.2 cm × 4.1 cm, smooth inner wall of 0.28 cm thick, four-layered echo of the partial pancreatic wall similar to that of the stomach, and no separation or nodule; (3) CDFI showed rich blood flows around the lesion and no blood vessels inside. The contrast-enhanced EUS showed pronounced enhancement of the pancreatic cyst-wall and no enhancement inside the pancreas [Figure 2a, b and Video 1]. Then, a 19G fine needle was punctured inside and 40 mL of brown fluid was extracted [Figure 2c]. Next, elective laparoscopy was performed to resect this pancreatic space-occupying lesion, resulting in a mass with the size of 4 cm × 4 cm × 5 cm, soft texture, clear border, and no adherence to the surrounding tissues. No other anomalies were observed during this surgery. Subsequently, pancreatic mucinous cystoadenoma was considered by the surgeon. Finally, postoperative pathology examination showed that this sample was gastric tissue that had mucosa, submucosa and muscularis propria but lacked serosa. Fewer glands were found in this mucosa than in normal stomach, indicating gastric hypoplasia [Figure 3].

The resected segment of the pancreatic space-occupying lesion was approximately 11 cm long [Figure 3a]. The inner wall was white, the outer wall was dark red, the thickness was 0.3 cm, and a nipple-shaped protuberance was found on the inner wall (tip) [Figure 3a]. Accordingly, the diagnosis was malformation of heterotopic gastric mucosa in the pancreas.

DISCUSSION

Heterotopic gastric mucosa in the pancreas is a rare congenital defect attributed to the duplications of the alimentary tract, and usually presents diagnostic and therapeutic challenges to the doctors. This atypical duplication is often explained by the proximity between the pancreas and gastric tract during their development when gastric mucosa metaplasia or underdeveloped stomach accidentally migrate-to-normal pancreatic tissues.[1-3]

The classification of this type of lesion remains a challenge. It is widely recognized that CT and MRI can precisely locate the lesions, but cannot determine the detailed characteristics. EUS plays a crucial role in the accurate identification of pancreatic walls by detecting layered ultrasound echoes. In contrast to the single-layer ultrasound signals of pancreatic cystic diseases,[4] this case exhibited a four-layered echo, which was similar to the stomach wall in the

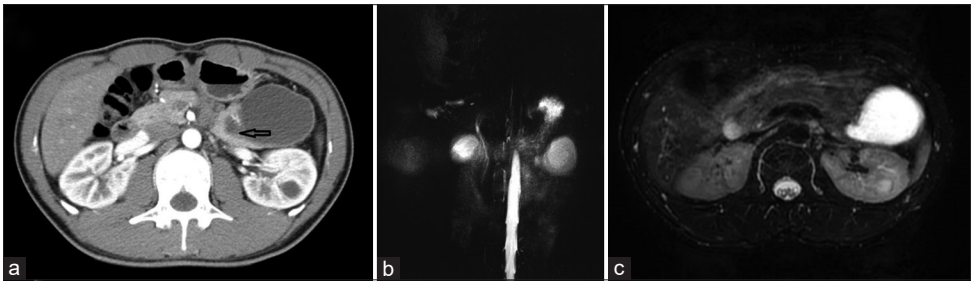

Figure 1. (a and b) The enhanced computed tomography showed a round and low density mass in the tail of pancreas (arrow). (c) Magnetic resonance cholangiopancreatography showed that this cystic lesion was not communicating with the pancreatic duct

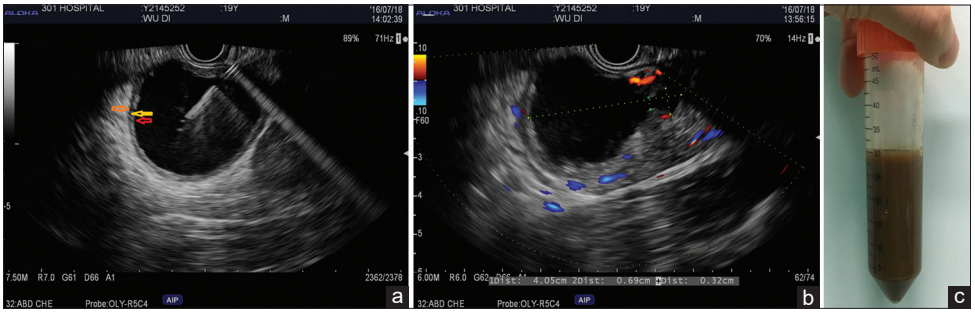

Figure 2. (a and b) EUS revealed four-layered echo in the pancreatic wall (arrow), and contrast-enhanced EUS showed margin enhancement in this cystic wall. (c) Brown and viscous fluid was extracted from the pancreatic cyst by fine-needle aspiration-EUS

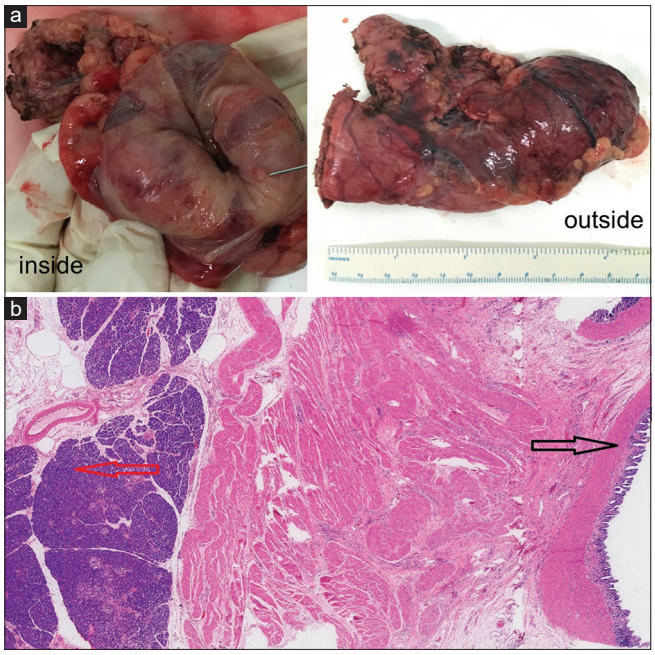

Figure 3. Pathological images following surgical resection. (a) Gross findings; (b) Histology (H and E, slide, ×40: Black arrow indicates gastric tissues that had mucosa, submucosa and muscularis propria but lacked serosa. Red arrow indicates pancreatic tissues

absence of serosa. This result was confirmed by the contrast-enhanced EUS. Based on the results of EUS examination, we considered the possible diagnosis of the pancreas with heterotopic gastric mucosa. Subsequently, the diagnosis was further validated by detailed postoperative histology tests. Overall, EUS provided better results than CT and MRI in identifying heterotopic gastric mucosa or other malformations associated with pancreatic cystic diseases, including pancreatic pseudocyst, mucinous cystadenoma, and cystadenocarcinoma. In practice, this approach could help avoid misdiagnosis and unnecessary surgeries.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initial will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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