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CASE REPORT | STOMACH

Gastric Ectopic Pancreas With Pseudocyst Formation Causing Gastric Outlet Obstruction

Austin Dickerson, DO[1], Aran Farrell, MD[1,*], Abida Bushra, MD[2], Scott Celinski, MD[3], Vani J.A. Konda, MD[4], Hemangi Kale, MD[4], and Anh D. Nguyen, MD[4]

[1]*Department of Medicine, Baylor University Medical Center, Dallas, TX*
[2]*Department of Pathology, Baylor University Medical Center, Dallas, TX*
[3]*Department of Surgical Oncology, Baylor University Medical Center, Dallas, TX*
[4]*Division of Gastroenterology, Baylor University Medical Center, Dallas, TX*

ABSTRACT

Ectopic pancreas is a rare entity referring to the presence of pancreatic tissue at an anatomic location distinct from the pancreas. Ectopic pancreatic lesions in the stomach present a diagnostic challenge because the lack of distinguishing imaging and endoscopic features make them difficult to differentiate from other types of submucosal lesions. We report a case of ectopic pancreas presenting as a gastric antral mass with a unique combination of rare complications: chronic pancreatitis and pseudocyst formation causing gastric outlet obstruction. This case highlights complications that can occur from ectopic pancreatic lesions and the challenges of diagnosing ectopic pancreas.

KEYWORDS: ectopic pancreas; gastric outlet obstruction; heterotopic pancreas; pancreatic pseudocyst; pancreatic rest

INTRODUCTION

Ectopic pancreas is defined as the presence of pancreatic tissue lacking both anatomical and vascular communication with the anatomic body of the pancreas. Also known as heterotopic pancreas, aberrant pancreas, or pancreatic rest, ectopic pancreatic lesions are often asymptomatic and discovered incidentally on imaging, endoscopy, or abdominal surgery. There are reports of symptomatic ectopic pancreas with complications, such as ulceration and bleeding,[1] acute pancreatitis,[2,3] gastric outlet obstruction,[4] and malignant transformation.[5,6] Ectopic pancreas located in the stomach presents a diagnostic challenge because it is often submucosal in location, making it difficult to differentiate from other gastric masses. This case report describes a unique case of ectopic pancreas in the gastric antrum with the formation of multiple pseudocysts causing gastric outlet obstruction.

CASE REPORT

A 59-year-old man presented to the hospital with epigastric pain, nausea, vomiting, and weight loss for 5 days. Examination was notable for epigastric tenderness, and laboratory test results were unremarkable. Abdominal and pelvic computed tomography (CT) with intravenous contrast showed a multiloculated cystic mass in the gastric antrum measuring approximately 4.4 × 3.5 cm (Figure 1). Esophagogastroduodenoscopy (EGD) was significant for the appearance of extrinsic compression on the gastric antrum (Figure 2), and the patient was also incidentally found to have Barrett's esophagus with high-grade dysplasia. Given the CT and EGD findings, endoscopic ultrasound (EUS) was performed and demonstrated a multicystic intramural (subepithelial) lesion that seemed to originate from the submucosa (Figure 3). Fine-needle aspiration cytology showed scattered histiocytes and benign-appearing epithelial cells with no evidence of malignancy. The aspirated fluid amylase level was 32,150 U/L. The patient's symptoms improved with supportive care, and he was discharged home on a regular diet.

One month later, the patient underwent EGD with endoscopic mucosal resection of the previously noted Barrett's esophagus with high-grade dysplasia. During this EGD, a partially obstructing gastric mass was now visualized encompassing one-third of the antrum (Figure 2). Over a 2-month period, the patient also had gradually worsening epigastric pain, nausea, vomiting of undigested food, and

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*__Correspondence:__ Austin Dickerson, DO (austin.dickerson@bswhealth.org).

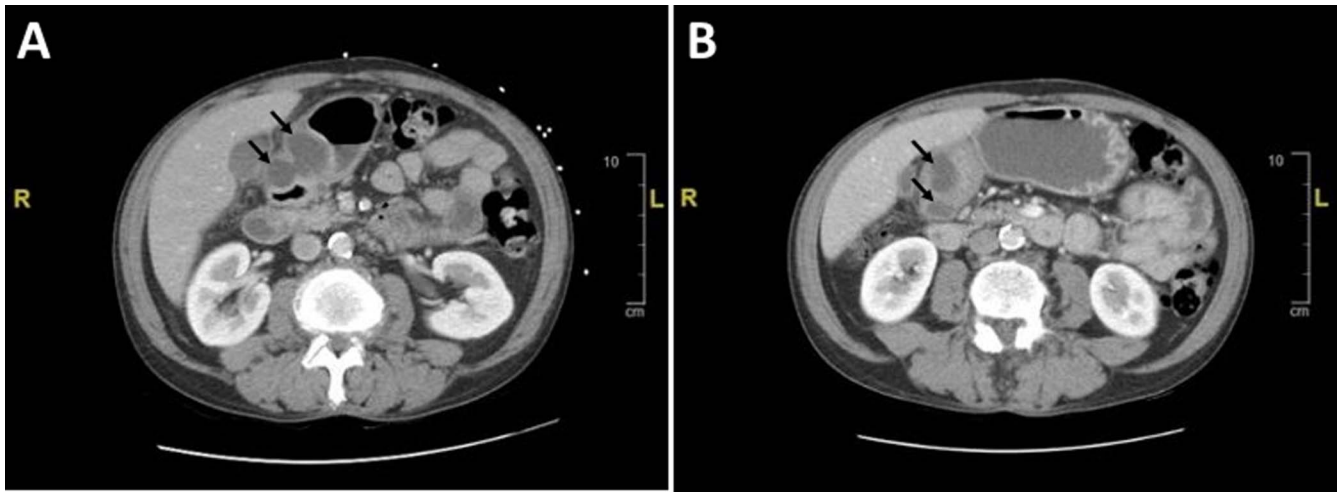

Figure 1. Abdominal and pelvic computed tomography from (A) initial presentation, showing a multiloculated cystic mass (noted by arrows) and thickening of the gastric antral wall. (B) Preoperative imaging 10 weeks later showing progression of the mass with 2 distinct cystic components (noted by arrows), gastric wall edema, and evidence of mass effect with a distended, fluid-filled stomach indicating gastric outlet obstruction.

early satiety. A repeat abdominal and pelvic CT with contrast revealed the previously seen multiloculated cystic mass but also another large loculation measuring 4.6 × 2.8 cm, with maturation of the fluid characteristic of a possible pseudocyst (Figure 1). The mass effect from the cystic fluid collections and a distended, fluid-filled stomach was noted suggesting gastric outlet obstruction.

The patient was seen by surgery and subsequently underwent exploratory laparotomy where the mass was found to be in the distal antrum and the first part of the duodenum causing gastric outlet obstruction. Distal gastrectomy with Roux-en-Y reconstruction was performed, and complete resection was achieved. Pathology of the resection specimen showed the stomach and duodenum with ectopic pancreatic tissue with pseudocyst formation, fibrosis, and chronic pancreatitis (Figure 4). The patient did well after surgical resection with no further symptoms, and repeat EGD at 5 months after surgery showed well-healed gastrojejunal anastomosis without any recurrence.

DISCUSSION

Ectopic pancreas is found on autopsy in 1%–2% of the population and is an incidental finding in 0.2% of laparotomies.[7,8] Symptoms from ectopic pancreas are determined by the location, size, and pathologic changes in the tissue. Ectopic pancreas is most commonly found in the stomach, duodenum, and upper jejunum (57%–95%)[9] with less frequently reported locations including the lower gastrointestinal tract, pelvis, liver, biliary system, spleen, and lungs. Ectopic pancreatic lesions greater than 1.5 cm in diameter are more likely to cause symptoms.[10] Ectopic pancreatic tissue exhibits similar pathologic changes to pancreatic tissue, including inflammation, bleeding, abscess/cyst

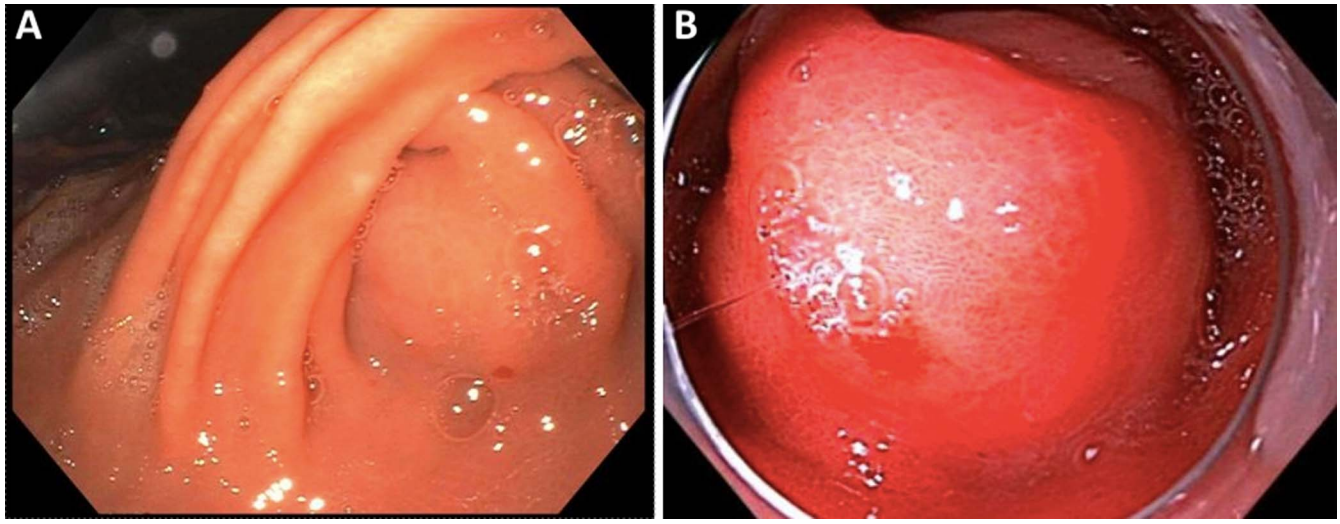

Figure 2. Esophagogastroduodenoscopy (EGD) images from (A) index EGD demonstrating extrinsic compression at the gastric antrum. (B) Repeat EGD 1 month later showing progression of the submucosal mass with circumferential involvement of the antrum.

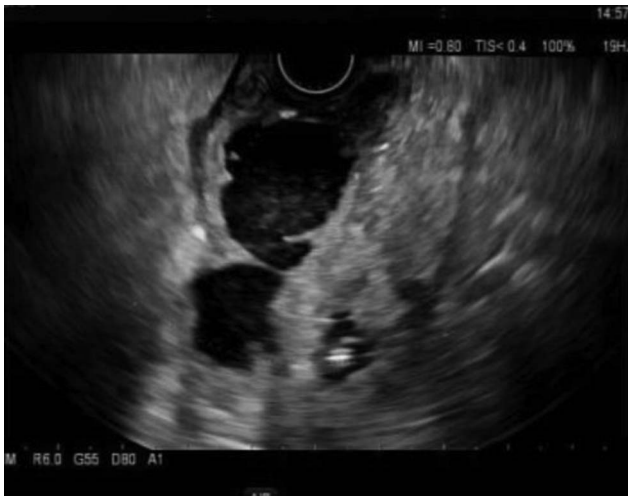

Figure 3. Endoscopic ultrasound image showing subepithelial multicystic lesion with an irregular border, which was sampled with fine-needle aspiration.

formation, and rarely, malignant transformation.[4] A systemic literature review of 934 symptomatic patients found abdominal pain (67%) to be the most common presenting symptom.[8] In addition, dyspepsia, pancreatitis, gastrointestinal bleeding, and gastric outlet obstruction were also reported presentations of ectopic pancreas of the stomach and duodenum.

Ectopic pancreatic lesions present a diagnostic challenge because they lack distinguishing imaging and endoscopic features from other types of submucosal tumors. On CT imaging, Kim et al[11] described 5 criteria that carry a high specificity for ectopic pancreas: (i) location in the prepyloric antrum or duodenum, (ii) ill-defined border, (iii) endoluminal growth pattern, (iv) enhancement of overlying mucosa, and (v) a ratio between the long diameter and the short diameter of the lesion of greater than 1.4. On EGD, ectopic pancreas appears as a firm, submucosal mass with normal overlying mucosa. A characteristic central dimpling of the mucosa, which represents a ductal

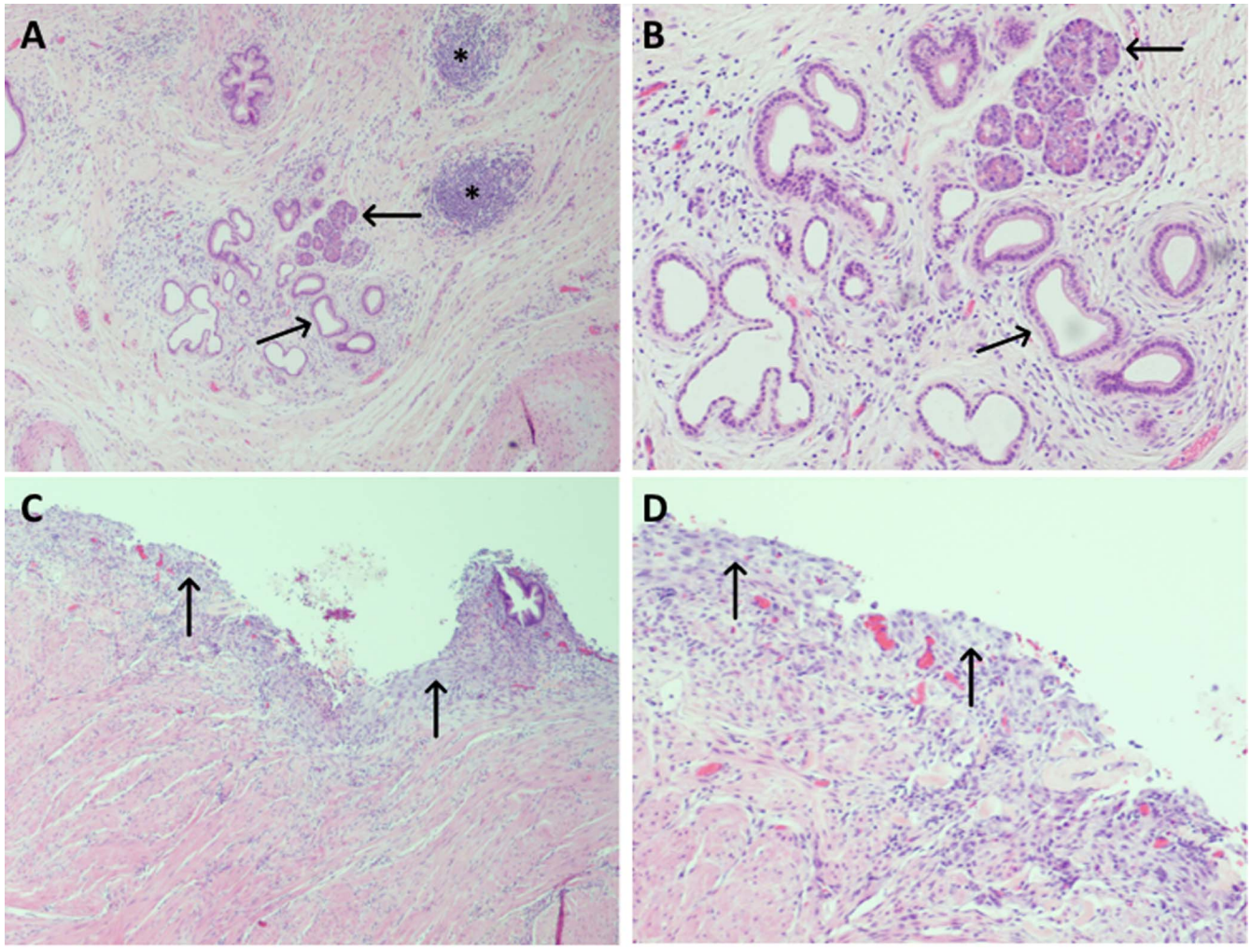

Figure 4. (A, B) Representative hematoxylin and eosin histology sections showing heterotopic pancreatic tissue in the stomach. (A) 4× and (B) 10× arrows denote pancreatic ducts and acini, and asterisks denote pancreatic islets. (C, D) Representative hematoxylin and eosin histology sections showing pseudocyst without any lining epithelium and inflammatory granulation tissue. (C) 4× and (D) 10× arrows denote the pseudocyst border devoid of an epithelial layer.

opening, has been reported in 34%–81% of cases.[12,13] EUS is the procedure of choice to evaluate submucosal lesions, and ectopic pancreas should be on the differential diagnosis, particularly if the lesion is in the prepyloric region of the stomach. EUS features include indistinct borders (77%), heterogenous echotexture (88%), and an anechoic duct-like structure.[12] In a case series of 26 patients, Park et al[13] noted that 76% of gastric ectopic pancreatic lesions involved 2 or more sonographic layers on EUS. The diagnosis of ectopic pancreas often requires endoscopic or surgical resection for histopathologic confirmation. In a case series of 17 patients with ectopic pancreas, only 1 was diagnosed preoperatively.[14]

Complications of pseudocyst formation and gastric outlet obstruction from ectopic pancreas are rare and have been reported in only a few case reports.[15–19] In these cases, the gastric ectopic lesions were often greater than 3.5 cm, and most of the patients were initially managed conservatively. Partial distal gastrectomy with gastrojejunostomy reconstruction was usually performed after symptom recurrence. Although asymptomatic ectopic pancreas is typically an incidental finding, which does not require intervention, the optimal treatment of symptomatic ectopic pancreas is determined on an individual basis.

This case represents a rare report of 2 infrequent complications of ectopic pancreatic tissue, chronic pancreatitis with pseudocyst formation and gastric outlet obstruction, occurring concurrently in a patient. The diagnosis of ectopic pancreas often requires multiple diagnostic modalities, and a multidisciplinary approach in this case leads to prompt recognition of this uncommon complication of ectopic pancreas with a good clinical outcome for the patient.

DISCLOSURES

Author contributions: A. Dickerson drafted the manuscript and is the article guarantor. A. Farrell drafted the manuscript. A. Bushra provided pathology interpretation, revision, and images. S. Celinski, V. Konda, H. Kale, and A. Nguyen revised the manuscript for intellectual content. All authors gave final approval of the version to be published and agreed to be accountable for aspects of the work.

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Previous presentation: An abstract describing this case has been accepted for poster presentation at ACG Annual Scientific Meeting in Charlotte, North Carolina on October 24, 2022. This manuscript expands and enriches the case from abstract version.

Informed consent has been obtained for this case report.

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