Case Report

# Obstructive and Inflammatory Gastric Heterotopic Pancreatic Tissue

Salwan Almashat MD[1], Alireza Sepehr MD•[1]

**Abstract**

Heterotopic pancreas is defined as pancreatic tissue arising ectopically with no vascular or anatomic contiguity with the pancreas proper and is believed to arise embryologically during rotation of the foregut and fusion of the dorsal and ventral pancreatic buds. We report a case of gastric heterotopic pancreas presenting as an obstructive inflammatory mass with the clinical differential diagnosis of gastric carcinoma. A 54 year-old woman presented with a history of four days of severe, acute-onset abdominal pain. Abdominal ultrasound showed a gastric antral mass. This was confirmed on computerized tomography, which revealed a hypo-dense mass with heterogeneous enhancement in the gastric antrum and multiple ill-defined hypo-dense areas in the liver suspicious for metastases. A preoperative diagnosis of malignant neoplasm was strongly favored, and a subtotal gastrectomy was performed. Microscopic examination of the specimen revealed submucosal and deeply seated intra-muscular and mural heterotopic pancreatic tissue, comprised of both ductal and acinar structures, surrounded by exuberant acute and chronic inflammation. The ducts were inflamed and showed marked cytologic atypia, favored to be of reactive nature. There was overlying mucosal ulceration with marked acute and chronic full-thickness gastric mural inflammatory response with abscess formation. This is the second reported case of obstructive gastric heterotopic pancreas, presenting as an inflammatory mural gastric mass.

**Keywords:** heterotopic pancreas,

## Introduction

Heterotopic pancreas is defined as pancreatic tissue arising ectopically with no vascular or anatomic contiguity with the pancreas proper and is believed to arise embryologically during rotation of the foregut and fusion of the dorsal and ventral pancreatic buds.[1] Autopsy studies estimate the incidence at 0.5% to 13% in the general population,[1,2] and it is found in 1 out of every 500 surgical explorations of the upper abdomen.[3] Approximately 40% of cases of heterotopic pancreas are symptomatic,[1] with the most common location for such cases being the stomach, accounting for 25% – 38.2% of cases.[3] We report a case of gastric heterotopic pancreas presenting as an obstructive inflammatory mass with the clinical differential diagnosis of gastric carcinoma.

## Case Report

A 54-year-old woman presented with a four-day history of severe, acute-onset abdominal pain and cramping in the epigastrum, nausea and vomiting. She had no relevant past medical history. Abdominal ultrasound showed a probable gastric antral mass. This was confirmed on computerized tomography, which revealed a 6×5×4 cm hypo-dense mass with heterogeneous enhancement in the gastric antrum and multiple ill-defined hypo-dense areas in the liver suspicious for metastases. An endoscopic biopsy of the mass revealed ulcerated gastric antral mucosa with scant underlying glandular epithelium and marked cytologic atypia. The superficial nature of the biopsy precluded further characterization of the mass.

**Authors' affiliation:** [1] Department of Pathology, BIDMC, Harvard Medical School, Boston, MA.
**•Corresponding author and reprint:** Alireza Sepehr MD, Department of Pathology, BIDMC – East Campus, 330 Brookline Ave E1061, Boston, MA 02215. E-mail: asepehr@bidmc.harvard.edu
Accepted for publication: 8 March 2011

Based on the radiologic, clinical and pathologic information, a preoperative diagnosis of malignant neoplasm was strongly favored and we performed a subtotal gastrectomy. Intraoperative examination confirmed that the mass was obstructing the gastric outlet with an inflammatory component adherent to the head of the pancreas. Gross pathologic examination revealed an ulcerated 4.7×3.9×3 cm mass located in the antrum adjacent to the pyloric junction. Serial sectioning of the mass revealed full-thickness mural involvement extending to within 1 cm of the serosal surface. The entire mass with adjacent soft tissue was submitted for histologic analysis. Microscopic examination revealed submucosal and deeply seated intra-muscular and mural heterotopic pancreatic tissue, comprised of both ductal and acinar structures, surrounded by exuberant acute and chronic inflammation. The ducts were inflamed and showed marked cytologic atypia, favored to be of reactive nature. There was overlying mucosal ulceration with marked acute and chronic full-thickness gastric mural inflammatory response with abscess formation. The gross and microscopic features, including the mass effect, were best explained by the presence of a deeply seated mural heterotopic pancreas with subsequent gastric ulcer formation and full-thickness exuberant and dense inflammatory tissue reaction, most likely secondary to enzymatic activity of the heterotopic tissue (Figure 1).

## Discussion

There have been numerous reports of heterotopic pancreas presenting as an antral mass with obstructive symptoms,[2-4] including several describing adenocarcinoma arising from the heterotopic tissue.[5] Of the cases reviewed, however, only one involves obstructive gastric heterotopic pancreas presenting as an inflammatory mass similar to the present case.[4] Notably, in that case the patient had a number of elevated serologic inflammatory markers—white

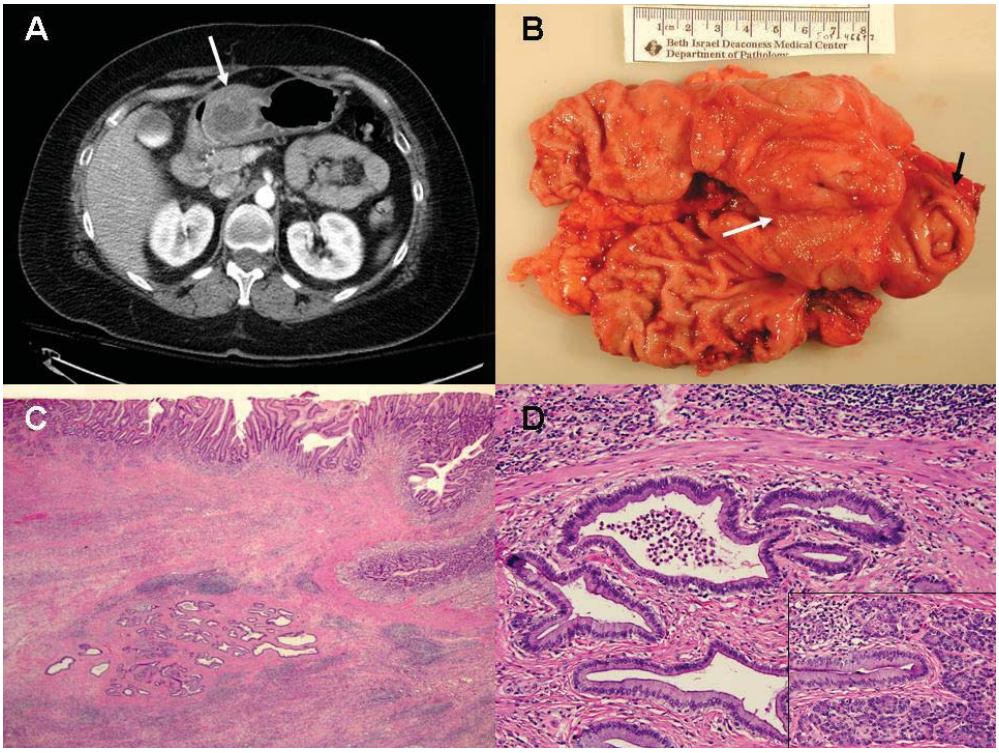


**Figure 1. A)** Preoperative CT scan revealed a hypo-dense 6×5×4 cm gastric antral mass (*arrow*) near the pyloric junction. **B)** Gross examination revealed the mass (*white arrow*) obstructing the pylorus; the duodenum (*black arrow*) is uninvolved. The cut surfaces of the mass exuded mucous material. **C)** Low-power view showing an intact area of foveolar epithelium overlying exuberant mural inflammation centering around a lobule of heterotopic pancreas. Note the preserved lobular, non-infiltrative architecture of the pancreatic ducts and acini. The deep aspects of the picture show dense full-thickness mural inflammation. **D)** Heterotopic pancreatic ducts surrounded by acute and chronic inflammatory cells. *Inset*: Pancreatic acini surrounding a duct, with focal chronic inflammation present.

blood cell count, erythrocyte sedimentation rate, and C-reactive protein—in the preoperative evaluation that returned to the normal range following resection of the mass. Similarly, our case presented with leukocytosis which resolved shortly following surgery.

It is worth noting that preoperative diagnosis is made exceedingly difficult, if not impossible, by the mimicking behavior of functional heterotopic pancreatic tissue causing ulceration with mass effect. The clinical and radiologic presentation is virtually identical to that of a neoplastic lesion (i.e., adenocarcinoma). In one series, none of the cases of heterotopic pancreas was diagnosed preoperatively.[1] Furthermore, endoscopic mucosal biopsy is often not helpful since the diagnostic features, i.e. pancreatic components, are frequently intramural as in the present case. Endoscopic ultrasound, which better characterizes submucosal lesions, has been reported to be of some utility in the preoperative setting.[6] In most cases, definitive diagnosis is made either intraoperatively via frozen section, or postoperatively, as in the current case.[1]

## References

1. Pang LC. Pancreatic heterotopia: a reappraisal and clinicopathologic analysis of 32 cases. *South Med J*. 1988; **81:** 1264 – 1275.
2. Chandan VS, Wang W. Pancreatic heterotopia in the gastric antrum. *Arch Pathol Lab Med*. 2004; **128:** 111 – 112.
3. Huang YC, Chen HM, Jan YY, Huang TL, Chen MF. Ectopic pancreas with gastric outlet obstruction: report of two cases and literature review. *Chang Gung Med J*. 2002; **25:** 485 – 490.
4. Kaneda M, Yano T, Yamamoto T, Suzuki T, Fujimori K, Itoh H, et al. Ectopic pancreas in the stomach presenting as an inflammatory abdominal mass. *Am J Gastroenterol*. 1989; *84:* 663 – 666.
5. Emerson L, Layfield LJ, Rohr LR, Dayton MT. Adenocarcinoma arising in association with gastric heterotopic pancreas: a case report and review of the literature. *J Surg Oncol*. 2004; **87:** 53 – 57.
6. Matsushita M, Hajiro K, Okazaki K, Takakuwa H. Gastric aberrant pancreas: EUS analysis in comparison with the histology. *Gastrointest Endosc*. 1999; **49:** 493 – 497.