

## Synchronous Ectopic Pancreases in the Cardia and Antrum of the Stomach: A Case Report<sup>1</sup>

Miyeon Yie, M.D., Kyung Mi Jang, M.D.<sup>2</sup>, Min Jeong Kim, M.D., In Jae Lee, M.D.,  
Dae Hyun Yang, M.D.<sup>3</sup>, Sun-Young Jun, M.D.<sup>4</sup>, Kwangseon Min, M.D.<sup>4</sup>

Ectopic pancreas is most commonly found in the antrum of the stomach, duodenum, or proximal jejunum. Rarely ectopic pancreas in the proximal stomach has been reported. Moreover, the coexistence of two ectopic pancreases at gastric cardia and antrum in a patient has not been reported. Ectopic pancreas usually appears as a submucosal mass, and it is difficult to differentiate between ectopic pancreas and other common submucosal tumors, such as a gastrointestinal stromal tumor (GIST) or leiomyoma. Here, we present a case of the coexistence of two ectopic pancreases at cardia and antrum of the stomach in a 60-year-old man, which was preoperatively misdiagnosed as GIST.

**Index words :** Stomach  
Pancreas  
Tomography, X-Ray Computed  
Choristoma

Ectopic pancreas, also known as heterotrophic, accessory, or aberrant pancreas is a pancreatic tissue without anatomic and vascular continuity within the main body of the gland, and is most commonly found in the antrum of the stomach, duodenum, or proximal jejunum (1, 2). Ectopic pancreas in the proximal stomach has been rarely reported (3). However, the coexistence of two ectopic pancreases at the gastric cardia and antrum in a patient has not been previously reported.

Here, we present a case of the coexistence of two ec-

topic pancreases at the cardia and antrum of the stomach in a 60-year-old man.

### Case Report

A 60-year-old man who visited a local clinic was incidentally found to have two submucosal lesions in the cardia and antrum of his stomach on gastroscopy. Consequently, the patient came to our hospital for further evaluation and found no gastrointestinal symptoms including abdominal discomfort or pain. The patient's past medical history and initial laboratory data (including a stool occult blood test) revealed no remarkable findings.

The patient underwent an abdominal computed tomography (CT) scan which was obtained before the administration of intravenous contrast material. In addition, portal venous phase images were also obtained after the administration of intravenous contrast with a 70

<sup>1</sup>Department of Radiology, Hallym University College of Medicine

<sup>2</sup>Department of Radiology and Center for Imaging Science, Sungkyunkwan University School of Medicine

<sup>3</sup>Department of Surgery, Hallym University College of Medicine

<sup>4</sup>Department of Pathology, Hallym University College of Medicine

Received February 23, 2010; Accepted April 2, 2010

Address reprint requests to: Kyung Mi Jang, M.D., Department of Radiology and Center for Imaging Science, Sungkyunkwan University School of Medicine, 50, Ilwon-dong, Gangnam-gu, Seoul 135-710, Korea.

Tel. 82-2-3410-2518 Fax. 82-2-3410-2559

E-mail: jkm7290@empal.com

second delay. CT showed two gastric lesions in the gastric cardia and antrum, respectively (Figs. 1A, B). The lesion in gastric cardia appeared as a relatively well-defined heterogeneously enhancing submucosal mass with a mixed growth pattern, which was bulging into the extraluminal and endoluminal space, and had a maximum diameter of 2.2 cm (Fig. 1A). The small cystic portion in it was suspicious, but the overlying mucosa seems to be intact. The other lesion in the greater curvature side of the gastric antrum was diagnosed as an ill-defined heterogeneously enhancing mass with endoluminal growth pattern, and a maximum diameter of 2.5

cm (Fig. 1B). The internal cystic portion or overlying mucosa of it was not definite on CT. Considering the CT findings, which were double lesions with a different location and growth pattern, we could not predict the possibility of ectopic pancreas; however, we provided the possibility of a gastrointestinal stromal tumor (GIST).

Two weeks later, the patient underwent an endoscopy at our hospital. The lesion in the gastric cardia appeared as a lobular submucosal mass with intact overlying mucosa, while the other lesion in the greater curvature side of the gastric antrum appeared as a submucosal mass with a focal shallow pit at the overlying mucosa (Fig.

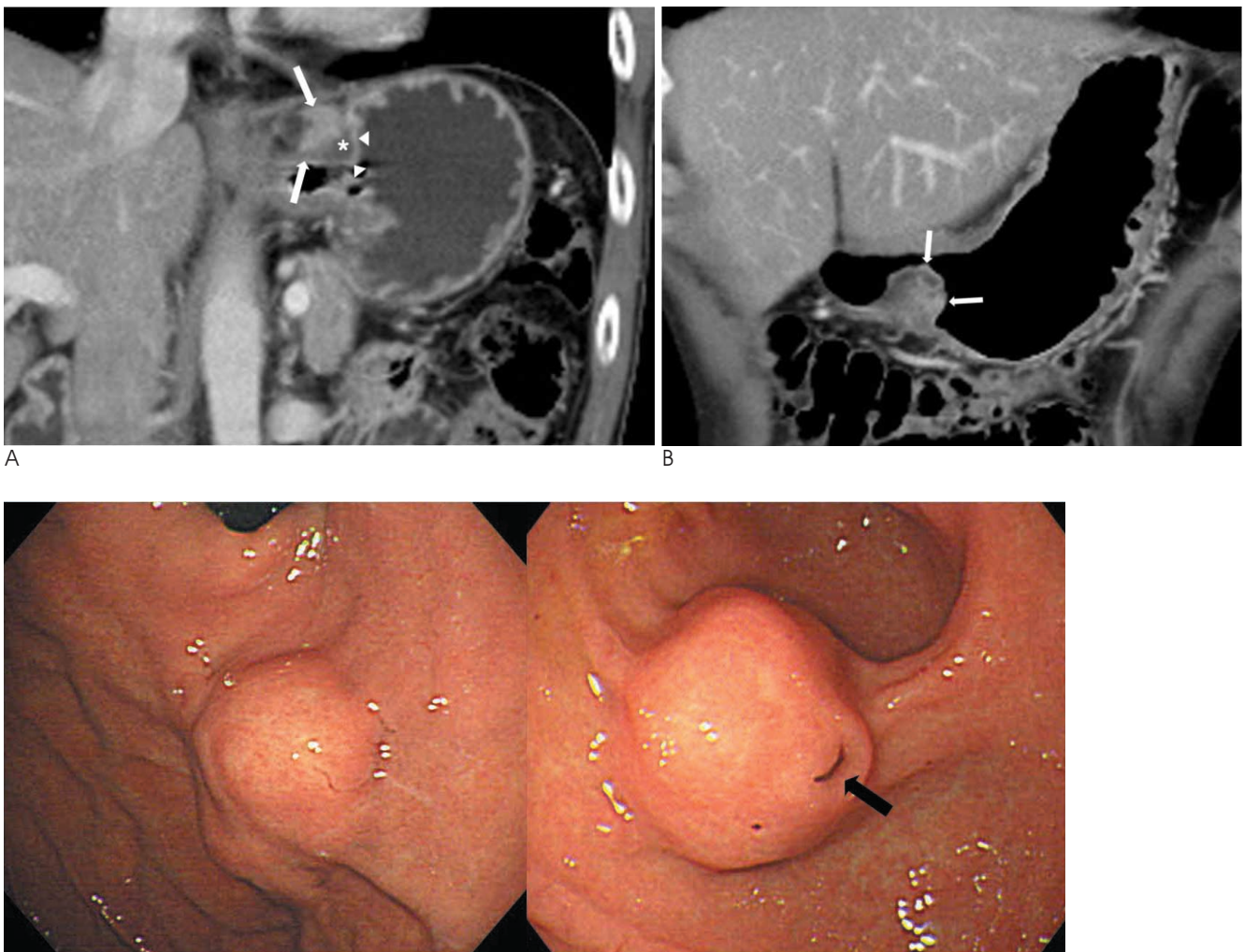
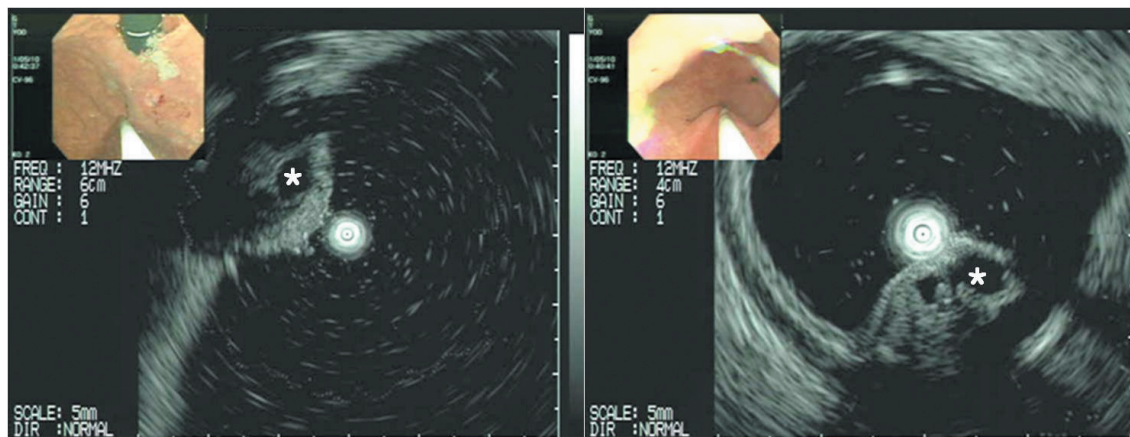
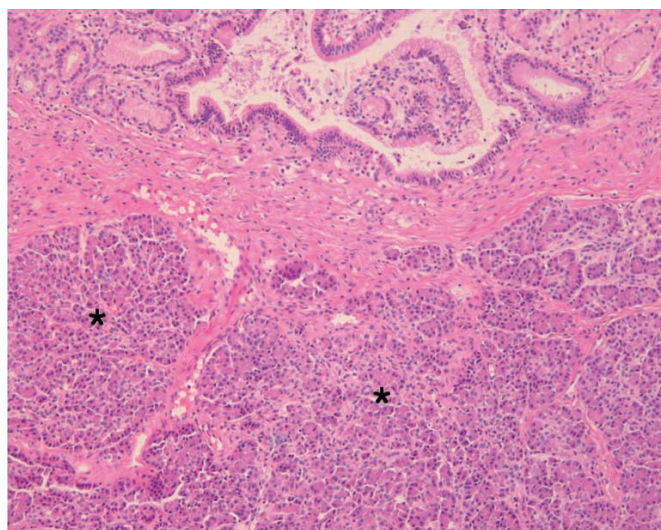


Fig. 1. A 60-year-old man with synchronous ectopic pancreases in the gastric cardia and antrum.  
A. Coronal contrast-enhanced CT during the portal venous phase shows a well-defined heterogeneously enhancing submucosal mass (arrows) with a suspicious small cystic portion (asterisks) in the gastric cardia. The overlying mucosa appears to be intact (arrowheads).  
B. Coronal contrast-enhanced CT during the portal venous phase shows an ill-defined heterogeneously enhancing mass (arrows) with an endoluminal growth pattern in the greater curvature side of the gastric antrum. The internal cystic portion or overlying mucosa of it is not definite at CT.  
C. Endoscopy images show a submucosal mass with intact overlying mucosa in the gastric cardia (left), while the other submucosal mass with a focal shallow pit (arrow) at the overlying mucosa in the greater curvature side of the gastric antrum (right).



D



E

Fig. 1. D. EUS images of submucosal masses in the gastric cardia (left) and the other lesion on the greater curvature side of the gastric antrum (right) show indistinct, heterogeneous, and intermediate hypoechoic lesions with an internal anechoic cystic portion (asterisks).

E. Photomicrograph shows heterotopic normal pancreatic tissues (asterisks) beneath the gastric mucosa, consisting of ectopic pancreas (H & E,  $\times 100$ ).

1C). On endoscopic ultrasonography (EUS), both lesions appeared as indistinct, heterogeneous, and intermediate hypoechoic lesions with internal anechoic cystic portion (Fig. 1D).

Although two submucosal lesions with an internal cystic portion on EUS suggested the possibility of ectopic pancreas, the possibility of GIST could not be excluded. On endoscopic biopsy, only chronic inflammatory tissue could be obtained. The patient underwent an endoscopic mucosal resection for the lesion in the greater curvature side of the gastric antrum and a surgical wedge resection of the stomach for the lesion in gastric cardia.

On gross examination, two relatively well-demarcated, firm, yellow, lobular masses ( $2.3 \times 2.0 \times 1.0$  cm and  $3.5 \times 2.0 \times 1.5$  cm, respectively) were seen in the gastric wall of the antrum and cardia, respectively. The overlying gastric mucosa of the antrum showed central umbilication, but that of the cardia was intact. On microscopic examination, both masses were composed of

normal pancreatic acinar and ductal tissues, consisting of ectopic pancreas (Fig. E).

## Discussion

Ectopic pancreas could occur throughout the whole gastrointestinal tract. In rare cases, this anomaly is found in the gallbladder, biliary tree, liver, spleen, omentum, mesentery, appendix, mediastinum, or Meckel's diverticulum (4). About 80% of ectopic pancreases are located in the stomach, duodenum, or proximal jejunum (5). When in the stomach, ectopic pancreas typically has the appearance of a submucosal lesion in the greater curvature side of gastric antrum, 1 to 6 cm from the pylorus (4). Rarely, ectopic pancreas in the proximal stomach has been reported (3, 6). However, to our knowledge, the coexistence of two ectopic pancreases in a patient has not been reported in the English literature. Among the various kinds of submucosal tumors of the stomach, neurofibromas, granular cell tumors,



metastases, or lymphomas may appear as two or more lesions in a patient (4, 7).

By using diagnostic imaging modalities such as barium studies or CT, it is difficult to differentiate between ectopic pancreas and other common submucosal tumors, such as GISTs or leiomyomas. Thus, ectopic pancreas is commonly mistaken for GIST (2). However, some imaging features could help to reveal ectopic pancreas. These features are typically located in the distal antrum of the stomach with occasional rudimentary ductal structures found within the lesion. Therefore, when a submucosal tumor with central umbilication located in the gastric antrum is found on a single or double contrast barium study, the likelihood of ectopic pancreas is very high (4). On CT, the finding of ill-defined submucosal lesion at its typical location, heterogeneous enhancement, and endoluminal growth pattern favor ectopic pancreas (2). Sometimes small cystic portion could be found within the ectopic pancreatic tissue due to the dilation of the anomalous duct at CT (6). At endoscopy and EUS, the discovery of a submucosal mass with central dimpling, indistinct margin, and heterogeneous echogenicity favor ectopic pancreas diagnosis (8).

Usually, asymptomatic lesions of ectopic pancreas require no further treatment after histological confirm. However, it is difficult to obtain a definitive preoperative diagnosis of ectopic pancreas and therefore a surgical resection is recommended for most patients (9). Recently, there have been several reports suggesting EMR as an attractive, less invasive option for the resection accessible lesions (10).

In summary, of the two ectopic pancreas lesions in our case, only the lesion located within the gastric

antrum fits the typical CT finding of ectopic pancreas. Thus, we could not diagnose them as ectopic pancreases. Therefore, if two or more gastric submucosal lesions are coexisting in one patient, despite their different growth patterns, location, and appearance at CT, we should consider the possibility of ectopic pancreas.

## References

1. Dolan RV, ReMine WH, Dockerty MB. The fate of heterotopic pancreatic tissue: a study of 212 cases. *Arch Surg* 1974;109:762-765
2. Kim JY, Lee JM, Kim KW, Park HS, Choi JY, Kim SH, et al. Ectopic pancreas: CT findings with emphasis on differentiation from small gastrointestinal stromal tumor and leiomyoma. *Radiology* 2009;252:92-100
3. Shah A, Gordon AR, Ginsberg GG, Furth EE, Levine MS. Case report: ectopic pancreatic rest in the proximal stomach mimicking gastric neoplasms. *Clin Radiol* 2007;62:600-602
4. Levine MS. *Benign tumors of the stomach and duodenum*. In Gore RM, Levine MS. *Textbook of gastrointestinal radiology*. 3rd ed. Philadelphia: WB Saunders, 2008:602-615
5. Copleman B. Aberrant pancreas in the gastric wall. *Radiology* 1963;81:107-111
6. Cho JS, Shin KS, Kwon ST, Kim JW, Song CJ, Noh SM, et al. Heterotopic pancreas in the stomach: CT findings. *Radiology* 2000;217:139-144
7. Tang Z, Jing W, Lindeman N, Harris NL, Ferry JA. One Patient, Two Lymphomas. Simultaneous primary gastric marginal zone lymphoma and primary duodenal follicular lymphoma. *Arch Pathol Lab Med* 2004;128:1035-1038
8. Chen SH, Huang WH, Feng CL, Chou JW, Hsu CH, Peng CY, et al. Clinical analysis of ectopic pancreas with endoscopic ultrasonography: an experience in a medical center. *J Gastrointest Surg* 2008;12:877-881
9. Hsia CY, Wu CW, Lui WY. Heterotopic pancreas: a difficult diagnosis. *J Clin Gastroenterol* 1999;28:144-147
10. Khashab MA, Cummings OW, DeWitt JM. Ligation-assisted endoscopic mucosal resection of gastric heterotopic pancreas. *World J Gastroenterol* 2009;15:2805-2808

## 위의 분문부와 전정부에 생긴 동시성 이소체장: 증례 보고<sup>1</sup>

<sup>1</sup>한림대학교 의과대학 성심병원 영상의학과

<sup>2</sup>성균관대의대 삼성의료원 영상의학과

<sup>3</sup>한림대학교 의과대학 성심병원 외과

<sup>4</sup>한림대학교 의과대학 성심병원 병리과

이미연 · 장경미<sup>2</sup> · 김민정 · 이인재 · 양대현<sup>3</sup> · 전선영<sup>4</sup> · 민광선<sup>4</sup>

이소체장은 위전정부, 십이지장 또는 공장에 가장 잘 발생하는 것으로 알려져 있다. 근위부 위에 발생한 이소체장의 증례는 드물게 보고되어있다. 그러나 한 환자에서 위 분문부와 전정부에 동시에 발생한 이소체장의 증례는 보고된 바가 없다. 이소체장은 주로 점막하 종양으로 나타나며, 다른 점막하 종양인 위장관 간질종양이나 근종과의 감별이 어렵다. 이에 저자들은 수술 전 진단에서 위장관 간질종양으로 오진된, 60세 남자의 위 분문부와 전정부에서 동시에 발생한 이소체장의 증례를 경험하였기에 보고하고자 한다.