



## Ileal Heterotopic Gastric Mucosa with Small Bowel Obstruction Mimicking Inflammatory Bowel Disease: A Case Study

소장 폐쇄로 나타난 염증성 장질환으로 오인할 수 있는 회장의 이소성 위점막: 증례 보고

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Gastric heterotopia rarely occurs in the ileum without a Meckel's diverticulum. We report a case of a 53-year-old man who presented with recurrent abdominal pain. The initial computed tomography (CT) scan showed circumferential wall thickening and stricture of the ileum. At the follow-up examination (8 months), previously observed circumferential wall thickening and stricture were more aggravated, causing small bowel obstruction. The patient underwent small bowel resection and the histopathology was consistent with ectopic gastric mucosa. We suggest that the rare CT findings were indicative of ileal gastric heterotopia which have never been reported. Based on these CT findings, our differential diagnosis excluded inflammatory bowel disease.

### Index terms

Gastric Mucosa  
Multidetector Computed Tomography  
Ileum  
Intestinal Obstruction  
Inflammatory Bowel Disease

## INTRODUCTION

Gastric heterotopia is the presence of mature gastric tissue in a location where it is not normally found, with the exception of the stomach. Heterotopic gastric mucosa can affect the entire gastrointestinal tract, from the mouth to the rectum. It can also involve the gallbladder, biliary tract, umbilicus, and the scrotum (1, 2). It is usually associated with a Meckel's diverticulum and rarely occurs without an anatomic anomaly. The duodenum is the most common site in which the heterotopic gastric mucosa is present without an anomaly. The ileum is the least common site (3). We report on a rare case of ectopic gastric mucosa in the ileum with an additional finding of small bowel

obstruction. The computed tomography (CT) scan findings are also provided. This report was approved by our Institutional Review Board.

## CASE REPORT

A 53-year-old man presented at our institution with recurrent abdominal pain. The nature of the pain was intermittent cramps. There was no hematemesis or rectal bleeding. The physical examination and laboratory results were unremarkable. There was no history of tuberculosis or inflammatory bowel disease.

The patient underwent a CT scan of the abdomen to deter-

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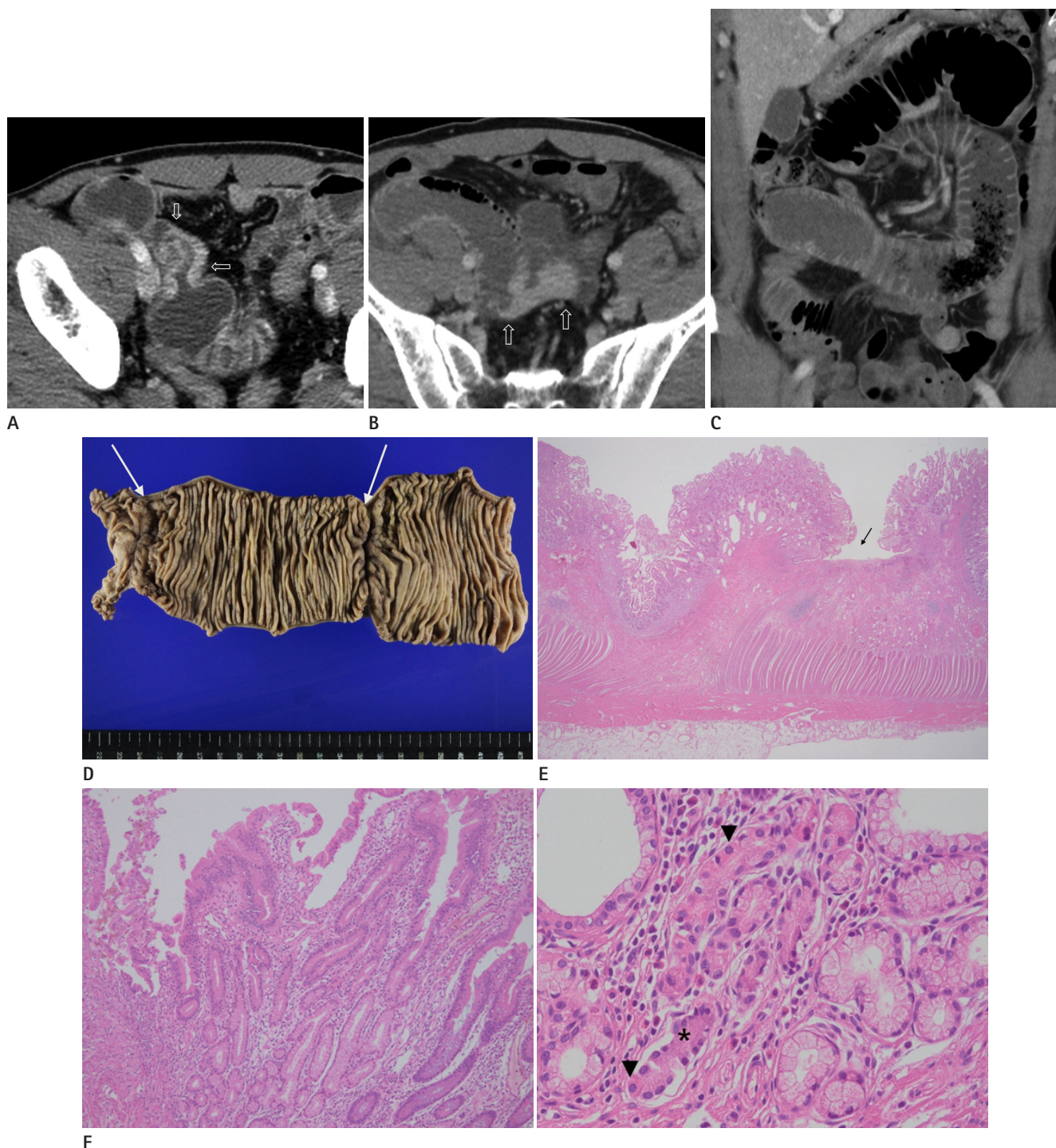
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**Fig. 1.** Heterotopic gastric mucosa in ileum of 53-year-old man.

**A.** A contrast-enhanced axial CT scan shows focal circumferential wall thickening of the ileum (length of involvement = 3.5 cm; arrows). Associated luminal stricture is suggested.

**B, C.** A contrast-enhanced axial CT scan (**B**) shows circumferential wall thickening of the ileum (arrows) after eight months. The luminal stricture is aggravated. A coronal CT scan (**C**) shows distended proximal small bowel with multiple air fluid-levels.

**D–F.** There are two circular ulcerated lesions (arrows) in the small intestine (**D**). There is an ulcer (arrow) involving the submucosa and proper muscle. The submucosa and muscle layer are fibrotic and thickened (**E**, H&E,  $\times 10$ ). The gastric epithelium with surface foveolar epithelium and pyloric glands is identified next to the ulcer. Oxyntic glands, including parietal (arrowheads) and chief cells (asterisk), are also present (**F**, H&E,  $\times 100$ ,  $\times 400$ ).

H&E = Hematoxylin and eosin stain

mine the source of abdominal pain. Circumferential wall thickening of the ileum (length of involvement = 3.5 cm) with luminal narrowing was found (Fig. 1A). Distension of the proximal small bowel was not definite.

The patient continued to complain of recurrent abdominal pain and a follow-up CT scan was performed after eight months. The previously observed circumferential ileum wall thickening was persistently noted and the stricture was found to be more aggravated (Fig. 1B). The proximal small bowel of the lesion was distended, with multiple air-fluid levels (Fig. 1C). The distal small bowel of the lesion had collapsed. Positron emission tomography/computed tomography (PET/CT) was performed. A hypermetabolic lesion was absent in the abdomen.

The patient underwent laparoscopic-assisted small bowel resection. Two circular ulcerated lesions in the small intestine upon laparoscopic examination of the affected region (Fig. 1D). The histopathology revealed an ulcer involving the submucosa and proper muscle. The submucosal tissue and muscle layer were irregular in thickness and had a fibrotic appearance. The gastric epithelium and pyloric glands were located next to the ulcer. Oxyntic glands, including parietal and chief cells, were also present (Fig. 1E, F). The final diagnosis was ectopic gastric mucosa in the small bowel with ulceration.

## DISCUSSION

Heterotopic gastric mucosa occurs throughout the entire gastrointestinal tract. It is rarely seen beyond the ligament of Treitz, and is usually found in the jejunum. Ectopic gastric mucosa is the most common of all the structures e.g., ectopic gastric, duodenal, colonic, pancreatic, endometrial mucosa that may be found in the Meckel's diverticulum. Isolated gastric mucosa is very rare and the structures are usually found in association with a Meckel's diverticulum (4). It may resemble a normal bowel loop or show blind-ending pouch that arises from the antimesenteric side in uncomplicated cases of Meckel's diverticulum. The diagnosis of diverticula with ectopic gastric mucosa can be aided using scintigraphy with pertechnetate. In addition, intermittent intussusception is the most common feature of jejunal heterotopic gastric mucosa (5). Heterotopic gastric mucosa has been reported in the ileum in a few cases in association with small bowel obstruction without intussusception and Meckel's

diverticulum (6).

Heterotopic gastric mucosa comprises the gastric epithelium and fundal glands, as well as the chief and parietal cells. Intestinal ulceration due to peptic secretion of heterotopic gastric mucosa can cause recurrent inflammation. Recurrent abdominal pain, intestinal bleeding, stricture, intestinal obstruction, and even perforation can occur as a result (7).

Gastric heterotopia is usually seen on radiologic investigation, such as fluoroscopy or a CT scan, as an intraluminal polypoid lesion or intussusception (5, 8). In our case, the CT scan revealed focal circumferential wall thickening and stricture of the ileum with proximal distension. These findings correlated with the histopathology i.e., fibrosis and thickening of the submucosa and muscle layer. Differential diagnosis of these findings includes inflammatory bowel disease (such as Crohn's disease), intestinal tuberculosis, small bowel carcinoma, and lymphoma. Crohn's disease usually involves the terminal ileum and multifocal locations, with patchy areas of inflammation (skip lesions). Accompanying anal disease, abscess, or fistula are useful clinical features associated with a diagnosis of Crohn's disease. Intestinal tuberculosis often reveals circumferential wall thickening in the small bowel, but its location is usually in the terminal ileum, cecum, or ileocecal valve. Associated lymphadenopathy is helpful in differential diagnosis. Small bowel carcinoma tends to result in eccentric wall thickening, as opposed to thickening of the circumferential walls. It usually reveals heterogeneous attenuation with irregular overhanging edges or ulceration. However, it can show homogeneous and circumferential wall thickening. In that case, a PET/CT scan can be helpful and there is hypermetabolic uptake in case of small bowel carcinoma (9). Contrast enhancement of small bowel lymphoma is usually homogeneous when viewed on a CT scan. Additional findings, such as aneurysmal dilatation and lymphadenopathy, are also helpful.

In conclusion, heterotopic gastric mucosa without association with Meckel's diverticulum is very rare. It is also very rare that heterotopic gastric mucosa occurs in the ileum in association with circumferential wall thickening and small bowel obstruction, on the CT scan. These are not specific CT findings. Nevertheless, ectopic gastric mucosa can be included in the differential diagnosis of inflammatory bowel disease if there are recurrent symptoms without response to treatment and small bowel carcinoma.

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## 소장 폐쇄로 나타난 염증성 장질환으로 오인할 수 있는 회장의 이소성 위점막: 증례 보고

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이소성 위점막이 맥켈 계실과 관련 없이 회장에 생기는 것은 매우 드문 일이다. 우리는 반복적인 복통을 호소하는 53세 남자 환자를 보고하려고 한다. 처음에 시행한 전산화단층촬영은 회장에 환형의 장벽 비후와 협착이 보였다. 8개월 후 이전에 보였던 환형의 장벽 비후와 협착이 더욱 악화되었으며, 소장의 폐쇄를 야기하고 있었다. 환자는 소장 절제술을 받았고, 조직검사 결과는 이소성 위점막이었다. 우리는 이전에 보고된 적이 없는 회장 이소성 위점막의 전산화단층촬영 소견을 소개하고, 염증성 장질환을 포함하여 이러한 소견의 감별진단을 제시하고자 한다.

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