

# Thinking Outside the Box: Visualization of an Ectopic Stomach via Surgically Advanced Endoscopy at Site of Intussusception

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## ABSTRACT

We present a case of an ectopic stomach visualized intraoperatively at the site of intestinal intussusception via surgeon-assisted advancement of the endoscope. Heterotopic gastric mucosa, also known as an ectopic stomach, refers to the discovery of gastric tissues in an organ or tissue distinct from, and without vascular or anatomical continuity with, the main body of the normal stomach. In our case, an 18-year-old woman presented to the emergency department with jejunal intussusception. During emergency laparotomy, a large pedunculated mass was visualized and later confirmed histopathologically to be an ectopic stomach.

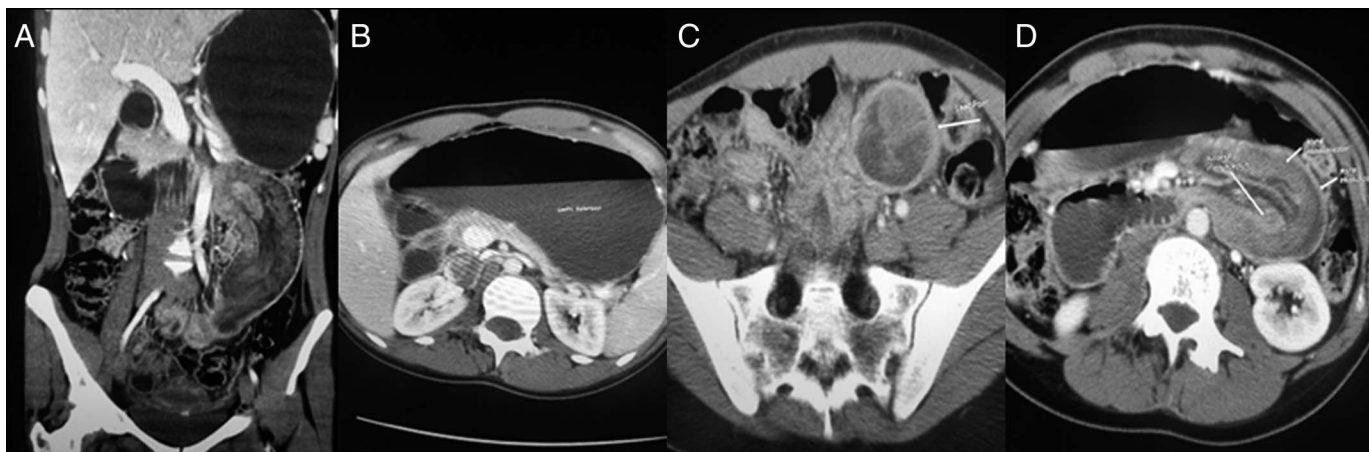
## INTRODUCTION

Heterotopic gastric mucosa (HGM), also known as an ectopic stomach, refers to the discovery of gastric tissues in an organ or tissue distinct from, and without vascular or anatomical continuity with, the main body of the normal stomach.<sup>1-3</sup> This anomaly may be broadly divided into 2 categories: gastric heterotopia (congenital) and gastric metaplasia (acquisition secondary to inflammation or disease).<sup>4</sup> The congenital variety of HGM has been rarely reported in the jejunum or ileum.<sup>5-7</sup> We report a case of a giant polypoid gastric heterotopia, or an ectopic stomach, in the jejunum, which to our knowledge is the largest reported in the literature.

## CASE REPORT

An 18-year-old woman presented with intermittent episodes of severe upper epigastric pain of 1-year duration, originating in the upper epigastric area and radiating to the periumbilical area. Endoscopy revealed healing stomach ulcers (Forrest III classification) and a hiatal hernia. Histology was negative for *Helicobacter pylori* and celiac sprue, and the patient was placed on esomeprazole. Abdominal ultrasound displayed numerous small echogenic foci, suggestive of small cholesterol gallstones. Choletec scanning showed gallbladder contractility with a low ejection fraction of 32% (normal  $\geq 35\%$ ), suggesting mild gallbladder dyskinesia.<sup>8</sup> The patient was placed on a low-fat diet, prescribed H<sub>2</sub>-receptor antagonists, and discharged.

The patient returned 2 weeks later with severe pain, vomiting, and abdominal guarding. She reported intermittent right upper quadrant pain, abdominal distention, projectile vomiting, epigastric pain with consumption of fatty foods, and five-pound weight loss. Abdominal computed tomography scan with contrast revealed probable jejunal intussusception, necessitating emergency laparotomy (Figure 1). Surgeon-assisted laparoscopic push enteroscopy was performed under anesthesia, with the endoscope advanced to just pass the area of intussusception. Slow withdrawal of the endoscope revealed a large pedunculated lesion in the jejunum 410 cm distal to the ligament of Treitz. The specimen, measuring 12 × 3 × 1.5 cm, was resected via enterotomy. Part of the bowel segment showed exposed internal mucosa with a polypoid architecture measuring 5 × 1.5 × 1 cm. The central portion of this lesion was somewhat pedunculated and extended into the surrounding mucosa as a flat lesion (Figure 2).

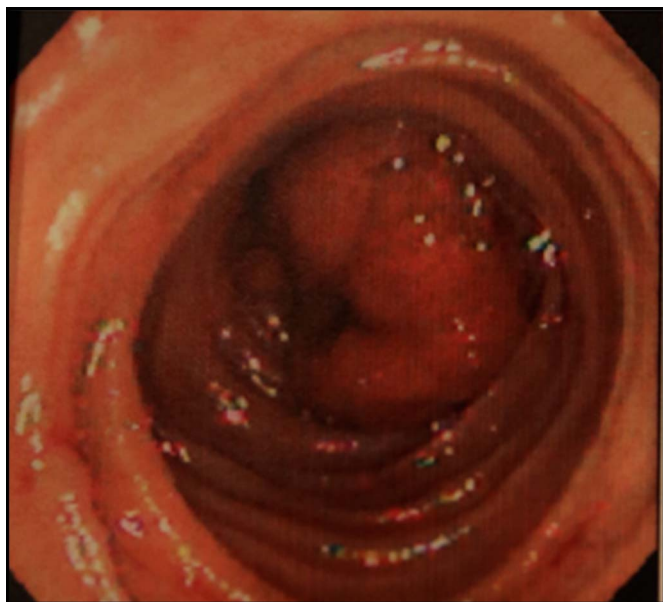


**Figure 1.** Computed tomography showing (A and B) gastric distension and the lead point of the intussusception and (C and D) the lead point of the intussusception.

Release of the jejunal-jejunal intussusception was successful with a primary side-to-side bowel anastomosis. Histological examination of the polypoid lesion showed extensive gastric tissue resembling the body of the stomach, characterized by the gastric mucosal epithelium and abundance of parietal and chief cells without atypia or malignancy (Figure 3). Some areas showed strands of smooth muscle within the fibrovascular stalk and the mucosa. Because of the presence of smooth muscle within the mucosa, Peutz-Jeghers polyp was considered in the differential diagnosis. However, a giant polypoid gastric heterotopia was considered more probable because of the presence of extensive gastric tissue within the jejunum.

## DISCUSSION

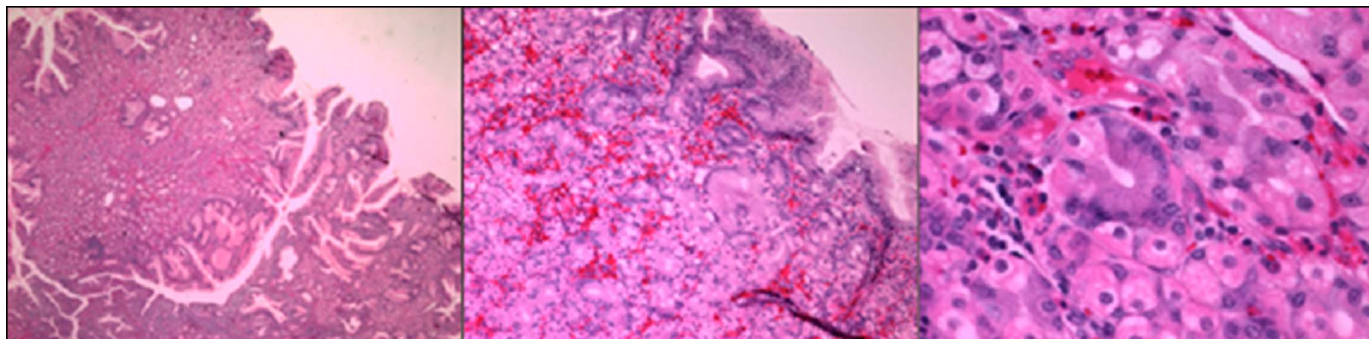
To our knowledge, our case represents the largest pedunculated mass of HGM, also known as an ectopic stomach,



**Figure 2.** Pedunculated jejunal polyp.

reported in the literature. When gastric glands are found in an organ other than the stomach, the term aberrant gastric gland is used.<sup>9</sup> This anomaly is further divided into 2 categories: gastric heterotopia and gastric metaplasia. Congenital (heterotopic) infers abnormal embryological development, whereas acquired (metaplastic) infers acquisition secondary to inflammation or disease. The development of HGM in our case most likely favors a congenital error in differentiation, given the morphological similarity between the jejunal polypoid lesion and the gastric epithelium and exocrine secretory cells of the stomach. Despite the clinical diagnosis of peptic ulcer disease, metaplastic change because of hyperacidity was not apparent, given the abundance of parietal and chief cells without atypia or malignancy.

Congenital forms of HGM are present in only 0.4%–2% of the population.<sup>10,11</sup> Such a low prevalence of HGM may be because, in part, of the fact that endoscopists do not generally search for such lesions. Given its uncommon development and its size, cases such as ours are rarely seen. The congenital variety of HGM in the jejunum or ileum is rare.<sup>5</sup> When HGM is seen, it is typically found in the esophagus, duodenum, or Meckel diverticulum, whereas acquired cases are more common in the jejunum and ileum.<sup>10</sup> Gastric mucosa exhibiting metaplasia is known to show mucosal regeneration and a sparse number, if any, of parietal and chief cells.<sup>9,10</sup> Our specimen showed an abundance of parietal and chief cells, reinforcing the uncommon and heterotopic nature of the lesion. Differentiation between heterotopic and metaplastic polyps may be further identified via mucosal thickness. Heterotopias display mucosae consisting of full mucosal thickness containing chief and parietal cells lined by foveolar epithelium, with biopsy necessary for diagnosis. Conversely, metaplasias consist predominantly of mucus-secreting cells with partial mucosal thickness and microscopic diagnosis. “Immature” gastric pyloric glands are also typically found, whose expression shifts between mature intestinal glands or chief and parietal gastric cells.<sup>6,9,12</sup>



**Figure 3.** Photomicrographs showing the presence of chief cells and parietal cells in the excised tissue.

In conclusion, definitive diagnosis of HGM requires a detailed histopathological examination.<sup>13</sup> Careful consideration and endoscopic exploration are recommended for patients presenting with symptoms of intestinal obstruction, bleeding, perforation, ulceration, vomiting, intussusception, and chronic abdominal pain. We describe a case in which the above symptoms resulted in the discovery of a giant pedunculated lesion in the jejunum causing small bowel intussusception.

## DISCLOSURES

Author contributions: S. Hazan wrote the manuscript and is the article guarantor.

Financial disclosure: S. Hazan has a pecuniary interest in Ventura Clinical Trials and in ProgenaBiome.

Informed consent was obtained for this case report.

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