

Acquired Heterotopic Gastric Mucosa after Gastrojejunostomy Tube Placement Causing Intermittent Obstruction

by Sameer Lapsia, Anupama Chawla, Juan Carlos Bucobo, Rupinder Gill

CASE PRESENTATION

An otherwise healthy 14 year-old obese male presented after suffering second- and third-degree burns to over 40% of his body surface area including his face, arms and chest while attempting to light a tiki torch. His hospital course was complicated by acute respiratory distress syndrome, acute kidney injury and sepsis.

Due to an anoxic brain injury resulting in disturbed oral-motor function, the patient had a percutaneous gastrostomy tube (G-tube) placed to provide enteral feeding. Despite radiographic studies showing patency of the G-tube he began to have episodes of non-bilious vomiting after feeds. An upper gastrointestinal (UGI) series as well as a computed tomography (CT) scan of his abdomen showed no signs of obstruction or dilated loops of bowel. After a successful trial with nasojejunoscopy (NJ) tube feeds, a gastrojejunostomy (GJ) tube was placed endoscopically to provide post-pyloric feeds. At that time, no mucosal abnormalities of the duodenum or proximal jejunum were appreciated.

Approximately 6 weeks later, he again presented with intermittent emesis, now occasionally bilious. An UGI series showed the tip of the jejunostomy tube had migrated back into the stomach. No obstructive bowel gas pattern was noted. Repeat endoscopy to reposition the jejunal portion of the GJ tube was performed. A 2.5 cm semi-pedunculated salmon-red colored polyp was noted in the distal duodenum/proximal jejunum (Figure 1) causing partial obstruction of the lumen. Biopsies revealed heterotopic gastric tissue with

predominantly antral type gastric mucosa and occasional oxyntic cells (Figure 2). A distinct zone of demarcation was present between the heterotopic gastric mucosa and normal intestinal mucosa. There was no evidence of metaplasia, dysplasia or malignancy.

Due to the patient's recurrent episodes of emesis, a repeat esophagogastroduodenoscopy was performed and the polyp was removed using snare cauterization.

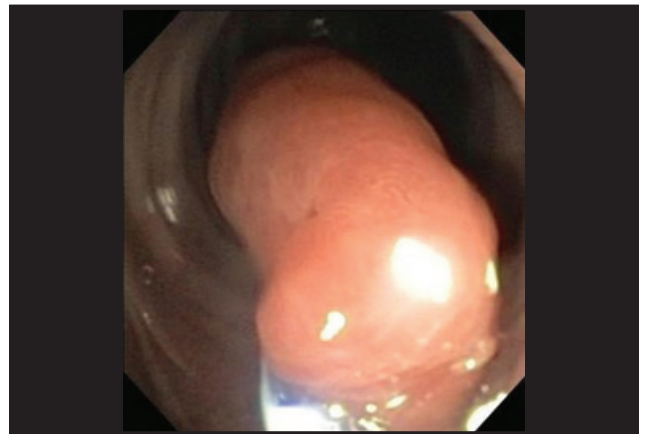


Figure 1. Heterotopic gastric mucosa in the distal duodenum/proximal jejunum

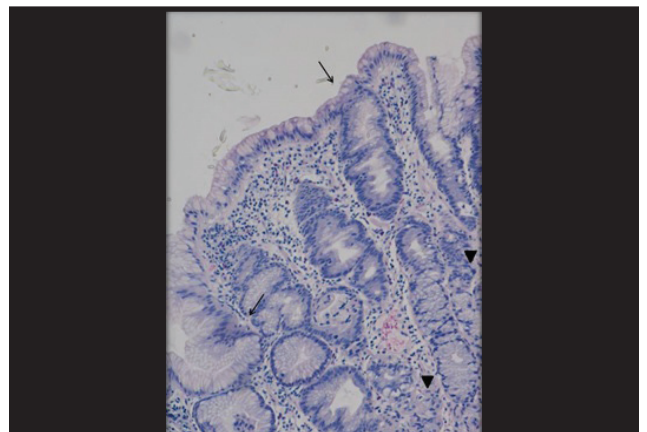


Figure 2. Arrow denotes antral type gastric mucosa and arrowhead denotes oxyntic cells

Sameer Lapsia, M.D., Clinical Fellow in Pediatric Gastroenterology. Anupama Chawla, M.D., Chief, Division of Pediatric Gastroenterology. Juan Carlos Bucobo, M.D., Assistant Professor of Medicine/Gastroenterology. Rupinder Gill, M.D., Assistant Professor of Pediatric Gastroenterology. SUNY at Stony Brook, Health Science Center, Stony Brook, NY

After polyp removal, the patient slowly started to tolerate feeds and was transferred to a long-term care facility.

Discussion

Heterotopic gastric mucosa (HGM) was first reported in the literature in 1912 by Poindecker. Since then there have been numerous articles describing its occurrence.¹ HGM is most commonly found along the gastrointestinal tract, but has been reported in extraintestinal sites such as the umbilicus, bronchi, spinal column, urinary bladder, gall bladder, biliary tree and scrotum.^{2,3} Composed of ectopic gastric tissue, its presence distal to the ligament of Treitz is rare except in Meckel's diverticulum and intestinal duplication.⁴ HGM has a male predominance and is usually an incidental finding. However, it can present with symptoms of vomiting secondary to obstruction or intussusception. Although rare, anemia, gastrointestinal (GI) bleeding and perforation have also been reported secondary to ulceration from the ectopic gastric mucosa.^{2,5-6}

In the small intestine, heterotopic gastric mucosa can clinically resemble a polyp, ulcer, adenomas, angiomas, lipomas, lymphomas or carcinoma. The frequency of HGM is 0.5-2% in the duodenum and in this portion of the GI tract it often appears as a nodular mass.^{2,4} In the small intestine, the size of these masses can range from 1.0 cm-2.5 cm.⁷ There are two types of heterotopic gastric mucosa: congenital and acquired. As our patient previously had numerous UGI series, a CT scan, as well as an initial endoscopy for GJ tube placement, which did not show any evidence of a lesion, he most likely had acquired heterotopic gastric mucosa. This signifies replacement of his native small intestinal mucosa by gastric epithelial tissue, which has been described in adult patients after gastrojejunostomy. It is suspected that HGM occurs due to infiltration of mucosa through defects in the muscularis mucosa by repeated erosion.⁸ It has also been described in patients with inflammatory bowel disease, intestinal tuberculosis, celiac disease, intestinal cancers and post-irradiation enteritis.² These lesions are almost always incidental findings and little data exists on their rate of growth, though they may grow briskly.⁸

The pathology of the lesion in our patient showed only pyloric type of mucosa with rare oxyntic cells characteristic of an acquired heterotopic gastric mucosa. Most jejunal lesions are polypoid in shape as seen in our patient.² Additionally, congenital HGM is rare distal

to the ligament of Treitz and includes a mixture of both fundic and pyloric-type of epithelium without any associated conditions that can cause inflammatory changes. Histopathology remains the gold standard for diagnosis of these lesions.

To avoid complications from HGM, endoscopic resection is suggested. For large masses, a surgical approach with excision followed by anastomosis to reestablish intestinal continuity may be necessary. In addition to the complications of having ectopic gastric tissue, adenocarcinomas and adenomas may rarely stem from these lesions.⁹

Our patient had occasional episodes of bilious emesis that improved after the mass was resected. We hypothesize two possible mechanisms for the patient's symptoms: a) the size of the HGM causing partial obstruction and resulting in intermittent episodes of vomiting and/or b) the lesion acting as a lead point causing intermittent small bowel-to-small bowel intussusception.

CONCLUSION

To our knowledge, heterotopic gastric mucosa appearing after gastrojejunostomy placement and causing intermittent obstruction in a pediatric patient has not been described in the literature.

Although there are many causes of emesis after GJ tube placement, this case illustrates the importance of repeat endoscopy to evaluate for rare acquired anatomic causes like heterotopic gastric mucosa, especially if contrast studies do not yield a diagnosis. ■

References

1. Derksen EJ, Huisman PM, Wesdorp RIC. Ileal obstruction due to tumorous heterotopic gastric mucosa. *Neth J Surg* 1989; 41:35-37.
2. Boybeyi Ö, Karnak İ, Güçer Ş, et al. Common characteristics of jejunal heterotopic gastric tissue in children: a case report with review of the literature. *J Pediatr Surg* 2008; 43:E19-E22.
3. Agha FP, Ghahremani GG, Tsang T-K, et al. Heterotopic gastric mucosa in the duodenum: radiographic findings. *Am J Roentgenol* 1988; 150:291-294.
4. Atik FA, Ricci M, Del Grande JC, et al. Obstruction of terminal ileum due to heterotopic gastric mucosa. *Rev Ass Med Bras* 1998; 44:340-343.
5. Lodge JPA, Brennan TG, Chapman AH. Heterotopic gastric mucosa presenting as small-bowel obstruction. *Brit J Radiol* 1987; 60:710-712.
6. Omotosho PA, Varnholt H, Tirabassi MV, et al. Giant polypoid gastric heterotopia of the jejunum presenting with intermittent intussusception. *J Laparoendosc Adv S* 2007; 17:249-251.
7. Mann NS, Mann SK, Rachut E. Heterotopic gastric tissue in the duodenal bulb. *J Clin Gastroenterol* 2000; 30:303-306.
8. Kim DH, Kim KM, Oh SJ, et al. Early gastric cancer arising from heterotopic gastric mucosa in the gastric submucosa. *J Korean Surg Soc* 2011; 80:S6-S11.
9. Terada T. Heterotopic gastric mucosa of the gastrointestinal tract: A histopathologic study of 158 cases. *Pathol Res Pract* 2011; 207:148-150.