Gastric Heterotopia Presenting As a Rectal Polyp
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Citation

Abstract
We describe the case of a 50 year-old male who presented for a routine screening colonoscopy and was found to have a sessile rectal polyp. Microscopic evaluation showed rectal mucosa with gastric heterotopia composed of oxyntic glands lined by chief and parietal cells. Gastric heterotopia may be a rare cause of rectal bleeding, pain, or ulcers.

INTRODUCTION
Gastric heterotopia is known to occur throughout the gastrointestinal tract. Locations of gastric heterotopia include: the esophagus, duodenum, small intestine, Meckel's diverticulum, and gallbladder. The occurrence of gastric heterotopia within the rectum or any portion of the embryologic hindgut is rare.\(^1\)\(^2\)\(^3\)\(^4\)\(^5\)\(^6\)

We present the endoscopic appearance of a case of a fifty year-old male patient who had an (incidental) rectal polyp on screening colonoscopy with histologic evidence of gastric heterotopia.

THE CASE
A 50 year-old Caucasian male presented for a routine screening colonoscopy. A recent basic metabolic profile revealed no abnormalities. The patient had no history of bleeding, colitis, infection, or rectal trauma. Colonoscopic exam revealed a non-bleeding, sessile rectal polyp which measured 42 x 20 mm, which was biopsied and sent for histologic evaluation.

Figure 1
Figure 1: Endoscopic appearance of rectal polyp (arrowheads).

Microscopic evaluation of the rectal polyp revealed rectal mucosa with underlying oxyntic glands lined by chief and parietal cells as well as adjacent colonic crypts and glands.
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Figure 2
Figure 2a: Polyp lined by rectal mucosa with oxyntic glands in the lamina propria (H&E, 20x). 2b: High power view shows oxyntic glands lined by parietal cells (H&E, 600x).

Figure 3
Recent hemorrhage and edema was also seen. No dysplasia or malignancy were identified.

At one year follow-up after resection, the patient was free of symptoms and had no complications.

DISCUSSION
Heterotopic gastric mucosa is known to occur throughout much of the gastrointestinal tract; its occurrence in hindgut derivatives is rare. The etiology of gastric heterotopia within the rectum is uncertain. Several theories have been raised.

Understanding of these purported theories requires a review of gastrointestinal embryogenesis. The embryo forms out of three germ layers; endoderm, mesoderm, and ectoderm. The germ layers are initially arranged as a flat disc, which folds to create the body shape; from this form the tissues and organs are derived. The folded endoderm tube then forms three separate regions; the foregut, midgut, and hindgut. The stomach first appears as a dilated area of the midgut at four weeks gestation. Due to differential growth, the stomach rotates and descends along a cranial-caudal axis.

Applying these concepts from basic embryology, three types of gastric heterotopia have been proposed by Wolff et al. The first type is failure of descent, which is most often seen in the esophagus. This, he suggests, is due to problems with the descent of the stomach resulting in deposition of ectopic tissue within the esophagus. The second, or pluripotential, theory suggests that all cells within the intestinal canal are capable of differentiating into any type of epithelium. Wolff's final theory suggests an acquired heterotopia composed solely of pyloric glands, seemingly a metaplastic phenomenon which occurs in response to an inflammatory process.

Ming and Antonius et al both observed evidence supportive of this theory in cases of regional enteritis. In order to determine if the heterotopia is congenital or acquired, Wolff provides further guidance by suggesting that a developmental cause should be favored if more than one mucosal type is present. The tissue within a congenital heterotopia will also be more complex and well formed. Dubilier et al suggests an alternative theory which also supports a congenital origin for gastric heterotopia. Abnormal adhesion of the endo-ectoderm can lead to heterotopias as well as associated vertebral anomalies due to notochord maldevelopment. A study by Murray et al found that five of nineteen patients with gastric heterotopia had other associated anomalies, most commonly vertebral (four patients).

Our case is most consistent with a congenital origin of the heterotopia in that the oxyntic glands in our case were complex and well formed. According to Wolff's pluripotential theory, this would represent an error in the differentiation of the endoderm.

Including the case we describe, a total of forty cases of gastric heterotopia have been reported in the rectum. Gastric heterotopia in the rectum is more common in men. The most common presenting symptom is painless rectal bleeding. Endoscopically, gastric heterotopia is frequently seen as a polyp. In order to obtain a diagnosis of gastric...
heterotopia, a biopsy must be obtained and examined microscopically. In the past, some have employed $^{99m}$Tc to assist in finding heterotopic gastric tissue. The definitive treatment for gastric heterotopia is complete excision.

Possible complications of gastric heterotopia include obstruction, intussusception, hemorrhage, peptic ulceration, and fistula formation. Gastric heterotopia, although rare, should be included in the differential diagnosis for rectal bleeding, pain, or ulcers.

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