A 64-year-old woman with a longstanding history of gastroesophageal reflux disease underwent an upper endoscopy secondary to a failure of proton pump inhibitor therapy. In addition to patchy mild erythema in the gastric antrum, a single 1.0 cm flat polyp was appreciated at the incisura. The polyp was resected piecemeal and submitted for histologic evaluation.

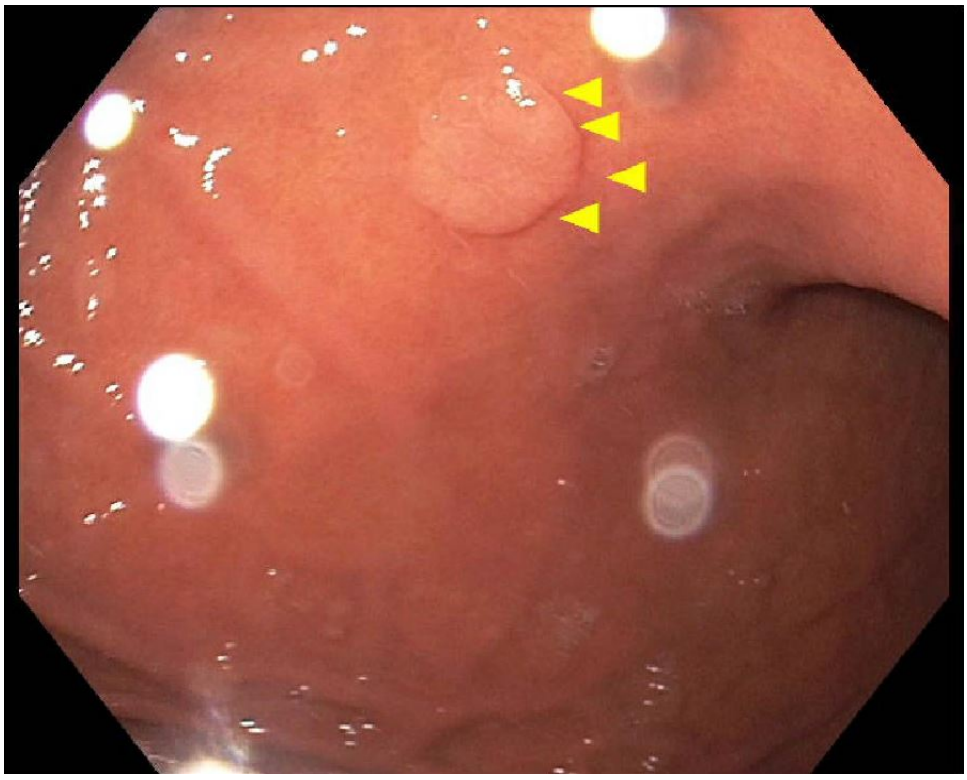

Figure 1. Endoscopic image of gastric polyp.

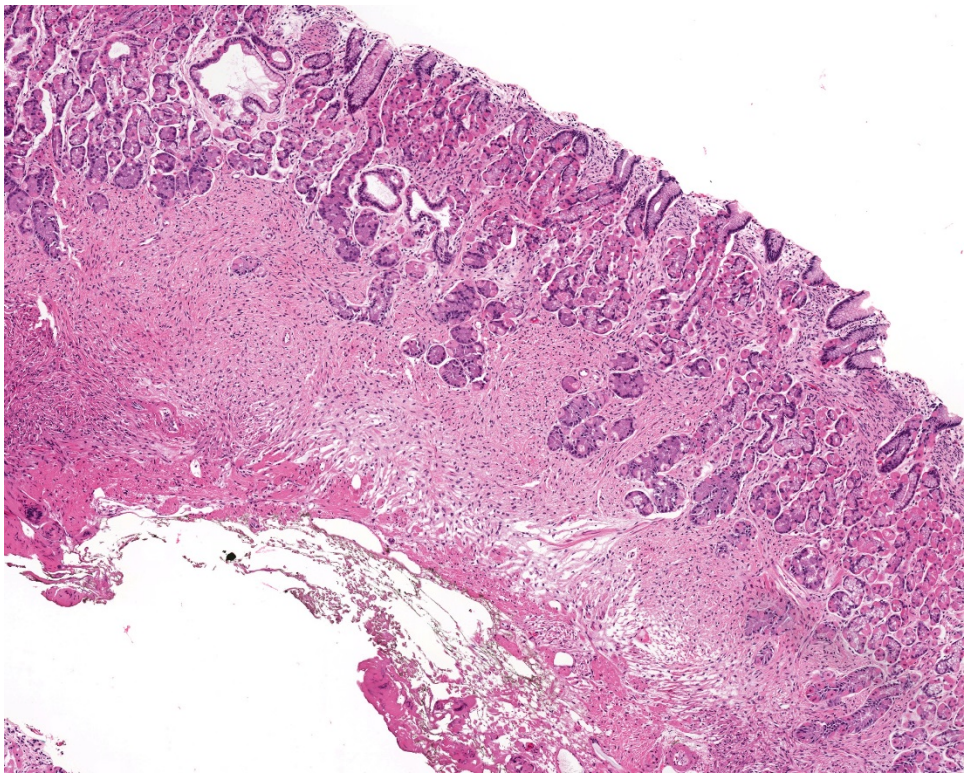

Figure 2. Gastric polyp, H&E (40x).

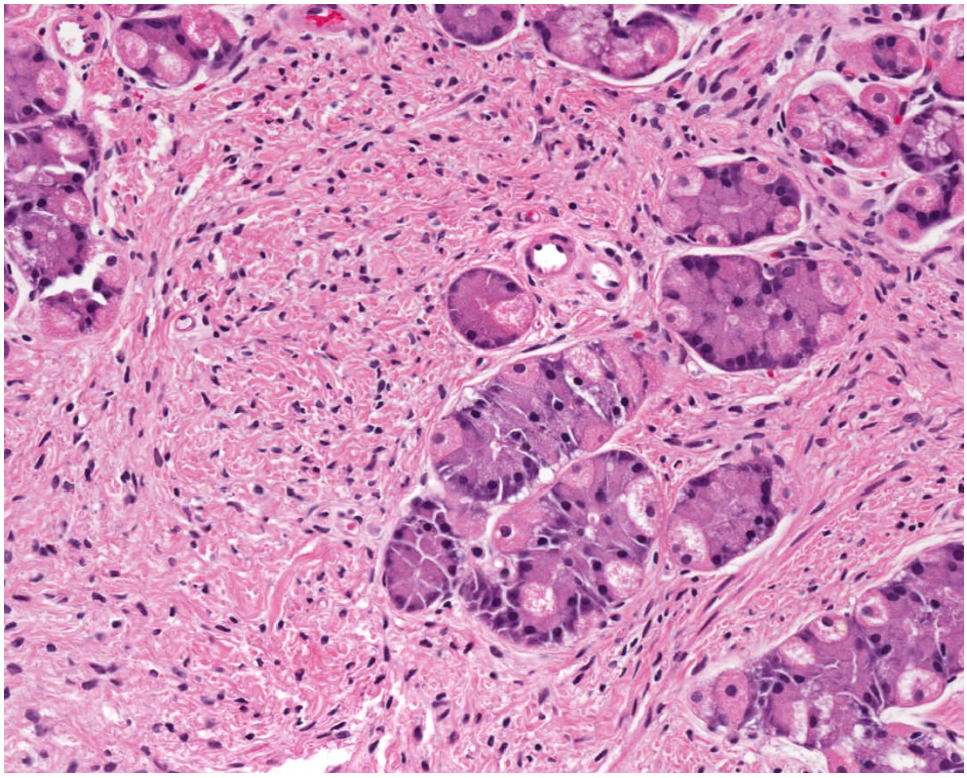

Figure 3. Gastric polyp, H&E (200x).

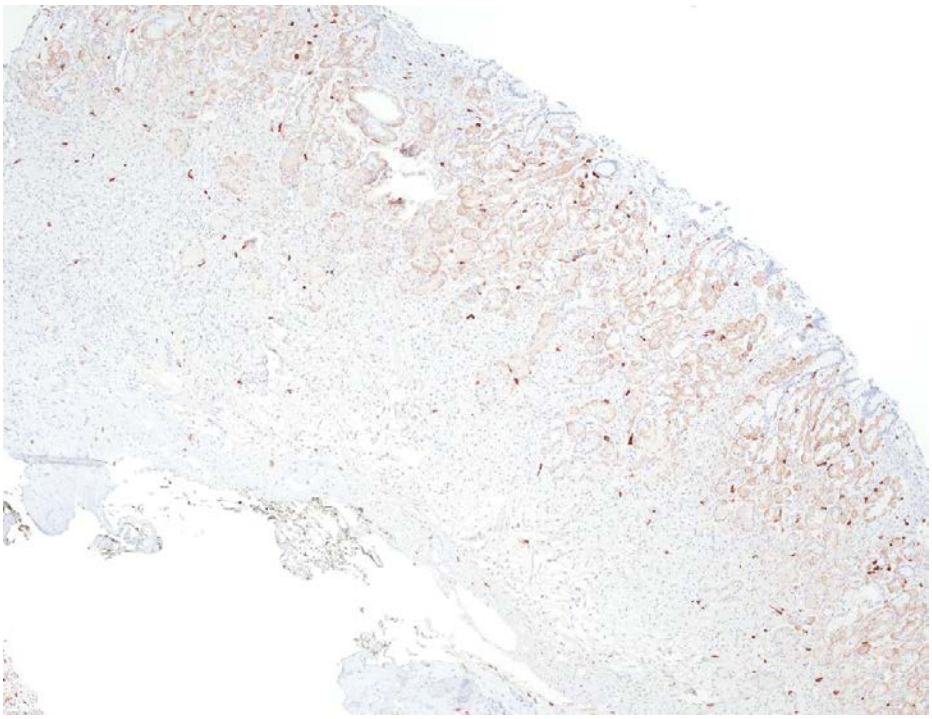

Figure 4. Immunohistochemical study for KIT (40x).

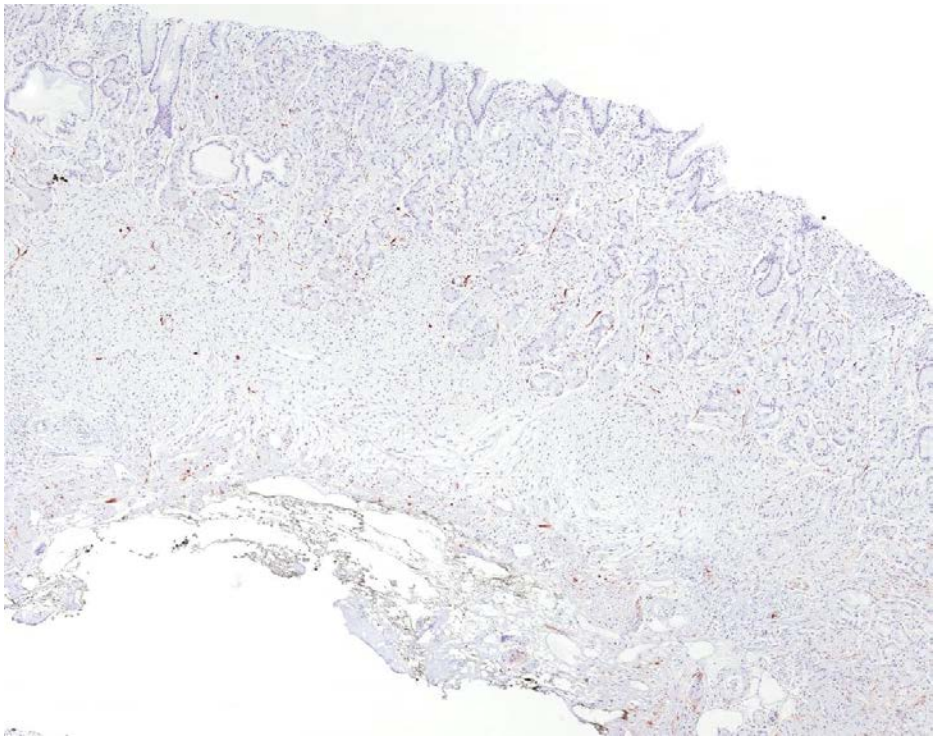

Figure 5. Immunohistochemical study for S-100 (40x).

What other immunohistochemical stains may be helpful diagnostically?

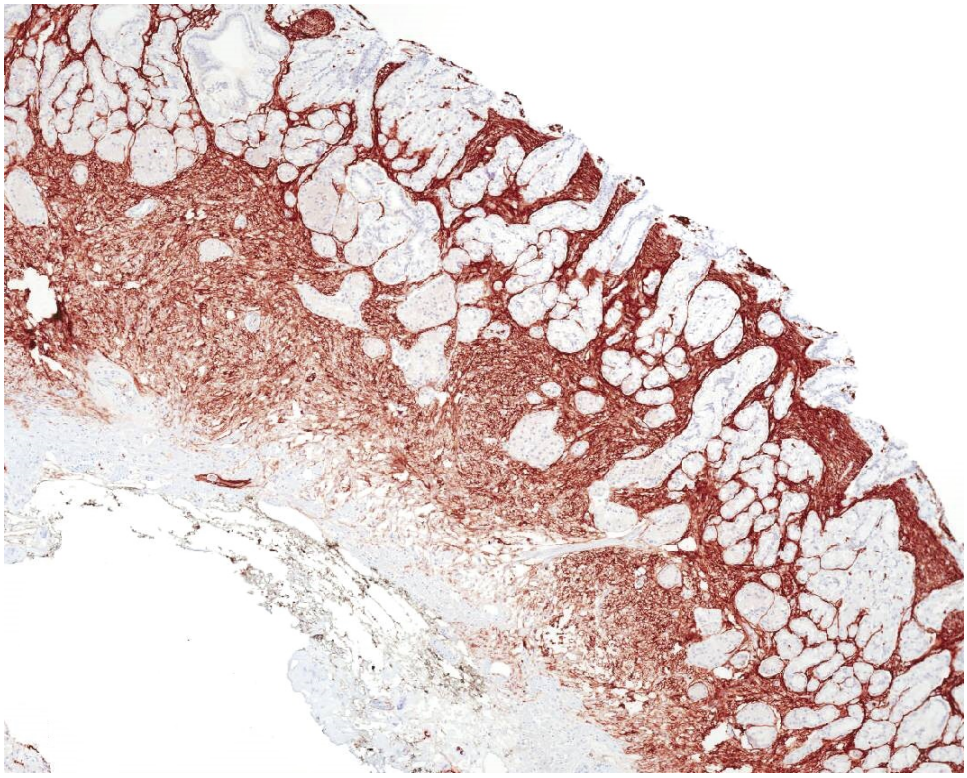

Figure 6. Immunohistochemical study for GLUT-1 (40x).

What is your diagnosis?

a. Gastrointestinal stromal tumor
b. Inflammatory fibroid polyp
c. Leiomyoma
d. Mucosal perineurioma
e. Mucosal Schwann cell hamartoma

Correct Answer

d. Mucosal perineurioma

Discussion

Gastrointestinal mucosal perineuriomas most commonly occur in the sigmoid colon or rectum where a significant proportion are associated with an overlying hyperplastic epithelial lesion. Originally termed "benign fibroblastic polyps"[1-3], these mesenchymal lesions were subsequently thought to derive from perineurial cells given their immunohistochemical and ultrastructural features[4]. Indeed these lesions share many pathologic characteristics with soft tissue perineuriomas, which are more commonly found in the subcutaneous soft tissue of the extremities or trunk.

Microscopically, mucosal perineuriomas are unencapsulated lesions composed of uniform spindle-shaped cells that expand the lamina propria and have a tendency to whorl around epithelial structures. These proliferations infiltrate the mucosa with separation of colonic crypts, or gastric pits as in the current case. No significant cytologic atypia, mitoses, or necrosis are appreciated. Immunohistochemically, the lesional cells demonstrate variable expression of GLUT-1, EMA, and Claudin-1, markers of perineural origin. Other immunohistochemical studies such as KIT, DOG-1, S-100, desmin, and smooth muscle actin are typically negative. While partial or complete deletion of chromosome 22 is known to occur in soft tissue perineuriomas[5], molecular studies of gastrointestinal-based lesions have not been reported.

Gastric perineuriomas are rarely encountered with only five purported cases reported in the literature[6-10]. One such instance demonstrated a remarkably similar endoscopic impression to the current case with a flat mucosa-based polyp with subtle central umbilication[8]. The age of these patients, three of which were female and two were male, ranged from 25 to 58 years. The reported locations included the gastric fornix, body, and antrum. While four examples consisted of small mucosal lesions ranging from 0.4 to 1.5 cm, one case presented as a 1.5 cm ulcerated submucosal mass requiring a gastric resection[6].

The major differential diagnosis includes other common mesenchymal neoplasms of the gastrointestinal tract such as gastrointestinal stromal tumor (GIST), inflammatory fibroid polyp, or mucosal Schwann cell hamartoma. Given the location of the current lesion within the lamina propria, its non-destructive growth pattern and negative staining for KIT, a GIST could be excluded. Similarly, while inflammatory fibroid polyps may extend into the lamina propria, they typically arise in the submucosa. The lack of a significant component of infiltrating eosinophils also makes this diagnosis less likely. Finally, Schwann cell hamartomas often closely mimic mucosal perineuriomas as both lesions irregularly infiltrate the lamina propria with entrapment of epithelial structures. However, mucosal perineuriomas tend to tightly approximate colonic crypts, or gastric pits, as in our case, while a thin portion of lamina propria can typically be appreciated

separating these structures in Schwann cell hamartomas. Immunohistochemical studies may also be of assistance as the former expresses Claudin-1, EMA, and GLUT-1 while the latter demonstrates reactivity for S-100. Outside of the esophagus, gastrointestinal tract leiomyomas of the muscularis mucosae are well-circumscribed lesions that most often occur in the rectosigmoid colon and do not typically extend into the lamina propria. Desmin, smooth muscle actin, and caldesmon are typically reactive by immunohistochemistry while Claudin-1, EMA, and GLUT-1 are non-reactive.[11]

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