



## Gastrointestinal Stromal Tumor near Gastroesophageal Junction with Concomitant Hiatal Hernia

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### Keywords

Gastrointestinal stromal tumors, GIST, Esophagogastric junction, Hiatal hernia

### Case Summary

The patient is a 71 years old lady who initially presents with significant gastroesophageal reflux, chronic blood loss anemia, and mild dysphagia. Her reflux symptoms have been refractory to optimal medical treatments. She was initially afebrile with unremarkable vital signs, and physical exam was otherwise normal: abdomen was non-tender, non-distended, and no hepatosplenomegaly.

Despite the fact that she denied recent weight gain or weight loss, her hemoglobin and hematocrit levels were 8.6 and 27.1 respectively at initial office visit.

She then underwent upper endoscopy due to ongoing symptoms. Endoscopic evaluation revealed a gastric mass located in the fundus near the gastroesophageal (GE) junction, which appeared localized at the submucosal layer. The tumor was found to be mildly ulcerated with minimal bleeding on the endoscopy (Figure 1). Multiple biopsies were taken, and pathology only revealed normal reactive changes.

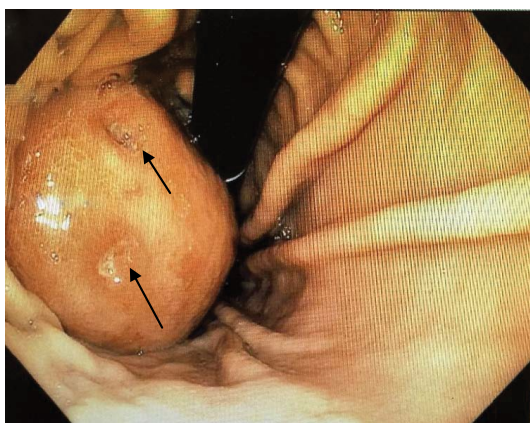


Figure 1: Retrograde endoscopic view of submucosal mass with ulcerations at GE junction (Arrow: ulcerations).

Patient further had a CT enterography of the abdomen and pelvis as a follow-up for this submucosal gastric fundal mass which demonstrate a gastric mass near GE junction measuring 5.2 × 4.6 cm in diameter (Figure 2). Moreover, there were also at least 2 small

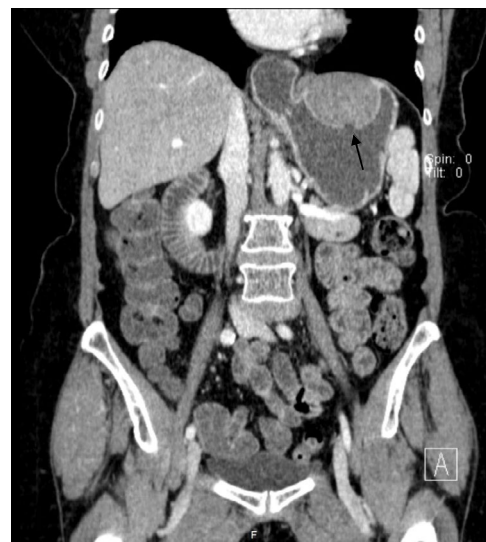


Figure 2: Axial and Coronal CT view of gastric mass.

mucosal ulcers suspected along the caudal margin of the mass and a small sliding-type hiatal hernia.

She was scheduled for laparoscopic surgery for simultaneous tumor resection and hiatal hernia repair. After standard trocar placement and placement of a liver retractor a large mass and a moderate size hiatal hernia were identified (Figure 3). No other gross abnormalities were noted. Hiatal hernia was reduced in standard fashion and closed over a 56 F bougie in esophagus. Intraoperative endoscopy was performed to evaluate intraluminal location of this mass which appeared to be near GE junction on greater curvature of stomach. Then, a 56 F bougie was re-inserted and the gastric mass was resected hugging the bougie with laparoscopic 60 mm stapler in order to prevent narrowing at the GE junction (Figure 4). The specimen was placed in an EndoCatch bag and removed from the peritoneal cavity. The specimen was opened on the back table and there was at least 1 cm margin all the way around the base (Figure 5).

The specimen was sent for frozen which it was reported as a gastrointestinal stromal tumor. Final pathology reported an 8 cm low grade gastrointestinal stromal tumor with mitotic rate  $\leq 5/50$ . All incisional margins were negative circumferentially by at least 1 cm (Figure 6a and Figure 6b).

Patient did very well postoperatively. She was reflux free after

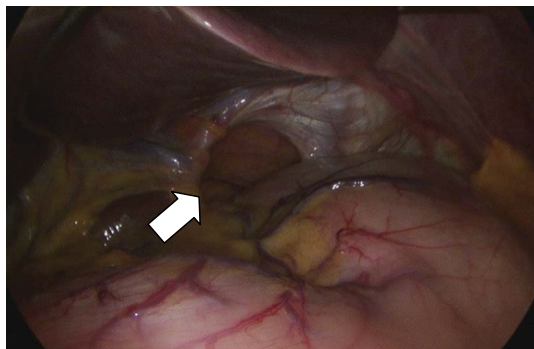


Figure 3: Moderate size hiatal hernia (white arrow).



Figure 4: Resection of gastric mass with laparoscopic stapler.



Figure 5: Specimen with negative margin.

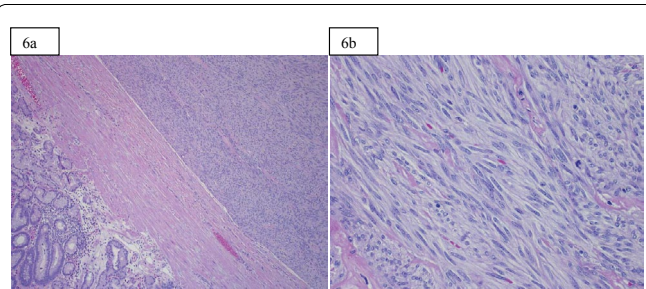


Figure 6: a) View of the hematoxylin and eosin stained section of the tumor taken at 100x original magnification showing the tumor in the upper right and the overlying gastric mucosa in the lower left. The tumor is well circumscribed, moderately cellular and composed of spindle cells with moderate amounts of indistinct eosinophilic cytoplasm. Necrosis is not identified. b) High power shows the hematoxylin and eosin stained section at 400x original magnification. The higher power tumor shows spindled cells with elongated, blunt-ended nuclei and scant to moderate amounts of gray-pink cytoplasm. There is a mitotic figure to the right of the center of the image. Overall, there were up to 4 mitotic figures per 50 high power fields. Immunohistochemistries (not shown) with antibodies directed against KIT (CD117) and DOG1 were reactive with the tumor cells.

surgery. While tolerating soft diet and adequate pain control, she was discharged in stable condition.

## Discussion

Gastrointestinal stromal tumors (GIST) are uncommon tumors arising in the submucosal layer of anywhere in the gastrointestinal tract (0.1% to 3% of all gastrointestinal malignancies) [1]. Thought to originate from the interstitial cells of Canal, an intestinal pacemaker cell. They are most commonly found in the stomach and small intestines [2-4]. About 10%-30% GISTs are malignant [4]. According to the 2002 classification criteria, the aggressive behavior of GIST is based on 2 parameters: tumor size and mitotic index. Tumors are classified using a ranking system, grouping tumors into very low-, low-, intermediate-, and high-risk categories based on size (< 2 cm, 2-5 cm, 5-10 cm, and > 10 cm) and on number of mitoses within 50 high-power fields (HPFs); such measurements typically being reported as less than 5, 5 to 10, or greater than 10 [5-7].

GIST at GE junction is extremely rare and the treatment options are still in debate [6]. Wedge resection, intra-gastric tumor resection, and combined endoscopic and laparoscopic resection have all been previously described [8-15]. Considering oncologic safety; the GIST Consensus Conference had defined in 2004 that the primary goal for surgical resection is to achieve negative margins [16]. Further, the 2007 NCCN guideline established a set of criteria which also noted negative microscopic margins being the key objective in surgical management [17].

In this case, we have shared our experience to resect a GIST at GE junction with laparoscopic wedge resection and assist of a bougie to prevent stenosis and obtain adequate margin. The laparoscopic approach allows full-thickness resection of the tumor within the gastric wall and achieving negative margins with minimally invasive method [17,18]. It is safe and effective, with no intra- and post-operative morbidity.

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