

Laparoscopic Surgery For Benign Gastric Tumors: A Simple Stapler Wedge Resection - Case Report

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Citation

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Abstract

The widespread use of endoscopy has increased the frequency of detection of gastric wall lesions in asymptomatic patients. Benign tumors of the stomach are found in 1% of patients undergoing gastroscopy. Here we present a case of benign gastric tumor resected by laparoscopy. The patient was a 55-year old female with vague abdominal pain. Endoscopy was normal and CT scan showed possible lymphoma of the perigastric nodes. Laparoscopy revealed a tumor on the lesser curvature of stomach, close to the esophagogastric junction. Wedge resection was done using 45mm Endo-GIA staplers. Histopathology confirmed benign GIST. Small, asymptomatic tumors can be observed while tumors > 5cm have to be resected... whether or not they are symptomatic. Laparoscopic resection is being widely used and there are several reports over the last 8 years. During resection, precaution is to be taken when tumors are located in close proximity to the gastric orifices (esophagogastric junction and pylorus).

INTRODUCTION

Fewer than 5% of all stomach tumors are benign. The incidence is approximately 16 cases per million and 6000 - 7000 cases per year.¹ Benign tumors are most commonly seen in stomach, less frequently in small intestine, colon/rectum, and omentum. Leiomyoma is the most common benign stomach tumor in the general population, gastrointestinal stromal tumor (GIST) being second most common. Most benign stomach tumors (19%) are asymptomatic and are found during examinations performed for unrelated symptoms; 9% are discovered at autopsy.² In most cases, endoscopy can be used for diagnosis and treatment. If the lesion is submucosal or if its size or location precludes endoscopic resection, surgery may be warranted if significant blood loss or other symptoms have developed. Until recently, laparotomy has been the preferred procedure despite significant morbidity, but the advent of minimally invasive surgery has incited several teams to propose laparoscopic resection of submucosal gastric tumors.¹ Here we present a case of GIST arising from the lesser curvature of the stomach, close to the esophagogastric junction (EGJ).

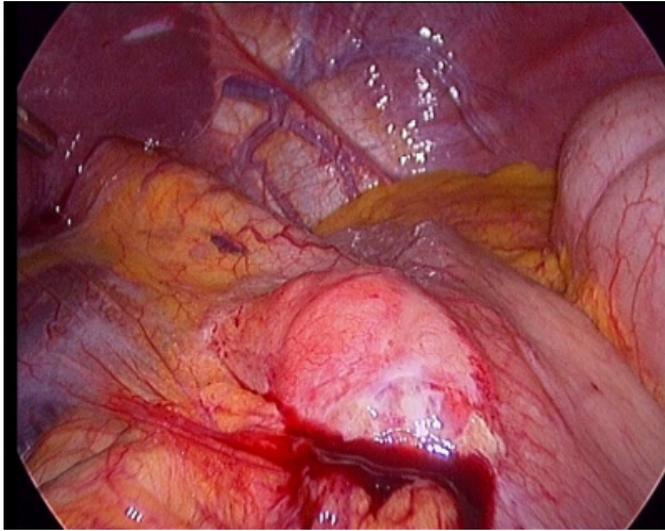
CASE REPORT

The patient was a 55-year old female with symptoms of vague upper abdominal pain and dyspepsia. Gastroscopy was normal. Ultrasonogram and CT scan showed a mass of

size 5 x 4cm on the lesser omentum, close to the lesser curvature of the stomach. There was possibility of adherence to the liver. Diagnosis was made as lymphoma and the patient was planned for diagnostic laparoscopy. Pneumoperitoneum was achieved by the conventional Veress needle technique. The surgeon stood between the patient's legs while the camera surgeon and the operative assistant on the right and left sides of the patient, respectively. A 10 mm trocar (optic) was placed in the umbilicus, 10 mm trocar in the left (right hand working) midclavicular line, a 5 mm trocar at the right (left hand working) midclavicular line and a 5 mm trocar inserted under the xiphoid (liver retraction). An additional 5 mm trocar in the left midclavicular line at the left iliac fossa region is helpful for providing caudal traction on the stomach. The first order of business was to accurately localize the lesion, as it is the location that will decide the extent of resection. A solid tumor was seen to be arising from the lesser curvature of the stomach, close to the EGJ (figure 1).

Figure 1

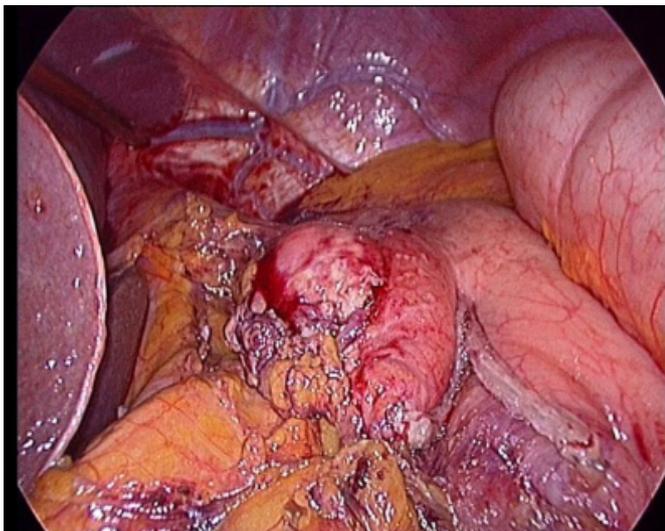
Figure 1: tumor located on the lesser curvature, close to the esophagogastric junction



It is also important to confirm the distance between tumor and EGJ after the tumor is localized. The dissection was commenced by mobilizing the lesser omentum at the level of the tumor, outside of the left gastroepiploic vascular arch. The 'window' thus created was where we introduced one limb of the stapling gun (45mm Endo-GIA, Ethicon, USA) posterior to the stomach. The other limb was placed on the anterior surface of the stomach. The Endo GIA was fired and unlocked after waiting for 1 minute. The direction of the staple-line was parallel to the lesser curvature, pointing towards the gastric fundus (figure 2).

Figure 2

Figure 2: lesser omentum mobilized; first stapler fired 3cm clear of tumor; parallel to lesser curvature

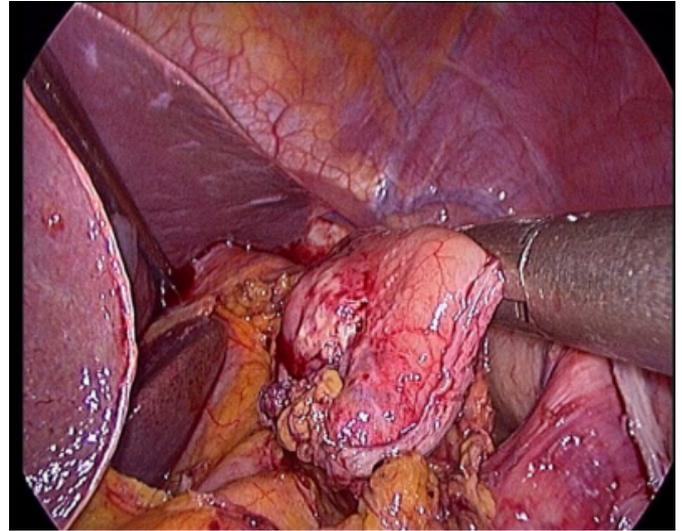


The reloaded stapler was then fixed beyond the first staple

line, directed towards the lesser curvature, and fired (figure 3).

Figure 3

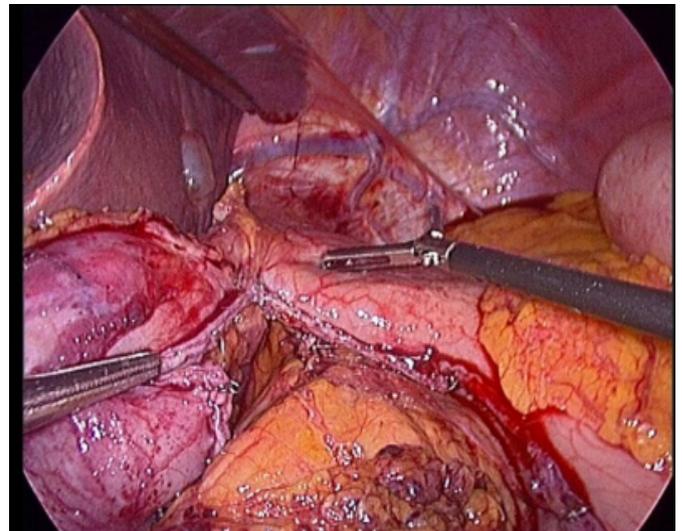
Figure 3: second stapler fired



There was a narrow bridge of stomach remaining that required another staple (figure 4).

Figure 4

Figure 4: intact staple line



The total number of staplers to be used depends on the size and location of the tumor. Complete resection of the tumor with a sufficient margin in our case required 3 sequential firings of 45mm staplers. When the Endo GIA was placed near the left side of cardia, special care was taken to ensure that EGJ was not involved to avoid postoperative esophageal stenosis. Intracorporeal seromuscular stitches were taken to cover the staple line at the corners. The specimen was taken out by placing it in a sterile, non-permeable bag, through the

10 mm port after enlarging it. The operating time was 122 minutes and there was no significant blood loss. Liquid diet was started on the 2nd postoperative day (POD), soft diet the next day. The patient was discharged on the 4th POD after she passed normal stools. Histopathological examination confirmed benign GIST; resected margins were free of tumor and no evidence of malignancy was found. There were no complications like staple-line leak, hemorrhage or wound infection. The patient was followed up after 3, 6 and 12 months and there was no evidence of recurrence on endoscopy or CT scan.

DISCUSSION

GISTs are rare neoplasms that may be benign or malignant. They arise from Cajal cells, are solitary and can degenerate into malignant neoplasms. Immunohistochemistry typically shows expression of CD34 and CD117 and absence of desmin antibodies. Submucosal gastric tumors are rare accounting for 5% of all gastric tumors. Non-specific symptoms (overt or occult bleeding, abdominal pain, common dyspepsia) are the rule. A large proportion of the patients (15-46% in the literature) are asymptomatic, the tumor being a fortuitous discovery at endoscopy or surgery.³ This raises the question of the rationale for excision under such circumstances. The diagnosis is based on endoscopy, CT and especially endoscopic ultrasonography (92% accuracy).⁴ In our patient, diagnosis was not straight forward as upper GI endoscopy was normal and CT scan was interpreted as lymph node from lesser curvature of stomach. Lymphoma was one of our differentials. Laparoscopy confirmed the exact location and probable nature of the tumor. Treatment of GIST highlights the synergy of laparoscopic and endoscopic procedures in minimally invasive gastric surgery.^{5,6} Given that malignant gastric stromal tumors rarely involve lymph nodes and only require excision with negative margins, they appear amendable to laparoscopic excision.⁷ Over the last ten years, there were many reports of laparoscopic resection, including some comparative studies between laparoscopic and open surgery.⁸ A limited number of cases have been reported in the literature and to date only two series have included more than 30 patients.² Laparoscopic wedge resection of stomachs is the most commonly performed procedure for submucosal tumors of gastric fundus. Surgery is mandatory for symptomatic tumors, but may not be necessary for asymptomatic tumors. If the nature of the tumor remains doubtful, surgical resection should be performed. Gleevec can be considered preoperatively to shrink tumor size in

patients in whom resection would change quality of life (esophagectomy, abdominoperineal resection, more complicated resections).⁹ The role for endoscopic mucosectomy is not well established and can only be proposed for small-sized tumors strictly limited to the submucosa. Simple enucleation should be avoided. The only indication for gastrectomy concerns tumors involving the gastric orifices, tumors with a wide implantation base prohibiting wedge resection or very large tumors. Despite the advantages, the question remains as to whether laparoscopic resection is the most appropriate solution. Even though the risk of tumor seeding is a well-known problem, there has been no report of tumor dissemination after resection of connective tissue tumors, but there has been one reported case of tumor seeding after laparoscopic resection of a borderline connective tissue tumor of the duodenum. In reporting this case of gastric GIST, we hope to contribute to the literature regarding the feasibility of laparoscopic excision. In conclusion, the laparoscopic approaches to surgical resection should be tailored based on the location and characteristics of the tumor. Laparoscopic resection of benign gastric stromal tumor is safe and feasible, recognizing that there is no way to achieve formal proof of benignity before resection.

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