

Treatment of gastric gastrointestinal stromal tumor by laparoscopic sleeve gastrectomy in a morbidly obese patient

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Dear Editor,

Obesity is a chronic disease with increasing rates of morbidity and mortality, and it significantly affects public health. Bariatric surgical methods, particularly laparoscopic sleeve gastrectomy (LSG), provide effective weight loss and control (1). Patients should be examined with respect to concomitant pathologies before LSG. In particular, gastric pathologies may alter the surgical procedure.

Two-thirds of the gastrointestinal stromal tumors develop in the stomach (2). Such slowly-growing sub-mucosal tumors can occasionally ulcerate and result in bleeding, but in most cases they are only incidentally identified. Very large lesions may result in abdominal pain, a sense of fullness and weight loss. While endoscopy and biopsy are crucial for diagnosis, endoscopic ultrasonography (EUS) may also be helpful. Computerized tomography of the abdomen, pelvis and thorax is crucial to identify metastases and the primary tumor. In such tumors, wedge resection with clean borders is the adequate method of surgical therapy (3).

While there is no known relation between gastrointestinal stromal tumors (GIST) and obesity, patients should be examined before bariatric surgery in terms of lesions that may have an asymptomatic course, such as GIST, lymphoma and leiomyoma. Several studies have reported that GIST-like pathologies may be detected during bariatric surgery procedures or postoperative histopathological examinations of the resected gastric specimen (4). A 57 years-old male patient was admitted to our clinics for a planned LSG due to morbid obesity. His body weight was 153 kg and height was 164 cm, his BMI was calculated as 56.6 kg/m². Upper gastrointestinal system endoscopy indicated chronic active gastritis and an abdominal

ultrasonography was performed as the patient reported abdominal pain. Ultrasonography showed cholelithiasis and a mass with an unclear origin located in the epigastric region of the posterior aspect of anterior abdominal wall. Abdominal magnetic resonance imaging showed a mass originating from the stomach wall, starting from the antrum with an anterior superior exophytic extension towards the large curvature. The mass was measured as 90 x 50 x 53 mm at the most pronounced position and it was found to be consistent with GIST (Figure 1-2).

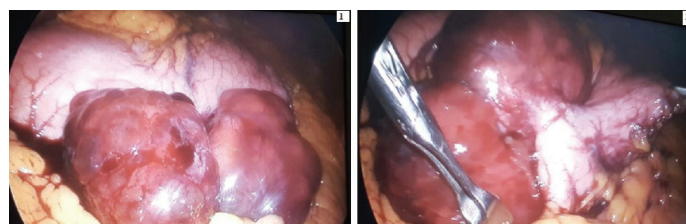


Figure 1-2. Exophytic tumor lesion extending anterior to the great curvature starting from the stomach antrum

No other organ pathologies were detected. Localization of the gastric mass was evaluated during the operation. With a negative surgical border of almost 3 cm from the stapler line, the mass was removed by LSG. The patient's postoperative follow-up was normal and he was discharged with recovery. Histopathological examination of the gastric specimen indicated epithelial cell-type GIST involving gastric musculares propria and serosa. Histopathology showed a mesenchymal, sharply margined tumor of 8 cm size, consisting of spindle and epitheloid cells without necrosis. In resected tumor, the mitotic count was less than 5 per 50 high power fields. One side of the tumor, a small connection to the gastric serosa and muscularis propria were conceivable. In the immunohistology, the tumor was positive for CD34 and CD

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117. Negative staining for desmin, smooth muscle actin and S-100. MIB-1 a marker for proliferation showed a rate of 3%. Based on these findings, the tumor was finally diagnosed as an intermediate risk GIST (according to the modified-Fletcher classification) arising from gastric wall (figure 3).

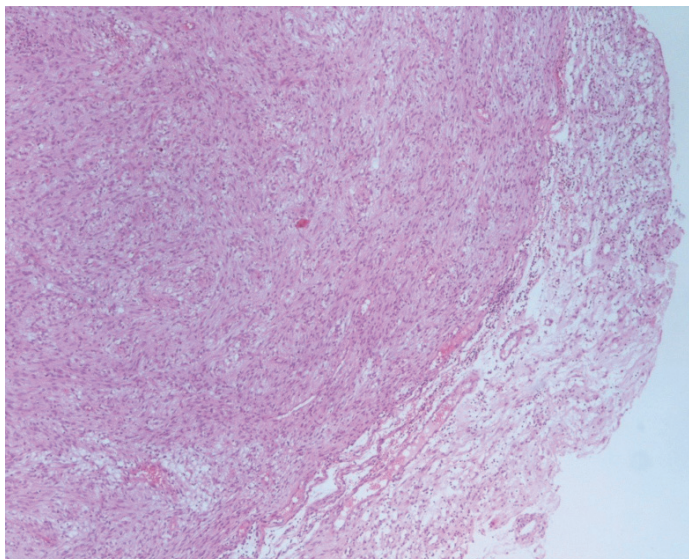


Figure 3. Mesenchymal proliferation in the spindle and epithelioid morphology well separated from the surrounding soft tissue (H&Ex100)

Obesity is a complex disease that develops due to several endocrine, genetic and environmental factors and it is characterized by an increase in body fat tissue, and its incidence is rapidly growing. Different bariatric surgery methods have distinct effects on weight loss and the hormones regulating appetite. Currently, LSG is the most popular method and it allows simultaneous treatment of certain gastric pathologies.

GISTs originate from the interstitial cells of Cajal, thus they are differentiated from leiomyomas and leiomyosarcomas which originate from the smooth muscle cells (5). Two-thirds of GISTs occur in the stomach and the most common type is epithelial-cell GIST; these are slowly-growing, sub-mucosal tumors. While they can ulcerate and manifest with bleeding and abdominal pain in rare cases, they are generally identified incidentally (6). GIST can be diagnosed based on endoscopy and biopsy. EUS may also be helpful to establish the diagnosis. Computed tomography and magnetic resonance imaging are crucial to localize the tumor and investigate potential metastases. In a study performed by Yuval et al., GIST incidence was found to be 0.6% based on retrospective histopathological examinations of gastric specimens resected from obese patients who had undergone LSG (7). Studies have demonstrated the importance of carefully examining the complete stomach with respect to pathological lesions before resection during the LSG procedures. In patients with GIST tumors, prognosis depends on tumor size, number of mitosis and metastases which typically occur hematogenously. Tumors measuring more than 1 cm can be malignant and recurrent. All GISTs, including suspected

lesions, should be resected with borders including healthy tissue. In most cases, LSG provides sufficient resection with clean borders (8).

While there are currently no clear and reliable criteria that allow prediction of GIST's behavior, the size and mitotic activity appear to be the most significant parameters. Tumors smaller than 5 cm are considered to be benign (9). Chemotherapeutic agent imatinib provides favorable outcomes in patients with metastatic or unresectable GIST (10). Our patient was resectable and had no metastasis. In histopathological examination, Imatinib treatment was not given because it was an intermediate risk according to GIST modified-Fletcher classification.

LSG is the best choice among all bariatric surgery methods for obese patients with GIST. Safe removal of tumor mass simultaneously with stomach-size reduction can be achieved by LSG.

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