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Case Report

Incidental gastrointestinal stromal tumor at a gastroscopic polypectomy specimen: A case report and review of literature

Dursun Özgür Karakaş[1], Özgür Dandin[2], Ahmet Ziya Balta[3], Yavuz Özdemir[3], İsmail Yılmaz[4], İlker Sücüllü[3]

ABSTRACT

Although gastrointestinal stromal tumors (GISTs) comprise less than 1% of all gastrointestinal (GI) tract tumors, they are the most common mesenchymal tumors of the GI tract. Gastrointestinal stromal tumors can occur anywhere along the GI tract, but the stomach and small intestine are the most frequently involved sites. Gastrointestinal stromal tumors are frequently asymptomatic, and one-third of all cases are found incidentally. Endoscopy, endoscopic ultrasonography, and computed tomography are useful tools in the diagnosis. Endoscopic mucosal resection, endoscopic submucosal dissection, laparoscopic endoscopic cooperative surgery, and surgery with either laparoscopic or open approaches are treatment modalities for GISTs. An R0 resection is the principle surgery. Imatinib is the main medical agent used in the adjuvant or neoadjuvant treatment of GIST. We present a 65-year-old woman with an asymptomatic GIST that arose from a gastric polyp treated via endoscopic polypectomy.

Keywords: Gastric submucosal tumor, gastrointestinal stromal tumor, endoscopic treatment

INTRODUCTION

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract (80%) and comprise less than 1% of all gastrointestinal tumors and 5% of all sarcomas (1). Gastrointestinal stromal tumors arise from the interstitial cells of Cajal that are located in the submucosal and myenteric plexus of the gastrointestinal tract. Gastrointestinal stromal tumors are primarily seen in the middle-aged and elderly population, and there is no gender difference. Gastrointestinal stromal tumors frequently occur in the stomach (60%), small intestine (30%). Less frequently, GISTs may arise from the duodenum, colon, rectum, and mesentery. Although most of the patients are asymptomatic and one-third of all cases are found incidentally (2), gastrointestinal bleeding, abdominal pain, and discomfort are the main symptoms of GISTs (3). Endoscopy, endoscopic ultrasonography, computerized tomography, and magnetic resonance imaging are useful diagnostic modalities for GISTs (2, 3). Pathological diagnosis is based on immunohistochemical staining with c-KIT, alpha-type platelet-derived growth factor receptor, and protein kinase C theta (2). Surgery with either laparoscopic or open approaches is the mainstay of treatment for non-metastatic GISTs; however, the routine removal of lymph nodes is not necessary (2, 4). Endoscopic enucleation and endoscopic submucosal resection can be used in selected patients. The c-kit tyrosine kinase inhibitor imatinib was found to be useful in treating GISTs. We present a 65-year-old woman with an asymptomatic GIST that arose from a gastric polyp, which was incidentally treated by endoscopic polypectomy.

CASE PRESENTATION

A 65-year old woman with 6-month history of dyspepsia was admitted to us. Epigastric tenderness was the only symptom found at the physical examination. All biochemical studies were normal. Upper gastrointestinal endoscopy detected a 1 cm × 1 cm well-circumscribed submucosal polypoid lesion at the gastric fundus (Figure 1a). The lesion was mobile, and it felt hard during biopsy. Snare polypectomy was performed after submucosal elevation by the injection of normal saline (Figure 1b). The histological examination revealed GIST at the biopsy specimen, and the tumor diameter was 4.5 mm. The tumor was confined to the submucosa, and the surgical margins were negative. There was no mitosis, and the Ki-67 index was under 1% (Figure 2a). The tumor was immunohistochemically positive for CD117 (also known as c-kit) (Figure 2b) and CD34 (Figure 2c), and it was immunohistochemically negative for muscle-specific actin, smooth muscle actin, desmin, kromogranin, synaptophysin, and neuron-specific enolase. Therefore, histologically submucosal, a low-risk GIST (Figure 2d) was reported in the pathology report. There was no local or distant metastasis on the computed tomography scan. Adjuvant treatment was not planned because of the risk stratification of the tumor by mitotic index and tumor size and location. Her control evaluations in the postoperative follow-up at the sixth month were normal. Informed consent was obtained from the patient.

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[1]Clinic of General Surgery, Kasımpaşa Military Hospital, İstanbul, Turkey
[2]Clinic of General Surgery, Bursa Military Hospital, Bursa, Turkey
[3]Clinic of General Surgery, Gülhane Military Medical Academy Haydarpaşa Training Hospital, İstanbul, Turkey
[4]Clinic of Pathology, Gülhane Military Medical Academy Haydarpaşa Training Hospital, İstanbul, Turkey

Address for Correspondence
Ahmet Ziya Balta
e-mail: ahmetzbalta@yahoo.com

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DISCUSSION

The principle surgery for GISTs is R0 resection of the tumor. Rather than systemic lymphadenectomy, adjacent enlarged lymphadenectomy is required. The recommended size of the tumor for laparoscopic resection in GIST treatment is ≤2 cm. Also, laparoscopic wedge resection is superior to the open approach (4).

Recommended laparoscopic approaches for gastric GIST are gastric wedge and transgastric tumor-everting resection for the posterior wall-located tumors that grow toward the cavity and proximal or distal gastrectomy for larger stromal tumors located in the cardia, pylorus, and gastric antrum. Recommended open approaches are subtotal gastrectomy for larger tumors located near the cardia or pylorus and gastric resection for larger tumors at the side of the lesser curvature. Compared with open resection, the laparoscopic resection of gastric stromal tumors is associated with a shorter operation time and hospital stay and a lower recurrence rate (5). The laparoscopic and open surgical approaches have a risk of hemorrhage and intra-peritoneal dissemination because GISTs tend to have a friable consistency (6).

Huang et al. (7) reported that endoscopic therapies for gastric GISTs are endoscopic ligation and resection (ELR), endoscopic submucosal excavation (ESE), and endoscopic full-thickness resection (EFR). ELR was performed for tumors smaller than 1.2 cm and when perforation was seen. ESE was performed for tumors larger than 1.5 cm and when no perforation occurred. EFR was performed for tumors larger than 2 cm and when artificial perforation occurred as a complication.

Endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), or modified ESD are other endoscopic treatment choices for gastric GISTs. EMR can be performed for tumors smaller than 2 cm with lower en bloc resection and a higher local recurrence rate. ESD or modified ESD can be performed for tumors larger than 2 cm with a higher en bloc resection and lower local recurrence, perforation, and bleeding rates (8). Zhang et al. (9) reported that ESD is a safe, effective, well-tolerated, and minimally invasive therapy with few complications such as perforation of the intraluminal gastric submucosal tumors originating from the muscularis propria, which can be managed endoscopically.

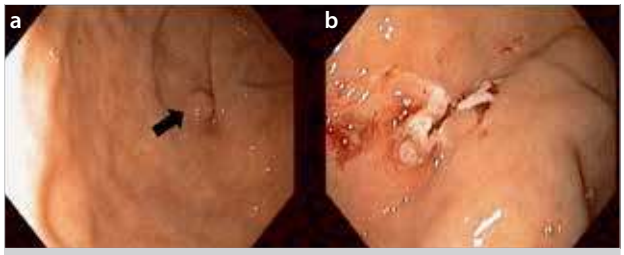

Figure 1. a, b. (a) Endoscopic image of polypoid lesion at the fundus. (b) Postpolypectomy image of the fundus

Laparoscopic and endoscopic cooperative surgery (LECS) is another endoscopic treatment choice for gastric GISTs. LECS can be divided into the following two types: laparoscopic-assisted endoscopic technique and endoscopic-assisted laparoscopic technique. LECS is safe, easy, and beneficial for the laparoscopic resection of gastric GIST. LECS has a shorter operative time and a low bleeding risk with reduced intra-abdominal contamination and infection than ESD (10).

CONCLUSION

Gastrointestinal stromal tumors should be treated as possible with laparoscopic or endoscopic methods according to the development of technology and the increasing interest of surgeons to minimally invasive approach currently. Endoscopic treatment is a safe, easy, well-tolerated, and minimal invasive treatment choice for incidental gastric submucosal tumors smaller than 2 cm with a lower complication rate.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

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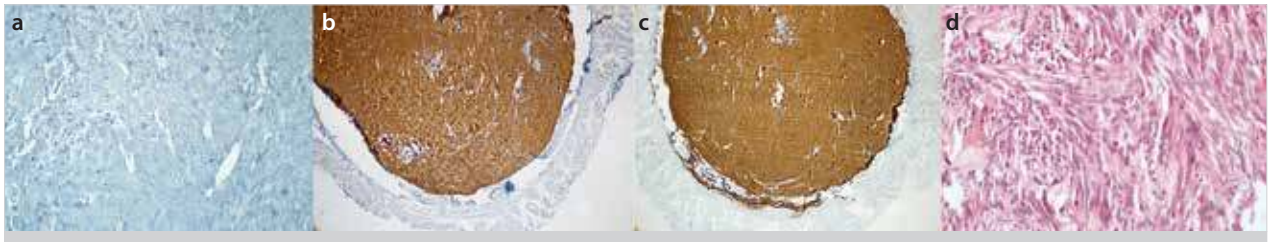

Figure 2. a-d. (a) ×100 microscopic magnification of the Ki 67 index. (b) ×40 microscopic magnification of the CD117-stained tumor. (c) ×40 microscopic magnification of the CD34-stained tumor. (d) ×400 microscopic magnification of the hematoxylin–eosin-stained stromal tumor

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