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Case Report

Laparoscopic Central Gastrectomy for a Gastric Schwannoma: Case Report

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ABSTRACT

Introduction: Schwannomas are tumors originating from any peripheral nerve that rarely arise in the stomach.

Presentation of Case: A 77-year-old woman with nonspecific epigastric pain. EGD reveals a submucosal bulge on the anterior wall of the gastric body. EUS showed a heterogeneous mass compatible with GIST. We performed a laparoscopic central gastrectomy because a wedge resection wasn't possible for the tumor localization. Biopsy reveals it was a Schwannoma.

Discussion: Gastric Schwannomas are atypical mesenchymal gastric tumors that usually have non-specific symptoms. Preoperative workup is made by EGD, EUS and CT but, commonly those methods couldn't do the differential diagnosis with GIST. Surgery is the treatment. Because it is not necessary to perform a lymphadenectomy, the type of gastrectomy could be choosing within total, distal, wedge or atypical resection, depending tumor size and location. There are not publications about central gastrectomy for GS. Therefore, we decided to present this patient with a CG for GS, that showed good outcomes.

Conclusion: Central gastrectomy is an available option for Gastric Schwannomas when lateral or wedge resection couldn't be performed.

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Introduction

Schwannomas are tumors originating from any peripheral nerve. They are rarely seen in the gastrointestinal tract and when they do, the stomach is the most frequent site. Most of them are asymptomatic and discovered incidentally, and they have overlapping morphologic and cytologic features with gastrointestinal stromal tumors (GIST) and leiomyomas [1].

Case Report

A 77-year-old woman with a 3-year history of nonspecific epigastric pain underwent esophagogastroduodenoscopy (EGD), revealing a submucosal bulge on the anterior wall of the gastric body. Endoscopic ultrasound (EUS) showed a heterogeneous mass measuring 30 x 30 mm arising from the muscular propia, compatible with a GIST. A computed tomography (CT) scan revealed after intravenous contrast administration

a uniformly enhancing mass located near the greater curvature of the stomach on the anterior wall. No distant metastasis was observed. Laparoscopic examination showed a 3 x 3 cm tumor arising from the posterior wall of the body of the stomach.

It was not possible to achieve a negative resection margin with a lateral or a wedge resection, so we decided to perform a laparoscopic central gastrectomy (Figures 1-5). On histopathological analysis, the tumor was composed of spindle cells in a palisade arrangement. Immunohistochemical (IHC) staining showed that the spindle cells were positive for S-100 and negative for CD34, CD117, desmin, DOG1 and Ki-67, confirming the diagnosis of GS. Recovery was uneventful and the patient was discharged on postoperative day 5. Initial gastric function was impaired, with gastric stasis that required the use of medication and adequate diet. After a period of two months gastric function was fully recovered with early satiety as the only symptom. Follow up is now 16 months with no signs of recurrence.

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Figure 1: Location of GS. Tumour arising in the middle of the posterior wall of the gastric body.



Figure 2: After the first stapler was done.



Figure 3: After the second stapler was done. We can see the space between the two resection margins.



Figure 4: Anastomosis performed by stapler.



Figure 5: Opened specimen.

Discussion

Schwannomas, like GIST, leiomyomas and leiomyosarcomas are mesenchymal tumors. The most common site of appearance in the gastrointestinal tract is the stomach, but they are very rare and account

only for 0.2% of all gastric tumors [2, 3]. They occur more frequently in the fifth or sixth decades of life, with a female predominance. Most of the times they are asymptomatic, and diagnosis is incidental. When they become symptomatic, the most common manifestation is upper gastrointestinal bleeding (the submucosal mass compromises the blood supply to the mucosa leading to ulceration). A previous report from our institution of 5 subepithelial tumors of the stomach, published in 2009, is coincident with the low incidence of these lesions, since they represented an incidence of 0.08% of the endoscopies done during that period [4]. Only one of those cases was a GS and was treated with a laparoscopic distal gastrectomy.

The main differential diagnosis of GS is with GIST. Both share a similar presentation as submucosal lesions, but the prognosis, however, is very different, since GS are benign tumors with excellent prognosis, whereas 10-30% of GIST have malignant behaviour. Preoperative conventional imaging techniques usually fail to make the distinction between them. On CT scan, most GS appear as a well-defined, ovoid, and homogeneous mass without tumor capsule, ulceration, hemorrhage, or calcification.

After intravenous contrast administration they usually show a homogenous enhancement pattern, whereas GIST frequently shows heterogeneous enhancement due to degenerative changes inside the tumor [5]. EUS is the most reliable procedure for the assessment of patients with gastrointestinal submucosal lesions. GS usually appear as round submucosal lesions, with homogeneous internal echogenicity, that is in most cases lower than that of the surrounding normal muscular layers.

Definitive diagnosis is therefore made after pathological analysis. On macroscopy GS are yellow to yellow-white, whereas GIST is tan-pink or have hemorrhagic appearance. On microscopy, GS consists of focally atypical spindle cells, arranged in a micro trabecular / micro fascicular pattern, with a perineural lymphoid cuff, often with germinal centres. They differ from GIST because GS show no perinuclear vacuolization, and GIST have more a prominent nuclear palisade [6]. Immunohistochemical findings are confirmatory, since GS show universal positivity for S100 protein and frequently for GFAP and are negative for KIT and smooth muscle markers, whereas GISTs are positive for KIT (CD34) and DOG1/Ano 1 [7, 8].

Unlike the case of GIST, pathologic parameters such as tumor size and mitotic rate lack of prognostic value for GS. Although some cases exceeded 10 cm size, and a minority have a mitotic rate > 5/50 HPFs (high-power fields), none of these tumors showed evidence of an aggressive behaviour. However, GS with high mitotic rates of > 10/50 HPFs, should be closely monitored, since long-term follow-up is limited [6].

Surgical resection is the treatment of choice for patients with GS. Depending on tumor size and location, local or wedge resections, partial or even total gastrectomy are acceptable surgical procedures with a low recurrence rate. The laparoscopic approach is accepted as standard in trained surgical teams [9]. Since nodal metastasis are exceptional, it is not necessary to perform additional lymphadenectomy [10]. Wedge resections, by laparoscopic or open approach, were the procedure of choice in a recent series from Germany of 4 GS [11]. In our case, a wedge resection was impossible to be done with sufficient surgical margins

without causing narrowing of the remaining stomach. Because of that, we chose to do a laparoscopic central gastrectomy. The experience with this technique is limited with only few video presentations and case reports. There is only one large experience with open central gastrectomy for gastric cancer in which 2 out of 100 patients experienced gastric stasis that resolved after approximately 40 days, similar to the evolution of our patient [12].

Conclusion

Laparoscopic Central Gastrectomy is an option of surgery for suspected gastric schwannomas when the size or location don't allow a wedge resection.

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Highlights

- Gastric Schwannomas are mesenchymal tumors that uncommon arise on stomach.
- Usually, they are found incidentally in endoscopies for non-specific gastrointestinal symptoms.
- Surgery is the main treatment and it's not necessary to perform lymphadenectomy.
- Local or atypical resection could be made.

Abbreviations

GS: Gastric Schwannoma
GIST: Gastrointestinal stromal tumors
EGD: Esophagogastroduodenoscopy
EUS: Endoscopic ultrasound
CT: Computed tomography
IHC: Immunohistochemical
CG: Central Gastrectomy

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