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Case Report
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Gastric Schwannoma: The GIST Simulator

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Abstract

Introduction: Gastric Schwannoma is a very unusual mesenchymal tumor. The prognosis is excellent with and accurate surgery.

Case Presentation: A 65-year-old woman with a 6 cm antral gastric submucosal tumor was resected totally by laparoscopic surgery. The biopsy showed a gastric schwannoma.

Discussion: The gastric schwannoma is a rare tumor that can simulate other more frequent non-epithelial gastric tumors as GIST. The treatment of this rare disease is the total resection with free margins.

Conclusion: Total laparoscopic resection of a gastric schwannoma can be achieved safely, with the benefits of minimally invasive surgery.

Keywords: Gastric tumor; Gastric schwannoma; Neurilemoma; Mesenchymal tumor; Laparoscopic surgery

Highlights

- The Gastric Schwannoma (GS) is a very rare gastric tumor.
- GS cannot be differentiated from GISTs in conventional pre-operative tests.
- The prognosis after complete resection is excellent.
- Total laparoscopic resection can be achieved safety, with the benefits of minimally invasive surgery.

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Introduction

Schwannomas also known as neurilemoma are rare tumors that emerge from peripheral nervous system, particularly Schwann cells. The gastrointestinal location is very rare, been the stomach the most affected organ; however Gastric schwannoma (GS) represents only 0% to 2% of all gastric tumors. Usually they have benign prognosis, but malignant transformation has been described. Symptoms are usually vague and depend on the localization [1-4].

In this case report we present a patient with and antral submucosal gastric tumor that received totally laparoscopic resection.

Case Presentation

A 56-year-old woman, with hypertension and hypothyroidism. Clinical history of six months of epigastric pain, without vomits, dysphagia, jaundice, fever or weight loss, no specific founding at physical examination. The upper endoscopy showed an anterior antral submucosal tumor of 5 cm, with no ulceration (Figure 1). The abdominopelvic CT scan showed an anterior antral submucosal exophytic solid tumor of 5.2 cm × 4.8 cm, without celomic, lymphatic or visceral metastasis (Figure 2). With the diagnosis of an antral GIST, the patient underwent laparoscopic exploration and resection of the lesion.

A 15 mmHg pneumoperitoneum and 4 trocars (1 of 5 mm and 3 of 12 mm) were used. A 6 cm exophytic gastric tumor was found in the same position describes by the endoscopy and CT. Dissection of the grater curvature was performed to access the lesser omentum and posterior wall of the stomach. After passing a 36F bogie throw the pylorus, a total resection of the tumor was performed with 2 staplers (Figure 3 and Video 1).

The patient had a good recovery from surgery, initiating oral intake at 24 h. After surgery and

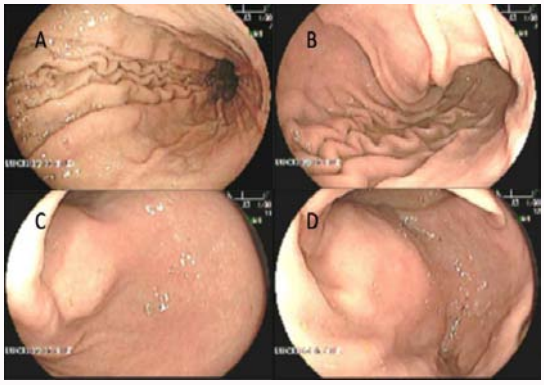

Figure 1: Upper gastrointestinal endoscopy A) Gastric body, B) Impression of submucosal tumor at de anterior surface of gastric angle, C and D) Antral submucosal tumor without mucosal erosion.

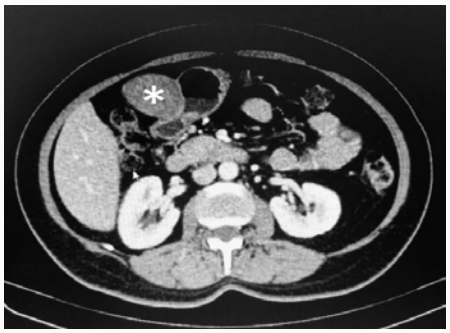

Figure 2: Pre-operative axial image of abdominopelvic CT˙Anterior antral solid exophytic tumor of 5.2 cm × 4.8 cm.

was dismissed at the 3rd postoperative day with no post-operative complications.

The histopathologic examination showed a 6.2 cm × 5 cm gastric schwannoma, with 0-2/50 field mitotic count, non-necrosis, free margin, S100 highly positive, Actine: negative, Demin: negative, CD34 negative, CD 117: negative, COG1: negative, KI67: nuclear positive in 5% of cells (Figure 4). After discussion at the Oncology Committee, a surveillance conduct was decided. At 8 months follow up the patient had no signs of surgical or oncologic complication (Figure 5).

Discussion

Submucosal gastrointestinal tumors have three different histological groups: GIST, myogenic (Leiomyomas or leiomyosarcomas), and neurogenic tumors (schwannomas, granular cell tumors and neurofibroma). In the neurogenic group 91% are schwannoma, and the most frequents locations are stomach (60% to 70%) and colorectal. GS represent 5% of nonepithelial gastric tumors [4-6].

As describe Bruneton et al. [1] and Mekras et al. [6], the majority of the patients with GS are women, between the 6th and 7th decade of life. Usually they are asymptomatic, but when they require surgery, 42% to 88% has abdominal pain, 25% to 65% has gastrointestinal bleeding and 10% to 25% have weight loss. The localization is usually at the body (50%) or antrum (32%) and the size is less than 10 cm in 88% of cases, and less than 5 cm in 48% of them. In our case report, these demographic, clinical and anatomical characteristics are present.

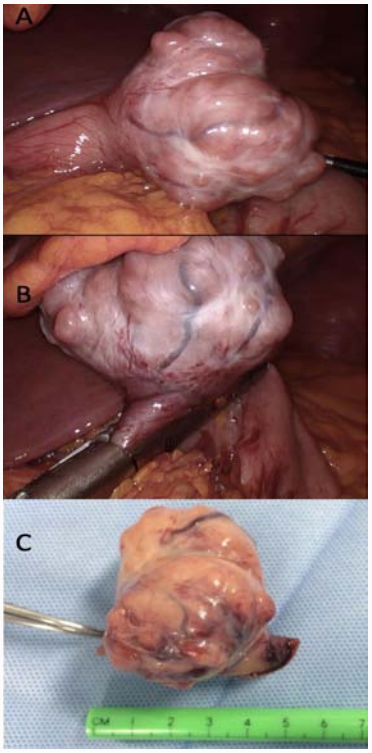

Figure 3: Sugery A) Anterior antral exophytic tumorwith expansive growing. B) Resection of the tumor with mechanical suture with laparoscopic stapler. C) Tumor resected.

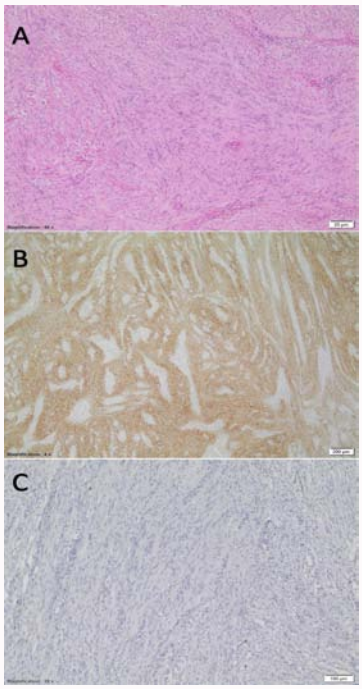

Figure 4: Histologyc examination A) H&E 40x, Mesenchymal neoplasiaComposed of fused cells with elongated nuclei and sharp edges. They present little pleomorphism and mitotic count from 0 to 2/50 HPFs. Cells in areas are arranged forming palisades. B) S100: Intense and diffuse positive in cells under study. C) CD117: negative in cells under study.

Endoscopic and tomographic studies are the first line approach, but they cannot differentiate accurately between GIST, myogenic

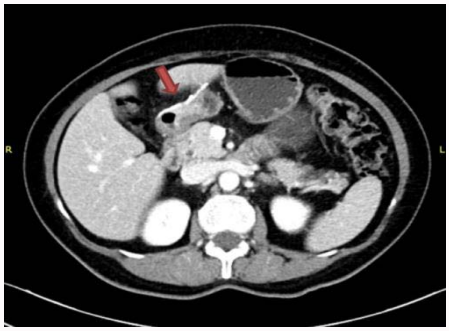

Figure 5: Post-operative axial image of abdominopelvic CT. Red Arrow: Tumor resected.

and neurogenic tumors [4]. A second line of study is the Endoscopic Ultrasound (EUS) with guided biopsy, but the cost and availability should be consider, especially if the lesion is located at the gastric wall, which usually has in experience groups a comfortable surgical access and low morbi-mortality in case of resection. In our case report the preoperative diagnosis was a presumed GIST, principally because is the most frequent gastric submucosal mesenchymal tumor. Considering the symptoms and little additional benefit of EUS, we decided to perform a total resection of the tumor.

Surgical therapy is the cure in most cases without any other adjuvant therapy. The surgical approach depends on the tumor size, localization, surgeon experience and preference. The most important thing is to achieve negative margins, and to do so, resections could be from an economic enucleation and suture, to a partial or total gastrectomy. Because of the nature and frequency of this tumor, the literature available consist in Case Reports [1,6], Case series [2,7], Case-controls studies [3] and Reviews [4,5,7,8]. Many of the reports doesn't declare the surgical approach, some of them specified a laparoscopic one [6,9]. As we mentioned before, in trained groups a laparoscopic approach with haemostatic sealant technology and staplers, are comfortable, short and safety procedures, that also contribute with all the benefit of minimally invasive surgery [10].

The pathologic examination is the key to differentiate between all subtypes of submucosal gastric tumors. Before the advances in immunohistochemical stain, the majority of this tumors were diagnosed as leiomyoma and leiomyosarcoma, but now with the advent of c-Kit, DOG1 and CD34 which are usually positive in GIST, SMA and Desmin positive in Leiomyoma, S100 positive in Schwannoma the diagnosis.

After free margin surgery the prognosis is excellent, some argue that the risk of malignant transformation is theoretical, and that histology findings such as tumor size and mitotic rate have no prognostic significance [6,7], but since malignant schwannoma have been described [1,11-14], and the follow-up in tumors larger than 10 cm or with a mitotic rate >10/50 HPFs is limited, a clinical, endoscopic and tomographic surveillance should be consider according to each patients [7].

Conclusion

The GS can mimic GITS and should be consider in the differential diagnosis of submucosal gastric tumor. The treatment of choice is complete resection, and total laparoscopic resection of a GS can be achieved safely, with the benefits of minimally invasive surgery.

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