Clinical Case

# Gastric Schwannoma: A Case Report of a Rare Differential Diagnosis to Consider in Gastric Tumours

## Schwannoma Gástrico: Relato de Caso de um Diagnóstico Diferencial Raro a ser Considerado em Tumores Gástricos

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## ABSTRACT

Schwannomas are rare mesenchymal spindle cell tumors arising from Schwann cells. They account for approximately 0.2% of all gastric tumors and originate from the Auerbach and Meissner plexuses. We report the case of a 61-year-old man with a 5-cm exophytic lesion located in the gastric antrum, incidentally detected on routine imaging, which prompted upper gastrointestinal endoscopy. Endoscopic evaluation revealed a subepithelial tumor without mucosal ulceration. Further assessment with endoscopic ultrasound confirmed that the lesion originated from the muscularis propria. A biopsy was performed, establishing the diagnosis of schwannoma based on histological and immunohistochemical findings. Following discussion at a multidisciplinary meeting, surgical management was recommended. The patient underwent laparoscopic subtotal gastrectomy with Billroth II reconstruction.
Gastric lesions encompass a broad spectrum of differential diagnoses with variable prognoses. Although rare, gastric schwannomas should be considered by both surgeons and pathologists. As these tumors are predominantly benign, the principal challenge lies in achieving an accurate diagnosis before initiating treatments aimed at alternative differential diagnoses.

**Keywords:** Laparoscopy; Neurilemmoma/surgery; Stomach Neoplasms/surgery

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## RESUMO

Os schwannomas são tumores mesenquimais de células fusiformes raros que se originam da bainha de Schwann. Representam 0,2% de todos os tumores gástricos e têm origem nos plexos de Auerbach e Meissner. Descrevemos o caso de um homem de 61 anos com uma lesão exofítica de 5 cm no antro gástrico, detectada em um exame de imagem de rotina, que motivou a realização de uma endoscopia digestiva alta. Foi realizada uma biópsia e o diagnóstico de schwannoma foi confirmado. Após discussão em reunião multidisciplinar, o tratamento cirúrgico foi recomendado. O paciente foi submetido a uma gastrectomia subtotal laparoscópica com reconstrução Billroth II.

Uma lesão gástrica abrange uma ampla gama de diagnósticos diferenciais, cada um com prognósticos variáveis. Embora raros, os schwannomas podem surgir no estômago e devem ser considerados tanto por cirurgiões quanto por patologistas. Apesar de benignos, o único tratamento é a excisão cirúrgica, que idealmente deve ser realizada por laparoscopia para minimizar a morbidade. O prognóstico é geralmente muito favorável.

**Palavras-chave:** Laparoscopia; Neoplasias do Estômago/cirurgia; Neurilemoma/cirurgia

## INTRODUCTION

In 2019, the World Health Organization classified mesenchymal tumors of the gastrointestinal tract into several categories, including gastrointestinal stromal tumors (GISTs), fibroblastic and adipocytic tumors, muscular tumors, vascular tumors, neuronal tumors, and tumors of uncertain differentiation.[1]

Schwannomas, also referred to as neurilemmomas, are rare mesenchymal tumours of neuronal origin that arise from Schwann cells. They account for up to 7% of all gastrointestinal mesenchymal tumors but represent only approximately 0.2% of all gastric tumors.[2,3]

These tumors are most frequently diagnosed incidentally, as they are typically asymptomatic, slow-growing, and benign. Differentiation from other gastric lesions—particularly stromal tumors—is essential and is often only possible after surgical resection.[4]

## CASE REPORT

We report the case of a 61-year-old male patient with a medical history of silicosis, obstructive sleep apnea syndrome, arterial hypertension, and dyslipidemia. He was referred to an esophagogastric surgery consultation following an imaging study performed during routine evaluation of his pulmonary disease. The patient was asymptomatic from a gastrointestinal perspective and denied abdominal pain, dyspepsia, food intolerance, weight loss, or anorexia. Laboratory investigations revealed no elevation of tumor markers, including CA 19-9 and carcinoembryonic antigen (CEA).

Thoracoabdominopelvic computed tomography (CT) identified a well-defined exophytic lesion arising from the gastric antrum, measuring approximately 5 × 4 cm (Fig. 1), prompting upper gastrointestinal endoscopy. Endoscopic examination revealed a subepithelial lesion without mucosal ulceration, extending from the incisura along the lesser curvature of the antrum to the superior aspect of the duodenal bulb. Endoscopic ultrasound (EUS) confirmed that the lesion originated from the muscularis propria (Figs. 2 and 3). An EUS-guided fine-needle biopsy was performed, and histological examination demonstrated a benign spindle cell neoplasm. Immunohistochemical analysis showed diffuse positivity for S100 protein and negativity for CD117, CD34, and smooth muscle actin, consistent with a diagnosis of schwannoma.

Following discussion at a multidisciplinary oncological meeting, primary surgical management was recommended due to the tumor size. Intraoperatively, a gastric mass was identified on the posterior wall of the prepyloric region, with no evidence of metastatic disease, peritoneal carcinomatosis, or suspicious lymphadenopathy. The surgical approach was determined intraoperatively based on tumor size and location. Wedge resection was deemed to carry a high risk of gastric stenosis and impaired gastric emptying; therefore, laparoscopic subtotal gastrectomy was performed. Given the benign nature of the lesion and the absence of suspicious lymph nodes, formal lymphadenectomy was not indicated.

Regarding reconstruction, although the patient was not of advanced age, significant respiratory comorbidities increased perioperative risk. Consequently, minimization of operative time and technical complexity was prioritized, and Billroth II reconstruction was favored over Roux-en-Y.

The procedure was completed without intraoperative complications, and the postoperative course was uneventful. The patient was discharged on postoperative day five.

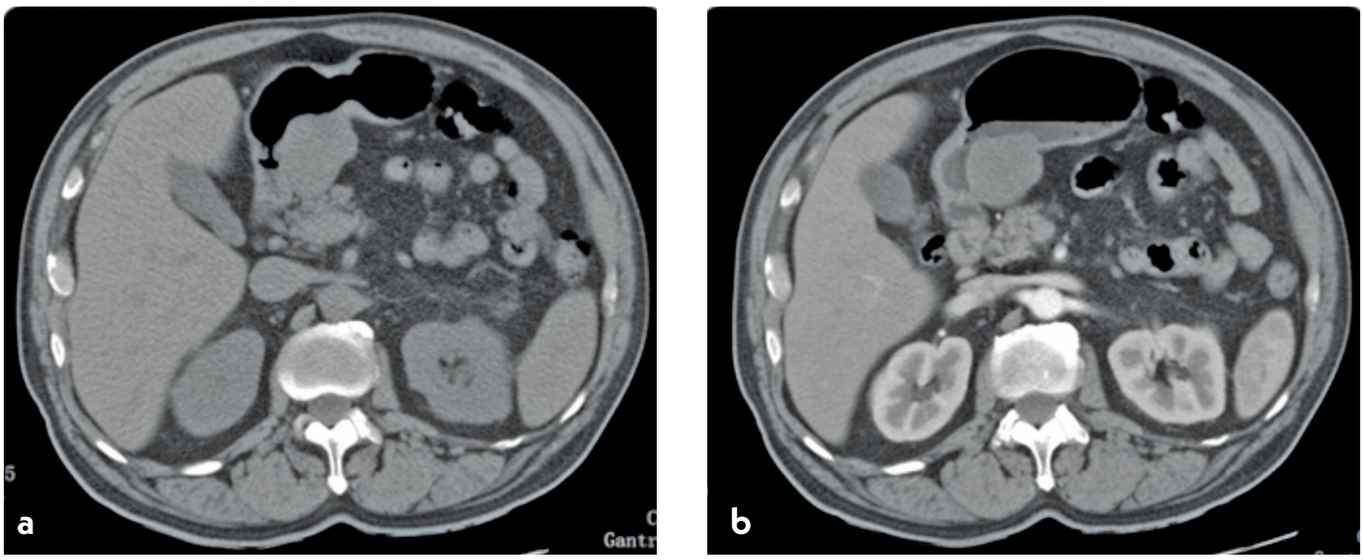


**Figure 1** – CT image showing a exophytic lesion of the gastric antrum, arising from the gastric wall (white arrow). Low attenuation on both unenhanced CT images (a) and arterial phase contrast-enhanced CT (b).

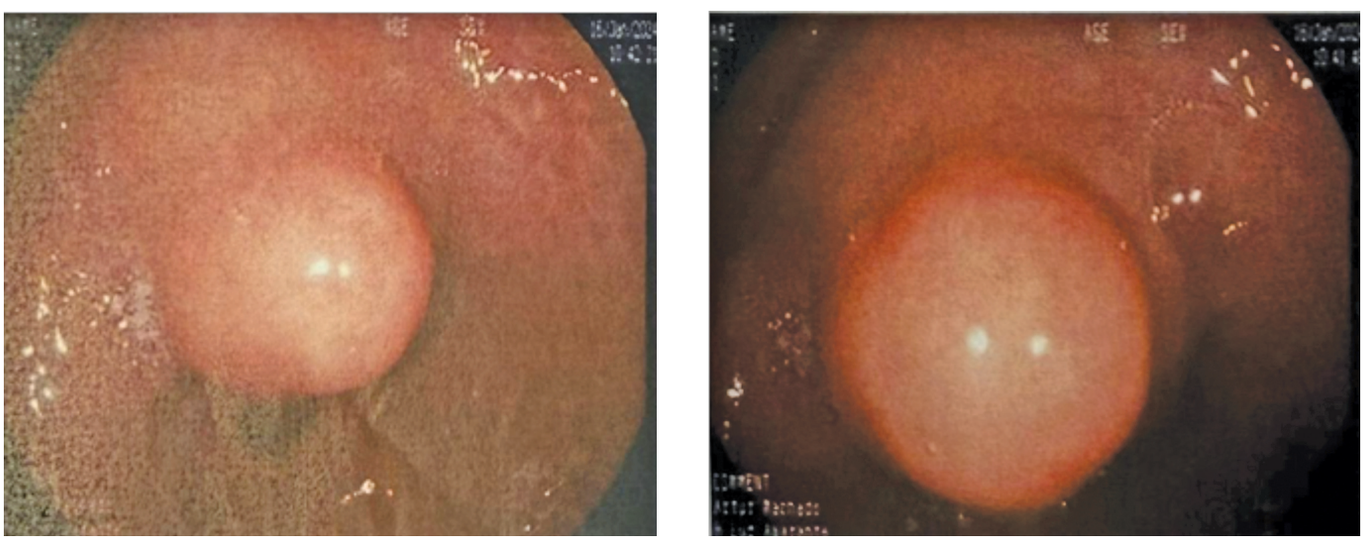

**Figure 2** – Endoscopic exam showing a subepithelial gastric lesion without mucosal ulceration.

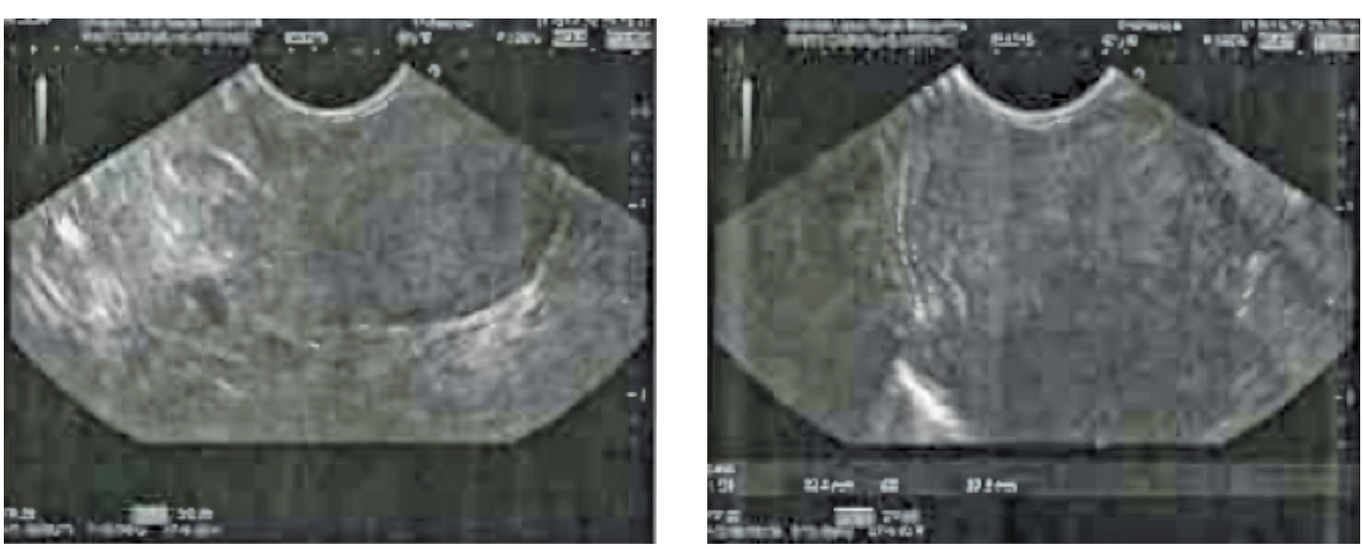

**Figure 3** – Endoscopic ultrasound showed a subepithelial round and hypoechoic gastric lesion in close contact with the gastric wall, originating from the muscularis propria.

Histopathological examination of the resected specimen revealed a spindle cell lesion involving the subserosal and muscularis propria layers. The tumor was positive for S100 protein and negative for desmin, smooth muscle actin, CD117, CD34, and DOG-1, confirming the diagnosis of benign gastric schwannoma. The examined lymph nodes showed only reactive changes.

Postoperative follow-up was conducted in the esophagogastric surgery clinic and included clinical, nutritional, and laboratory assessments aimed at detecting late postoperative complications, such as bile reflux, dumping syndrome, anemia, and nutritional deficiencies. As the lesion was benign, no postoperative imaging or endoscopic surveillance was indicated. The patient remained asymptomatic throughout follow-up, with no laboratory abnormalities detected at six-month intervals. He was discharged from follow-up after one year.

## DISCUSSION

The term subepithelial gastric lesion encompasses a wide range of intramural gastric tumors, which are generally asymptomatic and frequently detected incidentally during imaging or endoscopic examinations. Depending on size and location, these lesions may occasionally present with symptoms ranging from gastric outlet obstruction to intraluminal or intraperitoneal hemorrhage.[5]

Among these lesions are gastric mesenchymal tumors, including schwannomas, which originate from Schwann cells within Auerbach's and Meissner's plexuses. Gastric schwannomas were first described by Bruneton in 1983.[6]

According to published data, gastric schwannomas account for approximately 0.2% of all gastric tumors and 6.3% of gastric mesenchymal lesions, with a reported GIST-to-schwannoma incidence ratio of approximately 45:1.[7]

Neither CT nor upper gastrointestinal endoscopy alone allows for a definitive diagnosis or reliable differentiation from GISTs. On CT imaging, schwannomas typically appear as well-circumscribed intramural or exophytic masses with low attenuation on unenhanced scans, reflecting their dense spindle cell composition. Contrast-enhanced CT may demonstrate absent or minimal arterial phase enhancement.[3]

EUS is considered essential in the evaluation of gastric wall lesions, enabling detailed characterization and image-guided biopsy. Gastric schwannomas typically appear as round, heterogeneously hypoechoic masses arising from the muscularis propria, with echogenicity lower than that of the surrounding muscle layer and often surrounded by a peripheral hypoechoic halo. EUS-guided fine-needle aspiration can assist in the preoperative differentiation from GISTs.[8]

Management depends on tumor size and symptomatology. According to National Comprehensive Cancer Network (NCCN) guidelines, asymptomatic subepithelial gastric lesions smaller than 2 cm without high-risk EUS features may be managed with endoscopic and clinical surveillance.[9] Larger or symptomatic lesions require en bloc resection with negative margins, with the extent of resection determined by tumor size and anatomical location.[2]

Whenever feasible, minimally invasive approaches should be employed to reduce morbidity. In experienced centers, endoscopic techniques such as endoscopic submucosal dissection and endoscopic full-thickness resection have demonstrated favorable short- and long-term outcomes, particularly for smaller lesions.[5,8]

Definitive diagnosis relies on histopathological examination, with immunohistochemistry playing a central role. Gastric schwannomas are typically well-circumscribed, non-encapsulated tumors composed of spindle cells with elongated, wavy nuclei and collagenous stroma. Immunohistochemically, they show strong S100 positivity and are negative for CD117 and CD34, distinguishing them from GISTs. Negativity for desmin further aids in differentiation from smooth muscle tumors.[2,10]

Most gastric schwannomas are benign and carry an excellent prognosis following complete surgical resection. Malignant transformation is exceedingly rare, with only isolated cases reported.[4]

This case underscores the broad differential diagnosis of subepithelial gastric lesions beyond GISTs. While preoperative evaluation may guide clinical decision-making, definitive diagnosis and the need for adjuvant therapy depend on histopathological assessment of the resected specimen.

## LEARNING POINTS

- Gastric tumors encompass a wide range of histopathological entities with distinct prognostic implications.
- Accurate diagnosis is essential, as it determines the surgical strategy, extent of resection, and need for adjuvant therapy.
- Gastric schwannomas are rare and should be considered by both surgeons and pathologists.

- Immunohistochemical analysis is pivotal in differentiating gastric schwannomas from other mesenchymal tumors.
- Most gastric schwannomas are benign, and complete resection is generally curative; minimally invasive approaches should be preferred whenever possible.

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## PREVIOUS PRESENTATIONS

Presentation in form of a poster named "Schwannoma: A Rare Differential Diagnosis to Consider in Gastric Tumours" in the 44th Congress of the European Society of Surgical Oncology, October 2026.

## ETHICAL DISCLOSURES

**Conflicts of Interest:** The authors have no conflicts of interest to declare.
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**Patient Consent:** Consent for publication was obtained.
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## RESPONSABILIDADES ÉTICAS

**Conflitos de Interesse:** Os autores declaram a inexistência de conflitos de interesse na realização do presente trabalho.
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## CONTRIBUTORSHIP STATEMENT

**CLS:** Data analysis, literature review and manuscript drafting.
**CLV:** Data collection.
**TS and JIA:** Critical review of the manuscript.
All authors approved the final version to be published.

## DECLARAÇÃO DE CONTRIBUIÇÃO

**CLS:** Análise de dados, revisão da literatura e elaboração do manuscrito.
**CLV:** Recolha de dados.
**TS e JIA:** Revisão crítica do manuscrito.
Todos os autores aprovaram a versão final a ser publicada.

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