

Case Report

Gastric Schwannoma mimicking gastrointestinal stromal tumor: a rare case with review of literature

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ABSTRACT

Gastric schwannoma (GS) is a rare neoplasm of the stomach. It accounts for 0.2% of all gastric tumors and is mostly benign, slow-growing, and asymptomatic. Gastrointestinal stromal tumors (GIST) are the most common mesenchymal tumors and up to 60-70% of GIST occur in the stomach. Schwannoma and GIST have similar radiological and endoscopic features making it extremely difficult to differentiate them preoperatively. Differential diagnosis of these two submucosal tumors is important because of the malignant potential of GIST and the relatively benign course of gastric schwannomas. This case stresses on the importance of including gastric schwannomas in the differential diagnosis of a submucosal gastric mass as it has the ability to mimic a gastrointestinal stromal tumor, which is a leading differential diagnosis because of its common occurrence at this site.

Keywords: Gastric schwannoma, GIST, Resection

INTRODUCTION

Gastric schwannoma (GS) is a rare submucosal tumor that arises from Schwann cells in the neural plexus of the stomach. It accounts for only 0.2% of all gastric tumors, and 4% of all benign tumors of the stomach.¹ GS was first described in 1988 by Daimaru et al.² The main differential diagnosis of a gastric submucosal schwannoma is a gastrointestinal stromal tumor (GIST) due to similar appearance on radiological imaging and endoscopy. However, treatment and prognosis for gastric schwannomas and GISTs vary in view of benign nature and excellent prognosis after resection for gastric schwannomas, whereas 10 to 30% of GISTs can have malignant behavior with recurrence of the tumor after resection. Malignant schwannomas of the stomach are extremely rare. Hence, it is of prime importance to make an accurate diagnosis for proper treatment options. Schwannomas present as submucosal tumors and

diagnosis is based on histological features and positivity for S-100 and negativity for smooth muscle actin (SMA) and c-Kit.^{3,4} Surgical resection is the treatment of choice.⁵

CASE REPORT

A 52 year old lady presented to this department with complaints of malena and generalised weakness since 2 weeks. There were no other complaints. On examination she was found to have significant pallor and abdominal examination was normal. Blood investigations revealed a haemoglobin of 5.6 g/dl with other blood parameters being within normal limits. She underwent an esophagogastroscope which revealed a submucosal lesion with central ulceration along the greater curvature suggestive of GIST. A CECT of the abdomen was performed thereafter which showed a 9×8 cm heterogeneous, lobulated mass arising from greater curvature of the stomach, most likely a GIST (Figure 1).

After preoperative optimisation with blood transfusions and assessing the fitness for surgery she underwent exploratory laparotomy. Intraoperatively a lobulated mass arising from the greater curvature of stomach was found without any regional lymphadenopathy or distant metastases. Sleeve resection of the greater curve of stomach was performed with a 2 cm margin (Figure 2). Post-operative recovery was uneventful. The final histopathology was reported as gastric schwannoma based on strongly positivity for vimentin and S-100 and c-Kit (CD117) negativity on Immunohistochemistry (IHC) staining (Figure 3). She was asymptomatic at 12 months of follow up. A written informed consent was obtained from the patient regarding the possible publication of the case.

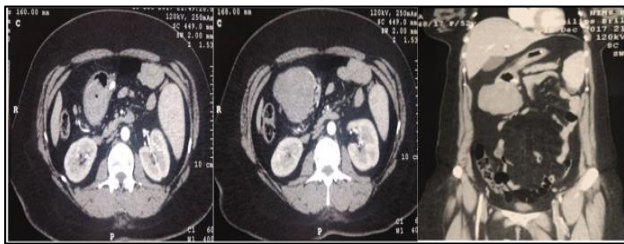


Figure 1: CECT abdomen showing a heterogeneous, lobulated exophytic mass arising from greater curvature of stomach.

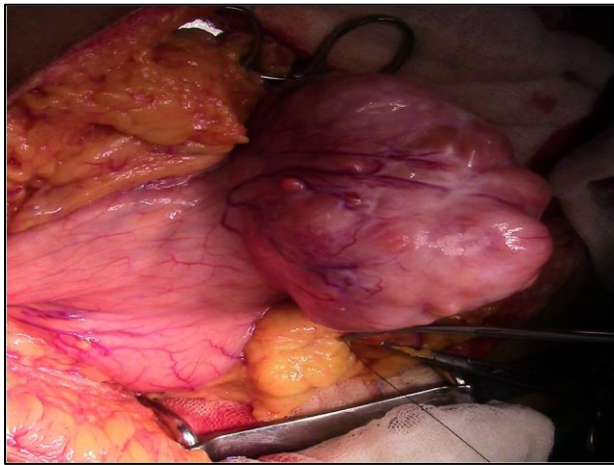


Figure 2: Intraoperative image of tumor arising from greater curvature of stomach.

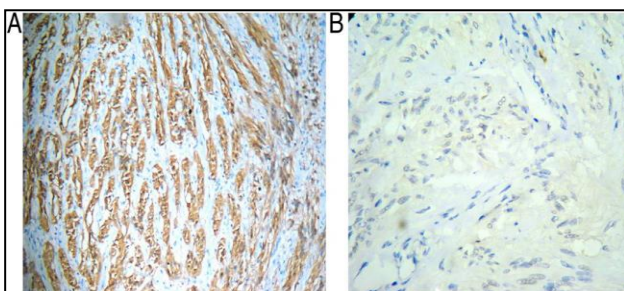


Figure 3: Immunohistochemistry showing (A) strong S-100 positivity, (B) C-Kit negativity.

DISCUSSION

Schwannomas are spindle cell mesenchymal tumours, which originate from any nerve that has a Schwann cell sheath. In the gastrointestinal tract, GISTs constitute the largest group of mesenchymal tumours, whereas schwannomas are rare constituting only 0.2% of all gastric neoplasms.¹ Malignant transformation of a gastric schwannoma is very rare. They can arise from the fundus, body or antrum of the stomach and are commonly submucosal. Schwannomas tend to present in the fifth to sixth decades of life and more commonly in females. They are usually asymptomatic and can be discovered incidentally but can also present with abdominal discomfort, pain or bleeding as in this case. They are usually solitary lesions arising from the lesser curvature of the stomach but can arise from greater curvature also as in this case.¹⁻³ On a CT scan, a gastric schwannoma tends to be homogenous, which distinguishes it from leiomyomas and leiomyosarcomas which have heterogeneous appearance owing to areas of haemorrhage and necrosis within the tumor.^{4,5} Magnetic resonance imaging (MRI) can determine the exact layer of origin and location of the tumor.⁶ The typical endoscopic appearance of gastric schwannoma is a round protruding submucosal mass with overlying ulcerated mucosa which is usually seen in patients with a history of gastrointestinal bleeding as seen in this patient. Given because normal mucosa overlies the submucosal lesion. On pathological examination these tumors have spindle-shaped nuclei with a fascicular arrangement. No mitosis, necrosis or significant nuclear pleomorphism are seen. On immunohistochemistry, a diffuse and intense positivity for vimentin and S-100 protein is seen. C-Kit or CD 117 is negative. Preoperative differentiation of gastric schwannoma and GIST is extremely difficult and the diagnosis is invariably based on histological examination of the resected specimen, not by clinical symptoms or imaging studies.⁷⁻⁹ Complete surgical resection is curative treatment for gastric schwannoma, with laparoscopic or open approaches for wedge resection, subtotal gastrectomy and total gastrectomy being the options depending on the size and location of these tumors.^{10,11} Benign gastric schwannomas have almost nil recurrence rates hence frequent follow-up with CT imaging is not recommended.¹²

CONCLUSION

Although GS is rare, the case reported in the current study highlights the importance of including GS in differential diagnoses of gastric submucosal tumors. As these tumors have an excellent prognosis, surgical removal in the form of wedge resection, subtotal resection or near-total resection is sufficient treatment. The diagnosis should always be confirmed with immunohistochemistry. The prognosis for patients with a solitary schwannoma of the stomach following resection is excellent.

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