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Gastric submucosal Schwannoma masquerading malignancy: A case report with review of literature.

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Abstract:-
Background: *Schwannomas are benign, slow-growing tumors. These tumors are uncommon among mesenchymal tumors in the gastrointestinal tract. Gastric Schwannomas (GS) are extremely rare spindle-shaped, submucosal tumors that develop from the Schwann cells of the nerve plexuses within the stomach wall. This case report emphasizes the rarity of a schwannoma located on the lesser curvature of the stomach, as only a limited number of such cases have been documented in the medical literature. The case also underscores the importance of considering gastric schwannomas in the differential diagnosis when a preoperative examination reveals a submucosal gastric mass, with gastrointestinal stromal tumor and adenocarcinoma. The gold standard for diagnosing and managing gastric schwannomas is surgical resection followed by biopsy. This article will review the existing literature on gastric schwannomas, covering their clinical presentation, diagnostic methods, and treatment options.*

Key Words: *Mesenchymal tumors, Schwannoma, Gastrointestinal stromal tumors, immunohistochemistry*

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I. Introduction

Mesenchymal tumors of the gastrointestinal (GI) tract primarily consist of a range of spindle cell tumors, including gastrointestinal stromal tumors (GISTs), leiomyoma or leiomyosarcoma, and schwannomas.[(1)] Among these tumors, GISTs are the most common, with the majority (60-70%) occurring in the stomach. Gastric schwannoma is a rare gastric tumor, making up only 0.2% of all gastric tumors, 4.0% of all benign gastric tumors, and 6.3% of all gastric mesenchymal tumors.[(2)] It is challenging to distinguish a gastric schwannoma from other gastric tumors like adenocarcinoma ,GIST before surgery.[(3)].Both gastric schwannomas and GISTs primarily affect middle-aged individuals and lack distinctive clinical features.[(1,4)] Gastric schwannomas are benign tumors with an excellent prognosis, while 10-30% of GISTs exhibit malignant behavior.[(5)].Computed tomography (CT) and upper gastrointestinal endoscopy are the primary methods of investigation. Ultimately, the definitive diagnosis of adenocarcinoma, GISTs and gastric schwannomas relies on histopathological and immunohistochemical studies, which can only be conducted on the surgical specimen.
In this paper, we report a rare case gastric Schwannoma in a 54 years old patient which masqueraded malignancy and also discuss its close clinical & histopathologic mimickers.

II. Case Report :-

A 54-year-old man presented with complains of recurrent episodes of melena ,3 kg weight loss, nausea ,vomiting and loss of appetite for the past 10 years, with worsening of symptoms over the last year. He had undergone contrast enhanced computed tomography of whole abdomen which revealed moderately enhanced well defined lobulated partly exophytic lesion arising from lesser curvature of antropyloric region which does not cause any luminal obstruction. The patient was counselled for surgery due to a provisional diagnosis of adenocarcinoma. After providing informed consent, the patient underwent a wedge resection of the stomach. The lesion was excised and the specimen was sent for HPE. It was elongated ovoid type of tissue measuring 5x4x3 cc, Overlying mucosa was unremarkable.

Microscopically, sections from the tumor shows features of submucosal tumor composed of spindle cells in a fibrillary background. There are palisading of the nuclei with hypercellular and hypocellular areas. Mitotic count is low. Necrosis is absent. Impression was benign spindle cell neoplasm, compatible with schwannoma. The cells were immunopositive for S-100,and negative for CD117 and DOG 1.

The postoperative recovery was smooth, and the one-month follow-up showed no significant issues .

III. Discussions :-

Gastrointestinal schwannoma is an uncommon mesenchymal tumor found in the gastrointestinal tract according to Daimaru et al.[5] Schwannomas are spindle-shaped mesenchymal tumors that originate from Schwann cells, a type of glial cell responsible for myelinating axons in the peripheral nervous system according to American college of surgeons. Gastric schwannomas can develop at any age, although they are most commonly observed in individuals in their fifth and sixth decades of life, with a higher incidence in females.[5]. This case was observed in the fourth decade of life. They cause nonspecific symptoms of pain, melena. Malignant transformation of a gastric schwannoma is extremely rare, with only a few cases documented in the literature.[6] Most of these are of submucosal origin, found in the body of the stomach, with sizes ranging from 0.5 to 11 cm in previously documented cases according to Shah AS et al.[7].In this case , tumor was located in antropyloric region measuring 8x7x5 cm size. While the definitive diagnosis of gastric schwannomas is made through pathological examination, it may be useful to obtain some preliminary information about the tumor using gastrointestinal endoscopy, CT, magnetic resonance imaging (MRI), sonography, EUS according to Atmatzidis S et al.[8].Preoperatively, distinguishing between gastric schwannomas and GISTs can be challenging, as imaging techniques like sonography, endoscopy, and CT scans do not reveal unique characteristics for these tumors. In 2005, Levy et al. noted that gastric schwannomas differ from other schwannomas in that they exhibit homogeneous attenuation on CT, and degenerative changes like cystic formations are rare. The homogeneous enhancement pattern may help differentiate gastric schwannomas from GISTs, which often show heterogeneous enhancement due to degenerative changes.[9]. When a submucosal gastric mass is found, a differential diagnosis should include GIST, gastrointestinal autonomic nerve tumor (GANT) , leiomyoma, leiomyosarcoma, and gastric schwannoma

Because it is challenging to make a definitive preoperative diagnosis, and to avoid potential complications like bleeding or pyloric stenosis, surgical resection should be considered the preferred treatment for patients with gastric schwannoma.[8] Immunohistochemistry plays a crucial role in the differential diagnosis of GISTs, leiomyomas, and gastrointestinal autonomic nerve tumors. Schwannomas are positive for S100 protein and vimentin but negative for CD34 and CD117, which sharply distinguishes them from GIST.[10]. In contrast to leiomyomas, schwannomas are negative for smooth muscle actin.[11] Gastrointestinal autonomic nerve tumors are typically positive for CD117 and CD34, it can be positive or negative with S100.[12] shown in Table 1.

Table 1 :- Immunohistochemistry for differentiating schwannoma, GANT and GIST.

TUMOR	S 100	CD 117	SOX 10
SCHWANNOMA	+	-	+
GIST	-	+	-
GANT	+/-	+	-

At present, complete surgical resection of the tumor is the only effective treatment, and the prognosis following tumor removal is excellent.

IV. Conclusion:

In conclusion, gastric schwannoma is a rare, typically benign mesenchymal tumor that needs to be differentiated from adenocarcinoma and GIST, as schwannomas have a favorable prognosis, whereas GISTs are more aggressive and have malignant potential.

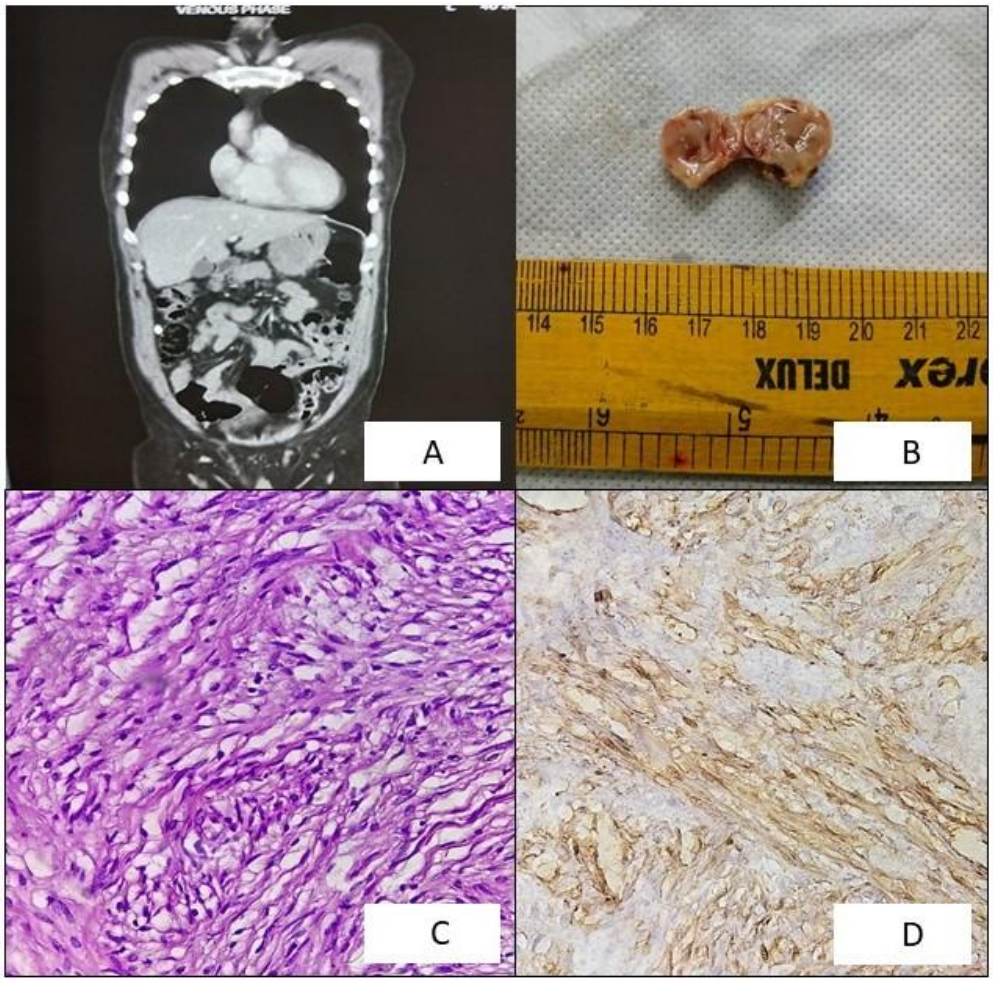

Fig 1 :- A). Sagittal section of CECT whole abdomen shows space occupying lesion seems to abut surface of left lobe of liver. B). Grossly, it is a ovoid type of tissue measuring 5x4x3 cc. C). Microscopically, sections from the tumor shows features of submucosal tumor composed of spindle cells in a fibrillary background. D). IHC for S100 showing cytoplasmic and nuclear positivity.

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