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Gastrointestinal stromal tumor or Gastric Schwannoma - A diagnostic dilemma.

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Abstract

Gastric schwannomas are rare mesenchymal tumors that arise from the nerve plexus of gut wall. They account for 0.2% of gastric tumors and are often preoperatively mis diagnosed as gastro intestinal stromal tumors [GIST].

The objective of this case report is to bring forth schwannoma as a rare differential diagnosis of sub mucosal spindle cell neoplasm of stomach and the importance of immuno his to chemistry as the confir matory test.

We hereby report a rare case of 39-year-old female who presented with complains of abdominal pain and was diagnosed to have a submucosal gastric mass, possibly gastro-intestinal stromal tumor. Subtotal gastrectomy was performed and initial diagnosis of GIST was made which was later confirmed to be schwannoma on immuno his to chemistry.

Gastric schwannomas are asymptomatic but sometimes may present with abdominal discomfort, dyspepsia and pain. Endo scopic and radio logic findings cannot differentiate between various mesenchymal tumors. Diagnosis is based on histology and confirmed on immuno his to chemistry.

Gastric schwannoma, though rare has a better prognosis than GIST. It is often misdiagnosed as GIST as both are submucosal spindle cell tumors. Therefore, immuno his to chemistry plays a crucial role in differentiating schwan noma from gastro-intestinal stromal tumors.

Keywords: Gastric Schwannoma, GIST, Gastric spindle cell tumor.

Introduction

The spectrum of mesenchymal tumors of the gastro intestinal tract mainly comprises of the spindle cell tumors which include Gastro intestinal stromal tumors, leio myoma, leiomyo sarcoma and schwannomas of which GIST is the most common [1]. Schwannomas are slow growing, rare, mostly benign submucosal tumors that arise from the nerve sheath of Auerbachs's or Meissner's plexus [2 ,3, 4, 5]. They are rarely found in the gastro intestinal tract [2,6]. The most common site is the

stomach and they account for 0.2% of all gastric neo plasms [2,3,7]

Gastric schwannomas present with symptoms ranging from abdominal pain and discomfort, dyspepsia, hemate mesis, palpable abdominal mass and weight loss. [8]

Preoperative diagnosis of gastric schwannoma is very difficult and the definitive diagnosis is made on the his to patho logical examination of the surgical specimen. Gastric schwannomas have a good prognosis and surgical resection is the treatment of choice. [9]

Here we report a case of female diagnosed with GIST pre operatively and confirmed to be gastric schwannoma on immuno his to chemistry. The objective is to put forth this rare entity as the differential diagnosis of submucosal spindle cell tumors of the stomach.

Case Report

A 39-year-old female was hospitalized with the complain of abdominal pain for 1 month. There was no history of fever, hematemesis, vomiting or weight loss. No comorbidities or previous surgeries had been done. There fore, a complete workup was done to diagnose the cause of abdominal pain.

On ultrasonography a hyperechoic lesion measuring 4.2 x 3.6 cm was seen in the epigastrium, suggestive of GIST.

Oesopha go gastro duo deno scopy showed a moderate sized polypoidal lesion in the greater curvature of the stomach. Multiple biopsies were taken which were in conclusive.

Computed Tomo graphy of the abdomen revealed a an iso dense to hypo dense lobulated lesion measuring 4.6x 4.3 x 3.8 cm arising from the submucosal aspect of mid body of stomach in relation to the greater curvature of the stomach with an exophytic component, suggestive of gastrointestinal stromal tumor. After being counselled and considering GIST as the provisional diagnosis the patient underwent distal gastrectomy.

histopathology findings

Intra operative frozen section report was suggestive of spindle cell tumor [GIST]

On gross inspection the nodular solid serosal mass measured 4.5x4x3.5 cm and showed a pale tan cut surface.

Microscopically, the tumor involved the gastric lamina propria, submucosa and muscle coat and serosa. Tumor was composed of fascicles of spindle cells within vascularized edematous focally myxoid collagenous stroma. The cells possessed acidophilic cytoplasm and plump oval or elongated nuclei. (fig. 1 and fig. 2)

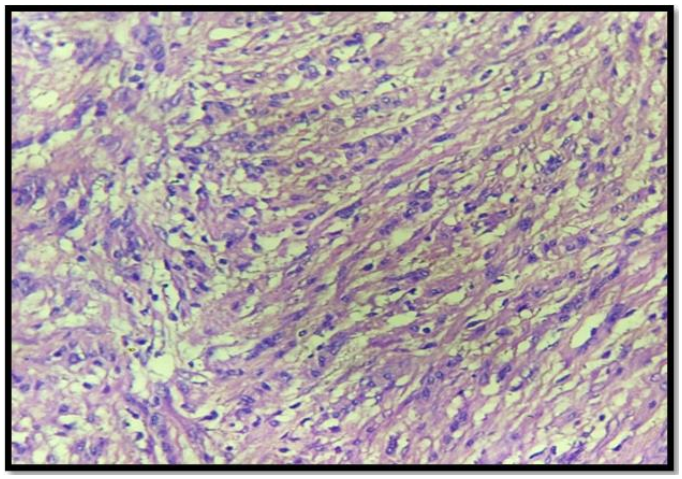

Fig. 1: high power view of gastric schwannoma on h & e stain.

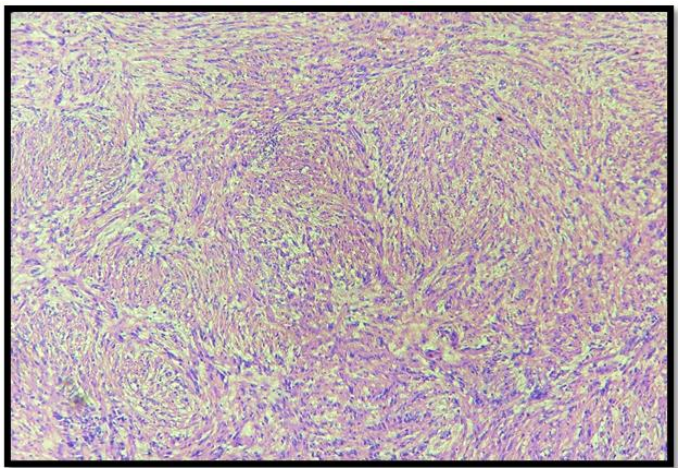

Fig. 2: low power view of gastric schwannoma

On Immuno his to chemistry tumor was diffusely positive for S-100 protein and negative for DOG-1 and c-kit. Ki67 was 1% (fig.3 to fig .9) (table. 1)

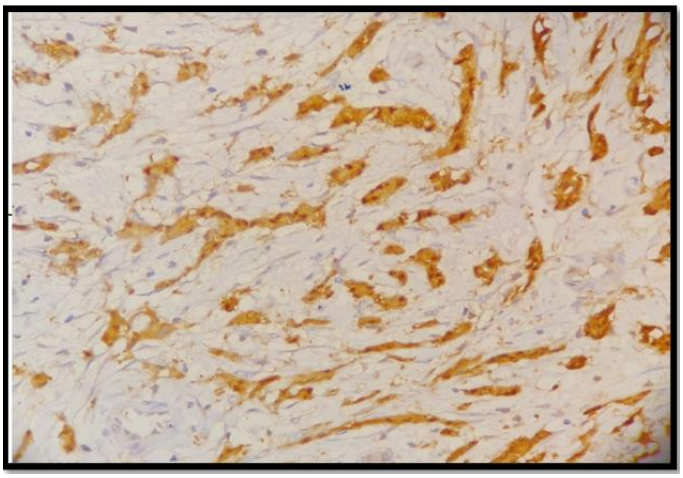

Fig. 3: S100 [positive]

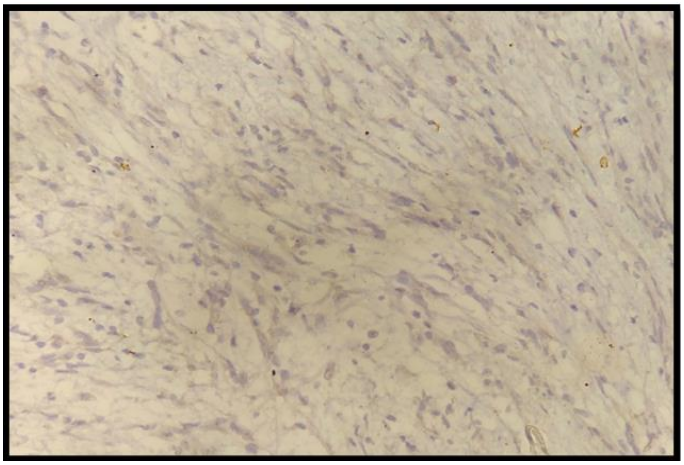

Fig. 4: DOG 1 [negative]

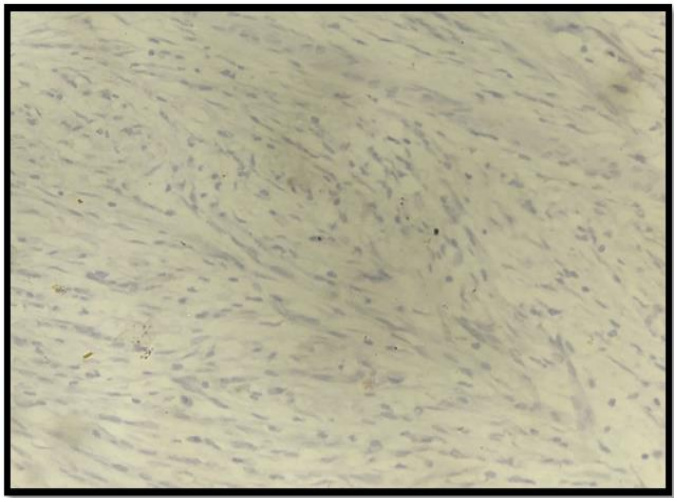

Fig. 5: C-KIT [negative]

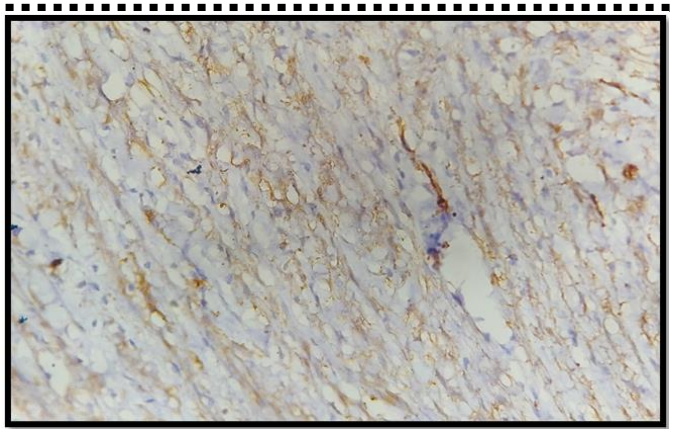

Fig. 6: CD 34[positive]

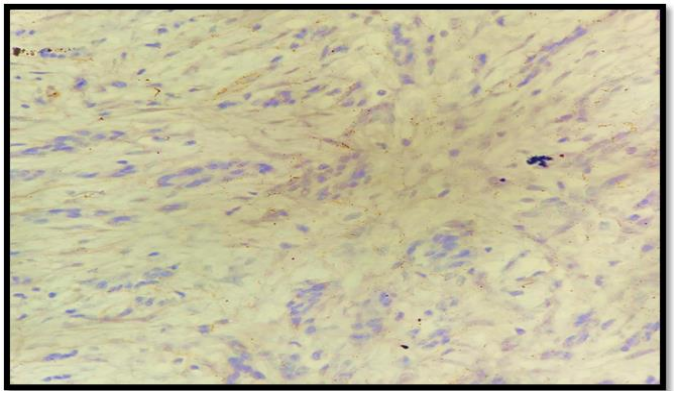

Fig. 7: SMA [negative]

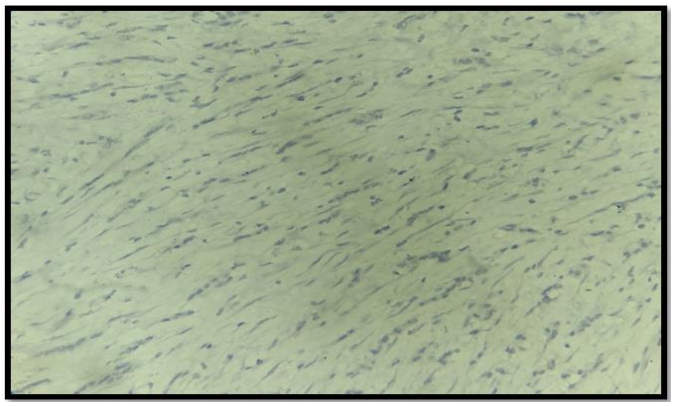

Fig. 8: DESMIN [negative]

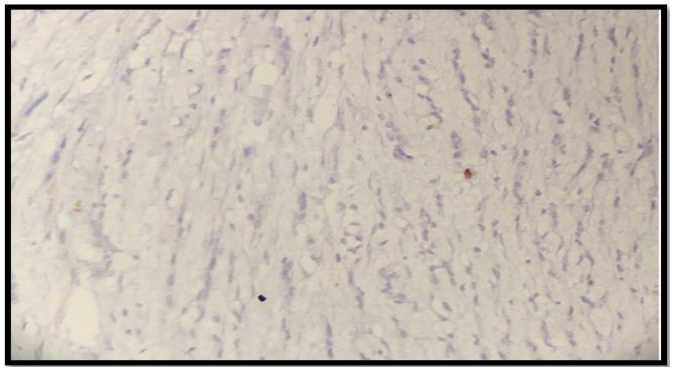

Fig. 9: KI67 1%

Table 1: imunno histochemistry result

Marker	Result	Marker	Result
S100	Positive	Sma	Negative
Dog1	Negative	Desmin	Negative
Cd 34	Positive	Ckit	Negative
		KI67	1%

The above findings were consistent with gastric schwan noma. Postoperative period was uneventful.

Discussion

Gastrointestinal schwannoma is rare mesenchymal tumor of the gastrointestinal system, and was first described by Daimaru et al. in 1988 [10]. GIST is the most common tumor [60-70%] and predominantly occur in the stomach. [11 ,12]. As GIST and gastric schwannoma both are sub mucosal spindle cell neoplasms, it is difficult to differentiate them. Therefore, they can be often mis diagnosed.[13] Gastric schwan nomas most frequently occur in the 5th and 6th decades with female pre ponde rance, but can occur at any age. [14, 15]

As they are generally asymptomatic gastric schwan nomas are incidentally diagnosed on endoscopy or CT scan. However, there can be varied presentations such as abdominal pain, hematemesis, dyspepsia, discomfort and weight loss [16]. In this case the patient presented with ab dominal pain.

The accurate preoperative diagnosis to distinguish between gastric schwannoma and other mesenchymal tumors is difficult with CT scan or PET scan. Gastric schwannoma is seen as round mass with heterogenous or homogenous on CT scan. PET scan also does not help in determining whether tumors are benign or malignant [5, 9, 7]. Endoscopy with biopsy can help in diagnosis, however compared to EUS FNA biopsy they are inconclusive owing to the submucosal nature of the tumor [17]. Definitive diagnosis is made post operatively with immuno his to chemistry, where schwan nomas are positive for S-100 protein and negative for DOG 1 and CD117 which is contradictory to GIST. [18, 14] In this case the tumor showed same findings.

Multiple surgical options like en bloc resection wedge resection, subtotal, near total or total gastrectomy with lapro scopic or laparotomy approach are available. But complete surgical resection is considered the gold standard management [8, 18]. In our case a distal gastre ctomy was performed.

The prognosis of gastric schwannoma is generally favorable compared to GIST. [9] Generally shows a benign course and malignant transformation has been reported only in a case by bees NR et al. [19]

There is still scope for further study for appropriate diag nosis and behavior of gastric schwannomas.

Conclusion

Gastric schwannoma, though rare has a better prognosis than GIST. It is often misdiagnosed as GIST as both are submucosal spindle cell tumors. Therefore, immuno his to chemistry plays a crucial role in differentiating schwan noma from gastro-intestinal stromal tumors.

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