Case study

Laparoscopic resection of a rare large spindle cell tumor of the stomach – Schwannoma

Abstract

Aim: To present a rare case report of a large schwannoma stomach that was adherent to the transverse colon and pancreas and was safely and effectively resected by a laparoscopic approach

Presentation of Case: A 52 years old lady presented with a large gastric mass which was initially suspected as GIST and was resected laparoscopically but final Histopathology and Immunohistochemistry results were suggestive of Schwannoma

Discussion: Gastrointestinal tract is rarely involved by schwannoma, with the stomach being the most common site. It arises from the nerve sheath of Auerbach's or Meissner's plexus and is observed as a submucosal tumor by endoscopy.Its accurate diagnosis is difficult to establish by preoperative CECT or endoscopy. The final diagnosis can be made only from the Histopathology and Immunohistochemistry of resected specimen.

Conclusion: Laparoscopic resection of large gastric schwannomas is feasible and safe.

Key words: Schwannoma stomach, GIST stomach, S-100, Laparoscopic Resection

Introduction

Schwannoma of the stomach (SS) accounts for 0.2% of gastric neoplasms [1]. They are mostly benign, slow growing and very often asymptomatic. Diagnosis can only be established by histopathology (HP) and immunohistochemistry (IHC) of the resected specimen [2]. The best treatment option remains complete resection with negative margins.

Presentation of case

A 52-year-old lady, a known diabetic presented with pain abdomen, mass per abdomen and occasional non -bilious vomiting. On examination, there was a mass in the epigastrium extending to the right hypochondrium. Contrast Enhanced Computerized Tomography (CECT) of the abdomen showed 12cm x 10cm x 10cm heterogeneously enhancing exophytic lesion arising from the antro-pyloric region of the stomach. The lesion had calcification and was compressing the first part of the duodenum, mid- transverse colon and the head of the pancreas (Fig 1 A, B).

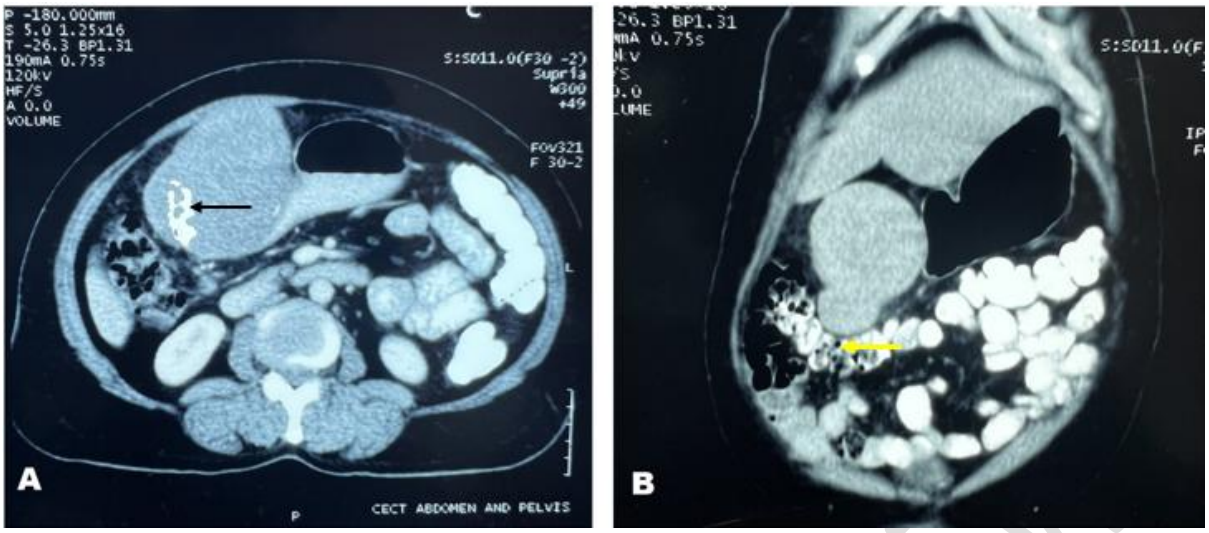

FIGURE 1:

A: Large tumor arising from the antro-pyloric region of the stomach (Black arrow showing calcification)

B: Tumor adherent to the transverse colon (yellow arrow)

Endoscopy showed a globular lesion with central umbilication. Serum CEA was normal. With the above findings, a suspected diagnosis of Gastro Intestinal Stomal Tumor (GIST) was made.

The patient was planned for Laparoscopic resection. Six ports were used. (Fig2 A) Per-operatively there was a large tumor arising from the antro-pyloric region of the stomach (Fig 2B) with adhesions to the mid-transverse colon (Fig 2C) and head of the pancreas (Fig 2D). There were enlarged lymph nodes over the coeliac artery and common hepatic artery (Fig 2E). After carefully separating the tumor from the surrounding structures using harmonic shears, the first part of the duodenum was staple transected using an Endo GIA white cartridge (Fig 2F) and the body of the stomach with a proximal margin of 10 cm from the growth is transected using two Endo GIA green cartridge (Fig 2G).

In view of enlarged lymph nodes, a formal D2 lymphadenectomy was performed (Fig 2H). Loop Gastro-jejunostomy was performed using Endo-GIA blue load (Fig 2I) and intracorporeal sutures (Fig 2J). The specimen was extracted through the incision over the previous pfannenstiel scar of hysterectomy (Fig 2K). An Abdominal drain was placed behind the gastro-jejunostomy site.

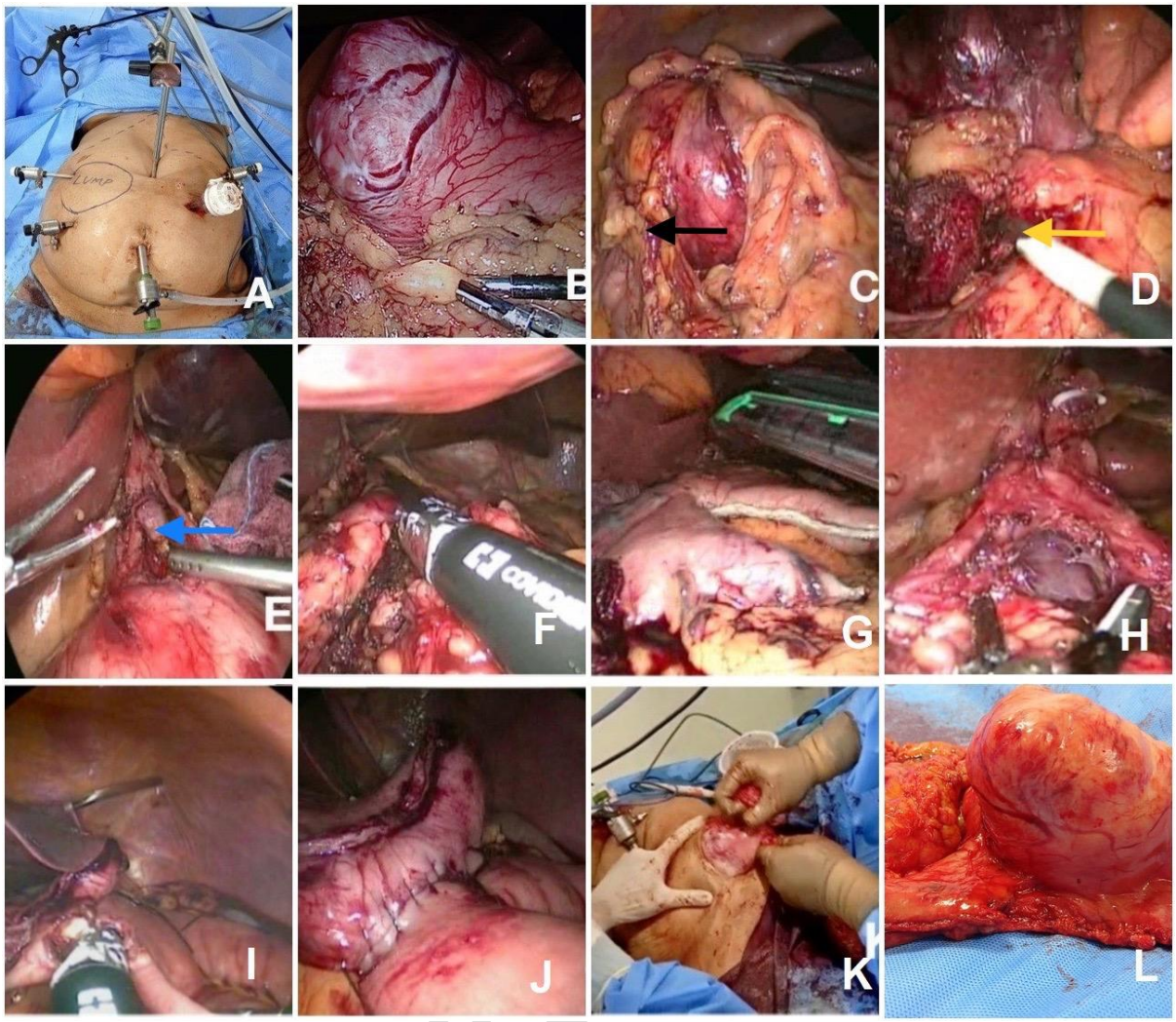

FIGURE 2:
A. Port placements. **B.** Tumour arising from Antro-pyloric region **C**. Tumour adherent to transverse colon (black arrow). **D.** Adherent to Pancreas head (yellow arrow). **E.** Lymph nodes over coeliac axis (blue arrow). **F.** Stapled transection of D1. **G.** Stapled transection of Body of stomach **H.** Completed lymph node clearance. **I.** GJ with stapler **J.** GJ reinforced with intracorporeal sutures. **K.** Specimen extraction through the previous scar. **L.** Final specimen.

The patient was started liquids orally on the 2nd post-operative day (POD) and semisolid diet on the 4th POD. The abdominal drain was removed on the 5th POD and the patient was discharged.

HP of the resected specimen showed features of benign spindle cell tumor of the stomach (Fig 3). The resection margins were free of tumor and 20 lymph nodes which were isolated were also reactive.

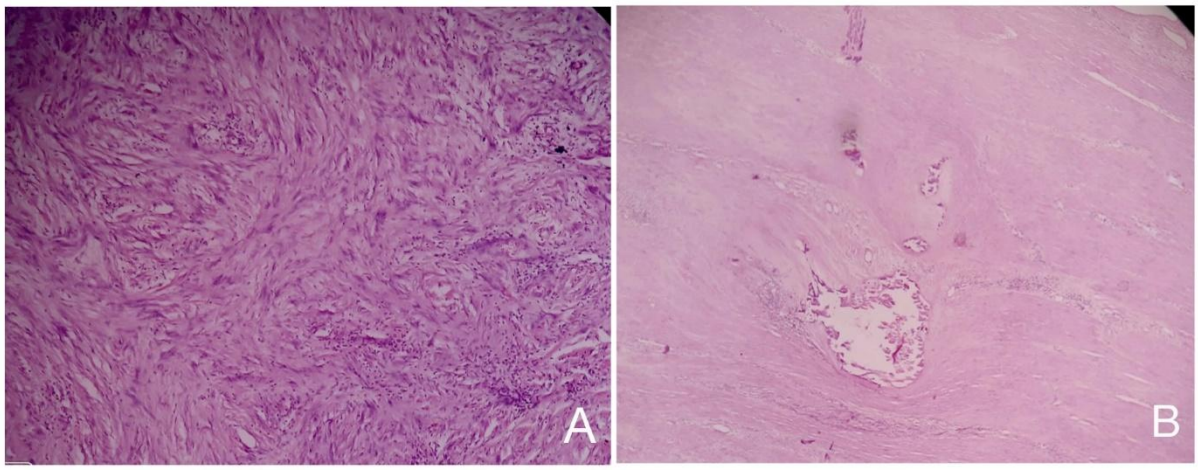

FIGURE 3:

A: Histopathology showing spindle cells in a palisading pattern

B: Calcification within the tumor

IHC was positive for S-100 protein, and was negative for CD117, DOG 1, H. Caldesmon, SMA ,desmin and hence the final diagnosis of Schwannoma was made.

At 10 months follow up there was no recurrence.

Discussion

The Gastrointestinal tract is rarely involved by schwannoma with the stomach being the most common site. It was first reported by Daimaru et all [3]. SS arises from the nerve sheath of Auerbach's or Meissner's plexus and is observed as a submucosal tumor by endoscopy [4]. Its accurate diagnosis is difficult to establish by preoperative CECT or endoscopy. Routine use of EUS –FNA is not recommended due to the risk of rupture, bleeding and spread. Diagnosis can only be established by HP and IHC of the resected specimen which shows S-100 positivity and allows the distinction between SS and other submucosal tumors. IHC shows strongly positive S-100 Protein and negative CD117 [5], thus differentiating it from GIST.

In view of the large size, adhesions to the transverse colon and pancreas, enlarged lymph nodes over the coeliac axis a malignant tumor was suspected. The elements suggesting malignancy in spindle cell tumor of the stomach are: the large size of the tumour, the break-in of the capsule, the adherence to neighbouring organs, the calcifications and the necrotic haemorrhagic changes, the hypercellularity, the high mitotic activity of the appearance epithelioid and sometimes the diagnosis of malignancy is established only on the existence of metastases. [5]

Although GIST was the suspected preoperative diagnosis and the tumor size was large to be dealt by laparoscopy, the surgery was performed meticulously without handling the tumor much to avoid spillage .The tumor was extracted through a incision made on previous caeserian section scar. These large rare tumors are not an absolute contraindication for laparoscopic resection ,if the surgeon and his team has the expertise in handling these large tumors by laparoscopy.

Lymph node metastasis in GIST and Schwannoma are rare but in a study by Gong N et all, the incidence of lymph node metastasis in GISTs was 20.7%, which is surprisingly higher [6] In our case, per operatively there were enlarged lymph nodes over the coeliac axis and common hepatic artery.This lead to suspicion of other tumors ,including adenocarcinoma per operatively. Hence decision was taken on table to do a formal D2 lymphadenectomy with a intension of curative resection ,if the final histopathology would have been adenocarcinoma.

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Complete surgical resection of tumor with negative margins remains curative treatment for SS. [7] This case is reported due to the rarity of involvement of the stomach by a schwannomma and its effective resection by laparoscopic approach with negative margins despite the large size, adhesions to surrounding structures and enlarged lymph nodes over the coeliac axis.

Conclusion

Schwannomas of stomach are a rare entity and final diagnosis is usually established by immunohistochemistry of resected specimen. Laparoscopic resection of such large gastric tumor is safe, effective and feasible in experienced hands with sound anatomical knowledge.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

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