

The Benign Mimicker of Gastrointestinal Stromal Tumor: A Case Series of Gastric Schwannomas

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The Benign Mimicker of Gastrointestinal Stromal Tumor: A Case Series of Gastric Schwannomas

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Background

- Gastric schwannomas (GS) are rare, benign subepithelial gastrointestinal (GI) tumors with low malignancy potential composed of nerve ectoderm.¹⁻²
 - 0.2% of all gastrointestinal tumors.²
 - More common gastric body > antrum > fundus.¹
 - Predilection in elderly and possibly females.³
- Difficult to differentiate from mesenchymal cell tumors like gastrointestinal stromal tumor (GIST) on imaging and endoscopically (Table 1).¹⁻²
- Immunohistochemical (IHC) staining aids in differentiation, but endoscopic biopsies often lack adequate tissue for diagnosis given normal mucosa.¹

	GS	GIST
Signs and symptoms	Asymptomatic Abdominal pain Hematemesis, Melena	Asymptomatic Abdominal pain Hematemesis, Melena
Gross appearance	Subepithelial mass Normal overlying mucosa Common in the stomach	Subepithelial mass Normal overlying mucosa Common in the stomach
EUS appearance	Yellow/tan/white Round, hypochoic, homogenous mass Originates in MP Edge with halo	Tan/pink/hemorrhagic Round, heterogenous mass Possible calcification, leafs and cysts Originates in MP
IHC staining	+S100 -CD117, CD34 -Dog1, -SMA, -Desmin, -c-Kit	+SMA, +Desmin +c-Kit, +CD117, CD34 -S100
Histology	Spindle cells Rare mitotic figures Lymphocytic peritumoral cuff Intratumoral lymphoid infiltrate	Spindle cells More prominent nuclear palisading Perinuclear vacuolization

Case Presentation

We present two cases of GS that presented as incidental findings, both pre-operatively diagnosed as GIST.

CASE 1

- 62 year old obese male with chest pain after travel who was found to have a pulmonary embolism and incidental mass in the distal stomach of CT scan. No GI symptoms. Past medical history pertinent for skin cancers.
- Esophagogastroduodenoscopy (EGD) showed 2.5cm subepithelial mass in proximal antrum and EUS with hypochoic nodule in muscularis propria (MP) (Image 1, Table 2).

CASE 2

- 52 year old obese woman with uncontrollable reflux symptoms and abdominal pain after recent diagnosed T2N1 HER2 positive breast cancer.
- PET scan prior to presentation with intense focal FDG uptake in the fundus, left breast and right axilla.
- CT scan of the abdomen showed 2.9cm exophytic mass in the gastric body. (Image 2)
- EGD confirmed extrinsic mass. EUS with hypochoic mass from the MP.

- Biopsies were nondiagnostic in both cases.
- Patients underwent robotic assisted laparoscopic partial gastrectomy without complications.
- Final surgical pathology consistent with GS (Image 3, Table 2).

Discussion:

- Schwannomas are benign neurogenic tumors rarely found in the gastrointestinal tract and often misdiagnosed as GIST due to difficulty with identifiable features.
- Both are subepithelial in origin within the MP, similar appearance on CT imaging, vague symptoms and located commonly in the stomach.¹⁻³
- Our case series emphasizes small variations to help predict GS
 - Homogenous attenuation on EUS and the lymphoid tissue present in biopsy if able
- FDG uptake is not always associated with malignant potential of GIST as it has been seen in GS.⁴
 - Possible over-expression of glucose (Glu-3) transporters on neuronal tumor surface.⁴
- IHC staining is imperative for accurate diagnosis
 - Focus on S100 and CD34, CD117 comparison. (Table 1).³
- Surgical resection is treatment and definitive diagnosis in both GS and GIST
 - Surveillance needed for GIST with 10-30% malignant potential.²
- Similarities in our case series include middle age and obese patients.

Images

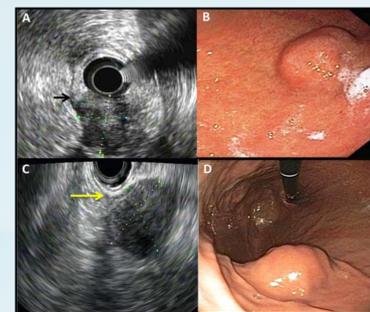


Image 1. A hypochoic mass originating from the muscularis propria (arrow)(A&C). Subepithelial mass present on the posterior wall of the proximal antrum without ulcerations (B) and anterior wall of the gastric body (D).

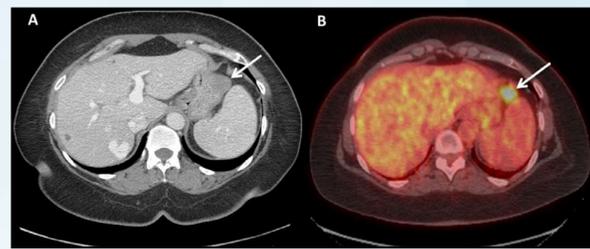


Image 2. Case 2 with CT abdomen/pelvis image of 2.9cm exophytic mass in the gastric body (A) with staging PET scan for stage 2 breast cancer showing intense focal FDG uptake within the same corresponding area. (B)

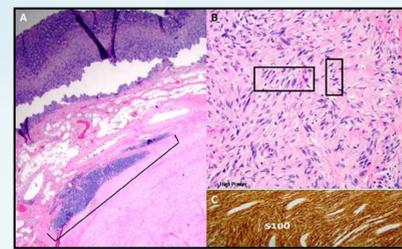


Image 3. Surgical specimen is viewed under low power to observe peritumoral lymphoid cuff more common in GS vs. GIST (A). Spindle cells in shorter palisades with more collagen present in GS compared with GIST (B) and the overwhelming positive S100 nuclear and cytoplasm staining in GS (C).

CASE 1	CHARACTERISTICS	CASE 2
Glandular cells Scant spindle cells	EGD histology	Glandular cells Bland spindle cells + Lymphoid tissue
Hypochoic mass in MP Rounded borders No lymphadenopathy	EUS findings	Hypochoic mas in MP No lymphadenopathy
Tan-yellow mass	Surgical gross pathology	Tan-white indurated mass
+100 -SMA, AE1/AE3, CD34, CD117, DOG1	Surgical IHC staining	+S100 -SMA, CD34, CD117, DOG1, desmin
		Ki67: 2-3%

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