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Case Report

Rare mesenchymal antral gastric tumors: Case reports of glomus tumor and plexiform fibromyxoma

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ABSTRACT

Gastrointestinal stromal tumors account for the majority of the mesenchymal neoplasms of the gastric antrum, but other entities should also be considered. We present the case of a 70-year-old man with an ulcerated well-circumscribed polypoid submucosal mass in the gastric antrum which was proven to be a glomus tumor. CT showed progressive contrast enhancement. Magnetic resonance imaging showed a high T2 signal intensity and heterogeneous arterial contrast enhancement which became more homogeneous in later phases. We also present the case of a 50-year-old woman with a large polypoid mass occupying half the circumference of the distal gastric antrum that was proven to be a plexiform fibromyxoma. Contrast-enhanced CT and magnetic resonance imaging revealed a pattern of progressive and heterogeneous enhancement. Although gastrointestinal stromal tumors are the most frequent gastric mesenchymal neoplasms, other rare mesenchymal tumors such as glomus tumor and plexiform fibromyxoma may arise in the gastric antrum.

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Introduction

Intramural antral gastric masses arise in the wall of the stomach, mostly within the submucosa or muscularis propria, and

have typically a mesenchymal origin. Gastrointestinal stromal tumors (GIST) account for the majority of these lesions nevertheless other rare entities such as glomus tumor and plexiform fibromyxoma should also be considered [1]. Although they show overlapping radiologic appearances, some charac-

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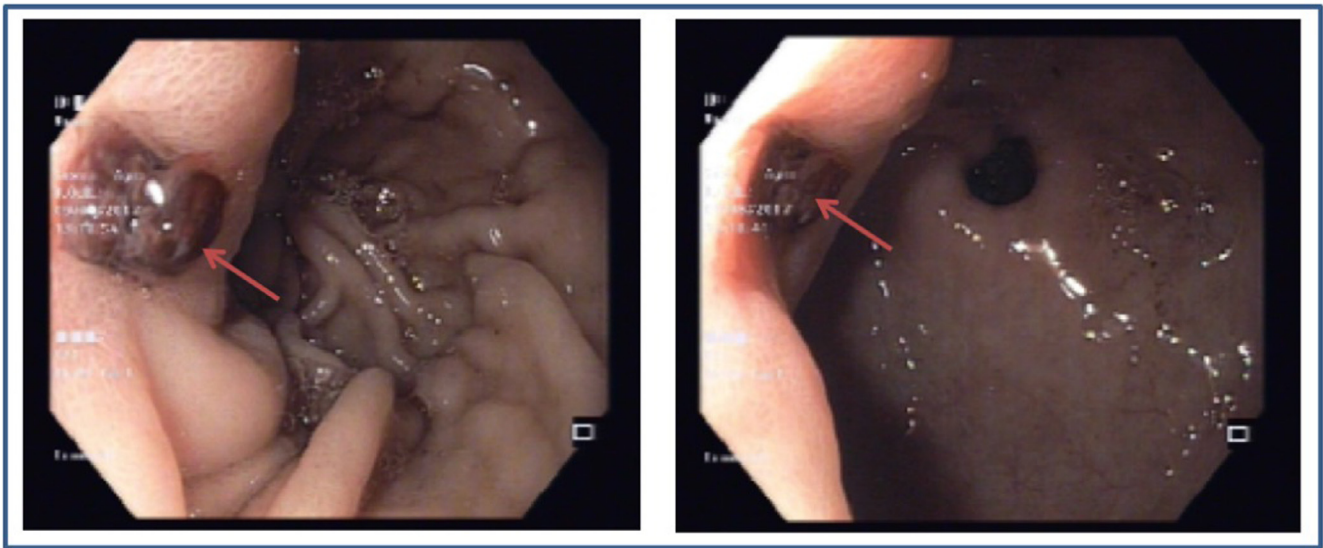


Fig. 1 – Upper tract endoscopy images. A polypoid mass with central ulceration is shown, located in the anterior wall of the gastric antrum (arrows)

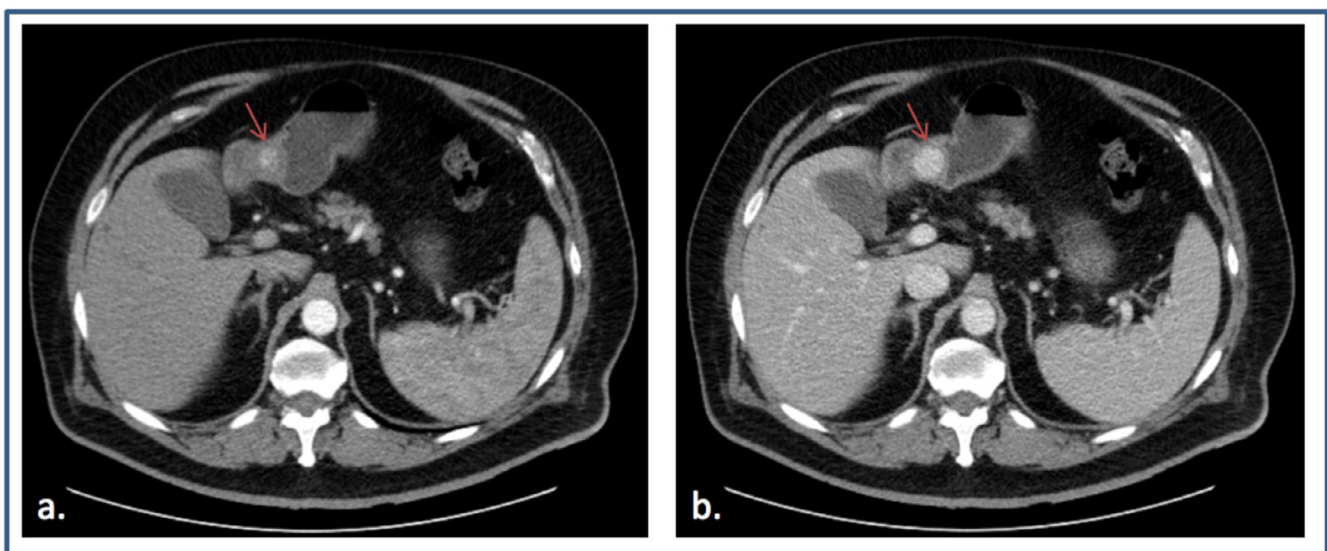


Fig. 2 – Axial contrast enhanced computed tomography scans. A well-circumscribed, 24 mm, submucosal, nodular gastric mass is depicted, located in the antrum, with a slight contrast enhancement in arterial phase (a.) and brighter enhancement in venous phase (b.) (arrows)

teristics such as attenuation, enhancement and growth pattern may suggest a specific diagnosis [2].

Glomus tumors arise from altered smooth muscle cells of neuromyoarterial receptors responsible for regulating body temperature known as glomus bodies, which are located mainly in peripheral soft tissues and extremities. The gastric antrum is by far their most frequent extracutaneous site, accounting for 2% of all benign gastric tumors [3]. A slight female prevalence has been shown as well as a median age of presentation of 55 years. Most patients are asymptomatic at diagnosis or present with epigastric discomfort, hematemesis or melena [1].

Plexiform fibromyxoma, also known as plexiform angiomyxoid myofibroblastic tumor, is a newly described benign

tumor, unique to the stomach and almost always located in the gastric antrum [1]. It occurs predominantly in young and middle-aged adults and has no sex predilection [4]. Most patients present with gastrointestinal bleeding, an abdominal mass or gastric outlet obstruction [1].

Presentation of case

Case report 1- Glomus tumor

A 70 year old male presented to the emergency department with nausea, anorexia, dizziness, and melena lasting for 6 days.

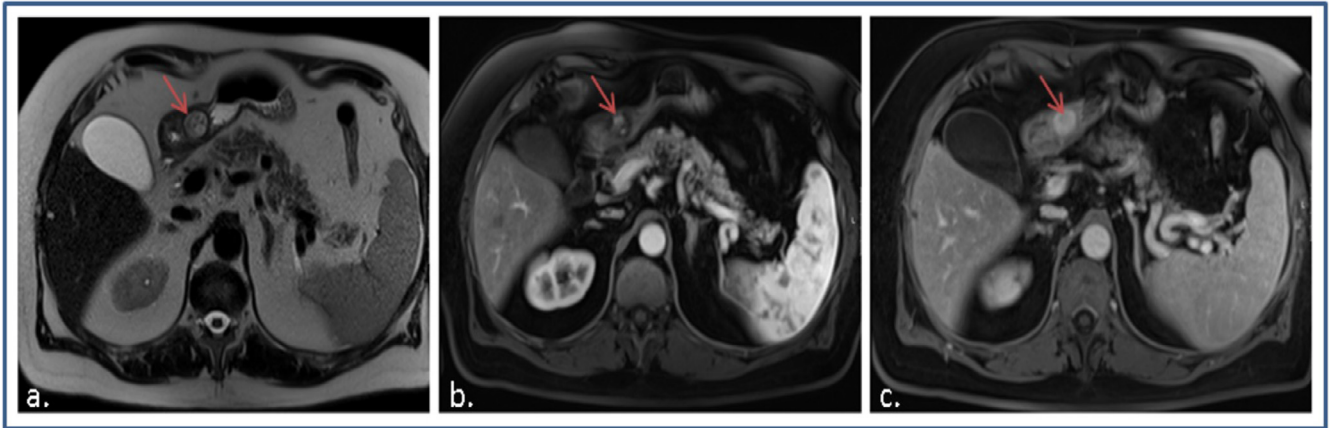


Fig. 3 - Axial magnetic resonance images. (a) T2-weighted image showing a well-circumscribed, submucosal, nodular gastric hyperintense mass, located in the antrum; (b) and (c) T1 post-gadolinium fat saturation images at 20 seconds and 5 minutes respectively, showing arterial enhancement, with a progressive pattern, more homogeneous in the delayed phase

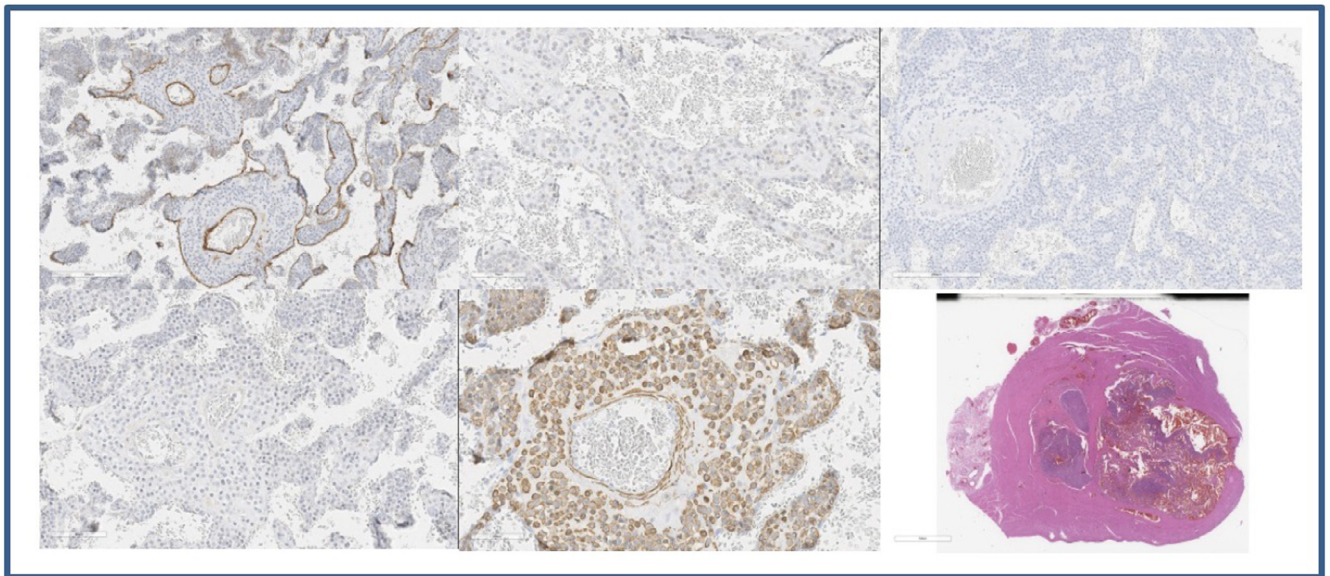


Fig. 4 - Microscopic examination. A lobulated lesion is revealed, made of epithelioid cells with clarified cytoplasm and oval nuclei, without cellular atypia, and with numerous delicate vessels. Immunohistochemical analysis shows discrete positivity for smooth muscle actin (SMA), synaptophysin and CD34

Esophagogastroduodenoscopy revealed a polypoid mass with central ulceration located on the anterior wall of the gastric antrum (Fig. 1).

Contrast enhanced computer tomography of the abdomen showed it to be a well-circumscribed, 24 mm, submucosal, nodular mass, with increasing contrast enhancement from arterial to venous phase. There was no extension beyond the stomach wall and no enlarged lymph nodes were seen (Fig. 2). On magnetic resonance imaging (MRI) the lesion showed, on T2-weighted images, a high signal intensity and, on T1 post-gadolinium fat saturation images, an arterial contrast

enhancement, persistent and homogeneous in later phases (Fig. 3).

A partial gastrectomy with a gastro-jejunal Roux-en-Y anastomosis was performed and specimens sent for histopathological examination.

Microscopic examination demonstrated a lobulated lesion made of epithelioid cells with clarified cytoplasm and oval nuclei, without cellular atypia, and numerous delicate vessels. Immunohistochemical analysis showed discrete positivity for smooth muscle actin (SMA), synaptophysin and CD34 (Fig. 4) confirming the diagnosis of a glomus tumor.

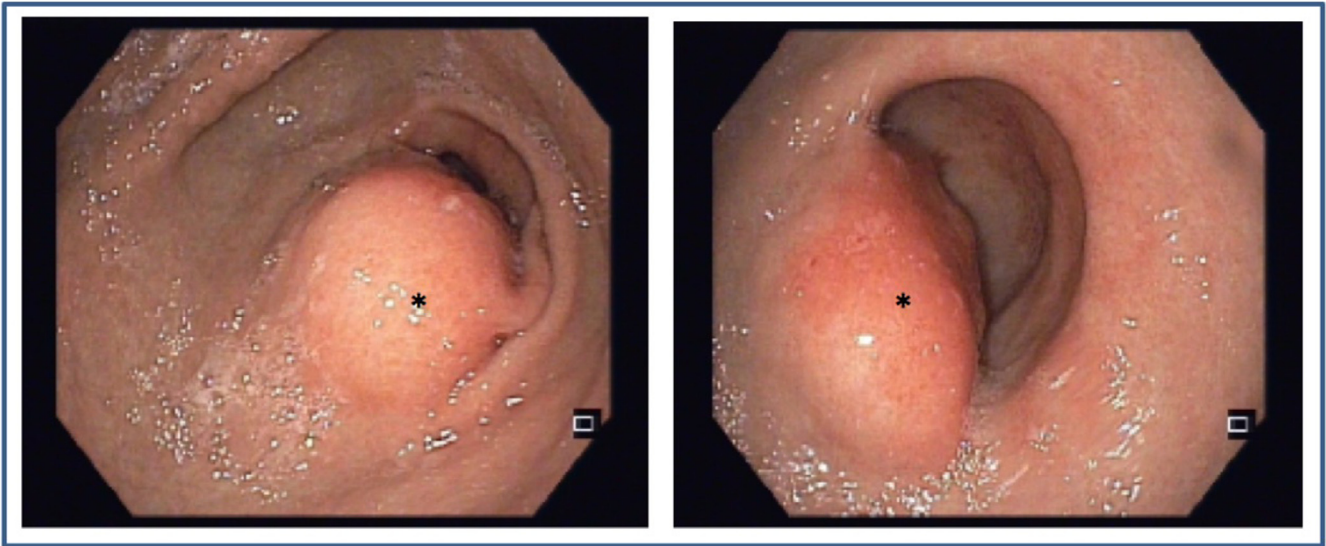


Fig. 5 – Upper tract endoscopy images. A polypoid mass covered by a layer of normal mucosa is shown, occupying half the circumference of the distal gastric antrum, (asterisk)

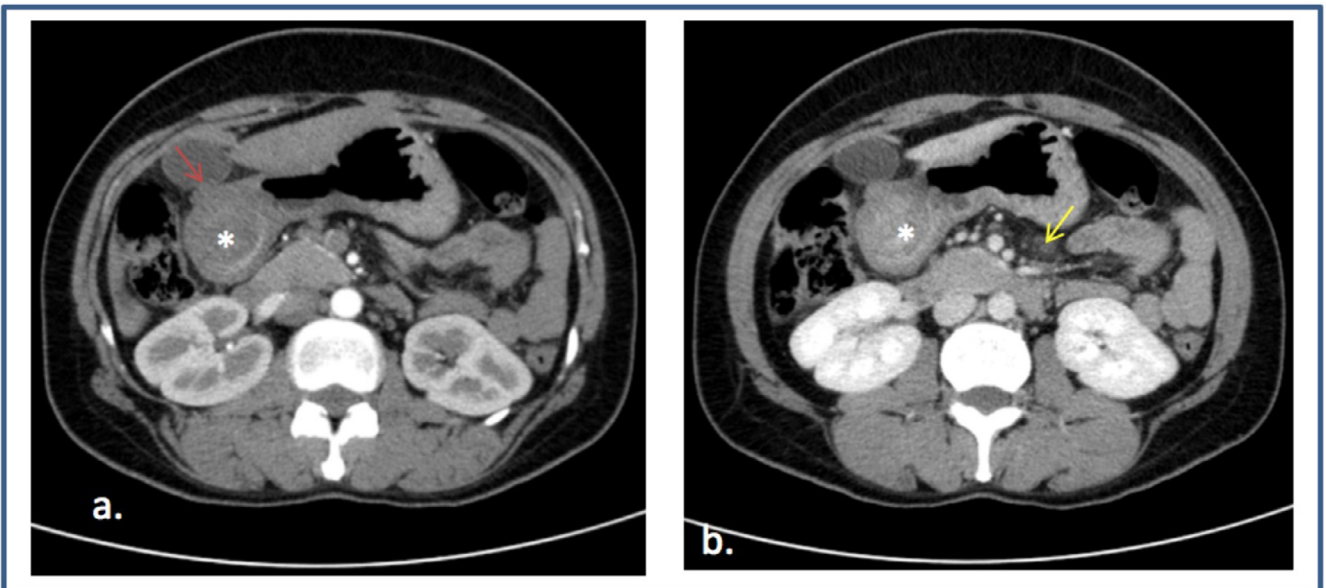


Fig. 6 – Axial contrast enhanced computed tomography scans. A nodular 35 mm mass located in the gastric antrum is shown, with progressive enhancement from the arterial phase (a.) to venous phase (b.) (asterisk). Distortion of the anterior border of the antrum is seen, where the lesion extends beyond the stomach and contacts the gallbladder (red arrow). A slightly prominent perigastric lymph node can be seen (yellow arrow) (Color version of figure is available online.)

Case report 2- Plexiform fibromyxoma

A 50-year-old female presented to the emergency department with intense epigastric pain irradiating to the dorsal region.

Esophagogastroduodenoscopy revealed a large polypoid mass covered by a layer of normal mucosa, occupying half the circumference of the distal gastric antrum (Fig. 5).

Contrast enhanced computer tomography showed it to be a nodular 35 mm mass with progressive contrast enhancement,

heterogeneous in arterial phase and more homogeneous in venous phase. It distorted the anterior border of the antrum where it extended beyond the stomach, with intimate contact with the gallbladder (Fig. 6).

MRI confirmed the arterial heterogeneous contrast enhancement, progressively becoming more homogeneous and persisting in delayed phases (Fig. 7).

A distal partial gastrectomy with a Roux-en-Y gastrojejunostomy and a cholecystectomy were performed, and specimens sent for histopathological analysis.

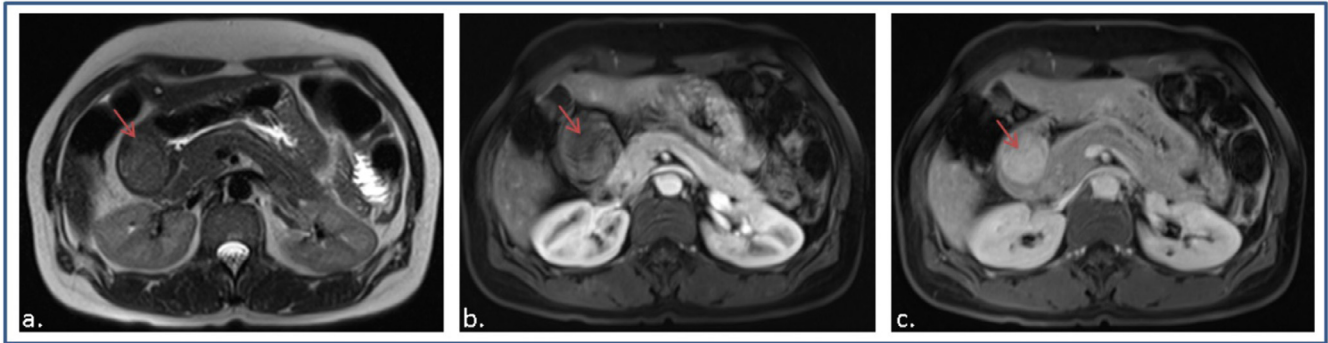


Fig. 7 – Axial magnetic resonance images. (a) T2-weighted image showing a slightly hyperintense mass located in the gastric antrum; (b) and (c) T1 postgadolinium fat saturation images at 15 seconds and 10 minutes respectively, showing a gradual enhancement pattern and prominent enhancement in the delayed phase (arrows)

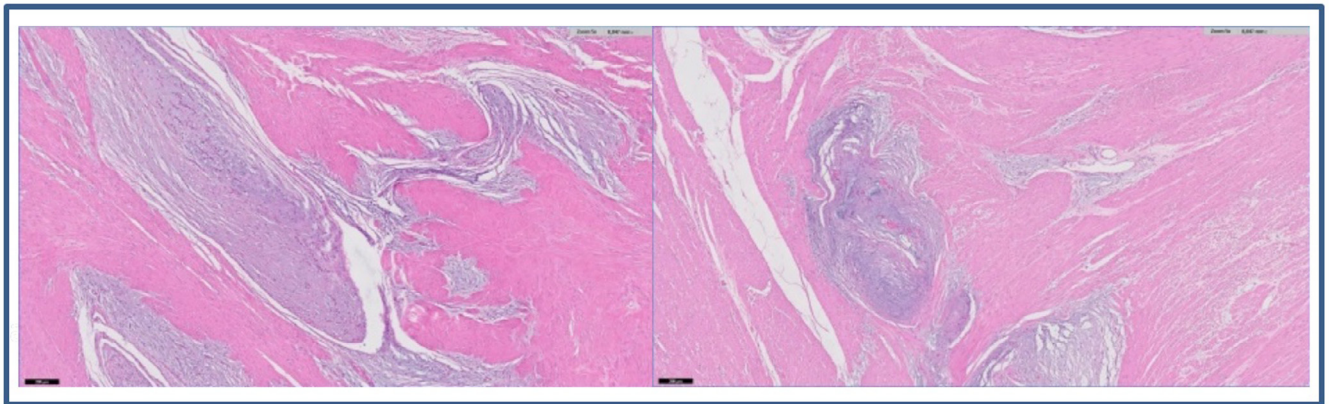


Fig. 8 – Microscopic examination. A paucicellular neoplasia with multinodular pattern is revealed, consisting of fusiform cells without atypia or mitosis, with myxoid stroma and numerous vascular structures

Microscopic examination revealed a paucicellular gastric neoplasia with a multinodular pattern consisting of fusiform cells without atypia or mitosis, with foci of myxoid stroma and numerous vascular structures (Fig. 8). Immunohistochemistry showed immunoreactivity to SMA and CD10 confirming the diagnosis of a plexiform fibromyxoma.

Discussion

Glomus tumors usually manifest as solitary hypervascular lesions with a peripheral nodular pattern of enhancement with delayed filling-in [1]. On MRI they are slightly hypointense on T1-weighted images and slightly hyperintense on T2-weighted images, exhibiting an arterial and persistent enhancement on T1 postgadolinium fat saturation images [2].

The differential diagnoses of a glomus tumor include GIST and plexiform fibromyxoma [1,4].

Histologically they are composed of sheets of monotonous round cells and numerous delicate vessels. Immunohistochemical analysis shows positivity for SMA and calponin [1].

Plexiform fibromyxomas are hypervascular tumors showing heterogeneous enhancement with areas of low attenua-

tion due to the presence of myxoid tissue, occasionally with ulceration or mucosal invasion. Approximately half extend into the extragastric soft tissues [1,4,5]. MRI usually shows hyperintensity on T2-weighted images, no restriction to diffusion and a gradual enhancement pattern persistent in delayed phases, all associated to the myxoid nature of the tumor [6].

Histopathological analysis reveals a plexiform growth pattern composed of multiple nodules of myxoid stroma with a prominent capillary network, originating within the muscularis propria [1]. The distinctive plexiform architecture is almost unique, although other gastric mesenchymal tumors, especially glomus tumors, may show a similar pattern [4]. Immunohistochemical analysis typically shows positivity for SMA, and a focal immunoreactivity for CD10 has also occasionally been detected [4].

Conclusion

Although GIST remain the most common gastric mesenchymal tumors of the antrum it is important to reaffirm that there are other rare mesenchymal neoplastic entities almost exclusive to this specific gastric location. The identification of dis-

tinctive radiologic characteristics of these tumor types is important for an early and adequate preoperative diagnosis and treatment planning.

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