Int J Clin Exp Pathol 2017;10(2):2210-2212
www.ijcep.com /ISSN:1936-2625/IJCEP0019127

Case Report

Glomus tumor in the stomach: a case report and review of the literature

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Received November 4, 2015; Accepted March 20, 2016; Epub February 1, 2017; Published February 15, 2017

Abstract: Glomus tumors are benign lesions and originate from modified smooth muscle cells of the glomus body. These tumors are commonly observed in the dermis or subcutis, but only rarely found in the stomach. Here we report a case of a 56-year-old male with a gastric glomus tumor who was admitted with epigastralgia and weakness for one month. The clinical procedures with a review of the literature are reported.

Keywords: Glomus tumor, stomach

Introduction

Glomus tumours are rare neoplasms arising from modified smooth muscle cells that help regulate arteriolar blood flow. These tumors are commonly observed in the dermis or subcutis, but only rarely found in the stomach [1]. Gastric glomus tumours are estimated to account for 1% of gastrointestinal (GI) soft-tissue tumours [2]. Smol' j yannikov wrote that the first GT of the stomach was described by Talijeva in 1928 [3]. Upper gastrointestinal bleeding and ulcerous syndrome are the most frequent symptoms. Gastric glomus tumors are essentially benign in nature, but a small possibility of malignant behavior cannot be ruled out.

Case report

A 56-year-old male presented with epigastralgia and weakness for one month, The patient denied any associated with fevers, chills, nausea, vomiting or melena. And serum levels of tumor makers were all within normal limits. Computed tomography (CT) revealed a local thickening at the gastric antrum. Endoscopic ultrasound (EUS) displayed a well-defined submucosal protrusion with normal overlying mucosa on the posterior wall of the gastric antrum, which measured 2×1.5 cm (**Figure 1**), The preoperative diagnosis is gastrointestinal stromal tumors (GISTs) or neuroendocrine neoplasm. A laparoscopic resection of the lesion was performed. Immunohistochemistry revealed the tumor to be positive for vimentin, caldesmon and smooth muscle actin, and negative for cluster of differentiation (CD)34, cytokeratin (AE1/AE3), desmin and epithelial membrane antigen. The proliferation marker Ki-67 was positive in <5% of tumor cell nuclei (**Figures 3-5**). These findings were consistent with a glomus tumor. The patient tolerated the procedure well and subsequent course has been unremarkable.

Discussion

GT tumors usually arise in the intramuscular layer and typically occur as a solitary nodule that most frequently affects the greater curvature, antrum, and pylorus [4]. Gastric GT is rare benign mesenchymal neoplasm and preoperative diagnosis is difficult due to their rarity and overlapping features with other GI tumours such as gastrointestinal stromal tumours. Preoperative diagnosis is important in order to spare patients inappropriate neoadjuvant treatment or extensive surgical resection.

On CT, they manifest as well-circumscribed submucosal masses with homogeneous density on unenhanced study and may contain tiny flecks

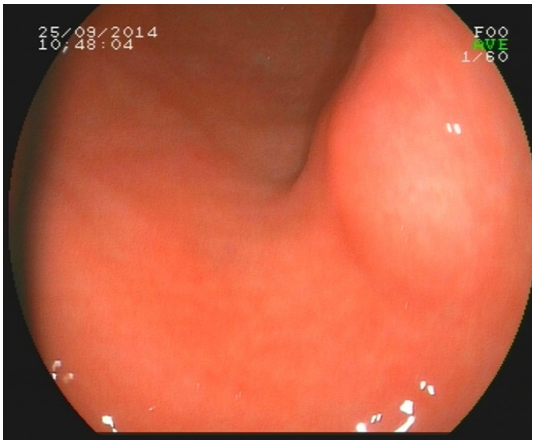

Figure 1. Endoscopic image of a well-defined submucosal tumor with normal overlying mucosa.

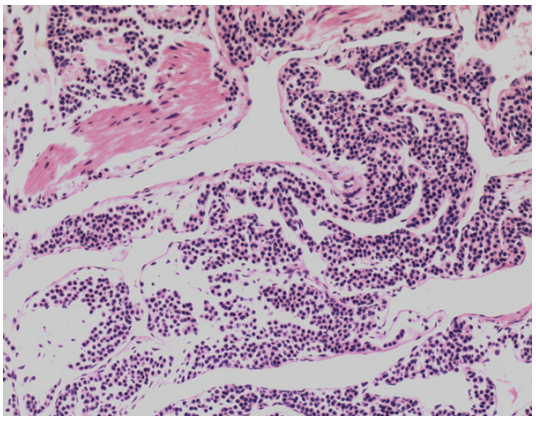

Figure 2. Nests of glomus cells surrounding capillary size vessels. (H&E stain, ×200).

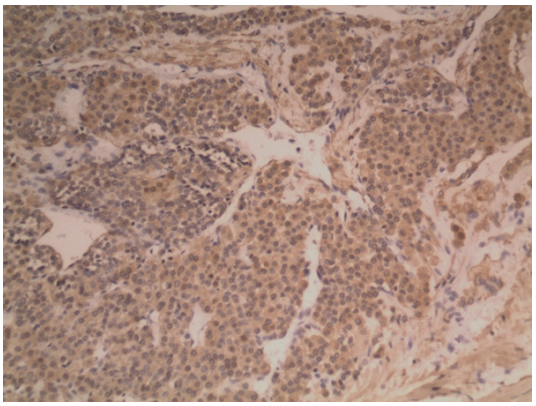

Figure 3. The tumor cells are positive for smooth muscle actin. (IHC stain, ×200).

of calcifications. After contrast administration, these tumors show, as occurred in our patient, strong enhancement on arterial phase images

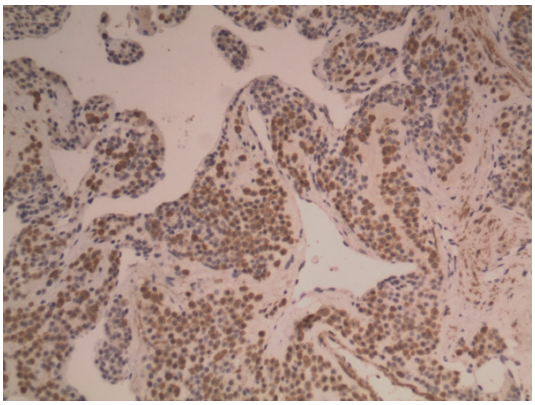

Figure 4. The tumor cells are positive for caldesmon. (IHC stain, ×200).

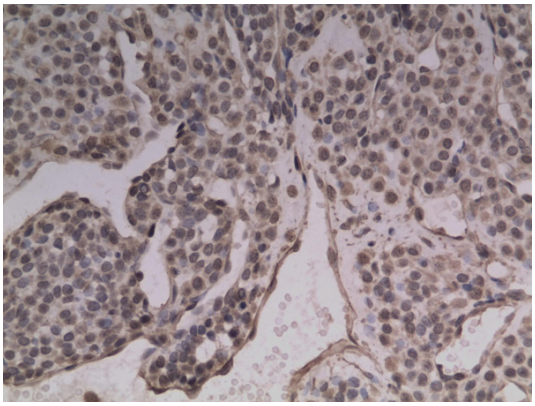

Figure 5. The tumor cells are positive for vimentin. (IHC stain, ×400).

and persistent enhancement on portal venous phase images [5].

Endoscopic findings of gastric GTs are that of a submucosal mass typically in the antrum or distal body, with either normal mucosa or ulceration. The endoscopic biopsy is usually not helpful due to the intramural nature of the tumors [2, 6]. Combination of CT and EUS application could be a better identification of glomus tumor and stromal tumor [7].

Endoscopic ultrasound (EUS)-guided fine needle aspiration (FNA) has become the preferred method for diagnosing and staging submucosal neoplasms of the GI tract. Provided there is familiarity with its cytological features, a diagnosis of gastric glomus tumour can be made [8].

Microscopic examination revealed numerous dilated, thin-walled blood vessels, lined by a

single layer of endothelial cells and surrounded by multilayer round glomus cells (**Figure 2**). GTs are positive for α-smooth muscle actin, vimentin, calponin and caldesmon. They are most often negative for CD117, CD34, chromogranin and synaptophys in Criteria [2].

Although gastric GT is usually benign, malignant behavior cannot be excluded. Especially larger gastric glomus tumors require a close follow-up. Folpe [9] think, such as the following conditions should be considerd malignant possibility, deep location and size more than 2 cm, or the presence of atypical mitotic figures, or a combination of moderate to high nuclear grade and mitotic activity (5 mitoses/50 HPF).

To minimize surgical trauma and the inflammatory response, the benign nature and small median size (varying between 2 and 3 cm) of glomus tumors allows them to be removed by laparoscopic wedge resection [10].

In the largest study of gastrointestinal GTs (32 cases), Miettinen [2] found a female preponderance of 72%, and median age of 55. Of the 31 patients with gastric GTs, 11 presented with upper GI bleeding, 9 with dyspepsia and 1 with perforation.

In conclusion, gastric glomus tumors are rare benign mesenchymal neoplasm and preoperative diagnosis is challenging. Since patients have no specific clinical and imaging findings. The differential diagnosis includes gastrointestinal stromal tumor, paraganglioma, and carcinoid tumor. FNA could be a promising method of diagnosis. Exact diagnosis relies on histological examination and the immunohistochemical markers. Local resection by open or laparoscopic surgery is usually the most efficient therapy.

Disclosure of conflict of interest

None.

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