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CASE REPORT

Laparoscopic Resection of a Gastric Glomus Tumor

Michael J. Campbell · Shayan Irani · Semra Olgac · Lily C. Chang

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Abstract Surgeons are commonly asked to evaluate patients with subepithelial masses of the stomach. Glomus tumors are subepithelial mesenchymal tumors that are rarely included in the differential diagnosis when evaluating these patients. We present the case of 55-year old man with a gastric glomus tumor that was diagnosed preoperatively and removed by laparoscopic wedge resection. We review the preoperative evaluation and classic finding associated with this uncommon entity.

Keywords Glomus tumor

Introduction

Surgeons are commonly asked to evaluate patients with subepithelial masses of the stomach. Glomus tumors are mesenchymal neoplasms related to the perivascular glomus body and are most commonly found in the distal extremities, but when found in the stomach they are frequently mistaken for the more common Gastrointestinal Stromal Tumors (GIST), leimyomas or carcinoid tumors. Modern imaging techniques such as helical CT and endoscopic ultrasound coupled with fine needle aspiration with immunohistrochemical analysis can facilitate preoperative diagnoses of these rare tumors allowing for better preoperative planning. We present a case of a gastric glomus tumor that was diagnosed preoperatively and removed by laparoscopic wedge resection.

Case Report

A 55-year old Korean man presented to his primary care provider complaining of mild epigastric pain and dyspepsia for several months. He was referred for upper endoscopy where a 3-cm subepithelial lesion was noted in the antrum of the stomach. Mucosal biopsies were completed, but deeper biopsies were abandoned after the lesion began to bleed.

The patient returned the endoscopy suite later that week for an endoscopic ultrasound that revealed a 24× 17 mm, mostly hypoechoic lesion arising from the muscularis propria. Fine needle aspiration was performed and cytology revealed bland appearing epithelial cells that stained positive for alpha-smooth muscle actin and calponin, focally positive for synaptophysin and negative for LK2H10 (chromogranin) and CD117 (C-KIT) (Fig. 1).

A CT scan of the abdomen demonstrated a heterogeneous, vascular mass in the posterior wall of the antrum without any findings concerning for metastatic disease. The patient was referred for surgical consultation and was taken to the operating room for a laparoscopic

M. J. Campbell · L. C. Chang (✉)
Department of General Surgery, Virginia Mason Medical Center,
Mailstop C6-GS, 1100 Ninth Ave,
Seattle, WA 98101, USA
e-mail: Lily.Chang@vmmc.org

S. Irani
Department of Gastroenterology, Virginia Mason Medical Center,
Seattle, WA, USA

S. Olgac
Department of Pathology, Virginia Mason Medical Center,
Seattle, WA, USA

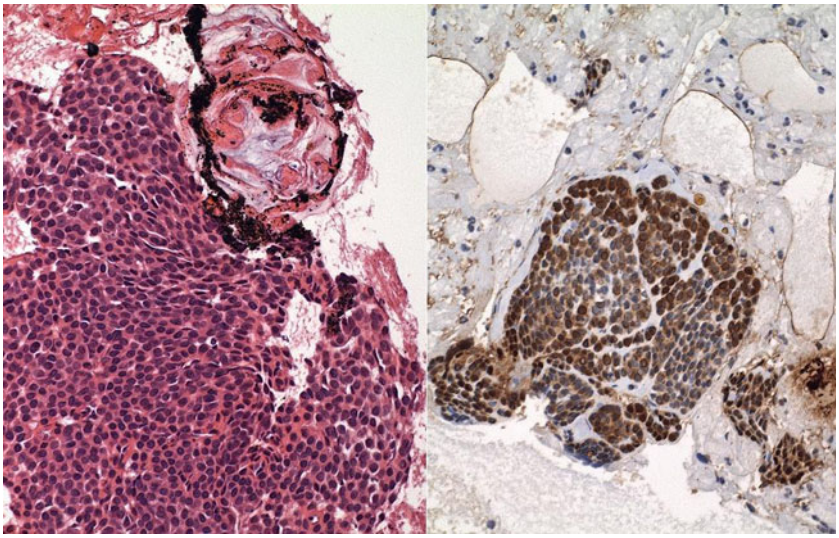

Fig. 1 Cytology revealing bland appearing epithelial cells (*left*) that stained positive for calponin (*right*)

gastric wedge resection (Fig. 2). Gross examination of the lesion demonstrated a well circumscribed, subepithelial mass. Microscopic examination showed thin-walled, dilated vascular channels surrounded by bland appearing round cells with eosinophilic cytoplasm and rare mitosis. The patients post operative course was unremarkable and he was discharged to home on postoperative day number two.

Discussion

Glomus tumors of the stomach are a rare entity with approximately 145 cases reported in the literature to date. They are mesenchymal tumors composed of smooth muscle cells representing the neoplastic complement to perivascular glomus bodies which help regulate arteriolar blood flow. The majority of glomus tumors occur in the distal extremities, classically in the subungual areas [1]. Kay and colleagues were the first to report glomus tumors in the stomach in 1951 [2]. They are most commonly found in the antrum and have a predilection for the greater curve [1]. Patients can present with symptoms of gastrointestinal bleeding or ulcer-like epigastric pain; however, a significant number are found incidentally on endoscopy [3]. Miettenin and colleagues reported a significant female predominance, but this is less prominent in other large case series [2]. Median age of presentation is 54 years, but a wide range of ages has been reported [2].

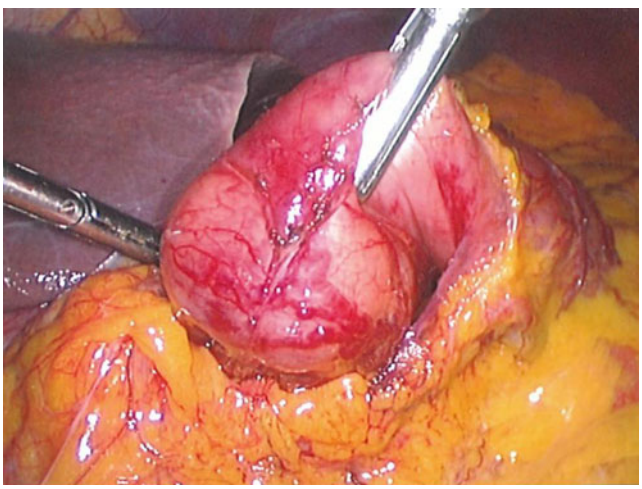

Fig. 2 Intraoperative photograph showing a subepithelial lesion originating from the posterior stomach

Upper endoscopy often reveals a well circumscribed subepithelial mass. EUS findings may show a circumscribed hypoechoic mass arising in from the third or fourth layer with a heterogeneous pattern and hyperechoic spots that probably correspond to the vascular nature of these lesions [4].

On CT imaging, glomus tumors classically demonstrate a dense, homogenous enhancement in the arterial phase with prolonged delayed enhancement secondary to their vascularity. This enhancement pattern can help distinguish these tumors from other submucosal lesions such as leiomyomas, lipomas and fibromas which are not as vascular [5].

Glomus tumors stain positive for alpha-smooth muscle actin, calponin and vimentin, but unlike GIST's they are negative for CD117 (C-KIT) on immunohistochemical analysis. Unlike carcinoid tumors, which stain positive LK2H10 (chromogranin) and synaptophysin, glomus tumors never stain positive for chromogranin and are only focally positive for synaptophysin [2].

Glomus tumors of the stomach are usually small (average of 2 cm) and are amenable to local wedge resection. They are almost always benign, but there is

one reported cases of malignant behavior, in a tumor greater than 5 cm [1]. Their benign nature and small size make them well suited for laparoscopic resection [6]. Because of their rarity there are no clear guidelines for follow up, but given their low malignant potential surveillance based on symptoms should be appropriate.

Conflict of interest None

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