CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 11 (2015) 64–67

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

A rare submucosal tumour of stomach-glomus tumour: A case report

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ARTICLE INFO

Article history:
Received 19 February 2015
Received in revised form 6 April 2015
Accepted 7 April 2015
Available online 9 April 2015

Keywords:
Submucosal mesenchymal tumour
Stomach
Glomus tumour
Immunohistochemistry
Wedge resection

ABSTRACT

INTRODUCTION: Glomus tumour (GT) of the stomach is a rare submucosal mesenchymal tumour. Gastric glomus tumours are clinically recognized as benign. Nevertheless, some show biological behaviour similar to that of malignant lesions and presurgical confirmation is often impossible.
PRESENTATION OF CASE: A 32 year old female who presented with epigastric pain and was subsequently investigated for a antral tumour of the stomach and Wedge resection of tumour was done. Immunohistochemistry demonstrated strong positivity of smooth muscle actin and vimentin with low rate of mitosis studied by ki-67.
DISCUSSION: We discuss the preoperative investigation, the diagnostic problems and the surgical treatment of the patient with gastric glomus tumour.
CONCLUSION: Glomus tumours should be considered as differential diagnosis for submucosal tumours of stomach.

1. Introduction

Glomus tumour (GT) is a neoplastic lesion of mesenchymal origin arising from the neuromyoarterial canal or glomus body. Although most glomus tumours occur in the peripheral soft tissue and extremities, these tumours can grow anywhere in the body [1]. Stomach is a common extracutaneous site of glomus tumour and constitute about 1% of gastric mesenchymal tumours [2]. Only few cases have been reported after its first description by key et al. in 1951 [3]. The histopathology examination using conventional techniques of staining often does not allow for accurate diagnosis, making the use of immunohistochemistry an indispensable tool to confirm the diagnosis of glomus tumour [4].

2. Presentation of case

A 32 year old female presented to surgical out-patient department with epigastric pain for two months.. Endoscopy revealed a polypoidal mass of size 3 × 2 cm with intact mucosa in anterior wall of gastric antrum. (Fig. 1).

Contrast enhanced Computer tomography(CECT) of abdomen showed a lobulated heterogeneously enhanching mass of size 3 × 2 cm in antral region of stomach and protruding into its lumen. It does not extend beyond the stomach wall into the surrounding structures and no enlarged lymph nodes. (Fig. 2).

Wedge resection of tumour was done(Fig. 3a and b). Gross examination reveals a solitary grey white firm tumour mass (Fig. 3c) confirming the submucosal location.

Microscopic examination reveals solid proliferation of tumour cells around blood vessels in the submucosa and the muscular layer. The mucosa is intact. The tumour cells are round to oval with scanty cytoplasm with round nucleus and incospicous nucleoli. Mitosis is less than 1/50HPF. The diagnosis of small round cell tumour was made. The probable differential diagnosis were glomus tumour, carcinoid tumour, gastro intestinal stromal tumour and lymphoma (Fig. 4 and Table 1).

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http://dx.doi.org/10.1016/j.ijscr.2015.04.014

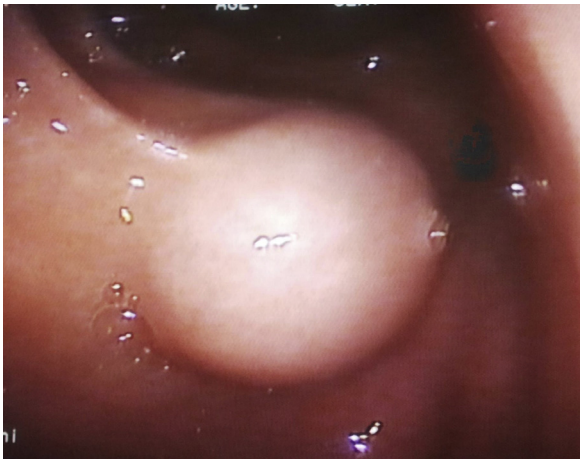


Fig. 1. Polypoidal mass on endoscopy along greater curvature.

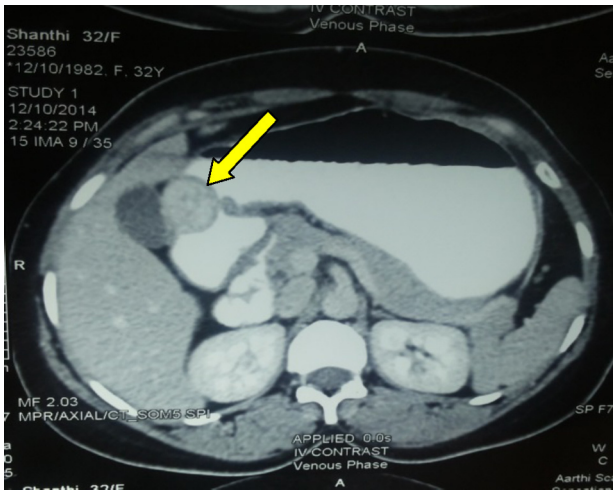


Fig. 2. CECT abdomen showing a lobulated mass protruding into the lumen.

3. Discussion

Gastric submucosal tumours (SMTs) represents non-epithelial mesenchymal neoplasms accounting for only 0.1–1% of all gastro intestinal tumours [5]. They arise from the submucosa or muscularis propria of the gastric wall and usually spare the overlying mucosa [6]. GIST is the most common submucosal tumour of the stomach, other submucosal tumours can be frequently mistaken for a GIST [7]. The frequency of gastric glomus tumours is estimated to be 100 times less than that of gastrointestinal stromal tumours (GIST). The prevalence of gastric GT is dominant in females in the fifth or sixth decade, but a wide range of ages has been encountered [1]. Gastric glomus tumours are most commonly described as solitary, well-defined, submucosal lesions in the antrum, presenting with a variety of symptoms [1]. The most frequent complaints associated with gastric GT include epigastric pain, upper gastrointestinal bleeding and ulcerous syndrome with or without nausea or vomiting [1]. Due to the deep location of glomus tumour, preoperative diagnosis is difficult [3].

The main diagnostic modalities for evaluating SMTs are endoscopic ultrasound (EUS) and computed tomography (CT) [6]. The former has an advantage in identifying the layer of tumour origin, and the latter is advantageous in tumour characterization with the use of contrast enhancement [6]. EUS will show a hypoechoic, well-circumscribed mass located in the third and/or fourth EUS layer [7,8,9,10] EUS-guided biopsy is now a well established modality for sampling submucosal lesions [9,11].

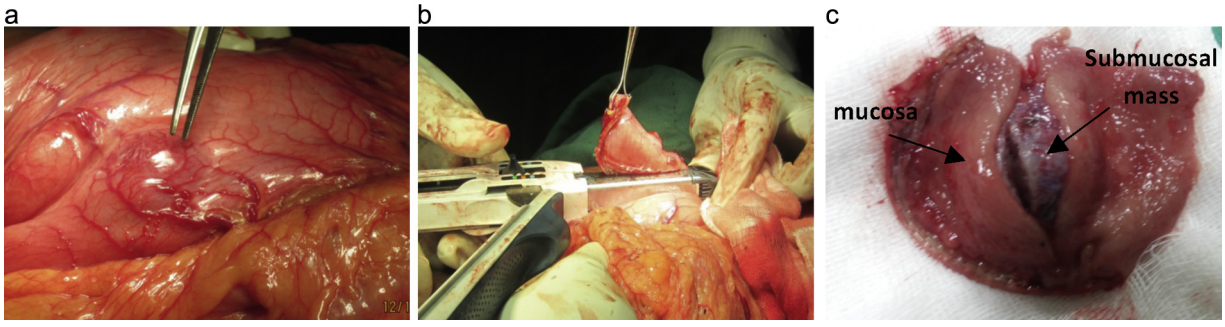


Fig. 3. (a) antral mass along greater curvature (b) wedge resection of mass with staplers (c) resected specimen confirming the submucosal location.

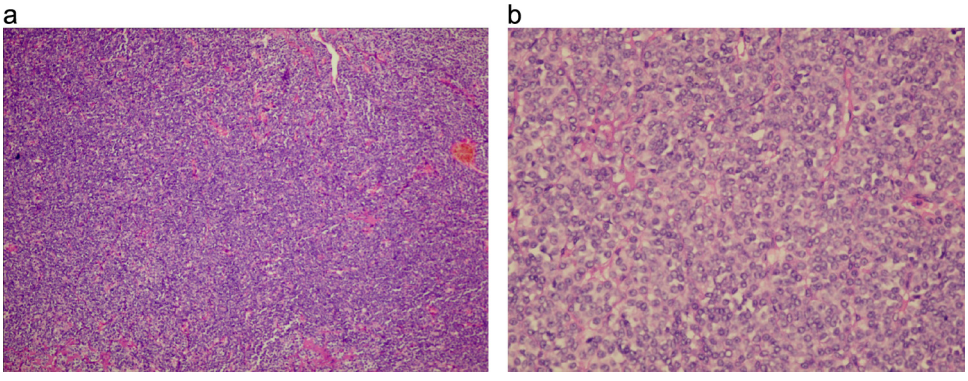
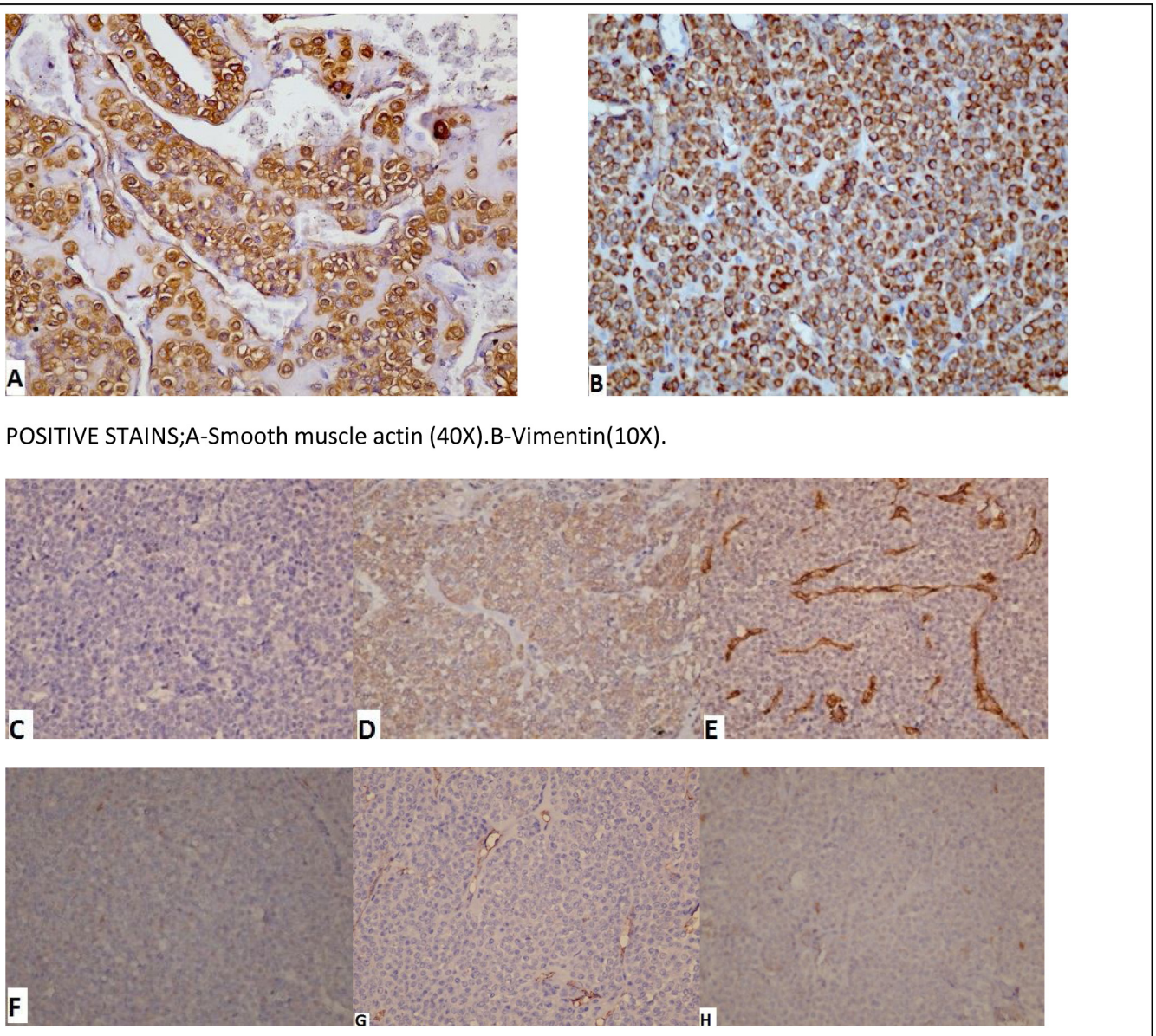


Fig. 4. (a) H&E showing solid sheets of tumour cells intervined by blood vessels of varying size (10X) (b) High Power showing cuffs of tumour cells around the blood vessels lined by flattened endothelial cells (40X).

Post-operative period was uneventful and the patient is on regular follow up.



POSITIVE STAINS;A-Smooth muscle actin (40X).B-Vimentin(10X).

NEGATIVE STAINS(10X); C-chromogranin,D- Synaptophysin,E-CD34,F-CD117,G-CD31,H-Leucocyte common antigen

Table 1
Immuno histochemistry was performed. The Immuno histochemical results are as follows.

Pan CK	Negative
CK 7	Negative
Ki-67	<1 per 50 hpf
CD 117/C-kit	Negative
Leucocyte Common Antigen	Negative
Vimentin	Strongly positive
Smooth muscle actin	Strongly positive
CD 31	Negative
CD 34	Focally positive
Chromogranin	Negative
Synaptophysin	Weak positive

The tumour cells showed a strong reactivity for vimentin and smooth muscle actin confirming the diagnosis of Glomus tumour.

Contrast enhanced Computer enhanced tomography these tumours demonstrate strong enhancement on arterial-phase scans and persistent enhancement on portal venous-phase scans [11]. Often confused with GIST, the distinguishing features are that the density of GISTs is lower than that of GTs, and GISTs do not exhibit prolonged enhancement in the delayed phase [9].

On, magnetic resonance images, gastric GT shows slightly hypointense on T1-weighted images and slightly hyperintense on T2-weighted images and is hypervascular and exhibits persistent enhancement after gadolinium administration [4].

Histologic features are central round to oval nuclei with inconspicuous nucleoli and clear to eosinophilic cytoplasm with distinct cell [9]. Immunohistochemistry is essential in the differential diagnosis of GT, and the immunohistochemical panel generally showed

Table 2
Differential diagnosis of gastric glomus includes Carcinoid tumours, Epitheloid variant of GIST, and Lymphoma [1,2,4,].

Tumour type	SMA	Vimentin	CD 117	CD31 & CD 34	LCA	Pan CK & CK 7	Chromogranin &Synaptophysin
Glomus Tumour	++	++	–	–	–	–	+/–
GIST	+/–	+	++	–	–	+/–	–
Carcinoid Tumour	–	–	–	–	–	+	++
Gastric Lymphoma	–	–	–	–	+	–	–

++ Strongly Positive; – Negative; +/– Weakly positive; / Negative.

that GT tumour was strongly and diffusely positive for smooth muscle actin, vimentin and actin, calponin, type IV collagen, and laminin [4]. Glomus tumours are divided into solid glomus tumours, glomangioma and glomagiomyoma. our case is a glomangioma,which constitutes 20% of all glomus tumours [12].

Criteria for malignant glomus tumours of soft tissue proposed by Folpe et al. included: (a) Deep location and size >2 cm or (b) atypical mitotic figure or (c) moderate to high nuclear grade and mitotic activity (5 mitoses/50HPF) [2,3]. There seems to be a marked difference in clinical course of glomus tumours in deep peripheral soft tissue and those in the stomach. For gastric glomus tumours, size >5 cm is more important than the mitosis and atypia for assessing risk for malignancy [2].

Treatment of choice for gastric glomus tumour is wedge resection with negative margins [2,3,9,13]. Completely resected small tumours without necrosis and mitosis have good prognosis [2] (Table 2).

4. Conclusion

Gastric glomus tumours are unusual distinct lesion that should be considered in the differential diagnosis of a gastric submucosal mass [6]. Immunohistochemical studies are helpful in the differential diagnosis of gastric glomus tumours,although most are benign, malignancy cannot be excluded. Thus,long-term follow –up of the patient is necessary [13].

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