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Glomus tumor of gastric antrum: A rare differential

Prakash Joseph, Rijo Issac, Negine Paul, B Sudhakar Chandran

ABSTRACT

Introduction: Gastric glomus tumor is a rare clinical entity. Surgical excision could be avoided in selected patients if the diagnosis of glomus tumor could be made preoperatively. Cross-sectional imaging and endoscopic ultrasound (EUS) provide vital clues to nudge us in the right direction; however, these are inconclusive. Histopathology remains the gold standard for diagnosis of this condition.

Case Report: We report a case of a man in his 60s who presented to the surgical outpatient clinic with long-standing history of abdominal bloating and discomfort. Upper gastrointestinal endoscopy revealed a submucosal lesion, and contrast-enhanced computed tomography (CECT) of the abdomen revealed a homogeneously enhancing lesion in the antrum of the stomach. Following successful surgical excision, histopathological examination established the diagnosis of gastric glomus tumor. This case presentation elaborates on the clinical features of this rare clinical entity and the various options available for diagnosis and management.

Conclusion: Glomus tumors are rare mesenchymal tumors that need to be differentiated from other submucosal lesions and should be considered as a differential for submucosal lesions in the distal stomach. Endoscopic ultrasound and CT findings may provide clues to guide us toward the diagnosis; however, diagnosis can be confirmed only with histopathology. Surgical excision with negative margins either by laparoscopic or open operation is the treatment of choice.

Keywords: Antral tumors, Gastrectomy, Glomus tumor, Histopathology, Wedge resection

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INTRODUCTION

Gastric glomus tumor is a rare clinical entity. Surgical excision could be avoided in selected patients if the diagnosis of glomus tumor could be made preoperatively. Cross-sectional imaging and endoscopic ultrasound (EUS) provide vital clues to nudge us in the right direction; however, these are inconclusive. Histopathology remains the gold standard for diagnosis of this condition.

We report a case of gastric glomus tumor in a patient who underwent surgical excision of an antral submucosal lesion, with the diagnosis established post-operatively.

CASE REPORT

A man in his 60s presented to the surgical outpatient clinic with a one-and-a-half-year history of abdominal bloating and discomfort which were aggravated with food intake and relieved on medication. He did not have any alarm symptoms. He consumed chewable tobacco, did not consume alcohol, and was previously diagnosed to have systemic hypertension and benign prostatic hyperplasia for which he was on regular medication. He had undergone a right inguinal hernia repair three years ago and an operation for fistula-in-ano 20 years ago.

His general examination was unremarkable. Abdominal examination revealed a right inguinal scar and no palpable mass. The rest of his systemic examination was unremarkable as well.

Investigations

His baseline blood investigations were within normal limits with a hemoglobin of 12.7 g/dL, rest of the hemogram, coagulation, and biochemical parameters were within normal limits. Upper gastrointestinal endoscopy showed a 2×2 cm submucosal lesion with normal overlying mucosa in the gastric antrum (Figure 1).

Following this, contrast-enhanced computed tomography (CECT) scan of the abdomen and pelvis was done, which showed a well-defined homogeneously hyper-enhancing endoluminal mass lesion, in the arterial and portal venous phases, measuring 2.3×1.9×2 cm in the gastric antro-pyloric region with no central necrosis (Figure 2). There was no regional lymphadenopathy, bone metastases, or other features suggestive of a malignancy.

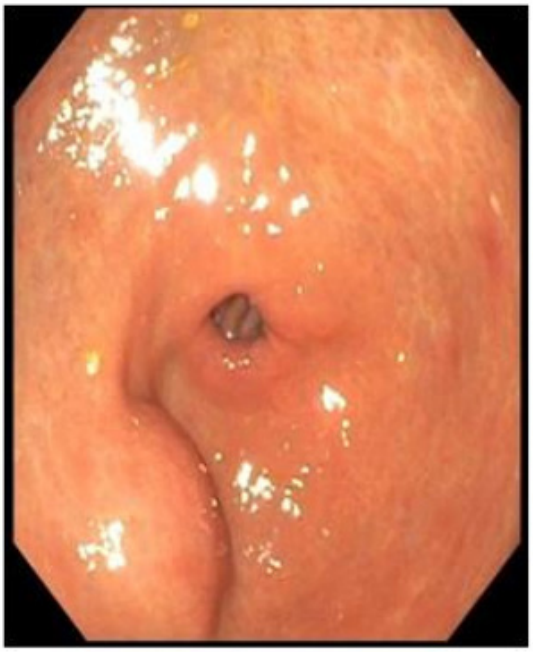

Figure 1: Upper gastrointestinal endoscopy showing a submucosal antral swelling with normal overlying mucosa.

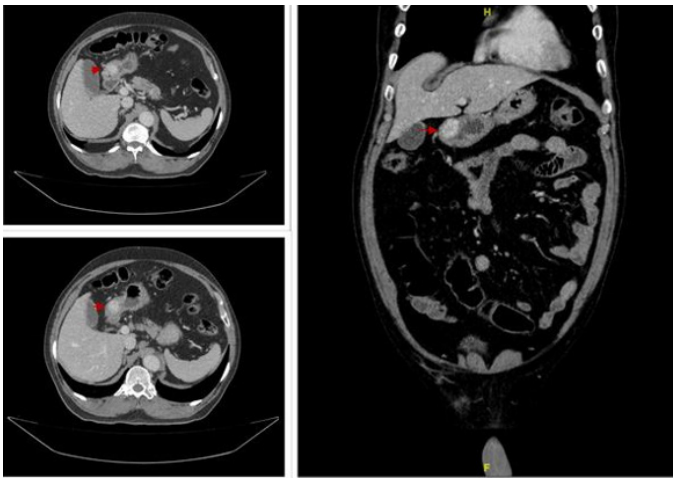

Figure 2: Contrast-enhanced CT scan—axial and coronal images showing a well-defined homogeneously enhancing lesion in the antro-pyloric region of the stomach.

TREATMENT

His details were discussed in the multidisciplinary team meeting and treatment options were discussed with the patient with differentials of gastrointestinal stromal tumor and neuroendocrine tumor in mind.

He underwent open wedge excision of the lesion under general anaesthesia. Intraoperatively, a 2×2 cm antral submucosal lesion placed anteriorly 3–4 cm proximal to the pylorus was noted. He had an uneventful post-operative period and was discharged on the 5th post-operative day.

Histopathological examination revealed an intramural tumour with ill-circumscribed borders, arranged in nests and trabecular of monotonous round cells displaying mild nuclear pleomorphism, granular chromatin, some with small visible nucleoli and moderate amounts of eosinophilic to clear cytoplasm, few thick-walled blood vessels with perivascular hyalinisation (Figure 3A and B)—suggestive of a glomus tumor with the greatest tumor dimension of 1.8 cm with a mitotic rate of 2–3/10 mm^2. Tumor was <0.1 cm from the nearest lateral margin and 0.2 cm from the serosa. Tumor cells showed diffuse strong positivity for spinal muscular atrophy (SMA) (Figure 4) and patchy weak positivity for synaptophysin, negative for Chromogranin A, DOG1, and SOX10.

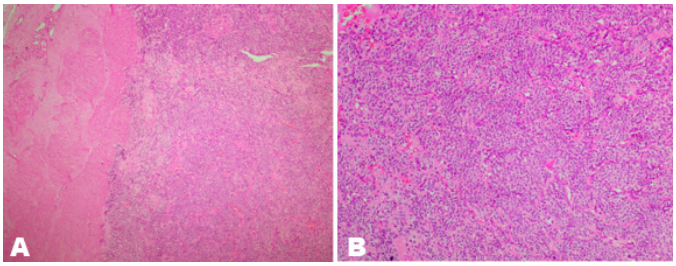

Figure 3: (A) Stomach wall with Glomus tumor (H&E, 40×); (B) H&E, 100×.

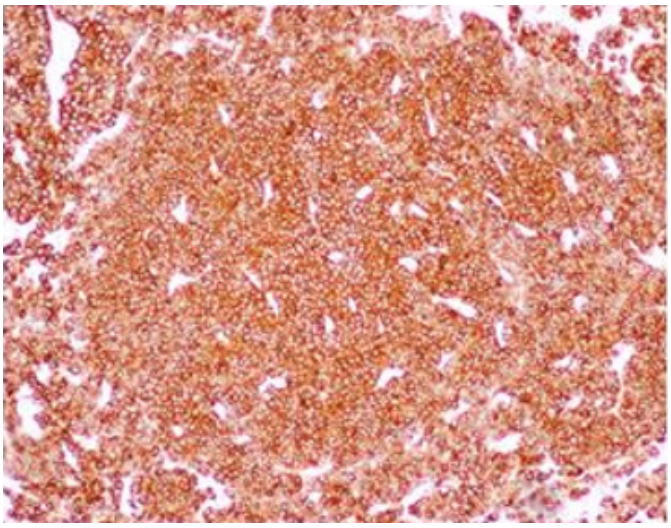

Figure 4: Glomus tumor with diffuse positivity for SMA immunohistochemistry (SMA, 100×).

Outcome and follow-up

At two weeks post-operatively, he had returned to his activities of daily living, with complete resolution of his symptoms. His histopathological examination findings were discussed in the multidisciplinary meeting and plan was made to keep him on follow-up.

DISCUSSION

Glomus tumors are rare mesenchymal tumors, representing about 2% of all soft tissue tumors [1]. They are derived from modified smooth cells of neuromyoarterial glomus called a glomus body, which are responsible for thermoregulation by arteriovenous shunting of blood [2]. They are commonly seen in regions rich in glomus bodies like the subungual regions of the digits or the deep dermis of the palm, wrist, or forearm, while occasionally occurring in visceral locations throughout the body, such as lungs, stomach, pancreas, liver, and in other parts of the gastrointestinal and genitourinary tract. They are small, usually sub-centimetric, blue-red nodules with localized tenderness, cold sensitivity, and pain out of proportion to size.

The first case of gastric glomus tumor was described by Jain et al. [3]. These tumors are far more common in women than in men. The most common site of gastrointestinal glomus tumor is the stomach, specifically the antrum [4].

Gastric glomus tumors are predominantly intramural tumors, but can be submucosal as well. These tumors are frequently mistaken for gastrointestinal stromal tumors (GIST) or other submucosal lesions [4]. Gastric glomus tumors lack specific clinical, endoscopic, or specific features on cross-sectional imaging and are hence difficult to distinguish without histopathology. Cross-sectional imaging usually shows homogenously enhancing smooth-walled tumor on early-phase CECT and will continue to show homogeneous enhancement on delay-phase CECT [5].

Endoscopic ultrasound (EUS) may prove useful in the pre-operative diagnosis of glomus tumors. Its characteristics include a hypoechoic lesion originating from the fourth layer, that is, the muscularis propria, with a peripheral acoustic halo [6]. Endoscopic ultrasound-guided biopsies help in establishing the diagnosis; however, EUS may occasionally fail to provide representative samples from deeper submucosal lesions [7].

Even though a diagnosis of gastric glomus tumor may be suspected based on a combination of cross-sectional imaging and EUS, the diagnosis is always histopathological with immunohistochemistry [8]. Classical histological features of a glomus tumor include angiocentric uniform sheets of cells with oval nuclei forming a perivascular "collar" around cells [2]. Glomus tumors are diffusely immunoreactive to a-smooth muscle actin (a-SMA), muscle specific actin (MSA), and h-Caldesmon, show focal positivity for synaptophysin, and are typically negative for desmin, CD34, chromogranin and CD117 [9].

Most cases are benign; however, there have been a few cases that have been reported with some occasional tumor cells with atypia and may even invade blood vessels. Some of the features of a malignant glomus tumor as proposed by Folpe et al. are deep location, size more than 2 cm, atypical mitotic figures or moderate to high nuclear grade and = 5 mitotic figures/50 high power fields [10]. Wang et al. reported a malignant gastric glomus tumor for the first time in 1939 [11]. Malignant behavior with distant metastases is rare in an already rare condition. Only fewer than 15 cases have been described in literature. Metastases have been reported to the colon, liver, pancreas, kidney, skin, and brain [12].

There is no consensus in literature regarding management of gastric glomus tumors as there is no long-term data available due to its rarity. There is no role for chemotherapy or radiotherapy and surgical excision provides the only curative option. Glomus tumors in the absence of the above mentioned "high-risk" features can be managed non-operatively with regular surveillance endoscopies provided diagnosis could be established pre-operatively [13]. Few other authors (including us) prefer surgical excision of even benign appearing tumors, as there is a potential for malignancy, albeit small [2]. However, benign lesions near gastro-esophageal junction requiring total gastrectomy can be kept on follow-up considering the morbidity of the procedure.

The type of excision depends on the location and size of the tumor [14]. Enucleation is not recommended due to high recurrence rates [7]. There is no role for extended margins or a lymph node dissection unless there is definite evidence of lymph nodal involvement in CECT or in EUS [4].

Combined hybrid approach with endoscopy and laparoscopy may be helpful in selected cases, especially tumors located close to gastro-esophageal junction. There is no established follow-up protocol; however, long-term follow-up is advised due to the small risk of malignant potential and high rates of recurrence.

There is no consensus on treatment of metastatic disease, with few authors suggesting debulking followed by systemic chemotherapy [12].

CONCLUSION

- Glomus tumors are rare mesenchymal tumors that need to be differentiated from other submucosal lesions and should be considered as a differential for submucosal lesions in the distal stomach.
- Endoscopic ultrasound and CT findings may provide clues to guide us toward the diagnosis; however, the diagnosis can be confirmed only with histopathology.

- Surgical excision with negative margins either by laparoscopic or open operation is the treatment of choice.
- Non-operative management with regular surveillance endoscopies may be an option in patients with no "high-risk" features.
- Follow-up of these patients with endoscopy and imaging is recommended.

REFERENCES

1. Miettinen M, Paal E, Lasota J, Sobin LH. Gastrointestinal glomus tumors: A clinicopathologic, immunohistochemical, and molecular genetic study of 32 cases. Am J Surg Pathol 2002;26(3):301–11.
2. Mravic M, LaChaud G, Nguyen A, Scott MA, Dry SM, James AW. Clinical and histopathological diagnosis of glomus tumor: An institutional experience of 138 cases. Int J Surg Pathol 2015;23(3):181–8.
3. Jain SA, Agarwal L, Goyal A, et al. Gastric glomus tumor. J Surg Case Rep 2014;2014(6):rju049.
4. Papadelis A, Brooks CJ, Albaran RG. Gastric glomus tumor. J Surg Case Rep 2016;2016(11):rjw183.
5. Tang M, Hou J, Wu D, Han XY, Zeng MS, Yao XZ. Glomus tumor in the stomach: Computed tomography and endoscopic ultrasound findings. World J Gastroenterol 2013;19(8):1327–9.
6. Bai B, Mao CS, Li Z, Kuang SL. Endoscopic ultrasonography diagnosis of gastric glomus tumors. World J Clin Cases 2021;9(33):10126–33.
7. Vassiliou I, Tympa A, Theodosopoulos T, et al. Gastric glomus tumor: A case report. World J Surg Oncol 2010;8:19.
8. Wu M, Zhou T, Cao D, Qu L, Cao X. Glomus tumor of the stomach: A case report. Medicine (Baltimore) 2018;97(45):e13132.
9. Nagtegaal ID, Odze RD, Klimstra D, et al. The 2019 WHO classification of tumours of the digestive system. Histopathology 2020;76(2):182–8.
10. Folpe AL, Fanburg-Smith JC, Miettinen M, Weiss SW. Atypical and malignant glomus tumors: Analysis of 52 cases, with a proposal for the reclassification of glomus tumors. Am J Surg Pathol 2001;25(1):1–12.
11. Wang X, Hanif S, Wang B, Chai C. Management of gastric glomus tumor: A case report. Medicine (Baltimore) 2019;98(38):e16980.
12. Francheville JW, Arnason T, Carter MD, Khodadad K, Giacomantonio C, Williams G. Metastatic Malignant Gastric Glomus Tumour: Multidisciplinary Diagnosis & Treatment of a Rare Clinical Entity. In Review; 2021. [Available at: https://www.researchsquare.com/article/rs-884882/v1]
13. Mago S, Pasumarthi A, Miller DR, Saade R, Tadros M. The two challenges in management of gastric glomus tumors. Cureus 2020;12(7):e9251.
14. Zhang S, Zhang J, Wang C. Glomus tumor of the stomach — A tumor that needs to be differentiated from gastrointestinal stromal tumor. Clin Gastroenterol Hepatol 2018;16(3):A29–30.

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Author Contributions

Prakash Joseph – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Rijo Issac – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Negine Paul – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

B Sudhakar Chandran – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.