

cells.⁶ Villous atrophy and intraepithelial lymphocyte infiltration characteristic of celiac disease can be seen in other situations, such as bacterial overgrowth, Crohn's disease, intestinal lymphoma, or drug treatment,⁷ highlighting mofetil mycophenolate, azathioprine,⁸ and olmesartan, as was the case of our patient. Not only symptoms, but also histologic alterations, have been observed to remit with the suspension of the drug.⁹ Given our patient's good progression, intestinal biopsy has not been repeated. According to the Naranjo algorithm, causality was considered probable (7 points), and was reported to the Spanish Drug Surveillance Agency.

We therefore consider it essential to include this entity in the differential diagnosis of chronic diarrheic syndromes of unclear etiology, emphasizing the performance of a thorough anamnesis, including the detailed review of chronic drug treatments of patients, given that the associated complications can be potentially severe.

Financial disclosure

No financial support was received in relation to this study.

Conflict of interest

The authors declare that there is no conflict of interest.

References

1. Rostom A, Murray JA, Kagnoff MF. American Gastroenterological Association (AGA) Institute technical review on the diagnosis and management of celiac disease. *Gastroenterology*. 2006;131:1981–2002.
2. U.S. Food and Drug Administration. FDA Drug Safety Communication: FDA approves label changes to include intestinal problems (sprue-like enteropathy) linked to blood pressure medicine olmesartan medoxomil. 2013 [accessed 1 Mar 2014]. Available from: <http://www.fda.gov/Drugs/DrugSafety/ucm359477.htm>
3. Lebwahl B, Ludvigsson JF. Sprue-like enteropathy due to olmesartan and other angiotensin receptor blockers – the plot thickens. *Aliment Pharmacol Ther*. 2014;40:1245–6.
4. Ianiro G1, Bibbò S, Montalto M, et al. Systematic review: Sprue-like enteropathy associated with olmesartan. *Aliment Pharmacol Ther*. 2014;40:16–23.
5. Rubio-Tapia A, Herman ML, Ludvigsson JF, et al. Severe sprue-like enteropathy associated with olmesartan. *Mayo Clin Proc*. 2012;87:732–8.
6. Marietta EV, Nadeau AM, Cartee AK, et al. Immunopathogenesis of olmesartan-associated enteropathy. *Aliment Pharmacol Ther*. 2015;42:1303–14.
7. DeGaetani M, Tennyson CA, Lebwahl B, et al. Villous atrophy and negative celiac serology: A diagnostic and therapeutic dilemma. *Am J Gastroenterol*. 2013;108:647–53.
8. Seminerio J, McGrath K, Arnold CA, et al. Medication-associated lesions of the GI tract. *Gastrointest Endosc*. 2014;79:140–50.
9. Nielsen JA, Steephen A, Lewin M. Angiotensin-II inhibitor (olmesartan)-induced collagenous sprue with resolution following discontinuation of drug. *World J Gastroenterol*. 2013;19:6928–30.

G. Solano-Iturri^{a,*}, N. García-Jiménez^a, J.D. Solano-Iturri^b, S. Blanco-Sampascual^c

^a Internal Medicine Service, Hospital Universitario de Basurto, Bilbao, Vizcaya, Spain

^b Pathologic Anatomy Service, Hospital Universitario de Basurto, Bilbao, Vizcaya, Spain

^c Digestive Tract Service, Hospital Universitario de Basurto, Bilbao, Vizcaya, Spain

* Corresponding author. Hospital de Basurto, Avda. Montevideo 18, 48013 Bilbao, Vizcaya, Spain.

Tel.: +44006000 (extension 5468); fax: +946014514.

E-mail address: goizalnaz@gmail.com (G. Solano-Iturri). 2255-534X/

© 2017 Asociación Mexicana de Gastroenterología. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Gastric glomangioma, differential diagnosis of gastrointestinal stromal tumors[☆]



Glomangioma gástrico, diagnóstico diferencial de tumores del estroma gastrointestinal

Glomus tumors originate from smooth muscle cells of the glomus bodies that help regulate arteriolar flow. They are

mesenchymal tumors with malignant potential.¹ Though infrequent, malignant gastric glomus tumors with metastasis to different organs have been reported.²

A 52-year-old man presented with intermittent abdominal pain in the epigastrium of several months' progression, with partial response to medical treatment. He did not complain of fever, vomiting, constipation, diarrhea, weight loss, or any other systemic symptomatology. Physical examination revealed normal vital signs and no cardiopulmonary alterations. He had pain in the upper hemiabdomen upon deep palpation, no peritoneal irritation, and no other pathologic signs.

Endoscopy showed an ulcerated subepithelial tumor in the posterior wall of the gastric antrum. No abnormalities in the gastric mucosa were reported in the endoscopic biopsy. Endoscopic ultrasound (EUS) identified a 3 x 2.5 cm nodular, hypoechoic, heterogeneous tumor located in the muscular layer of the gastric wall, through Doppler imaging, with interior vascularity. The EUS data were consistent with a gastrointestinal stromal tumor (GIST) (fig. 1).

[☆] Please cite this article as: Rosales-López E, Salceda-Otero JC, Angulo-Molina D, Posada-Torres JA, Canchola-Aguilar MG, Lozoya-Gonzalez D. Glomangioma gástrico, diagnóstico diferencial de tumores del estroma gastrointestinal. *Revista de Gastroenterología de México*. 2018;83:72–74.

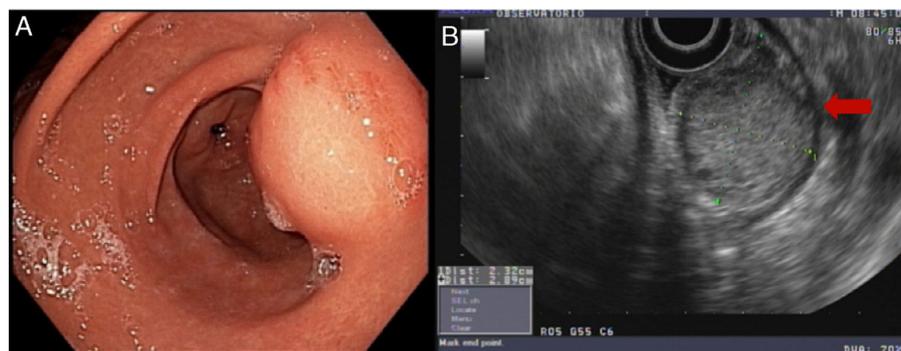


Figure 1 A) Endoscopic view. Subepithelial tumor in the posterior wall of the gastric antrum with ulceration of the mucosa. B) Endosonographic view. A 3 x 2.5 cm nodular, hypoechoic, heterogeneous tumor located in the muscular layer of the gastric wall (red arrow).

Computed axial tomography was performed and distant disease was ruled out. Based on these findings, the tumor was surgically resected.

The macroscopic pathology study reported a 3.5 x 2.3 cm nodular tumor between the serous and muscular layers, with focal ulceration of the mucosal surface. Microscopically, through hematoxylin/eosin staining, a proliferation of small-to-intermediate-sized round cells was observed, with central nuclei and dense granular chromatin. The immunohistochemical analysis (fig. 2) revealed positive staining for smooth muscle actin (SMA), intense h-Caldesmon, and focal expression of synaptophysin. Staining was negative for CD117, DOG1, CD56, PGP9.5, and chromogranin. Ki-67 was positive in 3% of the tumor cells. Because of the immunophenotype, the diagnosis was glomus tumor, ruling out epithelioid GIST and neuroendocrine tumor, both of which are histologic differential diagnoses of glomus

tumor. The patient was released on the third day with no complications. At the follow-up 6 months after discharge, the patient was asymptomatic and only post-resection changes were observed at endoscopy, along with normal mucosa and no tumor recurrence.

Described in 1948 by De Busscher, glomus tumors were considered benign lesions,³ but today they are regarded as mesenchymal tumors with malignant potential.¹

In 2001, Folpe et al. proposed the following criteria for suspecting malignancy: location of the tumor in the deep layers, size larger than 2 cm, and histologically, atypical mitotic figures with a moderate-to-high nuclear grade, with more than 5 mitoses per 50 high power fields.⁴ If a gastric tumor is larger than 5 cm, malignancy can be suspected.⁵

Preoperative diagnosis of glomus tumors is difficult because of their similarity to GISTs and neuroendocrine tumors in CAT, magnetic resonance (MR), and endoscopic

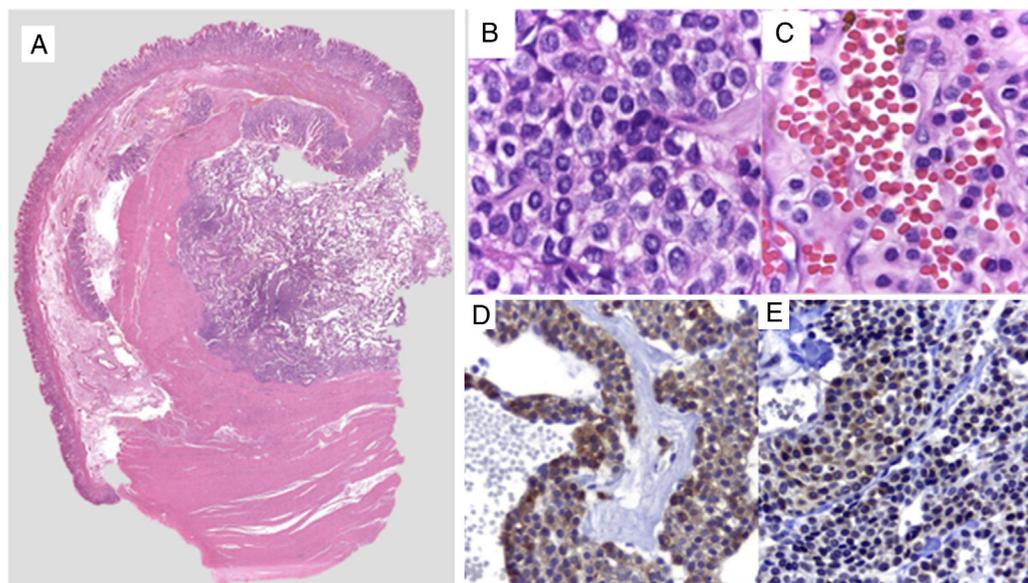


Figure 2 A) Comprehensive image of the intramural lesion. B and C) Round, uniform cells with central oval nuclei, homogeneous granular chromatin, clearly delineated and eosinophilic small nucleolus of the cytoplasm. D) Immunohistochemistry positive for smooth muscle actin. E) Immunohistochemistry positive for synaptophysin in perivascular glomus cells.

ultrasound imaging studies.⁶ Radiologically, glomus tumors present as submucosal masses, with or without ulcers, and can contain small calcifications.^{1,7} Diagnosis based on EUS is presumptive and cannot replace histologic diagnosis.

An alternative that has been shown to be useful in the preoperative diagnosis of submucosal gastric tumors is EUS-guided fine needle aspiration biopsy.⁸ Given that in 52-93% of the cases it is possible to obtain a sufficient amount of tissue for staining tests, as well as for immunohistochemical analysis, this biopsy is considered essential for the preoperative diagnosis of gastric glomus tumors.^{6,9}

Histopathologically, glomus tumor cells are small, uniform, round or polygonal, with very visible cell membranes.¹⁰ Diagnosing and differentiating this tumor from other gastric tumors can most certainly be based on immunohistochemical study. Glomus tumors are positive for smooth muscle actin (SMA), calponin, and h-Caldesmon and negative for desmin, and thus can be differentiated from GISTs.⁵

Optimum treatment is surgical resection, when there is a single tumor.¹ In the case of our patient, the tumor was surgically resected. However, some cases can be managed through endoscopic submucosal resection.^{11,12}

Financial disclosure

No financial support was received in relation to this study/article.

Conflict of interest

The authors declare that there is no conflict of interest.

References

1. Chen KB, Chen L. Glomus tumor in the stomach: A case report and review of the literature. *Oncol Lett.* 2014;7:1790–2.
2. Song SE, Lee CH, Kim KA, et al. Malignant glomus tumor of the stomach with multiorgan metastases: Report of a case. *Surg Today.* 2010;40:662–7.
3. De Busscher G. Les anatomoses arterioveineuses de l'estomac: An ultrastructural study. *Acta Neurol Morphol.* 1948;6:87–105.
4. Folpe AL, Fanburg-Smith JC, Miettinen M, et al. Atypical and malignant glomus tumors: Analysis of 52 cases, with a proposal for the reclassification of glomus tumors. *Am J Surg Pathol.* 2001;25:1–12.

5. Miettinen M, Paal E, Lasota J, et al. Gastrointestinal glomus tumors: A clinicopathologic, immunohistochemical, and molecular genetic study of 32 cases. *Am J Surg Pathol.* 2002;26:301–11.
6. Kato S, Kikuchi K, Chinen K, et al. Diagnostic utility of endoscopic ultrasound-guided fine-needle aspiration biopsy for glomus tumor of the stomach. *World J Gastroenterol.* 2015;21:7052–8.
7. Tang M, Hou J, Wu D, et al. Glomus tumor in the stomach: Computed tomography and endoscopic ultrasound findings. *World J Gastroenterol.* 2013;19:1327–9.
8. Mekky MA, Yamao K, Sawaki A. Diagnostic utility of EUS-guided FNA in patients with gastric submucosal tumors. *Gastrointest Endosc.* 2010;71:913–9.
9. Akahoshi K, Oya M, Koga T, et al. Clinical usefulness of endoscopic ultrasound-guided fine needle aspiration for gastric subepithelial lesions smaller than 2 cm. *J Gastrointest Liver Dis.* 2014;23:405–12.
10. Xu XD, Lu XH, Ye GX, et al. Immunohistochemical analysis and biological behaviour of gastric glomus tumours: A case report and review of the literature. *J Int Med Res.* 2010;38:1539–46.
11. Zhang Y, Zhou P, Xu M. Endoscopic diagnosis and treatment of gastric glomus tumors. *Gastrointest Endosc.* 2011;73:371–5.
12. Xu M, Jiang XM, He YL, et al. Glomus tumor of the stomach: A case treated by endoscopic submucosal dissection. *Clin Res Hepatol Gastroenterol.* 2011;35:325–8.

E. Rosales-López^a, J.C. Salceda-Otero^{a,b,*},
D. Angulo-Molina^a, J.A. Posada-Torres^c,
M.G. Canchola-Aguilar^d, D. Lozoya-Gonzalez^a

^a *Gastrointestinal Endoscopy Service, Centro Médico ABC, Mexico City, Mexico*

^b *Endoscopic Ultrasound, Centro Médico ABC, Mexico City, Mexico*

^c *Oncologic Surgery, Centro Médico ABC, Mexico City, Mexico*

^d *Pathology Service, Centro Médico ABC, Mexico City, Mexico*

* Corresponding author. Centro Médico ABC, Observatorio, Sur 136, Número 116, Colonia Las Américas, Mexico City, Mexico. Tel.: +5272 49 19.

E-mail address: carlossalceda@yahoo.com
(J.C. Salceda-Otero).

2255-534X/

© 2017 Asociación Mexicana de Gastroenterología. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).