

Gastric Glomus Tumor Diagnosed by Endoscopic Ultrasound-Guided Fine-Needle Aspiration Biopsy : Report of a Case

Minoda, Yosuke

Departments of Gastroenterology, Aso Iizuka Hospital

Akahoshi, Kazuya

Departments of Gastroenterology, Aso Iizuka Hospital

Oya, Masafumi

Departments of Pathology, Aso Iizuka Hospital

Kubokawa, Masaru

Departments of Gastroenterology, Aso Iizuka Hospital

他

<https://doi.org/10.15017/1456032>

出版情報：福岡醫學雜誌. 105 (4), pp.105-109, 2014-04-25. 福岡医学会
バージョン：
権利関係：



Gastric Glomus Tumor Diagnosed by Endoscopic Ultrasound-Guided Fine-Needle Aspiration Biopsy : Report of a Case

Yosuke MINODA¹, Kazuya AKAHOSHI¹, Masafumi OYA², Masaru KUBOKAWA¹,
Yasuaki MOTOMURA¹, and Kazuhiko NAKAMURA³

¹Departments of Gastroenterology, Aso Iizuka Hospital, Iizuka, Japan

²Departments of Pathology, Aso Iizuka Hospital, Iizuka, Japan

³Department of Medicine and Bioregulatory Science, Graduate School of Medical Science,
Kyushu University, Maidashi, Higashi-ku, Fukuoka, Japan

Abstract

A glomus tumor of the stomach is rare. It is difficult to diagnose the tumor before surgery by only endoscopic biopsy and radiography, and there is no established method of diagnosis before surgical treatment. Esophagogastroduodenoscopy (EGD) on a 50-year-old Japanese woman revealed a 10 mm submucosal tumor in the anterior wall of the gastric angle. Follow-up EGD revealed an increase in the size of the tumor to 15mm. Endoscopic ultrasonography (EUS) demonstrated a 15mm subepithelial hypoechoic solid tumor with continuity to the proper muscle layer. Histologic diagnosis by endoscopic ultrasonography guided fine needle aspiration (EUS-FNA) was glomus tumor. The tumor was treated by laparoscopic local resection. The histologic diagnosis of the resected tumor was similar to the preoperative EUS-FNA results. EUS-FNA would appear to be an effective histologic test for early diagnosis of gastric glomus tumor.

Key words : Glomus tumor · EUS-FNA · Submucosal tumor

Introduction

Glomus tumor of the stomach is one of the rare submucosal tumors. It is often diagnosed after a surgical operation. Preoperative diagnosis is extremely difficult, because it is hard to obtain histologic evidence of submucosal tumor by conventional endoscopic biopsy¹⁾²⁾. Diagnosis of gastric submucosal tumor using EUS imaging alone is also very difficult. EUS-FNA is a promising technique to obtain tissue samples with minimal risks³⁾⁴⁾. In this paper, we report a case of successful preoperative diagnosis of small gastric glomus tumor using EUS-FNA.

Case presentation

A submucosal tumor in the anterior wall of the

gastric angle was incidentally detected by EGD in a 50 year old Japanese woman at another hospital. One year follow-up EGD revealed an increase in the size up the lesion (10mm to 15mm). She was referred to our hospital for further examination. EGD demonstrated a slightly yellowish 15mm submucosal tumor without dells (Fig. 1). Endoscopic ultrasound with a 12-MHz US catheter probe (SP-702 ; Fujifilm) disclosed a 12 mm homogeneous, hypoechoic tumor with continuity to the proper muscle layer (Fig. 2). This submucosal tumor was suspected to be a gastrointestinal mesenchymal tumor (GIMT) including gastrointestinal stromal tumor (GIST).

EUS-FNA was performed using a curved-linear echoendoscope (EG-530UT2, Fujifilm, Tokyo, Japan). Puncture was performed with the

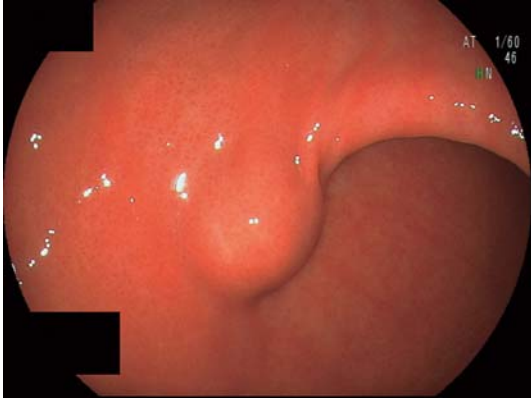


Fig. 1 EGD revealed a submucosal lesion in the anterior wall of stomach angle. The lesion is about 15 mm in diameter.

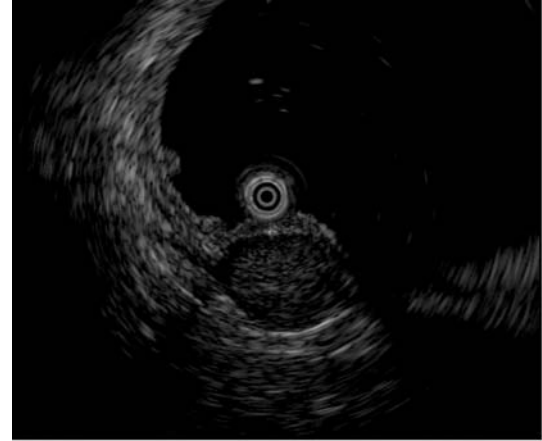


Fig. 2 Endoscopic ultrasonography (12Mhz) revealed the tumor as hypoechoic inhomogeneous mass arising from 4th layer, and the diameter was 18mm.

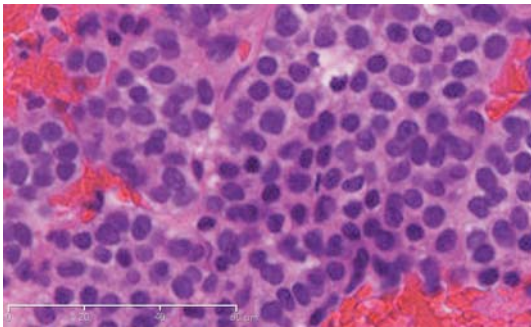


Fig. 3 EUS-FNA revealed proliferation of oval-shaped cells with eosinophilic cytoplasm arranged in sheets or in nests. (hematoxylin and eosin stain)

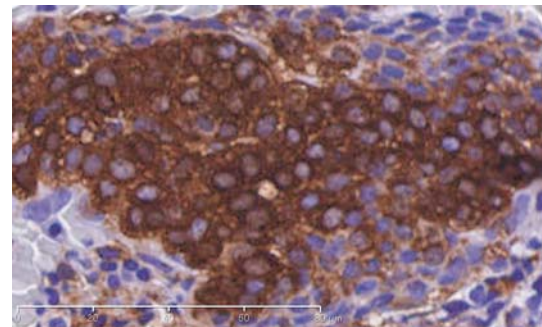


Fig. 4 Immunohistochemically the tumor cells are positive for alpha-SMA (+).

use of a 25 gauge needle (Echotip, Wilson-Cook, Winston-Salem, NC, USA). EUS-FNA specimen showed proliferation of oval-shaped cells with eosinophilic cytoplasm arranged in sheets or in nests (Fig. 3).

Immunohistochemical analysis of the cell block showed that the tumor cells were negative for CD56, c-kit, CD34, AE1/AE3, CAM5.2, chromogranin A, desmin, S-100, leukocyte common antigen (LCA), and synaptophysin and were positive for α -smooth muscle actin (SMA) (Fig. 4), vimentin, and MIB-1 ($-/+ < 2\%$). CD34 positive endothelial cells are distributed between the nests. Mitosis was not seen. From these findings the tumor was diagnosed as glomus tumor.

Computed tomography (CT) and transabdominal ultrasonography revealed no metastasis. This

tumor was treated by laparoscopic local excision. The tumor size was 12mm in surgical specimen. Postoperative pathological features were the same as those of preoperative EUS-FNA diagnosis. She is in good condition without metastasis 48 months after surgery.

Discussion

Glomus tumor of the stomach is a rare disease. This disease was first reported first in 1948 by De Bussacher⁵⁾. The estimated incidence of glomus tumor of the stomach is about 1% among soft tissue tumors⁷⁾. It is reported that this tumor arises from neuromyoarterial glomus⁸⁾. At present it is sometimes pointed out as SMT in EGD by chance in Japan. SMT of the stomach is clinically evaluated by EUS and the original layer

is confirmed. SMT arising from muscularis propria is considered as GIST, leiomyoma, schwannoma, or glomus tumor. These diagnoses are mainly differentiated by immunostaining.

Glomus tumors are mostly benign, and sometimes this tumor may cause gastrointestinal bleeding. Folpe et al proposed for classification of atypical glomus tumors, malignant glomus tumor and symplastic glomus tumor⁶⁾. Malignant glomus tumors are defined as those that (i) are located deep and greater than 2cm in diameter, (ii) have marked nuclear atypia and elevated mitotic rates (greater than 5 mitoses/50 high-power fields) or (iii) display atypical mitotic figures. In previous reports, only three out of two hundred cases (1.5%) were reported as malignant glomus tumor⁶⁾⁹⁾¹⁰⁾. Glomus tumors that have marked nuclear atypia as their sole unusual feature can be labeled symplastic glomus tumors (6). In our case, H.E. staining revealed none of these characteristic.

At present, it is difficult to diagnose gastric glomus tumors before surgery. Conventional endoscopic bite biopsy is not effective for SMT. Usually SMTs such as GIST or glomus tumor are evaluated by CT or MRI before surgery. Some reports show the determining feature of glomus tumor in CT, and the feature is dense and homogeneous in the arterial phase enhancement and continues to the delay phase¹¹⁻¹³⁾. Tarak et al reported that it is difficult to differentiate some SMT such as GIST, arteriovenous malformations, carcinoid tumor, heterotopic pancreatic tissue, angioleiomyoma, or angioliipoma from glomus tumor just with CT. Furthermore, some glomus tumors don't have this feature¹⁴⁾. As a result, no imaging modalities including CT or MRI are capable of replacing definitive histologic diagnosis.

EUS is also unable to diagnose a glomus tumor accurately because it is impossible to evaluate the pathology using US images alone. The feature of glomus tumor in EUS is usually reported as a hypoechoic lesion between the submucosal and muscularis layer. But this feature also suggests the possibility of GIST or another rare gastroin-

testinal mesenchymal tumor³⁾⁴⁾¹⁵⁾¹⁶⁾. Immunohistochemical analysis is vital to obtain a conclusive result. In our case, epithelial tumors including carcinoid tumor, malignant lymphoma, GIST, and glomus tumor were considered in H.E. staining of the EUS-FNA specimen. The diagnosis of carcinoid tumors was excluded because they tested negative for CD56, AE1/AE3, CAM5.2, chromograninA, and synaptophysin. The diagnosis of malignant lymphoma was excluded because it tested negative for LCA. The diagnosis of GIST was excluded because it tested negative for c-kit and CD34. From these histologic findings we diagnosed glomus tumor. In most previous EUS-FNA reports, for glomus tumor was diagnosed cytologically¹⁵⁻¹⁷⁾. Thanks to refinement of needles and advances in histologic examination techniques, EUS-FNA is now recognized as a reliable test for immunohistochemical analysis of SMT¹⁸⁾¹⁹⁾. The reported accuracy of preoperative diagnosis of EUS-FNA using immunohistochemical analysis for surgically resected GIST cases ranges from 91 to 100%¹⁸⁻²⁰⁾. In our case, we could obtain definitive histologic diagnosis, not cytological diagnosis, of glomus tumor using EUS-FNA before surgery, so we could make an early and appropriate decision in this case.

This case suggests EUS-FNA is a very useful diagnostic tool for early diagnosis and early treatment in gastric glomus tumor.

References

- 1) Almagro UA, Schulte WJ, Norback DH and Turcotte JK : Glomus tumor of the stomach : histologic and ultrastructural features. *Am J Clin Pathol* 75 : 415-419, 1981.
- 2) Imamura A, Tochiara M, Natsui K, Murashima Y, Suga T, Yaosaka T, Fujinaga A, Koito K, Miyakawa H and Higashino K : Glomus tumor of the stomach : endoscopic ultrasonographic findings. *Am J Gastroenterol* 89 : 271-272, 1994.
- 3) Akahoshi K, Sumida Y, Matsui N, Oya M, Akinaga R, Kubokawa M, Motomura Y, Honda K, Watanabe M and Nagaie T : Preoperative diagnosis of Gastrointestinal Stromal Tumor by Endoscopic Ultrasound-Guided Fine Needle

- Aspiration. *World J Gastroenterol* 14 : 2077-2082, 2007.
- 4) Akahoshi K and Oya M : Gastrointestinal stromal tumor of the stomach : How to manage? *World J Gastrointest Endosc* 2 : 271-277, 2010.
 - 5) De Busscher G : Les anastomoses arterioveineuses de l'estomac. *Acta Neurol. Morph.* 6 : 87-105, 1948.
 - 6) Folpe AL, Fanburg-Smith JC, Miettinen M, Miettinen M and Weiss SW : Atypical and malignant glomus tumors : Analysis of 52 cases, with a proposal for the reclassification of glomus tumors. *An J Surg Pathol* 25 : 1-12, 2001.
 - 7) Goldblum JR, Folpe AL and Weiss SW : Soft tissue tumors. 6th ed. pp. 749-765, Saunders, Philadelphia, 2013.
 - 8) Wang LM and Chetty R : Selected Unusual Tumors of the Stomach : A Review *Int J Surg Pathol* (20) 2 : 1-14, 2012.
 - 9) Miettinen M, Paal E, Lasota J and Sobin LH : Gastrointestinal glomus tumors : aclinicopathologic, immunohistological, and molecular genetic study of 32 cases. *Am J Surg Pathol* 26 : 301-311, 2002.
 - 10) Bray AP, Wong NA and Narayan S : Cutaneous metastasis from gastric glomus tumour. *Clin Exp Dermatol.* 34 : 719-721, 2009.
 - 11) Kim JK, Won JH, Cho YK, Kim MW, Joo HJ and Suh JH : Glomus tumor of the stomach : CT findings, *Abdominal Imaging. Abdominal Imaging.* 26 : 303-305, 2001.
 - 12) Cha SH, Cho SB, Kim YW and Park CM : Helical CT appearance of glomus tumor of the stomach. *European Radiology* 10 : 671-673, 2000.
 - 13) Liu K-L, Wang H-P, Tseng W-Y, Shun CT, Chen SJ and Tsang YM : Glomus tumor of the stomach : MRI findings. *American Journal of Roentgenology.* 185 : 1190-1192, 2005.
 - 14) Patel TH, Horton KH, Hruban RH and Fishman EK : Glomus Tumor of the stomach : Depiction by Multidetector CT and Three-Dimensional Volume Rendering Imaging. *Case reports in medicine* 2010 : 1-3, 2010.
 - 15) Gu M, Nguyen PT, Cao S and Lin F : Diagnosis of gastric glomus tumor by endoscopic ultrasound-guided fine needle aspiration biopsy. A case report with cytologic, histologic and immunohistochemical studies. *Acta Cytol.* 46 : 560-566, 2002.
 - 16) Debol SM, Stanley MW, Mallery S, Sawinski and Bardales RH : Glomus tumor of the stomach : Cytologic diagnosis by Endoscopic Ultrasound-Guided Fine-Needle Aspiration. *Diagn Cytopathol.* 28 : 316-321, 2003.
 - 17) Jones J, Cichowitz and Crosthwaite GL : Endoscopic ultrasound-guided fine needle aspiration as a diagnostic tool for gastric glomus tumours. *ANZ J Surg.* 82 : 94, 2012.
 - 18) Ando N, Goto H, Niwa Y, Hirooka Y, Ohmiya N, Nagasaka T and Hayakawa T : The diagnosis of GI stromal tumors with EUS-guided fine needle aspiration with immunohistochemical diagnosis. *Gastrointest Endosc* 55 : 37-43, 2002.
 - 19) Okubo K, Yamao K, Nakamura T, Tajika M, Sawaki A, Hara K, Kawai H, Yamamura Y, Mochizuki Y, Koshikawa T and Inada K : Endoscopic ultrasound-guided fine-needle aspiration biopsy for the diagnosis of gastrointestinal stromal tumors in the stomach. *J Gastroenterol* 39 : 747-753, 2004.
 - 20) Chatzipantelis P, Salla C, Karoumpalis I, Apessou D, Sakellariou S, Doumani I, Papaliodi E and Konstantinou P : Endoscopic ultrasound-guided fine needle aspiration biopsy in the diagnosis of gastrointestinal stromal tumors of the stomach. A study of 17 cases. *J Gastrointest Liver Dis* 17 : 15-20, 2008.

(Received for publication December 3, 2013)

(和文抄録)

胃グロムス腫瘍の術前早期診断に EUS-FNA が有効であった一例

¹⁾麻生飯塚病院 消化器内科

²⁾麻生飯塚病院 病理科

³⁾九州大学大学院医学研究院 病態制御内科学

蓑田 洋介¹⁾, 赤星 和也¹⁾, 大屋 正文²⁾, 久保川 賢¹⁾, 本村 廉明¹⁾, 中村 和彦³⁾

胃グロムス腫瘍はまれな疾患であり, 上部消化管内視鏡検査 (EGD) による生検や画像診断のみでは手術前に診断に至ることは難しい. 現在のところ胃グロムス腫瘍を術前に診断することは困難である.

症例は 50 歳の日本人女性. 近医にて施行された EGD にて胃角部前壁に 10mm 大の粘膜下腫瘍を指摘された. 1 年後のフォローアップの EGD でサイズは 15mm 大に増大しており精査加療のため当院を紹介された. 当院で施行した超音波内視鏡検査 (EUS) で粘膜下に筋層と連続する 15mm 大の低エコー充実性腫瘍を指摘. 超音波内視鏡下穿刺吸引法 (EUS-FNA) を施行しグロムス腫瘍と病理組織学的に診断した. 当院外科へ紹介し腹腔鏡下胃局所切除術が施行され, 術後の病理組織は術前の EUS-FNA で採取された組織とほぼ同様にグロムス腫瘍と診断された. EUS-FNA は胃グロムス腫瘍の早期診断に有用な方法であると考えられた.