Clinics in Surgery

Case Report
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Glomus Tumor of the Stomach: A Case Report

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Abstract

Glomus tumors of the stomach are rare and hard to be diagnosed and guideline of this disease still need to be established. In this case, we suggest that to diagnose the disease before the operation, the clinician should conduct immunohistochemical staining to identify molecules such as CK when a glomus tumor cannot be ruled out. This may allow doctors to avoid surgery.

Introduction

Glomus tumors often occur in adults, especially in women. Glomus tumors are found mainly in peripheral soft tissues and are seldom found in internal organs. They constitute about 1% of gastric mesenchymal tumors and usually present with symptoms similar to those of gastrointestinal stromal tumors. Most glomus tumors are benign, but metastasis has been seen in tumors larger than 5 cm. In this case report, we describe a 53-year-old woman whose upper gastrointestinal endoscopy revealed a submucosal tumor measuring 1.4 cm that originated from the muscularis propria.

Case Presentation

A 53-year-old woman was referred to our hospital for further evaluation after regular abdominal sonography revealed a hypoechoic mass measuring 2.7 cm in segment 4 of the liver. Her past medical history included invasive ductal carcinoma of the left breast grade III after breast-conserving surgery. Abdominal contrast-enhanced computed tomography showed a 1.4 cm well-defined enhancing mass in the submucosal layer of the stomach.

Esophagogastroduodenoscopy (Figure 1) and endoscopic ultrasound (Figure 2) revealed a submucosal tumor measuring 1.4 cm that originated from the muscularis propria, and Endoscopic Submucosal Dissection (ESD) was performed (Figure 3a). The pathology report showed a neuroendocrine tumor in the stomach, grade 1, with a positive margin (Figure 3b). The patient underwent laparoscopic distal gastrectomy with D2 lymphadenectomy.

Immunohistochemical staining of retrieved tissue showed positive signals for act in and caldesmon, and a focally positive signal for synaptophysin (Figure 4). About 1% of the cells were positive for Ki-67. Therefore, we diagnosed a glomus tumor of the stomach. The postoperative course was uneventful, and the patient was discharged on postoperative day 10.

Discussion

Gastric glomus tumors are rare subepithelial mesenchymal neoplasms. Malignant variants of glomus tumors are extremely rare. They usually present as a submucosal mass measuring 2 cm to 5 cm, and most are solitary. The preoperative diagnosis of a gastric glomus tumor is difficult and is seldom achieved before resection. Under the microscope, smooth muscle cells of the lesion appear

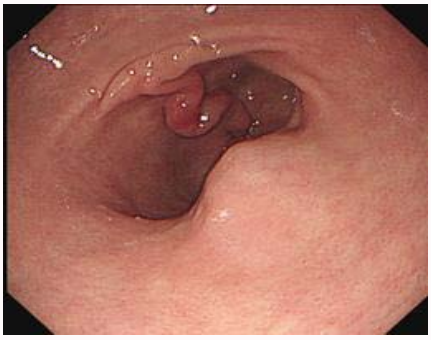

Figure 1: Esophagogastroduodenoscopy revealed a submucosal tumor measuring 1.4 cm.

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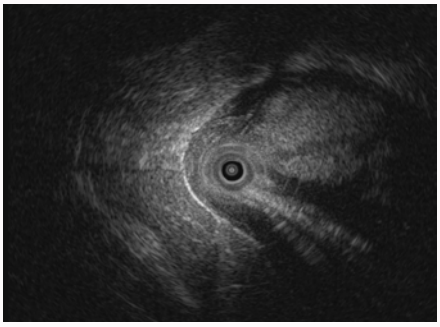

Figure 2: Endoscopic ultrasound showed a submucosal tumor measuring 1.4 cm that originated from the muscular is propria.

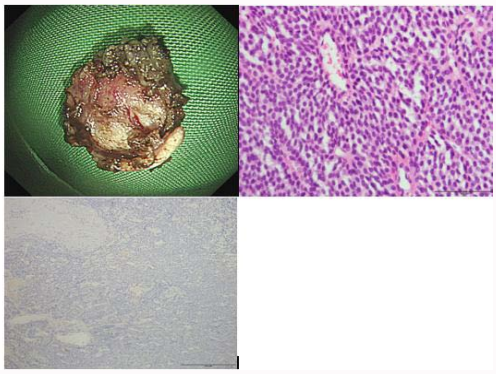

Figure 3: (A) Resected tissue obtained from Endoscopic Submucosal Dissection (ESD). (B) The pathology report showed focal positive signs for CD56, NSE, and synaptophysin. (C) Cytokeratins (CK) staining of the tissue obtained from ESD.

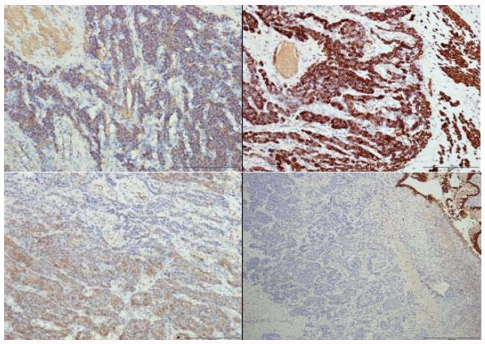

Figure 4: Immunohistochemical staining was positive for (A) act in and (B) caldesmon, and (C) focally positive for synaptophysin. (D) CK staining was negative in the gastric lesion.

together with glomus bodies. Small and branching-sized vessels are found together with endothelial cells rounded by many glomus cells forming in different shapes in a stroma. The glomus cell is a round shape with non-specific borders with a rounded, highly Nuclear-to-Cytoplasmic ratio nucleus. Chromatin reveals homogeneous and with diminutive nucleoli. In this case, the ESD pathology report on the submucosal tumor revealed a neuroendocrine tumor with positive surgical margins. The tumor appeared to be composed of benign-looking round cells. Immunohistochemical staining showed focal positivity for CD56, NSE, and synaptophysin, which led us to a tentative diagnosis of neuroendocrine tumor, grade I. Glomus tumors are positive for α-smooth muscle act in, vimentin, and h-caldesmon, and negative for CD34 and KIT. These immunohistochemical findings may help in distinguishing glomus tumors from other histologically similar tumors. CK staining may also be helpful for differentiating between glomus tumors and neuroendocrine tumors. The surgery involved laparoscopic subtotal gastrectomy and was conducted after we received the results of the immunohistochemical staining. The pathology report for the surgical specimen was the basis of our diagnosis as a glomus tumor of gastric tissue was detected unintentionally. The tumor cell showed a glomeruloid and sheet-like pattern composed of small round cells. In focal areas, the tumor appeared to be intimately connected to the wall of a vascular structure. Immunohistochemical staining was positive for act in and caldesmon, and focally positive for synaptophysin. CK staining was negative in the gastric lesion. Focal synaptophysin positivity is not uncommon and should not lead to a mistaken diagnosis of an endocrine tumor [1]. The patient was finally diagnosed with a Gastric Glomus Tumor (GGT). After the diagnosis of GGT, we performed immunohistochemical staining for CK in the ESD tissue, and it was negative. In this case, we accidentally diagnosed a case of GGT. The disease is extremely rare and the preoperative diagnosis is easily confounded, and there are no complete guidelines. We have searched the PUBMED using the words “glomus tumor,” “malignancy,” and “classification.” In the journal [2-7], it proposed criteria for describing the malignancy of glomus tumors including tumors with a deep location and a size of >2 cm, atypical mitotic figures, or moderate to high nuclear grade and >5 mitotic figures/50 high power field. In this case, the glomus tumor exhibited only mild atypical mitotic figures with only a few mitoses (1–3/50 HPFs) and the tumor was small. Because most GGTs are clinically benign, surgery might not be the first option if the pathology and immunohistochemical staining of ESD specimens suggest the diagnosis of a GGT. To diagnose the disease before an operation, the clinician might conduct immunohistochemical staining for CK when the glomus tumor could not be ruled out. Glomus tumors should be included in the list of submucosal tumors of the stomach. An accurate diagnosis requires immunohistochemical analysis, and further guidelines for diagnosing the disease need to be established.

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