Case Report
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Gastric Schwannoma: a case report

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Abstract

Gastrointestinal mesenchymal tumors are a group of tumors originating from the mesenchymal stem cells of the GI tract. Digestive tract Schwannomas are rare mesenchymal tumors which occur most frequently in the stomach. We report a 56-year-old woman who was examined endoscopically for dyspepsia which she had suffered from since 3 years ago. A round gastric antral mass was seen. Surgical resection was recommended. The pathological examination revealed a spindle cell tumor that was strongly positive for S-100 protein stain and non-reactive for other markers. The literature is reviewed.

Keywords: Schwannoma, GIST, mesenchymal tumor, spindle cell tumor

Introduction

Gastrointestinal mesenchymal tumors are a group of tumors originating from the mesenchymal stem cells of the gastrointestinal tract, consisting of gastrointestinal stromal tumors (GIST), leiomyomas or leimyosarcomas, and Schwannoma [1]. Gastrointestinal Schwannomas are considered to be rare and distinctively different neoplasms from conventional Schwannomas that arise in soft tissue or the central nervous system. Digestive tract Schwannomas show distinctive histologic features that separate them from conventional Schwannomas. Histologically, gastrointestinal Schwannomas are S-100 protein-positive spindle cell tumors with a microtrabecular pattern, peripheral lymphoid cuffing, and occasional germinal centers [2,3].

They do not show a nuclear palisading pattern that is usually present in conventional Schwannomas. Moreover, digestive tract Schwannoma recently is shown to lack neurofibromatosis-2 genetic alterations, which supports the theory that these kinds of Schwannomas are unique tumors that are distinct from conventional Schwannomas [4]. The existence of Schwannoma as a primary gastrointestinal tumor based on the positive S-100 stain had been under serious debate until a series of 25 well-documented cases were presented by Daimaru et al [3]. Gastrointestinal Schwannomas are benign tumors with an excellent prognosis after surgical resection. Schwannomas occur most

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commonly in the stomach (60-70% of cases), followed by the colon and rectum [2,5,6,7].

Gastric Schwannoma is a rare gastrointestinal mesenchymal tumor, which represent only 0.2% of all gastric tumors and 4% of all benign gastric neoplasms [8]. We report a case of gastric Schwannoma located in the antrum of the stomach.

Case report

A 56-year-old woman, who suffered from dyspepsia since 3 years ago, was visited. An upper gastrointestinal endoscopic examination was done. A well defined protruding mass in the antral region (1 × 1 cm in size) without ulceration was seen (Fig.1).

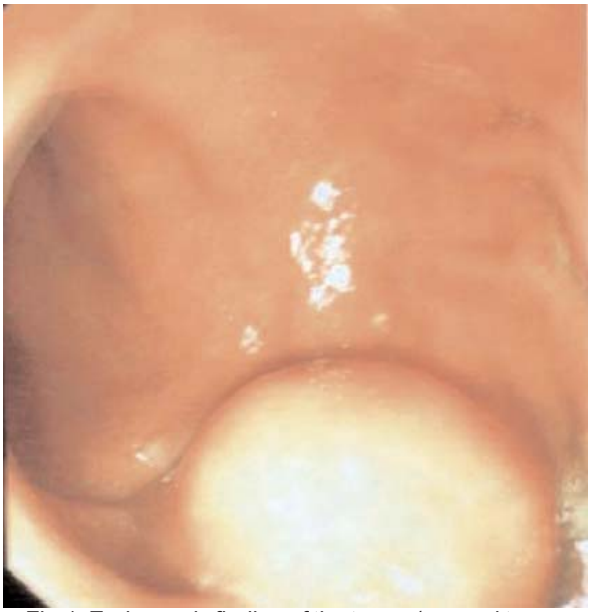

Fig.1. Endoscopic finding of the tumor (a round tumor with intact overlying mucosa).

A rapid urease test for Helicobacter pylori was negative. She had normal Hemoglobin (Hgb) and Hematocrit (Hct) values. Tumor markers of AFP, CA-125, CA-19-9 and CEA were all within normal limits. Endoscopic biopsy revealed only chronic inflammation without any malignant cells. Computed tomography scanning of the upper abdomen showed a tumor arising from the anterior wall of the antrum with exophytic growing. The origin of this was from the submucosa. Other abdominal organs were normal (Fig. 2).

There was a single hypoechoic mass with some hyperechoic foci located in the antrum, external from the gastric lumen (Fig.3). Fine needle aspiration from this mass was unremarkable.

Surgical intervention was recommended. During operation a round tumor measuring 3 × 2 × 1 cm in size that appeared creamy and soft with nodular appearance, was resected. The postoperative course of the patient was favorable.

Sections of gastric wall mass investigated by

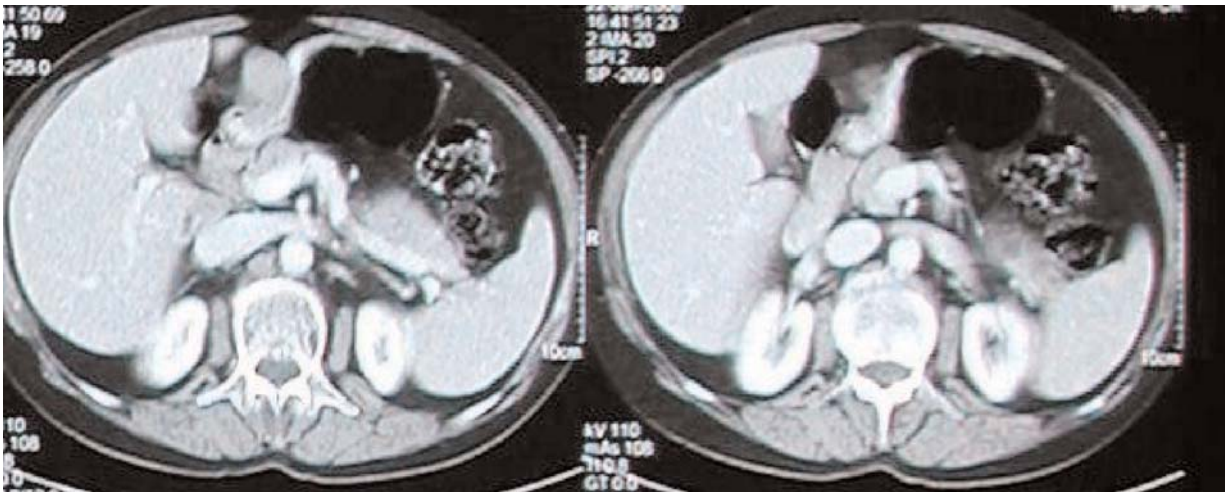

Fig. 2. Computerized tomography scanning of the upper abdomen demonstrating an oval shaped, well defined soft tissue mass (30×35mm) originating from the anterior wall of the antrum. Because of the submucosal origin of this soft tissue mass an endoscopic ultrasonography (EUS) was performed in order to obtain a tissue sample for pathologic diagnosis.

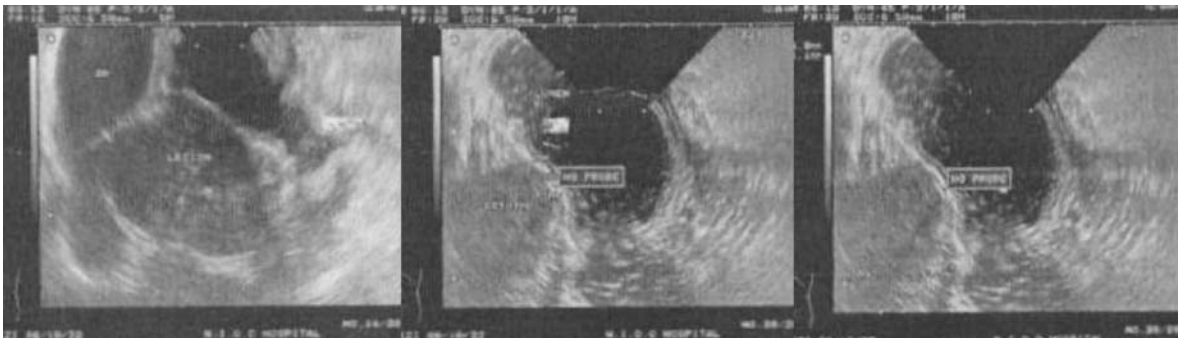

Fig. 3. Endoscopic ultrasonographic findings of the gastric mass.

Immunohistochemical (IHC) and routine methods showed a benign appearing neoplastic lesion composed of bundles of mature spindle cells with areas of hemorrhage, fibrosis and hyaline degeneration. No atypicality or mitotic activity was identified.

Immunohistochemical profile revealed a diffuse strong cytoplasmic positivity by S-100, but desmin, CD 117, CD 34 and actin were non-reactive (Fig.4).

Discussion

Digestive tract Schwannoma was initially reported in 1988 by Daimaru et al [3]. This mesenchymal tumor has cellular structures similar to other mesenchymal tumors such as gastrointestinal stromal tumor, leiomyoma and leiomyosarcoma. By the aid of IHC staining Sarlomo-Rikala [2] and Christopher [9] reported the differences between these spindle cell tumors. Positive desmin and muscle actin stains indicate leiomyoma, or leiomyosarcoma, positive CD34 and CD117 indicate GIST and positive S-100 indicate Schwannoma. Thus, in this case strongly positive S-100 stain and other non-reactive markers indicated the diagnosis of Schwannoma.

The clinical importance of Schwannoma is two-fold. First, Schwannoma should be accurately distinguished from GISTs which may be malignant or have malignant potential. Schwannomas are biologically benign and patients have an excellent prognosis after surgical resection [2,6,10].

Second, gastrointestinal Schwannomas are distinctly different from conventional soft tis-

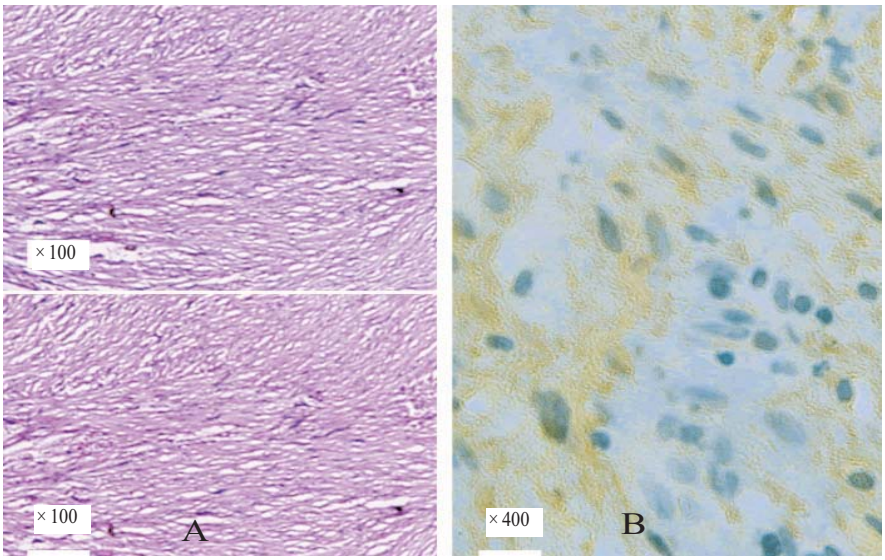

Fig. 4. A. Histopathologic feature of gastric Schwannoma (H&E staining), B. The tumor cells were positive for S100 protein (immunostaining of S-100 protein).

sue and central nervous system Schwannomas.

Gastric Schwannomas occur more frequently in the fifth to sixth decades of life and commonly in female patients [2,7], as our case was presented.

They are often asymptomatic and can be discovered incidentally. The most common presenting symptom is an episode of upper gastrointestinal bleeding followed by abdominal pain [11].

The typical endoscopic appearance of gastric Schwannoma is a round protruding submucosal mass with overlying ulcerated mucosa. False-negative results of endoscopic biopsy would be encountered because normal mucosa overlies the submucosa lesion [12].

Computerized tomography can demonstrate the extent of invasion and help to determine the appearance of a benign lesion. In one recent study, the most consistent CT feature of patients was the homogenous pattern of tumor attenuation on both unenhanced and IV contrast-enhanced scans [13].

Surgical resection including wedge resection, subtotal resection or near total resection is the treatment of choice for gastric Schwannoma. Complete resection of the tumor is proper [12]. Prognosis for patients with solitary Schwannoma of the stomach is excellent and malignant transformation of this lesion is rare.

In summary, gastrointestinal Schwannomas are uncommon benign neoplasms that are uniquely different from conventional soft tissue and central nervous system Schwannomas. They arise in the wall of the gastrointestinal tract, especially the stomach. We should distinguish Schwannoma from other benign and potentially malignant gastrointestinal tumors, especially GISTs.

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