Gastric schwannoma: a case report

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Abstract

Schwannomas are generally benign, slow growing tumors. They are rarely observed in the gastrointestinal tract with the most common site being the stomach. These tumors are usually asymptomatic. The preoperative diagnosis *via* endoscopy is a challenging issue due to the difficulty of differentiation from other submucosal tumors. A 54-year-old woman presented with epigastric pain persisting for the last 10 months. Upper endoscopy revealed an elevated submucosal mass of the gastric antrum. The overlying mucosa was normal. Biopsy specimens yielded only unspecific signs of mild inactive chronic inflammation. Endoscopic ultrasound examination noted a hypoechoic homogeneous mass lesion located in the gastric antrum. The mass appeared to arise from the muscularis propria, and there was no perigastric lymphadenopathy. A contrast-enhanced computed tomography scan identified a homogeneous round mass and arising from the antrum of the stomach. Submucosal tumor was suspected and surgical intervention was recommended. The patient underwent an elective laparoscopic partial gastrectomy. The histopathologic features and immunohistochemical-staining pattern were consistent with a benign gastric schwannoma. Our patient shows no recurrence with a follow-up of one year. The definitive diagnosis of gastric schwannomas requires immunohistochemical studies. Complete margin negative surgical resection, as in this case, is the curative treatment of choice. The clinical course is generally benign.

Introduction

Mesenchymal tumors of the gastrointestinal (GI) tract are mainly comprised of a spectrum of spindle cell tumors which include gastrointestinal stromal tumors (GISTs), leiomyomas or leiomyosarcomas, and schwannomas.[1] Among these tumors, GISTs are the most common.[2,3] Schwannomas, also known as neurinomas, rarely occur in the digestive tract, but when they do, the most common site is the stomach, accounting for only 0.2% of all gastric tumors and 4% of all benign gastric neoplasms.[4]

Gastric schwannomas had been reported in a few series only. They had no recurrence, metastasis, and tumor-related mortality. Hence, it is important to make an accurate diagnosis and differentiation from other gastric submucosal tumors, which can metastasize.

The aim of this article was to underline that clinical, radiologic, and endoscopic features of gastric schwannomas have not been specific enough to enable precise preoperative diagnosis. The definitive diagnosis requires immunohistochemical studies, which only can be performed on the surgical specimen.

Case Report

A 54-year-old woman, with history of hypertension and asthma, presented with epigastric pain persisting for the last 10 months. She underwent an upper endoscopy revealing an elevated submucosal mass in anterior wall of the gastric antrum (Figure 1A). The overlying mucosa was normal. There was no evidence of any other abnormalities. Biopsy specimens obtained at the endoscopy yielded only unspecific signs of mild inactive chronic inflammation without evidence of malignancy. To facilitate the evaluation, we performed an endoscopic ultrasound (EUS) examination, which noted a hypoechoic homogeneous mass lesion located in the gastric antrum (Figure 1B). The mass appeared to arise from the muscularis propria, and there was no perigastric lymphadenopathy. A contrast-enhanced computed tomography scan (CT scan) identified a homogeneous round mass, measuring 4.4 cm and arising from the antrum of the stomach. Submucosal tumor was suspected and surgical intervention was recommended. The patient underwent an elective laparoscopic partial gastrectomy. On gross findings, the tumor was white in color, round, indurate, measuring 2.5 cm. The final histopathologic study revealed that the resected mass was comprised of abundant spindle cells and focal nuclear palisading). Interstitium is locally myxoid. Neither mitosis nor cellular atypia was seen in the tumor tissue. Complete margin negative surgical resection was obtained. The neoplastic cells were strongly positive for S-100 protein, but lacked immunoreactivity with CD 117, CD 34, smooth-muscle actin and desmin. The histopathologic features and immunohistochemical-staining pattern were consistent with a benign gastric schwannoma (Figure 2). Our patient shows no recurrence with a follow-up of one year.

Discussion

Schwannomas are benign neurogenic tumor, originating from Schwann cells, which normally wrap around the axons of the peripheral nerves. They can develop anywhere along the peripheral course of nerve. Schwannomas have a predilection for the head, neck, and flexures or surfaces of the limbs, but they have rarely been reported in GI tract and have occurred predominantly in the stomach.[4] It is reported that gastric schwannomas account only for 0.2% of all gastric tumors, and principally involve the submucosa and muscularis propria.[4] They grow slowly and exophytically. According to our case, gastric schwannomas occur more frequently in the fifth to sixth decade of life and more commonly in females.[4,5] They are often asymptomatic and can be discovered incidentally at laparotomy or radiographically. If symptomatic, the most common presenting symptom is upper GI bleeding, which may be secondary to the growing submucosal mass

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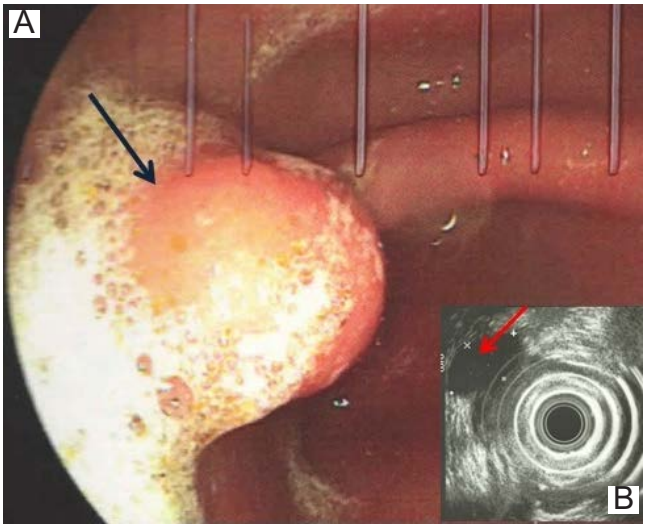

Figure 1. A) Submucosal mass of the antrum of stomach on endoscopy; B) Hypoechoic mass of antrum on endoscopic ultrasound.

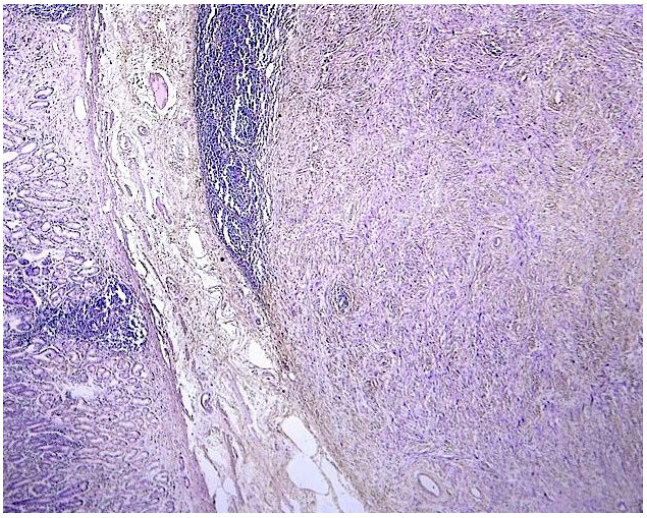

Figure 2. Histological aspect: antral mucosa with chronic gastritis and lymphoid follicles (on the left). The submucosa shows the lesion composed of spindle cells with nuclei arranged in a palisading. Alternation of hypocellular and hypercellular areas (on the right) (Hex10).

compromising the blood supply to the overlying mucosa. In some cases, epigastric pain, as in our case, or a palpable mass may occur. Owing to the rarity of gastric schwannomas, there is limited data about the imaging features of this neoplasm. As diagnostic modalities for gastric schwannomas, endoscopy, CT, and, recently, positron emission tomography (PET) have been proposed. On endoscopy, gastric schwannomas appeared as elevated submucosal masses, and a central ulcer was seen in 25-50%.[6] Endoscopic biopsies, when performed, may not be adequate for definite diagnosis, because gastric schwannomas are mainly located in the submucosal layers and mucosal abnormality may be minimal. Like the case we reported, the endoscopic biopsy revealed only chronic inflammation without any malignant cells. EUS-fine needel aspiration biopsy is currently considered the standard method for samples of submucosal tumors, and the diagnostic yield was 43.3%.[7] On CT examination, gastric schwannomas show homogeneous attenuation and enhancement, which was consistent with our case. Degenerative changes are uncommon.

Despite morphological similarities, GI mesenchymal tumors are heterogeneous in their immunophenotypes. Immunohistochemical staining identifies these neoplasms based on their distinct immunophenotypes. Gastric schwannomas are positive for S-100 protein and negative for c-kit, CD 117, CD 34, smooth-muscle actin and desmin. Our case fulfilled the immunohistochemical diagnosis for gastric schwannoma. Surgical resection, as in this case, is the curative treatment of choice for gastric schwannomas. All published data to date indicate that GI schwannomas have an excellent prognosis after surgical resection. Recurrent disease has been only observed after incomplete resection.[4] Our patient shows no recurrence with a follow-up of one year. Therefore, it is important to distinguish gastric schwannomas from other submucosal tumors of the stomach, which can be malignant or have malignant potential.

Conclusions

The definitive diagnosis of gastric schwannomas requires immunohistochemical studies. Complete margin negative surgical resection, as in this case, is the curative treatment of choice. The clinical course is generally benign.

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