SPANDIDOS PUBLICATIONS

ONCOLOGY LETTERS 11: 2580-2582, 2016

Schwannoma of the colon: A case report and review of the literature

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Received January 18, 2015; Accepted February 12, 2016

DOI: 10.3892/ol.2016.4271

Abstract. Colonic schwannomas are rare gastrointestinal mesenchymal tumors, and only a limited number of cases has been reported. The occurrence of these tumors is less common in the large intestine than in the stomach. The present study reports a case of colonic schwannoma in a 62-year-old female patient with no specific symptoms. The patient was diagnosed with a mass in the ascending colon by colonoscopy and abdominal computed tomography scanning. A right hemicolectomy was performed. The postoperative pathological diagnosis was ascending schwannoma. This case is noteworthy as colonic schwannomas are rare and are typically treated as colon cancer. No recurrence of the lesion was observed after 24 months of follow-up.

Introduction

Schwannomas are tumors originating from Schwann cells. This type of tumor may be found throughout the body along the peripheral nerves; however schwannomas of the colon and rectum are extremely rare (1). This rare tumor accounts for 2-6% of all mesenchymal tumors (2). The incidence rates of schwannoma are identical for men and women, and the age of such patients is between 60 and 65 years (3). Due to the small number of such cases, the characteristics of this tumor are not fully established (4). Immunohistochemistry of the tumor cells remains the most important diagnostic method. When the tumor is located in the colon or in the rectum, radical excision with wide margins is mandatory, due to its tendency to recur locally or become malignant if left untreated. The surgical approach depends on the size, location and histopathological pattern of the tumor (4). The use of radiotherapy or adjuvant chemotherapy has conflicting results and is not recommended for routine use. The present study reports a rare case of a schwannoma present in the ascending colon that was detected by colonoscopy and abdominal computed tomography (CT) scanning, and required surgical resection.

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Key words: schwannoma, colon, gastrointestinal tumor

Case report

A 62-year-old female patient was admitted to The First Affiliated Hospital of Zhejiang University School of Medicine (Hangzhou, China), presenting with abdominal pain and a history of intermittent, dark-red bloody stools for 1 month. The patient's medical history included uterine fibroids and hypertension. The patient had no other specific medical conditions, including neurofibromatosis. There was no family history of inflammatory bowel disease or cancer, and she had had no prior abdominal surgeries. A physical examination revealed mild tenderness in the right lower quadrant. The laboratory test results were normal. A colonoscopy (Olympus Corporation, Toyko, Japan) revealed a pedunculated mass in the proximal ascending colon measuring ~4x4 cm (Fig. 1). No lesions were found in the other colon segments, including the cecum. An abdominal CT scan (Aquilion 16; Toshiba, Tokyo, Japan) revealed a round, homogeneous, low-attenuation mass in the proximal ascending colon, without adjacent wall thickening (Fig. 2). No enlarged pericolic lymph nodes were observed.

The patient underwent a right hemicolectomy without a preoperative endoscopic biopsy. The procedure involved removal of the bowel from 4-6 cm proximal to the ileocecal valve to the portion of the transverse colon supplied by the right branch of the middle colic artery. An anastomosis was fashioned between the terminal ileum and the transverse colon. No infiltration or distant dissemination was identified. The resected specimens were fixed with 10% formalin fixative and 95% ethanol fixative, dehydrated, embedded in wax, sectioned and stained with hematoxylin and eosin (Leica Microsystems, Inc., Buffalo Grove, IL, USA). Microscopic analysis revealed that the tumor was composed of proliferating spindle cells arranged in fascicular or vague palisading patterns, in a loose edematous stroma with inflammatory cell infiltration (Fig. 3; hematoxylin and eosin stain). Immunohistochemical analysis revealed that the tumor was positive for S-100; however, no reactivity for cluster of differentiation (CD) 117, CD34, desmin, smooth muscle actin or discovered on gastrointestinal stromal

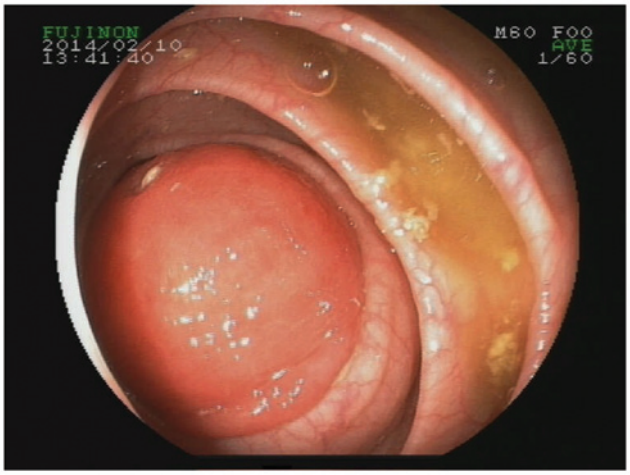

Figure 1. Colonoscopy image showing a pedunculated mass measuring ~4x4 cm in the proximal ascending colon.

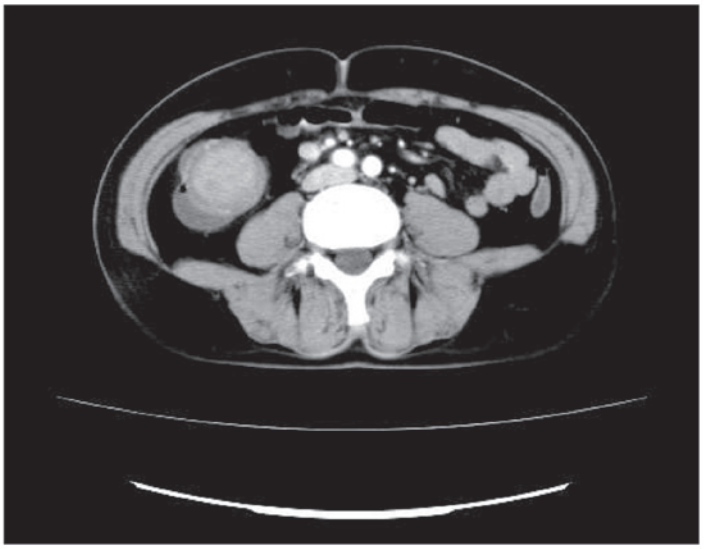

Figure 2. Computed tomography scan revealing a round, homogeneous, low-attenuation mass in the proximal ascending colon without adjacent wall thickening.

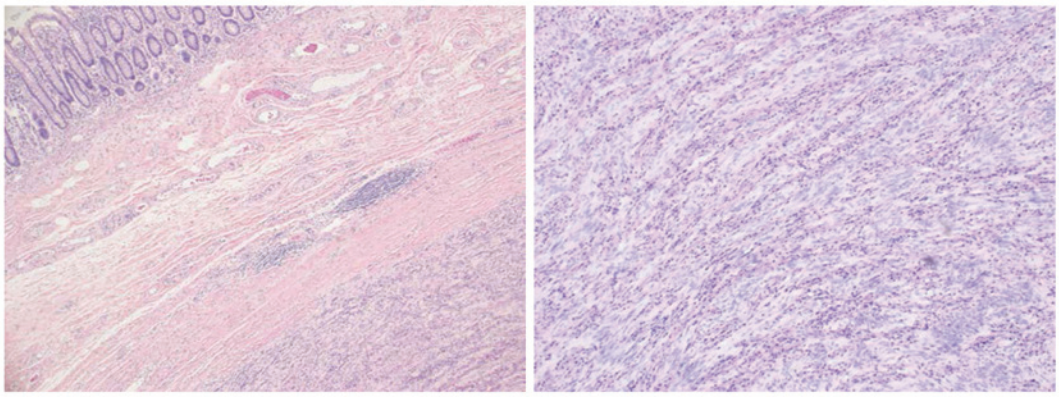

Figure 3. Immunohistochemical analysis showed that the tumor was composed of a proliferation of spindle cells arranged in fascicular or vague palisading patterns in a loose edematous stroma with inflammatory cell infiltration. Hematoxylin and eosin staining; magnification, left panel x200 and right panel x50.

tumor-1 was detected. Ki-67 labeling was observed in <3% of the tumor cells. The definitive diagnosis was schwannoma of the colon. No recurrence was observed during the 24-month follow-up period and no additional treatment was administered.

Discussion

Verocay first described schwannomas in 1910 (4). Despite the increasing number of mesenchymal tumor reports with the

advent of modern immunohistochemical staining techniques, primary schwannomas of the colon and rectum that are not associated with systemic neurofibromatosis (von Recklinghausen disease) are extremely rare (5,6). Due to the small number of such cases, the incidence rates and characteristics of schwannomas have not been fully determined. Schwannomas are known to be benign neoplasms of ectodermal origin, which are characterized by slow growth and the capability for malignant degeneration if not removed (5-7). This type of tumor typically manifests as a polyp that may ulcerate the mucosa (8,9), leading to nonspecific symptoms, including abdominal pain with rectal bleeding, defecation disorders and colonic obstruction or invagination, as in the present case (10,11). Imaging findings are nonspecific; CT scans show well-defined, homogeneous mural masses, and can help to distinguish schwannomas from gastrointestinal stromal tumors (GISTs), which are heterogeneous masses (12). On most occasions, diagnosis is not established based on a biopsy but on a surgical specimen (13).

Macroscopically, schwannomas are well-circumscribed, yellowish-white lesions (4). Immunohistochemical examination of the tumor cells is considered the optimal diagnostic tool for this type of tumor (14). Schwannomas usually exhibit positive reactivity for S-100, vimentin and glial fibrillary acidic protein, and no reactivity for CD117, CD34, actin or cytokeratins, which appear more typically in GISTs, gastrointestinal autonomic tumors or muscle tumors (15,16). Following diagnosis, treatment options include polypectomy or segmental colectomy with free margins due to the low risk of malignancy (17,18). The benign nature of the tumor is responsible for the good prognosis of patients with schwannoma; recurrence and metastasis are considered rare events. In conclusion, colonic schwannoma is a rare tumor with a benign behavior and patients with this type of tumor have a favorable prognosis.

Acknowledgements

This study was supported by the Natural Science Foundation of Zhejiang Province (grant no. LY13H030004).

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