CASE REPORT

Schwannoma of the sigmoid colon

Tuğrul Çakır,¹ Arif Aslaner,¹ Müjgan Yaz,² Umut rıza Gündüz¹

¹Antalya Training and Research Hospital, Antalya, Turkey
²Department of Pathology, Antalya Training and Research Hospital, Antalya, Turkey

Correspondence to

Dr Tuğrul Çakır,
 tugrul-cakir@hotmail.com

Accepted 22 February 2015

SUMMARY

Colonic schwannomas are very rare gastrointestinal tumours originating from Schwann cells, which form the neural sheath. Primary schwannomas of the lower gastrointestinal tract are very rare and usually benign in nature. However, if they are not surgically removed, malign degeneration can occur. We report a case of a 79-year-old woman who presented to our clinic with rectal bleeding and constipation. She underwent a lower gastrointestinal tract endoscopy. A mass subtotally obstructing the lumen of the sigmoid colon was seen and biopsies were taken. Histopathological examination indicated a suspicion of gastrointestinal tumour and the patient underwent sigmoid colon resection after preoperative evaluation by laboratory analysis, abdominal ultrasonography and CT. Her postoperative course was uneventful and she was discharged on the fifth day for outpatient control. The histopathology report revealed schwannoma of the sigmoid colon. This was a case of schwannoma of the sigmoid colon that was successfully treated with total resection.

BACKGROUND

A schwannoma is a neoplastic lesion histologically originating from Schwann cells, which form the neural sheath. The tumour can be found along the peripheral nerves throughout the body, but are found mostly in the head, neck, and upper and lower limbs; schwannoma of the colon is very rare. Most schwannomas are benign and asymptomatic, with non-specific symptoms, which may include pain, fatigue and fever. Symptomatic patients usually complain of rectal bleeding or signs of colonic obstruction.¹ They are usually treated with radical surgical resection with margins free of disease.² They can appear with local recurrence and malign degeneration.² We present a case of a 79-year-old woman with sigmoid colonic schwannoma that was detected on colonoscopy, who underwent surgical resection and was diagnosed histologically.

CASE PRESENTATION

A 79-year-old woman presented to our internal medicine clinic with rectal bleeding and constipation. She underwent colonoscopy at the endoscopy unit of our general surgery department; a rough mass at the sigmoid colon, covered by ulcerated mucosa that was obstructing the lumen subtotally, was seen, and multiple biopsies were performed.

Her history and physical examination revealed a lower abdominal tenderness; her only comorbidity was diabetes mellitus. Laboratory findings included normal leucocyte 11.600/mm³, haemoglobin: 10.7 g/dL, α fetoprotein: 3.22 ng/mL, CA-15.3:

16.6 U/mL, CA-19.9: 0.8 U/mL, CA-12: 7.8 U/mL and carcinoembryonic antigen 2.93 ng/mL. Abdominal ultrasound revealed a 38×35 mm hypoechoic solid lesion left of the umbilicus, suggestive of a tumour of gastrointestinal origin.

Abdominal CT revealed as Sigmoid colon cancer suspicion at about including 7 cm of intestinal segment in the colon level. A tumoural mass showing intraluminal protrusion and causing narrowing of the lumen with wall thickening was observed. Neighbourhood fatty plan is dirty and multiple lengths of lymph nodes were observed (figure 1).

Histopathology of the endoscopic biopsy indicated a gastrointestinal tumour, and the patient underwent sigmoid colon resection and end to end anastomoses. On the fifth postoperative day, she was discharged without any complaints with a recommendation for outpatient control.

Histopathological examination of the resected gastric specimen reported it to be a 5×4×3.5 cm schwannoma of the sigmoid colon with clear surgical margins. 29 resected lymph nodes were revealed as reactive lymphoid hyperplasia. There was ulceration on the mucosa, the serosa was intact and no invasion was seen (figure 2).

To clarify the exact diagnosis of the tumour further, immunohistochemical staining was performed. The tumour cells were negative for smooth muscle actin (SMA), desmin, CD 117, P53, myoglobin and pan cytokeratin (CK), and strongly positive for S-100 (figure 3) and vimentin (figure 4). Ki-67 index was approximately 4–5%. Vascular structures were stained as positive with CD34. Histopathology diagnosed the specimen as schwannoma of the sigmoid colon.

DIFFERENTIAL DIAGNOSIS

Gastrointestinal stromal tumour was excluded from the differential diagnosis by CD 117 negativity.

TREATMENT

We performed sigmoid colon resection and end to end anastomoses as the surgical procedure.

OUTCOME AND FOLLOW-UP

On the fifth day, the patient discharged without any complaints with recommendation for outpatient and medical oncology control. She did not have any neoadjuvant therapy. For keeping a check on local or distal recurrence, a total body CT scan was planned every 6 months and a lower gastrointestinal tract endoscopy was planned yearly.

DISCUSSION

In 1910, Verocay first described the benign rare neoplasm of ectodermic origin growing from the

To cite: Çakır T, Aslaner A, Yaz M, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-208934

Figure 1 Abdominal CT findings revealed a round polypoid lesion with homogeneous low attenuation inside the sigmoid colon with adjacent wall thickening.

neural sheath¹; schwannomas were histologically characterised by Verocay corpuscles, a lymphoid cuff and a spiral-like form consisting of densely arrayed spindle-shaped cells, palisade arrangements and loose reticular networks of cells.^{3 4}

Schwannomas are usually slow-growing benign tumours. If a schwannoma is not removed, it presents a possibility of malignant degeneration.^{1-3 5 6} Schwannomas are seen in sexes equally and are mostly found after the sixth and seventh decades of life, but can appear at any age.

The stomach (83%) and the small intestine (12%) are the most frequently involved regions of the gastrointestinal tract.³ Cases are usually asymptomatic, but in some, tenesmus, rectal bleeding and pain can be experienced.^{3 4 7}

Macroscopically, schwannomas tend to share the gross morphological features of lobulated and well-delimited tumours with a cystic pattern and, rarely, may be hard, solid, ulcerated or calcified.⁸ In the gastrointestinal system they more frequently arise from the Auerbach's plexus than from Meissner's.⁴ The cells of the schwannoma are immunoreactive to S-100 protein and vimentin, but are negative for SMA, desmin, CD 117, P53, myoglobin and pan CK.^{3 4 9} In the differential diagnosis of gastrointestinal stromal tumour, it shows positivity to CD117 and CD34 but negativity to S-100 protein.¹⁰

Figure 2 Macroscopic appearance of the tumour at the sigmoid colon.

Figure 3 Schwannoma area at the right side showing diffuse S100 positivity. S100×2.

The Ki-67 proliferative index (MIB-1) is recommended as an indicator of malignancy, as its positivity ($\geq 5\%$) is strictly correlated with greater tumour aggressiveness and more than 10% is considered to be malignant. Ki-67 index was about 4–5% in our case. A high risk of metastasis and recurrence has to be associated with a mitotic activity rate >5 mitoses per field at high magnification and a tumour size bigger than 5 cm. Benign lesions are characterised as having a low rate of mitosis, and the absence of atypical mitotic figures and nuclear hyperpigmentation.³ Distant metastasis has been reported in 2% of cases.¹¹

Currently, complete surgical resection of the tumour with margins free of disease is the best therapeutic choice.¹² Surgical management depends on the tumour size, location and histopathological pattern. Routine radiotherapy or adjuvant chemotherapy has not been used. Histopathological examination of preoperative colonoscopic biopsy may be difficult and immunohistochemistry is necessary to diagnose schwannoma correctly. In our case, a tumour at the sigmoid colon was successfully resected and no lymph nodes were involved.

Figure 4 Rosette formation; schwannoma cells expressing S100 and vimentin positivity. S100×40.

Learning points

- ▶ Endoscopic biopsy examinations are not sufficient for exact diagnosis at lower gastrointestinal tract endoscopy.
- ▶ Immunohistochemical evaluation is usually needed.
- ▶ Stains such as DOG-1 have to be used to exclude GIST.
- ▶ Complete surgical resection of the tumour with margins free of disease is the standard treatment for colonic schwannomas.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Zippi M, Pica R, Scialpi R, *et al.* Schwannoma of the rectum: a case report and literature review. *World J Clin Cases* 2013;1:49–51.
- 2 Fotiadis CI, Kouerinis IA, Papandreou I, *et al.* Sigmoid schwannoma: a rare case. *World J Gastroenterol* 2005;11:5079–81.
- 3 Nonose R, Lahan AY, Santos Valenciano J, *et al.* Schwannoma of the colon. *Case Rep Gastroenterol* 2009;3:293–9.
- 4 Tsunoda C, Kato H, Sakamoto T, *et al.* A case of benign schwannoma of the transverse colon with granulation tissue. *Case Rep Gastroenterol* 2009;3:116–20.
- 5 Daimaru Y, Kido H, Hashimoto H, *et al.* Benign schwannoma of the gastrointestinal tract: a clinicopathologic and immunohistochemical study. *Hum Pathol* 1988;19:257–64.
- 6 Lauwers GY, Erlandson RA, Casper ES, *et al.* Gastrointestinal autonomic nerve tumors: a clinicopathological, immunohistochemical, and ultrastructural study of 12 cases. *Am J Surg Pathol* 1993;17:887–97.
- 7 Kanneganti K, Patel H, Niazi M, *et al.* Cecal schwannoma: a rare cause of gastrointestinal bleeding in a young woman with review of literature. *Gastroenterol Res Pract* 2011;2011:142781.
- 8 Tomozawa S, Masaki T, Matsuda K, *et al.* A schwannoma of the cecum: case report and review of japanese schwannomas in the large intestine. *J Gastroenterol* 1998;33:872–5.
- 9 Braumann C, Guenther N, Menenakos C, *et al.* Schwannoma of the colon mimicking carcinoma: a case report and literature review. *Int J Colorectal Dis* 2007;22:1547–8.
- 10 Fletcher CD, Berman JJ, Corless C, *et al.* Diagnosis of gastrointestinal stromal tumors: a consensus approach. *Int J Surg Pathol* 2002;10:81–9.
- 11 Das Gupta TK, Brasfield RD. Tumors of peripheral nerve origin: benign and malignant solitary schwannomas. *CA Cancer J Clin* 1970;20:228–33.
- 12 Maciejewski A, Lange D, Wloch J. Case report of schwannoma of the rectum—clinical and pathological contribution. *Med Sci Monit* 2000;6:779–82.

Copyright 2015 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow