

## Multimodality Imaging Features of Rectal Schwannoma

### Dear Editor,

A 63-year-old woman with a family history of colon cancer presented with early satiety and loss of appetite. Physical examination was unremarkable apart from fullness in the epigastrium and a possible mass. In view of this, a computed tomography (CT) scan was performed. No upper abdominal pathology other than uncomplicated cholelithiasis was demonstrated. However, a 3-cm soft tissue mass was found to be present along the wall of the rectosigmoid colon (Fig. 1A).

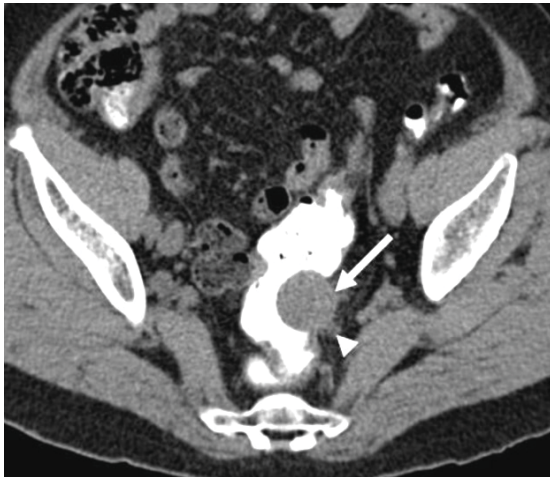


Fig. 1A. Axial CT image with per rectal contrast shows a homogeneous, round, soft tissue mass along the left wall of the rectosigmoid colon, with a smooth margin (arrow). Subtle stranding of the perirectal fat is present (arrowhead), usually deemed a feature of extraserosal infiltration; it can also be seen in the setting of tumour induced inflammation. However, distinction between the two is beyond the limits of current imaging modalities.

Fibreoptic colonoscopy of the lesion revealed a broad-based rectosigmoid polyp with normal appearance of the overlying mucosa. Polypectomy was unsuccessful; biopsies were sent for histopathological analysis, with findings of hyperplastic mucosa. No malignant cells were found. As colonoscopy was incomplete due to redundancy of the colon, a barium enema was performed to evaluate the rest of the colon. In keeping with colonoscopy findings, the rectosigmoid mass showed a smooth overlying mucosa (Fig. 1B). The rest of the colon was unremarkable.

In order to aid surgical planning, high resolution magnetic resonance imaging (MRI) of the rectum was performed. This

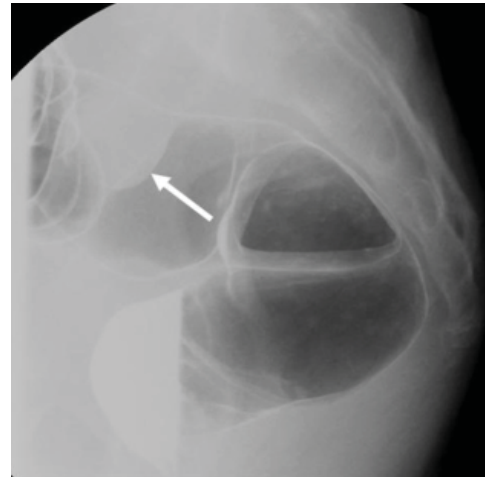


Fig. 1B. Spot image from barium enema showing a broad-based, smooth filling defect consistent with a submucosal mass, at the rectosigmoid junction (arrow).

confirmed the presence of the submucosal mass (Fig. 1C). Restricted diffusion was present in the primary lesion and the surrounding nodes (Fig. 1D). These findings, together with a potentially false negative biopsy result, prevented satisfactory exclusion of malignancy. As such, a decision to perform anterior resection, rather than local excision of the tumour, was made.

At laparotomy, the submucosal mass was firm, with spherical shape and measured 3 cm in diameter (Fig. 2A).

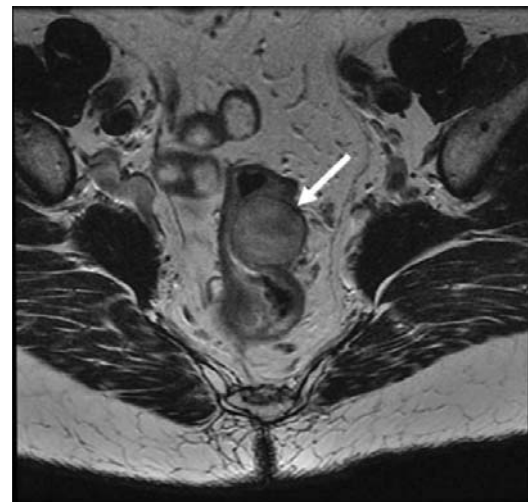


Fig. 1C. Coronal oblique T2-weighted MR image shows the mass to be mildly hyperintense and slightly heterogeneous (arrow). Note well-circumscribed margins of the lesion that alludes to its submucosal location and benign aetiology.

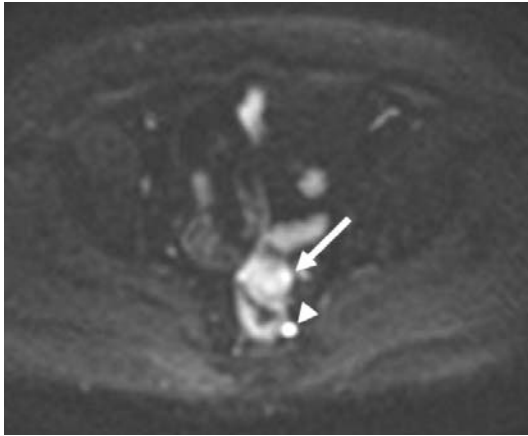


Fig. 1D. Axial diffusion weighted MRI scan ( $b = 1000 \text{ sec/mm}^2$ ) shows increased signal throughout the mural mass (arrow) and in an adjacent perirectal lymph node (arrowhead), consistent with restricted diffusion.

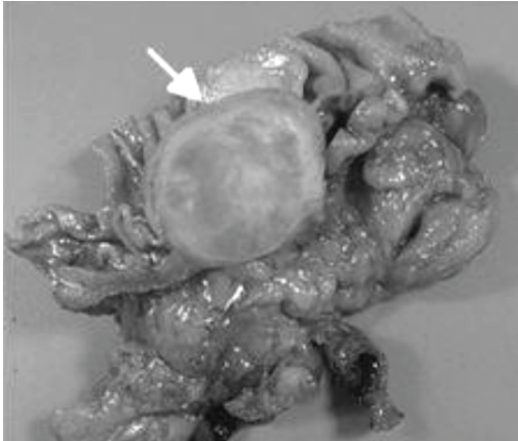


Fig. 2A. Resected colon showing a 3-cm polypoidal, yellow intramural mass (arrow) corresponding to the imaging findings. The overlying mucosa is normal in appearance.

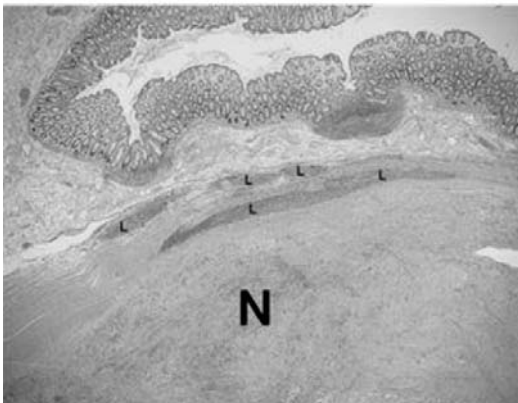


Fig. 2B. Low power Haematoxylin and Eosin (H&E) photomicrograph confirms submucosal location of the mass (N), which is circumscribed. The mass is surrounded by a cuff of lymphoid tissue (L). Imaging findings of perirectal fat stranding were consistent with inflammation. The perirectal lymph nodes (not shown) showed no evidence of inflammation, necrosis or malignancy.

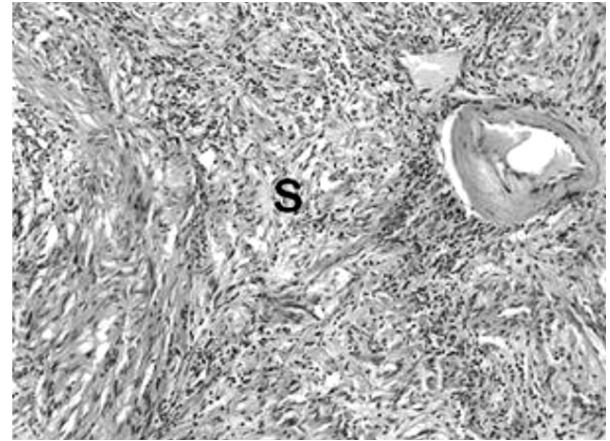


Fig. 2C. High power H&E photomicrograph shows fascicles of bland spindle cells (S). No haemorrhage, necrosis or nuclear atypia was found, and mitotic activity was low. The spindle cells stained diffusely for S100 protein. Stains for CD117, CD34, smooth muscle actin and smooth muscle desmin were negative. These are typical features of schwannomas.

Histopathological examination showed features compatible with schwannoma (Figs. 2B and 2C). The patient had an uneventful postoperative course without recurrence.

Gastrointestinal tract (GIT) schwannomas are benign lesions found mostly in the stomach;<sup>1</sup> rectal origin is rare.<sup>2,3</sup> Our case showed several features suggesting a benign tumour: absence of mucosal involvement on colonoscopy and barium enema, and a smooth, well circumscribed margin at CT and MRI. Typically, GIT schwannomas are homogeneous before and after intravenous contrast enhancement on CT and MRI. This helps to distinguish them from gastrointestinal stromal tumours (GISTs), which are usually heterogeneous due to haemorrhage, necrosis or cystic change.<sup>4</sup> A literature search for MRI features found 2 cases of colorectal benign schwannomas, both of which were T1-weighted hypointense and T2-weighted hyperintense relative to muscle.<sup>5,6</sup> Diffusion weighted imaging features of rectal schwannoma has not been previously described. Restricted diffusion in our case of rectal schwannoma reflects its high cellularity, supporting the observation that restricted diffusion can be seen in both malignant and benign lesions.<sup>7</sup>

However, there were also features of the lesion that did not allow satisfactory distinction from malignancy. Specifically, CT and MRI findings of enlarged lymph nodes and stranding of the perirectal fat were suggestive of extraserosal spread. Distal colonic schwannoma with reactive lymphadenopathy has been reported in a single case previously,<sup>8</sup> however, based on an earlier series of GIT schwannomas, lymphadenopathy is not a common feature.<sup>4</sup> Furthermore, restricted diffusion within the lymph nodes

was present and a false positive sign of malignancy. This is in line with the study by Roy et al,<sup>9</sup> which showed that diffusion weighted imaging may not reliably differentiate between benign and malignant small pelvic lymph nodes in patients with underlying malignancy. On retrospect, these were probably related to focal inflammation at the site of the lesion.

In summary, our case illustrates some typical imaging appearances of this rare condition, while highlighting the potential for rectal schwannomas to present with subtle aggressive features on MR imaging that have not previously been described.

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