

## Endoscopic ultrasound-guided fine-needle aspiration for the diagnosis of retroperitoneal schwannoma

Schwannoma is a rare peripheral nerve sheath tumor that is difficult to diagnose by imaging features alone. Endoscopic ultrasound (EUS)-guided fine-needle aspiration (FNA) with specific immunohistochemical (IHC) staining may be the only tool to obtain a diagnostic sample from such lesions. There are only a few case reports describing EUS-FNA diagnosis of retroperitoneal Schwannoma [1,2]. In this report, we describe four cases (three males; mean age:  $54.5 \pm 16.4$  years) with retroperitoneal Schwannoma, in whom the diagnosis was achieved with EUS-FNA and adjunctive IHC staining.

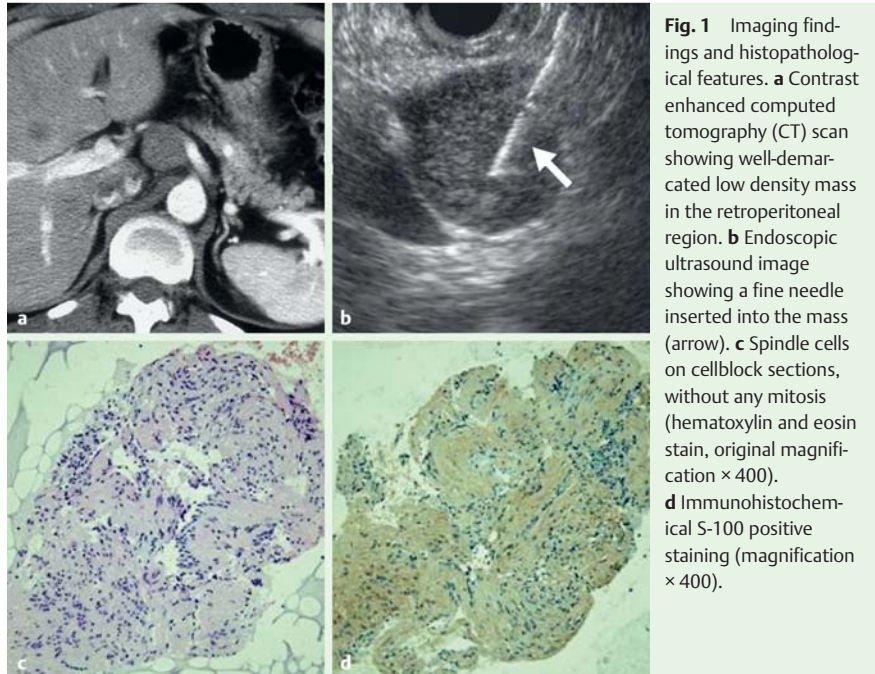
All lesions were well demarcated, and had a rounded contour (● Fig. 1 a).

The mean size of the lesions on EUS was  $23.7 \pm 3.6$  mm. EUS-FNA was successfully performed with a 22-gauge needle in all cases (● Fig. 1 b), with a sufficient yield for both cytological and cellblock analysis. The median number of needle passes was 2.5 (range 2–3). The cellblock analysis revealed bland proliferation of spindle cells with a palisading appearance and wavy fibrillar architecture (● Fig. 1 c). Further evaluation with IHC revealed negative staining for actin, CD34, CD-117, and strong positive staining for S-100 antibody in all cases (● Fig. 1 d). Further evaluation of the cellular proliferative activity was studied with Ki-67 staining, and a low proliferation rate (Ki-67 < 5%) was reported in all cases, supporting the benign nature of the lesions.

We recommended conservative follow-up for our patients rather than surgical resection, because all of the patients were asymptomatic and there were no mitotic figures on FNA, with a low Ki-67 index in all the aspirates. It is worth noting that most reports have stressed on complete surgical resection as the appropriate management of retroperitoneal schwannomas [3,4]. Our view is that the morbidity associated with surgical resection is not justified in these benign lesions, and the use of EUS-FNA to establish the diagnosis may help in avoiding unnecessary surgery.

**Competing interests:** None

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**Fig. 1** Imaging findings and histopathological features. **a** Contrast enhanced computed tomography (CT) scan showing well-demarcated low density mass in the retroperitoneal region. **b** Endoscopic ultrasound image showing a fine needle inserted into the mass (arrow). **c** Spindle cells on cellblock sections, without any mitosis (hematoxylin and eosin stain, original magnification  $\times 400$ ). **d** Immunohistochemical S-100 positive staining (magnification  $\times 400$ ).

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