**Case 12374**

**Purely cystic ancient schwannoma**

Published on 19.01.2015

**DOI:** 10.1594/EURORAD/CASE.12374  
**ISSN:** 1563-4086  
**Section:** Abdominal imaging  
**Area of Interest:** Pelvis  
**Procedure:** Diagnostic procedure  
**Procedure:** Surgery  
**Imaging Technique:** CT  
**Imaging Technique:** MR  
**Imaging Technique:** MR-Diffusion/Perfusion  
**Imaging Technique:** Experimental  
**Special Focus:** Cysts Pathology Case Type: Anatomy and Functional Imaging  
**Authors:** Sergio Savastano1, Houshang Kalamian2, Ilaria Franceschetti3, Antonio Perasole3, Andrea Busolo1, Da Pozzo Stefano1  
**Patient:** 31 years, female

**Clinical History:**

Asymptomatic patient with an incidental diagnosis of a pelvic cyst during transvaginal ultrasound, which was otherwise normal except for a retroflexed uterus. The patient was successfully operated.

**Imaging Findings:**

Contrast-enhanced CT: left iliac vessels and the left iliopsoas muscle are displaced by an 8 cm extraperitoneal cyst, delineated by a thin non-enhancing wall. The sacrum is neither eroded nor scalloped (Fig. 1).  
MRI: the cyst is unilocular on T2w-MRI; no wall thickening is appreciable (Fig. 2a-c). Neither water diffusion restriction on DW-MRI (Fig. 3) nor enhancement on post-contrast T1w-MRI are evident (Fig. 4).

Surgery: yellowish mass, attached to the retroperitoneum through a small pedicle; no major nerves were involved (Fig. 5).

Pathology: The cystic capsule was made of a fibrous band and neoplastic spindle cells, without mitoses or necrosis, organized in two components (Fig. 6a). The first component consisted of spindle cells arranged in parallel rows with focal nuclear palisading, with focal nuclei atypia, referred to as ancient schwannoma (Fig. 6b). The second component was loosely textured and containing histiocytes. The neoplastic cells were strongly positive for S100 (Fig. 6c).

**Discussion:**

Ancient schwannomas are benign long-standing tumours of the peripheral nerve sheath with degenerative changes consisting of cystic modification, calcification, hyalinization, and haemorrhage; unlike typical schwannoma characterized by highly cellular areas (Antoni A) which are more represented than myxoid areas (Antoni B), at microscopy, ancient schwannomas have a relatively poor cellular component [1–3].  
Retropertitoneal schwannomas are slow-growing tumours, and often asymptomatic or poorly symptomatic and incidentally discovered, since retroperitoneum is a compliant anatomic space; interestingly large retroperitoneal schwannomas are not usually complicated by a hydronephrosis [2]. For this reason many retroperitoneal
Schwannomas show some degree of degenerative changes and are diagnosed in middle-aged or elderly patients [2, 3].

Ancient schwannomas are well-circumscribed and encapsulated tumors, with heterogeneous attenuation/intensity on CT/MR imaging reflecting internal architecture, and enhancement of the solid component on post-contrast imaging; a target-like appearance can be sometimes observed [1–4]. Malignant degeneration is extremely rare in isolated masses; the radiological diagnosis relies on invasion of adjacent structures [2].

Wholly cystic schwannomas are uncommon; they usually show wall nodules and some degree of wall/septa enhancement [3, 5–8]. Nevertheless cystic schwannomas may not exhibit an appreciable enhancement [9, 10]. Apart from the masses extending through intervertebral foramina, diagnosis of pelvic schwannoma is challenging because of difficulty in depicting contiguity or continuity with a nerve. Differential diagnosis should include retroperitoneal cysts outside the major organs. Lymphocele, cystic lymphangioma, mucinous cistoadenoma, Müllerian cyst, bronchogenic cyst and epidermoid cyst share radiologic features similar to cystic schwannoma, making a non-invasive diagnosis non-feasible; history of trauma can help diagnosing urinoma or chronic haematoma, whereas calcifications and a fat component strongly suggest a cystic teratoma [11]. Since percutaneous fine-needle aspiration biopsy has been proven to be inconclusive or inaccurate, the definitive diagnosis relies on histopathology of core biopsy or excised specimens, and immunochemistry [2, 5]. However, biopsy of a thin-walled cyst is not amenable and aspiration of liquid content not useful for diagnosing a cystic schwannoma; nevertheless, percutaneous puncture can elicit radiating pain with peripheral nerve distribution (Tinel-like sign), which may suggest a correct diagnosis [5]. Moreover analysis of aspirated fluid may rule out other types of cystic lesions. Despite its rarity a purely cystic schwannoma should be considered in differentiation of extraperitoneal cyst of the pelvis.

**Differential Diagnosis List:** Purely cystic ancient schwannoma, Lymphocele, Cystic lymphangioma, Mucinous cystoadenoma, Müllerian cyst, Bronchogenic cyst, Epidermoid cyst

**Final Diagnosis:** Purely cystic ancient schwannoma

**References:**


literature review. Radiographics 24:1353-65 (PMID: 15371613)
Figure 1

a

Description: A large retroperitoneal cyst displaces the iliopsoas muscle and left iliac vessels on the left side. The cyst is unilocular; neither enhancement nor wall thickening are appreciable. The S1 intervertebral foramen is preserved. **Origin:** Ospedale San Bortolo, Vicenza, Italy

b

Description: The cyst at lower level scan. **Origin:** Ospedale San Bortolo, Vicenza, Italy
Description: The cyst is unilocular and circumscribed by a thin well-defined wall hypointense on T2w image; the content is homogeneous. Origin: Ospedale San Bortolo, Vicenza, Italy
Description: Sagittal T2w image. Origin: Ospedale San Bortolo, Vicenza, Italy
Description: Coronal T2w image. Origin: Ospedale San Bortolo, Vicenza, Italy
Description: ADC map: the cystic capsule shows water diffusion restriction whereas its content does not (ADC value 2700/mm²/sec). Origin: Ospedale San Bortolo, Vicenza, Italy
Figure 4

a

Description: Non-enhanced axial view. Origin: Ospedale San Bortolo, Vicenza, Italy

b

Description: Post-contrast axial view: no enhancement of the cystic wall. Origin: Ospedale San Bortolo, Vicenza, Italy
**Description:** Post-contrast coronal view: no enhancement of the cystic wall. **Origin:** Ospedale San Bortolo, Vicenza, Italy
Figure 5

Description: Well-defined, yellowish extraperitoneal mass. Origin: Ospedale San Bortolo, Vicenza, Italy
Figure 6

Description: At low magnification a thick capsule is appreciable (1.25X EE). Origin: Ospedale San Bortolo, Vicenza, Italy
**Description:** At higher magnification, the Schwann cells are arranged in interweaving fascicles and in rosette-like circles (10X EE). **Origin:** Ospedale San Bortolo, Vicenza, Italy

**Description:** S100 strong positivity of the neoplastic cells (10X S100). **Origin:** Ospedale San Bortolo, Vicenza, Italy