

Ultrasound appearance of retroperitoneal pelvic solitary fibrous tumor

A 44-year-old woman was referred to our center after diagnosis of a pelvic mass on magnetic resonance imaging. She had experienced pain in her sacral region for the preceding 8 months. Ultrasound examination showed a retrouterine solid mass of $72 \times 75 \times 86$ mm in size, with a spherical shape, regular margins, inhomogeneous echotexture and no stripy shadows (Figure 1a). The uterus and both ovaries appeared normal. Color and power Doppler examinations showed rich central and peripheral vascularization (Figure 1b). On dynamic evaluation, the uterus and both ovaries slid when pushed with the probe, whereas the mass appeared attached to the sacrum (Figure 2a). Neither ascites nor pelvic or abdominal carcinomatosis were seen on either transvaginal or transabdominal ultrasound. Serum tumor marker levels were below the cut-offs that indicate malignancy (CA 125 < 35 U/mL, CA 19.9 < 37 U/mL and CEA < 3 ng/mL). The observed ultrasound features suggested a diagnosis of malignancy and the hypothesis of a retroperitoneal sarcoma was considered, even though the round shape of the lesion and the regular margins did not support this diagnosis.

Surgical treatment was performed using a laparoscopic and subsequent laparotomic approach. On laparoscopy, the intraperitoneal cavity was normal and the mass was identified only when the peritoneum was opened at the level of the pouch of Douglas. Laparotomic conversion was necessary for removal of the mass, which was located in the presacral region (Figure 2b), without fragmentations. Macroscopic examination revealed an 8-cm solid mass with regular margins, elastic consistency and extended necrotic areas (in 15% of the tumor). On microscopy, the presence of mitotic index $> 4 \times 10$ high-power field, necrosis and hypercellularity, and immunohistochemical staining for signal transducer and activator of transcription 6 (STAT6), CD34, estrogen receptor 1 (ER1), pathogenesis-related protein 1 (PR1),

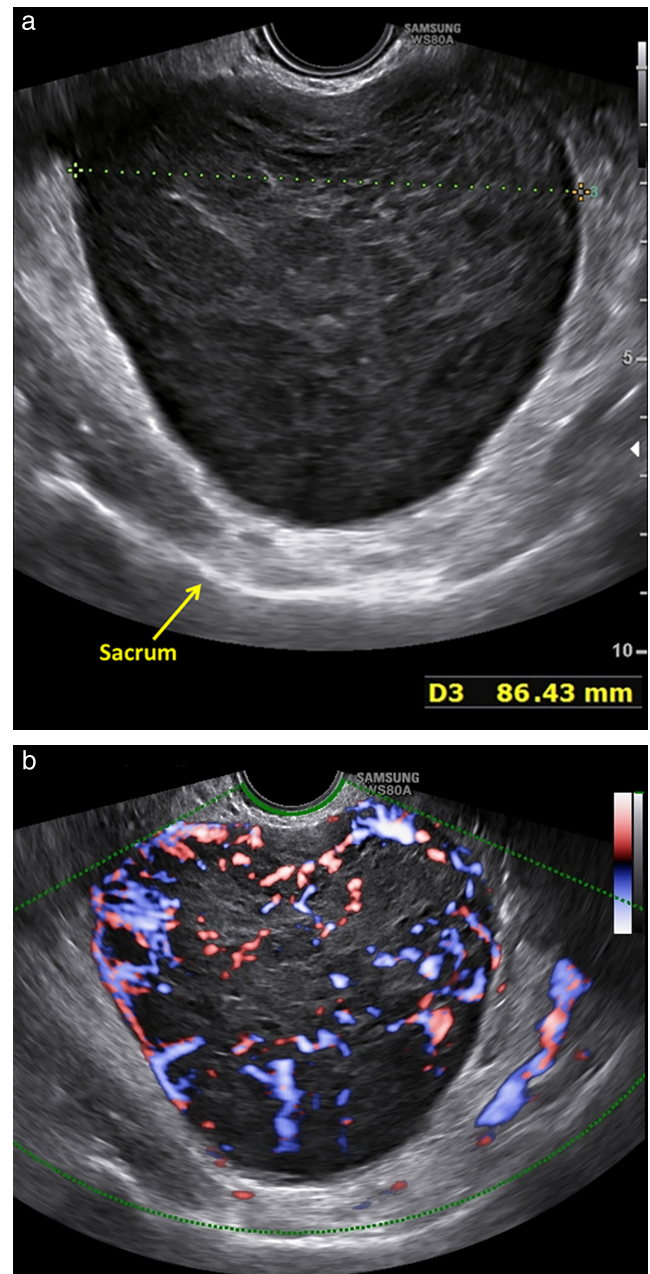


Figure 1 Grayscale (a) and power Doppler (b) pelvic ultrasound images, showing retrouterine solid mass with regular margins, inhomogeneous echotexture and no stripes (a), and rich central and peripheral vascularization (b).

and Ki-67, supported a diagnosis of solitary fibrous tumor (SFT) with malignant behavior.

SFT is a mesenchymal neoplasm that was originally described to be located in the pleura and, subsequently, has been documented in almost every anatomic site including the thoracic cavity, head and abdominal or pelvic cavity¹. According to the 2013 World Health Organization classification, extrapleural SFT is classified as a fibroblastic/myofibroblastic neoplasm with intermediate, rarely metastasizing, biological behavior². Clinical symptoms at presentation are related to the site of development. Extrapleural SFTs occur as slowly growing masses, often being an asymptomatic incidental finding,

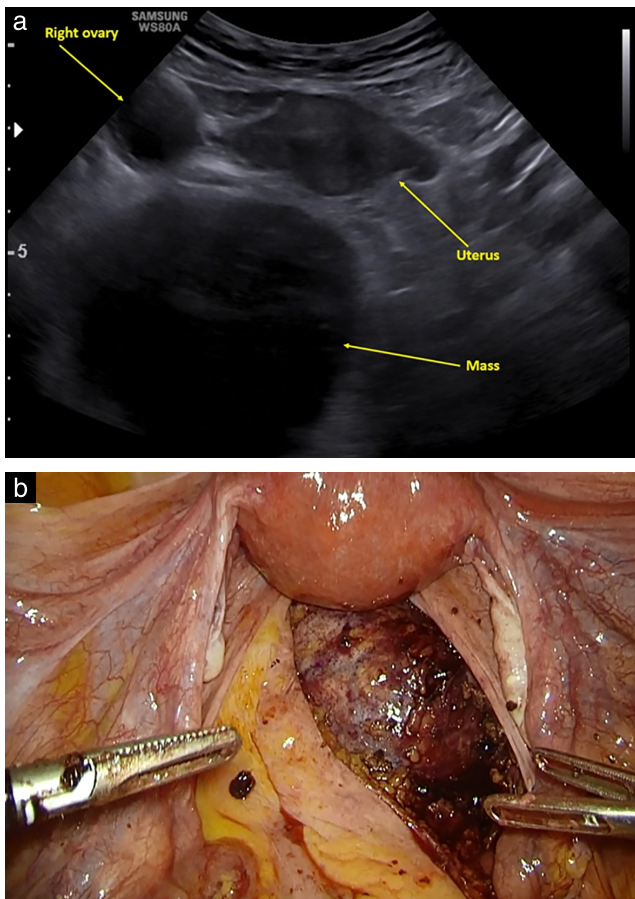


Figure 2 (a) Transabdominal grayscale ultrasound image, showing normal uterus, normal ovaries and retrouterine solid mass and (b) corresponding laparoscopic image, showing uterus, ovaries and mass in retroperitoneal cavity.

but sometimes symptoms are due to the pressure effects on adjacent structures². Complete en-bloc surgical resection is the mainstay of therapy for all localized SFTs³.

To the best of our knowledge, no data are present in the literature regarding the ultrasound appearance of

pelvic SFTs. Preoperative diagnosis and localization of suspected SFT in the retroperitoneal presacral region facilitate planning and execution of optimal surgical management of the patient.

In conclusion, the present case is an example of a pelvic SFT presenting ultrasound characteristics similar to those observed for uterine sarcomas^{4,5}, such as solid mass, inhomogeneous echotexture and rich peripheral and central vascularization. Ultrasound was also able to define the position of the mass in relation to the surrounding organs, helping the surgeon to plan surgery.

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