Solitary fibrous tumor of the inguinal region displaying heterogeneous echogenicity and its correlation with histopathologic findings

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Sir,

Solitary fibrous tumor (SFT)—first documented by Klemperer and Rabin in 1931 as a primary neoplasm of the pleura [1]—represents a rare fibroblastic neoplasm composed of cellular areas and a less cellular zone of thick hyalinized collagen intermingled with numerous vessels. SFT is anatomically ubiquitous and classically benign, and malignant transformations have been reported [2]. The NAB2–STAT6 gene fusion, which is associated with nuclear relocation of STAT6 protein, has recently been identified as the defining driver mutation of SFT [3]. Herein, we report a case of SFT of the inguinal region and evaluate the correlation between ultrasonographic and histopathologic findings.

A 63-year-old male presented with a three-month history of a painless and mobile subcutaneous mass in the right inguinal region. Color Doppler revealed a well-circumscribed, ovoid, heterogeneous echoic mass 21 × 31 × 14 mm in size with peripheral color flow signals (Fig. 1a). Magnetic resonance imaging (MRI) showed low signal intensity on T1-weighted image and high signal intensity on T2-weighted image. Computed tomography (CT) of the chest, abdomen, and pelvis showed no evidence of metastasis. The patient underwent excision of the lesion, which was located in the subcutaneous fat just below the superficial fascia (Fig. 1b). Histopathologic findings revealed an encapsulated tumor composed of cellular areas with patternless bland spindle cells without nuclear atypia and less cellular zones with abundant collagen fibers (Figs. 1c – 1e). There were numerous vessels including a staghorn-like vascular network (Fig. 1d) and clustering dilated vessels on the periphery (Fig. 1f). Immunohistochemical staining showed cytoplasmic expression of CD34 (Fig. 1g) and nuclear translocation of STAT6 protein (Fig. 1h), whereas expression of Bcl-2 and CD99 was partial, and staining for AE1/AE3, desmin, S100 protein, c-KIT, factor VIII, and CD31 was negative (Fig. 1i). Based on these results, the patient was diagnosed with SFT. Since the surgical excision, there has been no recurrence for more than two years.

We have evaluated the correlation between ultrasonographic and histopathologic findings. In ultrasonography (USG), hypoechoic lesions matched the distribution of cellular areas in histology, whereas hyperechoic lesions matched the distribution of less cellular zones with abundant collagen fibers (Figs. 1a – 1e). Peripheral color flow signals in color Doppler ultrasonography corresponded to the clustering dilated vessels (Figs. 1a, 1c, and 1f).

The ultrasonographic findings of SFT have not been described due to its rarity and ubiquitous locations. Since the proportion of cellular areas and less cellular zones in SFT varies, the heterogenous pattern of SFT may vary from case to case. There have been several reports describing the ultrasonographic and color Doppler findings of SFT: solitary, homogenous hypoechoic lesions of the pleura in three cases [4]; an ovoid, hypoechoic lesion of the breast with peripheral and internal color flow signals [5]; and a mosaic echo...
pattern with rich blood flow signals in a subcutaneous tumor of the hip [6]. Two of them reported correlations between ultrasonographic and histopathologic or macroscopic findings. In both, the vasculature of the lesions in histologic or macroscopic findings matched the distribution of color flow signals on color Doppler [5,6]. Heterogeneous echoic masses with color flow signals in USG observed in our case have also been reported in other subcutaneous tumors, such as angiolipomas, superficial metastatic melanomas, and eccrine spiradenomas [7]. Ultrasonographic findings do not necessarily predict the preoperative diagnosis of SFT. Nevertheless, because the MRI of SFT is relatively nonspecific [5], it is important to accumulate ultrasonographic findings of SFT.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

REFERENCES


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Source of Support: Nil, Conflict of Interest: None declared.