Bilateral elastofibroma dorsi: A case report

L. Molini^a, E. Ciortan^b, S. Bianchi^{c,*}

^a Radiodiagnostic Unit, Galliera Hospital, Genoa, Italy

^b Radiodiagnostic Unit, Igea Clinic, Milan, Italy

^c CIM, SA, Cabinet Imagerie Medicale, Geneva, Switzerland

KEYWORDS

Elastofibroma dorsi;
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Abstract Elastofibroma dorsi is a rare pseudotumoral lesion located in the periscapular region. Ultrasound can be used to evaluate its dimensions, margins, and internal structure. In the presence of bilateralism, diagnosis can be made on the basis of clinical and sonographic findings. The authors present a case of bilateral elastofibroma dorsi in which the clinical and ultrasound diagnosis was confirmed by magnetic resonance imaging.

Sommario L'elastofibroma dorsi è un rara lesione pseudotumorale localizzata a livello periscapolare. L'ecografia permette di valutare la dimensione, i contorni e la struttura interna della lesione, in particolare quando la lesione è bilaterale clinica ed ecografica consentono la diagnosi. Viene presentato il caso di una donna con elastofibroma dorsi bilaterale la cui diagnosi clinica ed ecografica sono state confermate dalla risonanza magnetica.

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Introduction

Elastofibroma dorsi (ED) is a rare, expansive, pseudotumor that develops in the periscapular area, below the angle of the scapula [1–6]. The clinical appearance can be alarming and lead to the suspicion of soft-tissue sarcoma. Histologically, the lesion is characterized by signs of altered elastogenesis. Ultrasonography (US) allows assessment of the dimensions, margins, and internal structure of these masses [3]. In the presence of bilateral lesions, the US findings are strongly suggestive of the diagnosis. We present a case of bilateral ED that was investigated with ultrasound and MRI.

Case report

A 52-year-old woman presented with a painless mass in the right periscapular region, which had appeared about 1 year ago. Her medical history was unremarkable with the exception of mild hypertension that was well controlled with diuretic therapy. The physical examination revealed a mass at the level of the lower angle of the scapula. It was more evident during anterior translation of the scapula (flexion of the dorsal spine associated with adduction and anterior flexion of the upper extremities). AP and LL chest radiographs were normal. US was done with the patient in the position described above to maximize mass visibility. We used an electronic linear broadband transducer (5–12 MHz) (Philips iu22). Axial and sagittal scans were followed by a color Doppler examination.

The mass appeared to be solid with an inhomogeneous internal structure characterized by the presence of

* Corresponding author. CIM SA, Route de Malagnou 40, 1208 Ginevra, Switzerland.

E-mail addresses: cimgeneve@gmail.com, stefanobianchi@bluewin.ch (S. Bianchi).

Fig. 1 A. Axial US image at the level of the palpable lesion. The ED appears as a solid mass (arrows) with alternating internal bands of hypo- and hyper-echogenicity. It is located deep to the anterior serratus muscle (arrow-head), which appears undamaged. B. Color Doppler US image acquired in the axial plane at the level of the palpable mass. There are no flow signals within the mass.

alternating hypoechoic and hyperechoic bands. It was located deep to the anterior serratus muscle and in contact with the costal plane. In the axial plane, the mass measured approximately 9×6 cm and was relatively well delimited from surrounding structures (Fig. 1). Exploration of the chest wall revealed no structural alterations of the ribs, and there was no evidence of pleural effusion. The color Doppler study showed no evidence of significant internal hypervascularity. Examination of the contralateral

area revealed a smaller (maximum axial diameter: approximately 7 cm) but otherwise similar lesion that had not been detected during the physical examination. On the basis of the clinical and ultrasound findings, in particular the bilateral nature of the lesions, the patient was diagnosed with bilateral elastofibroma dorsi.

Because the patient was anxious to exclude with certainty the possibility of malignancy (in particular, soft-tissue sarcoma), the work-up was completed with magnetic

Fig. 2 Coronal T1-weighted MR images: (A) axial STIR (B) and coronal T1-weighted fat-saturated images after injection of paramagnetic contrast agent. The examination reveals bilateral solid masses (arrows) with typical internal bands of fat and fibrotic tissue. The lesion lies deep to the anterior serratus muscle (arrow-head), and there is discrete filling after contrast injection (C).

resonance imaging (MRI) performed with a 1.5 T scanner (Philips Achieva, software release 2.2) equipped with a body coil. The patient was examined in the supine position with T1-weighted axial and coronal scans, a coronal STIR sequence, and a coronal T1-weighted scan with fat saturation and paramagnetic contrast enhancement (Gadovist, Bayer-Schering – IV injection of 7 cc of a 1 mmol/l solution). MRI findings confirmed the ultrasound diagnosis, demonstrating two masses that appeared hypo-/hyper-intense structures in T1 and hypointense on the STIR sequence. On images acquired after contrast injection, both masses displayed enhancement, which was more evident on the right (Fig. 2). In light of the typical imaging findings, surgery was deferred. At the 6-month follow-up visit, the patient was still symptomatic and the size of the masses unchanged.

The patient provided informed consent to publication of this report.

Discussion

Elastofibroma dorsi is an expansive nontumoral lesion of unknown origin, which develops in the periscapular region and is frequently bilateral. It is more common in females and older subjects [1,3–6]. It appears as a firm mass located below the inferior angle of the scapula, attached to the deep plane of the ribs but not to the overlying skin. It is rarely symptomatic, and is almost never removed surgically (except when incorrectly interpreted imaging findings raise the suspicion of an aggressive tumor). Cases in which surgery has been performed because the mass itself is causing problems are very rare.

The pathological hallmark of ED is the presence of alternating bands of fibrotic areas and adipose tissues. Histologically, the lesion is characterized by altered elastogenesis [2]. Conventional radiography reveals no significant findings. US performed with high resolution equipment allows precise estimates of the size of the ED, and more important, it usually reveals the typical striped appearance caused by the presence of alternating hypoechoic (adipose tissue) and hyperechoic (fibrosis) bands [3,4] (Fig. 1). It is

important to recall that the patient should be examined in the position that maximizes the visibility of the mass (in most cases with the back curved and the shoulders rolled forward). Color Doppler studies may reveal a few small flow signals within the mass. Computed tomography and MRI provide more precise data on the size of large EDs [1,4–6]. They are also better for visualizing the peculiar internal structure of the mass (Fig. 2), which is sometimes difficult to appreciate on US.

In conclusion, the diagnosis of ED is based on the site and the frequently bilateral nature of the lesion along with imaging findings. When MRI and computed tomography are not readily available, US can usually provide a correct diagnosis although the examination requires an experienced operator with good knowledge of the lesion's characteristics. As the saying goes, "You find what you look for, and you look for what you know..."

Conflict of interest statement

The authors have no conflict of interest.

References

- [1] Brandser EA, Goree JC, El-Khoury GY. Elastofibroma dorsi: prevalence in an elderly patient population as revealed by CT. *AJR Am J Roentgenol* 1998;171:977–80.
- [2] Stemmermann GN, Stout AP. Elastofibroma dorsi. *Am J Clin Pathol* 1962;37:499–506.
- [3] Bianchi S, Martinoli C, Abdelwahab IF, Gandolfo N, Derchi LE, Damiani S. Elastofibroma dorsi: sonographic findings. *AJR Am J Roentgenol* 1997;169:1113–5.
- [4] Malghem J, Baudrez V, Lecouvet F, Lebon C, Maldague B, Vande Berg B. Imaging study findings in elastofibroma dorsi. *Joint Bone Spine* 2004 Nov;71(6):536–41.
- [5] Liessi G, Tregnaghi A, Barbazza R, Scapinello A, Muzzio PC. Elastofibroma: CT and MR findings. *J Belge Radiol* 1991;74:37–9.
- [6] Kransdorf MJ, Meis JM, Montgomery E. Elastofibroma: MR and CT appearance with radiologic-pathologic correlation. *AJR Am J Roentgenol* 1992;159:575–9.