Imaging diagnosis of elastofibroma dorsi

Elastofibroma is a hard slow-growing pseudotumor derived from connective tissue and made up of a fibroelastic matrix that also contains fatty fibers. The lesion has a characteristic appearance on ultrasound, computerized tomography (CT) and magnetic resonance (MR), which together with a patognomonic location (the subscapular region), its predilection for the female gender and its frequent bilaterality greatly facilitates identification, making a biopsy unnecessary in most cases. We hereby present a case of elastofibroma dorsi in a 49-year-old woman with a lump in the right chest wall.

CLINICAL CASE

Forty-nine-year-old woman who came for consultation about a lump in the right posterior chest wall. On examination, the lump was detected in the posterolateral region of the chest wall, on the inferomedial scapular border at quite a considerable depth. Blood tests did not show any interesting finding. An ultrasound was performed (fig. 1), as well as a CT (fig. 2A) and an MRi (fig. 2B). The suspected diagnosis further to these tests was elastofibroma dorsi. This diagnosis was confirmed intraoperatively.

Elastofibroma is a hard slow-growing pseudotumor derived from connective tissue and mainly composed of a fibroelastic matrix that also contains a small proportion of intermingled fatty streaks[1,2].

Most of these tumors occur in elderly individuals, although they have also been detected in children. Although over 50% of cases are asymptomatic, a minority of patients report discomfort on movement or a firm palpable mass of variable size that can on occasion exceed 20 cm. This tumor has shown a clear female sex predilection (13:1 in some series). It is not infrequent to incidentally find it in autopsies, with lesions of 3 centimeters or less having been described in 24.4% of women and 11.2% of males older than 55[3].

DISCUSSION

Elastofibroma is lodged in up to 99% of cases in the subscapular region, hence the term elastofibroma dorsi (figs. 2A y 2B). It is located deep in relation to the rhomboid major, latissimus dorsi and serratus anterior, and it is adjacent and medial to the inferior scapular angle. It is bilateral in up to 66% of cases and it is not infrequent to see the appearance of simultaneous lesions below the olecranon and, more rarely, in the thoracic wall and the ischial tuberosity[3].

The tumor's etiopathogenesis is not clear. It usually occurs in individuals who do strenuous manual work, with its origin being attributed to a disproportionate elastogenesis of the periosteal fibroblasts. This alteration could be due to a continuous mechanical friction between the scapula and the thoracic wall, or it could well be a primary abnormality[4].

The elastofibroma has been found in other locations such as the thoracic wall, the deltoid muscle, the axilla, the ischial tuberosity, the area of the greater trochanter, the stomach, the rectum, the omentum, the hand, the foot, the spinal canal and the sclera[4].

The most usual lesions in the subscapular area are lipomas and metastases. Nonetheless, image-based diagnostic methods make it possible to distinguish elastofibromas from other entities provided that it is considered as a possibility when making a differential diagnosis and that its characteristic appearance on ultrasound, CT and MRi is taken into account. As we said before, even if this appearance is not patognomonic it does raises a high diagnostic suspicion.

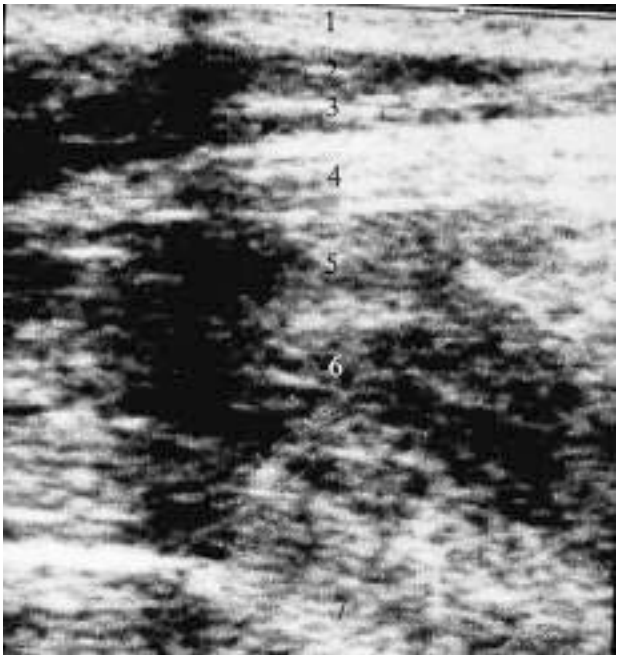

Figure 1. *Subscapular ultrasound of a 49-year-old asymptomatic female who merely reported a lump on the right posterior thoracic wall. Ultrasound performed with the patient in the prone position and abduction. Seven strata can be distinguished: skin (1); subcutaneous fat (2); fat-covered superficial fascia (3); extrinsic dorsal muscles (4); rib cage fascia (5); intercostal muscles and costal arches (6); pulmonary surface (7). On the fifth layer there is a striated mass with muscle-like echogenicity, alternating with other hypoechoic fat streaks with a globular contour, surrounded by fat and poorly differenciated from adjacent muscles, with no bony alterations or significant flow on a color Doppler.*

Moreover, other factors should be considered such as the typical location of the tumor and the fact that bilateral presentations are rather common (and, by the way, rule out malignancy)[5-7]. If the radiologist and the trauma surgeon are aware of this useful information they will avoid unnecessary biopsies and surgical excisions, which can be risky for the patient.

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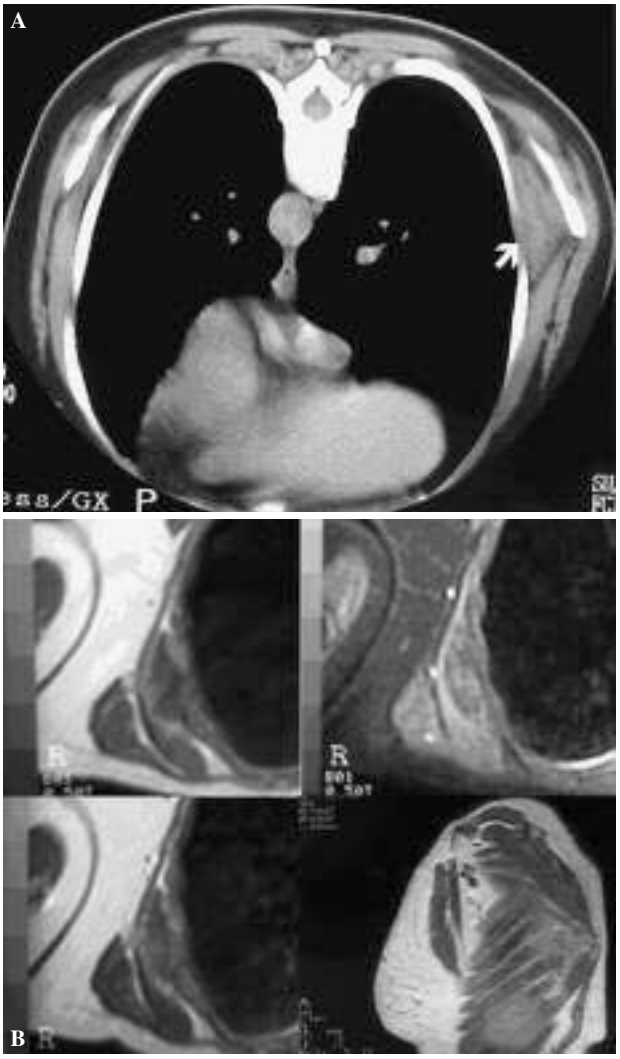

Figure 2. *(A) Computerized Axial Tomography with no contrast medium enhancement of the subscapular region of our patient. Performed in the prone position in order to avoid soft tissue compression. The image shows an unencapsulated well-delimited lenticular-shaped thoracic wall mass (arrow) that displaces the serratus major muscle anteriorly and the lower scapular border laterally; the mass is characterized by lower attenuation than the muscles and higher attenuation than the subcutaneous fat. Note the small less dense linear areas within the mass that reveal the presence of fat. Although well defined by the fat laterally, the lesion cannot be separated from the intercostal muscles. (B) Magnetic Resonance sequences. a) T1-weighted echo spin sequence: a relatively well-defined mass can be seen of intensity similar to that of skeletal muscle, with intermingled high-intensity small curved areas; b) T2-weighted images: homogeneous relatively well-defined mass located between the thoracic wall and the scapular girdle that presents with intensity similar to skeletal muscle with intermingled high-intensity linear areas suggesting the presence of fat, whose distribution is similar to that of those in T1-weighted images; c) and d) T1-weighted qxial and sagittal views showing a heterogeneous intensity increase following administration of gadolinium; a slight enhancement is seen mainly on the periphery.*

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Intramuscular cavernous hemangioma of the thigh

Hemangiomas are relatively frequent benign vascular soft tissue neoplasms that appear chiefly during childhood; they account for 7% of benign tumors. Intramuscular cavernous hemangiomas are infrequent in the limbs (0.8% of all hemangiomas); they are mainly found in young adults who have suffered some kind of trauma[1]. Nuiclear magnetic resonance is the ancillary test of choice[2] and biopsies permit a final diagnosis. Surgical excision is the most effective treatment[3]. Relapse of the tumor tends to be due to an incomplete resection[4]. There is no conclusive evidence about its metastatic capacity[1].

CLINICAL CASE

48-year old male with a history of vertebral artery hypoplasia, vertebrobasilar stroke and colonoscopic polypec-