

CASE REPORT

ELASTOFIBROMA DORSI REPORT OF FIVE CASES AND REVIEW OF THE LITERATURE

C. MONTIJANO HUERTES, J. CHISMOL ABAD, A. PONS SORIANO,
P. SEMINARIO ELETA, J. FENOLLOSA GÓMEZ

Five cases of elastofibroma dorsi are described. The location of the lesions (bilateral in one case) was typical, in the thoracoscapular region. In the first case the diagnosis was established by biopsy; in the remaining cases the diagnosis was suspected based on clinical and magnetic resonance imaging findings and was confirmed by histopathological study after surgical excision. Although these lesions are benign, histological study is advisable to establish a differential diagnosis with malignant neoplastic processes.

Keywords : elastofibroma dorsi ; benign connective tumors.

Mots-clés : élastofibrome dorsal ; tumeur conjonctive bénigne.

INTRODUCTION

Elastofibroma dorsi is an infrequent, benign connective tissue tumor first described by Jarvi and Saxen in 1961 (6). The lesions are characteristically asymptomatic and are located below the scapula in over 80% of cases. Elderly individuals in the 50 to 80 year age range are most commonly affected, particularly women and manual workers. The tumors habitually grow beneath the greater rhomboid muscle and latissimus dorsi, adjacent to the angular muscle of the scapula, and the only characteristic finding in such cases is the presence of fragmented and irregular elastic fibers that distinguish them from other pseudotumors and neoplasms.

The present study describes five cases of typically located elastofibroma dorsi, involving four

patients treated in our unit over the past four years, and provides a review of the literature.

CLINICAL CASES

Case 1

A 49-year-old male involved in commercial activities and without significant past medical history presented with a tumor mass between the rib cage and lower pole of the left scapula, which he had noticed three weeks previously. Palpation revealed a slightly painful rubber-like mass measuring about 8 cm in diameter, not adhering to the skin. The lesion became manifest on abducting and flexing the left arm. The clinically suspected diagnosis was lipoma. Plain xrays, ultrasound and technetium bone scan were normal. Magnetic resonance imaging (fig. 1) was inconclusive, and an extemporaneous biopsy was required to establish the diagnosis. Definitive treatment consisted of surgical removal of the lesion.

Case 2

A 63-year-old woman without significant past medical history had a right dorsal tumor for the

Hospital Universitario Dr. Peset, Valencia.
Servicio de Cirugía Ortopédica y Traumatología, Valencia, Spain.

Correspondence and reprints : J. Chismol. C/ Archiduque Carlos 139-21. Valencia 46014, Spain.

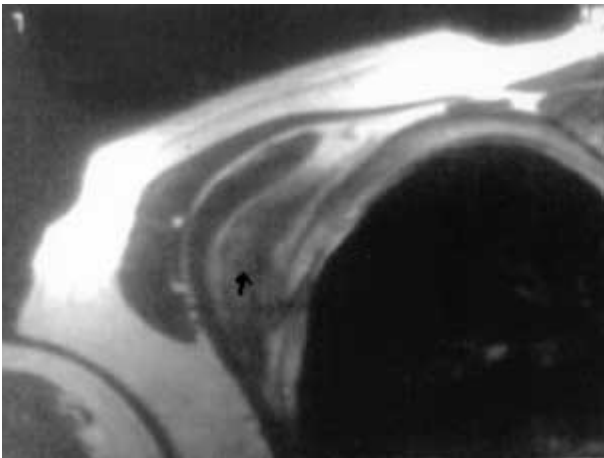


Fig. 1. — Magnetic resonance imaging findings in case 1. The tumor is located between the rib cage and left scapula.

previous 5-6 years. In recent months the lesion had increased in size and caused pain in response to exercise. Exploration revealed a poorly delimited right costal mass adherent to deep layers that caused the scapula to bulge on abducting the right arm. Magnetic resonance imaging revealed the presence of a poorly defined tumor with hypointense internal tracts located between the serratus muscle and ribs. Based on the experience acquired in case 1, the tentative clinical diagnosis was elastofibroma dorsi. Surgical excision was performed following extemporaneous biopsy. Macroscopically, the lesion was nonencapsulated, with whitish longitudinal fibrous cords or tracts alternating with yellowish tissue of fatty consistency. The histological study revealed the presence of islets of fatty tissue and a scanty cellular component (fibroblasts and myofibroblasts) associated with intensely eosinophilic bands composed of collagen and elastic fibers that define this type of lesion (fig. 2). The Verhoeff technique clearly identified the elastic fibers (fig. 3).

Case 3

A 50-year-old woman involved in cleaning activities presented with a history of hysterectomy and bilateral ovariectomy 15 years previously. She complained of discomfort for a number of years in the left shoulder. Palpation revealed a painless

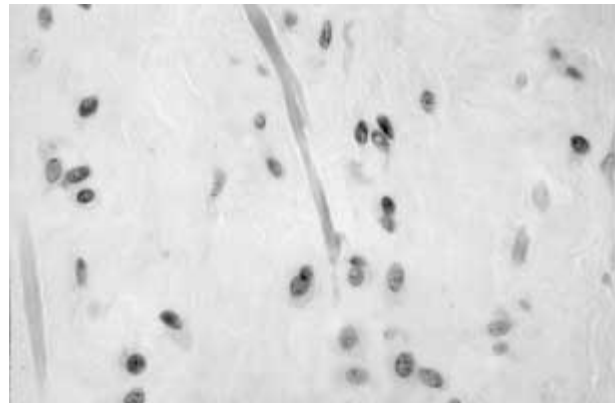


Fig. 2. — Microphotograph ($\times 20$, hematoxylin-eosin). Note the scanty cellular fibrous tissue (fibroblasts and myofibroblasts) containing eosinophilic bands corresponding to irregular collagen and elastin fibers.

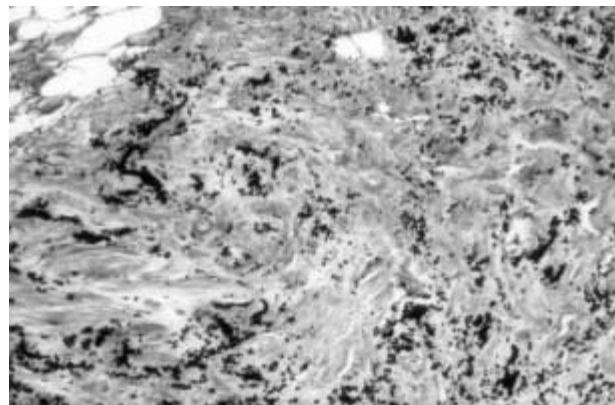


Fig. 3. — Microphotograph ($\times 20$, Verhoeff technique). Note the intensely stained, irregular elastic fibers.

mass in the left infrascapular region, adherent to the thorax. Magnetic resonance imaging in turn identified a well-delimited ovoid mass between the greater rhomboid muscle and the latissimus dorsi compatible with elastofibroma dorsi. Excision and histological study confirmed the diagnosis. One year after surgery the patient remains asymptomatic.

Cases 4 and 5

A 51-year-old housewife presented with bilateral complaints of dorsal discomfort and a winged scapula in response to physical effort. Palpation revealed on both sides a painless costal mass adher-



Fig. 4. — Magnetic resonance imaging findings in case 4. Bilateral elastofibroma dorsi.

ent to the deep layers, and magnetic resonance imaging showed a poorly delimited, bilateral tumor located between the costal wall and the serratus muscle compatible with elastofibroma dorsi (fig. 4). Electromyography revealed self-limiting bilateral neurapraxia of the long thoracic nerve (EMG was normal six months after surgery). Surgical excision was performed following extemporaneous biopsy.

DISCUSSION

Elastofibroma dorsi is a benign lesion most commonly located in the lower vertex of the thoracoscapular region. Bilateral presentations are sometimes observed. Other considerably less common locations have been described in the literature, including the deltoid muscle, in proximity to the ischial tuberosity, near the greater trochanter, at the level of the olecranon, in the foot, and in other even less frequent zones (8, 10). The lesion typically affects elderly women, although patients of all ages have been documented.

The cause underlying elastofibroma dorsi is open to controversy (3). While some authors suggest the existence of reactive hyperplasia of the elastin and collagen fibers in response to micro-trauma (1, 7), others support the hypothesis of a

true neoplasm of benign origin. The fact that elastofibroma dorsi is more frequently seen in patients involved in manual occupations supports the reactive hyperplastic theory, although in many cases no such association is observed (8). Other authors think excessive scapulothoracic motion might cause the lesion (9).

Elastofibroma dorsi presents as a solid mass of variable size (4-12 cm), adherent to the deep layers. The condition is often asymptomatic. When clinical manifestations occur, they tend to involve shoulder rigidity and a sensation of scapular bulging on abducting and moving the shoulder forwards. Pain in response to palpation can be observed (10).

The typical location of these lesions and their clinical manifestations suggest the diagnosis of elastofibroma dorsi. Ultrasound, and especially magnetic resonance imaging, can contribute to establish the diagnosis, although only histopathological study is able to provide confirmation (2, 4, 5, 11). Some authors prefer not to treat asymptomatic cases, reserving surgical resection for symptomatic lesions only (11, 12). However, a biopsy is advisable to eliminate the possibility of a liposarcoma, fibrosarcoma, synovial sarcoma or desmoid tumor. No recurrences or malignant transformations following surgical resection have been reported in the literature to date.

REFERENCES

1. Arkwright S., Vilde F., Gabardy J. R., Contesso G., Genin J. Elastofibroma dorsi : A propos of 5 cases. *Ann. Chir.*, 1992, 46, 249-251.
2. Berthoty D. P., Shulman H. S., Miller H. A. B. Elastofibroma. Chest wall pseudotumor. *Radiology*, 1986, 160, 341-342.
3. Conti U., Trucco P., Frullini A., Fabbrucci P. Elastofibroma sottoscapolare (elastofibroma dorsi). *Minerva Chir.*, 1991, 46, 717-718.
4. Dell'osso A., Romanzi A., Cervelli P., Broglia S. Elastofibroma del dorso. Considerazioni su due casi. *Minerva Chir.*, 1992, 47, 893-895.
5. Hidalgo Grau L. A., Ardevol J., Soler T., Auleda J., Ubach M. Elastofibroma dorsi : clinical and pathologic aspects of two cases. *Acta Orthop. Belg.*, 1995, 61, 302-304.
6. Jarvi O. H., Saxen A. E. Elastofibroma dorsi. *Acta Pathol. Microbiol. Scand. (suppl.)*, 1961, 144, 83-84.

7. Kumaratilake J. S., Krishnan R., Lomax-Smith J., Cleary E. G. Elastofibroma : Disturbed elastic fibrillogenesis by periosteal-derived cell ? An immunoelectron microscopic and in situ hybridization study. *Hum. Pathol.*, 1991, 22, 1017-1029.
8. Marin M. L., Perzin K. H., Markowitz A. M. Elastofibroma dorsi : Benign chest wall tumor. *J. Thorac. Cardiovasc. Surg.*, 1989, 98, 234-238.
9. Yamamoto T., Akisue T., Kurosaka M., Mizuno K., Mukai H. Elastofibroma in shoulder osteoarthritis. A theoretical concept of the etiology. *Clin. Orthop.*, 2001, 387, 127-131.
10. Nagamine N., Nohara Y., Ito E. Elastofibroma in Okinawa : A clinical pathological study of 170 cases. *Cancer*, 1982, 50, 1794-1805.
11. Nakano T., Tsutsumi Z., Hada T., Higashino K. Radiological manifestation of elastofibroma : A case report and review of the literature. *Brit. J. Radiology*, 1991, 64, 1069-1072.
12. Valls R., Melloni P., Darwell A., Sánchez Flo R. Elastofibroma dorsi : A chest wall pseudotumor. *Computed tomography and magnetic resonance imaging diagnosis. Acta Orthop. Belg.*, 1996, 62, 103-106.

SAMENVATTING

C. MONTIJANO HUERTES, J. CHISMOL ABAD, A. PONS SORIANO, P. SEMINARIO ELETA, J. FENOLLOSA GÓMEZ. Elastofibroma dorsi : beschrijving van vijf gevallen en literatuurstudie.

Vijf gevallen van elastofibroma van de rug worden beschreven, typisch gelocaliseerd in de thoracoscapulaire streek. In één geval was de localisatie beiderzijds. In het eerste geval werd de diagnose gesteld door biopsie, in de volgende gevallen werd het klinisch vermoeden bevestigd vooreerst door NMR en vervolgens door histopathologie na heelkundige verwijdering. Deze letsels zijn goedaardig, maar biopsie is aan te raden om te differentiëren met een kwaadaardig neoplastisch proces.

RÉSUMÉ

C. MONTIJANO HUERTES, J. CHISMOL ABAD, A. PONS SORIANO, P. SEMINARIO ELETA, J. FENOLLOSA GÓMEZ. L'élastofibrome du dos. Présentation de 5 cas et revue de la littérature.

Les auteurs rapportent 5 cas d'élastofibrome du dos. La localisation des lésions (bilatérale dans un cas) était typique, au niveau de la région thoraco-scapulaire. Le diagnostic a été établi par biopsie dans le premier cas ; dans les cas suivants, il a été suspecté sur base des signes cliniques et des observations en IRM, et il a été confirmé par étude histopathologique après excision chirurgicale. Bien que ces lésions soient bénignes, une étude histologique est à conseiller pour faire le diagnostic différentiel avec un processus néoplasique malin.