

## **Dorsal Elastofibroma: A Cause of Snapping Scapula**

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### **Original Research Article**

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**Abstract:** Elastofibroma is a fibro-proliferative, benign, prolonged protracted lesion of the soft tissues. This is a retrospective descriptive study, covering all cases of elastofibromas with posterior thoracic localization. The study identified 10 cases of elastofibromas, collected in the orthopedic traumatology unit of Ibn Sina University Hospital of Rabat over a period of eight years (January 2010 - February 2018). The study identified 10 cases of dorsal elastofibromas, the mean age was 57 years (44 and 83 years) with a clear female predominance. Clinically, 8 of our patients (80%) had pain. Radiologically, all patients had scapular ultrasound, 5 an CT, and finally 3 an MRI. The average size of the lesion was 9.5 cm, with a size that varies between 5.5 and 15 cm. All our patients underwent surgical resection and the evolution was favorable in 100% of cases. Elastofibroma is a lesion that must be recognized in order to avoid unnecessary biopsies, or even an abusive surgery.

**Keywords:** Elastofibroma; Chest wall; scapula.

### **INTRODUCTION**

Dorsal elastofibroma is a rare benign tumor, characterized by a fibroproliferative lesion of the soft tissues first described by Järvi and Saxén in 1961 [1]. It sits in the peri-infrascapular region in more than 80% of cases of literature [2]. Elastofibroma occurs mainly in people over 55 (average age 57 years) with a clear predominance of women. It electively reaches the dorsal thoracic wall at the angle of the scapula (99%) [3]. The clinical signs depend on the location and size of the lesion [4].

The diagnosis of elastofibroma can often be made formally by clinical presentation, as well as by imaging, in particular computed tomography (CT) and magnetic resonance imaging (MRI) [5].

The differential diagnosis of elastofibroma arises for atypical localizations in young patients. Surgical excision may be proposed in some cases, but recurrences are possible [6].

Through this observation, we report 10 cases of symptomatic dorsal elastofibroma treated surgically.

### **METHODS**

This is a descriptive retrospective study of all cases of elastofibroma with posterior thoracic localization. The study identified 10 cases of elastofibroma, collected in the orthopedic traumatology unit of Rabat University Hospital Ibn Sina over a period of eight years (January 2010 - February 2018).

The age of the diagnosis of elastofibroma in our series ranged between 44 and 83 years, with an average age of 57. Females were more affected with 7 women or 70% of patients.

The symptomatology was dominated by the presence of non-specific peri scapular elective pain in 8 patients, the clinical examination revealed sub-scapular masses, more or less rounded, of variable size, ranging from 5.5 cm to 15 cm. cm, with an average size of 9.5 cm, regular contours, firm in consistency, fixed in relation to the deep plane, movable relative to the superficial plane, non-pulsatile, with no inflammatory signs opposite (Figure-1).

The standard radiological assessment was normal in 8 patients and showed para-thoracic opacity related to soft tissue lesion, with no bone lesions in 2 patients; Ultrasonography scanning of the scapular region was performed in all patients and showed that each palpable mass corresponded to a deep, + / - poorly defined parietal tissue formation, of variable size,

projecting towards the tip of the scapula, relatively heterogeneous aspect lined in spindle (Figure-2).

CT was performed in 5 patients and showed that each mass corresponded to a heterogeneous, poorly limited, variable size, tissue density, lesion process containing lamellar zones of greasy density. This process was posterolateral basithoracic, sitting opposite the tip of the scapula. He repressed the muscular structures without invading them (Figure-3).

MRI was performed in 3 patients and showed that each mass corresponded to a dorsal lesional process, located at the level of the rib cage under the tip of the scapula, of variable size, quite well limited, convex external contour, and a plurilamellar heterogeneous signal of weak T1 and T2 signal (Figure-4).

All our patients had undergone surgical excision of elastofibroma under general anesthesia in the prone position. The approach was centered on the mass. After incision of the dorsal fin, the tumor was completely removed (Figure-5). It adhered strongly to the deep surface of the dorsal muscle, as well as to the periosteum of the ribs without invading them. Careful

haemostasis was provided at the end of the procedure, as well as aspiration drainage. Immobilization by scarf for pain relief was recommended for one week. The postoperative course was simple with recovery of shoulder mobility. No postoperative complications were mentioned in the records.

On the histological level, macroscopically, these lesions were yellowish-white, of essentially elastic consistency sometimes firm more or less well limited without peripheral capsule. The histological study concerned a pauci-cellular proliferation, made of fusiform cells with regular nuclei and poor mitosis. These cells were arranged in intersecting bundles crisscrossed by capillary ends and developing collagen bands. It combines eosinophilic elastic fibers broken up, arranged anarchically, dissociated by significant fibrosis. After staining with orcein these elastic fibers had very peculiar aspects: thickened fibers, dense, more or less sinuous and branched, of irregular contours, spiculated in "sawtooth".

The evolution was favorable in 100% of our cases, without any case of local recurrence with a decline of 1 month to 6 years.



Fig-1:

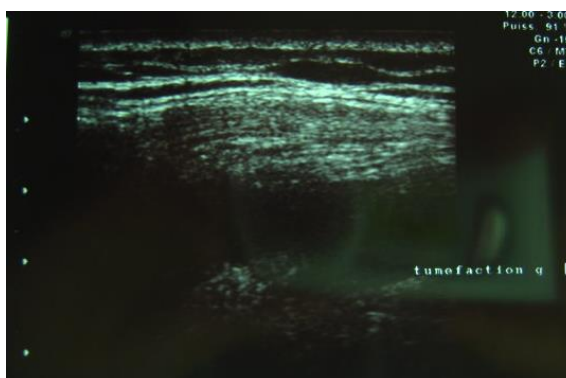


Fig-2:



Fig-3:

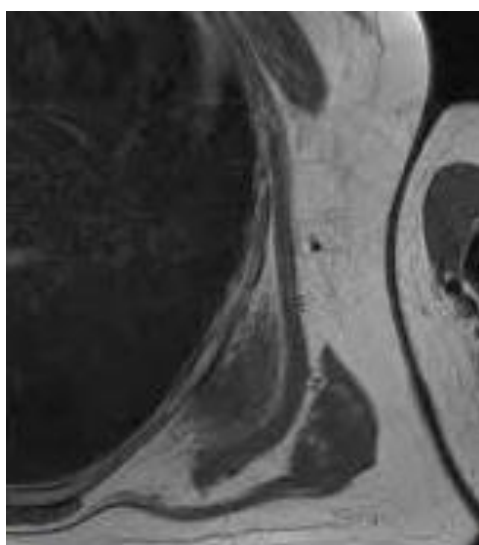


Fig-4:

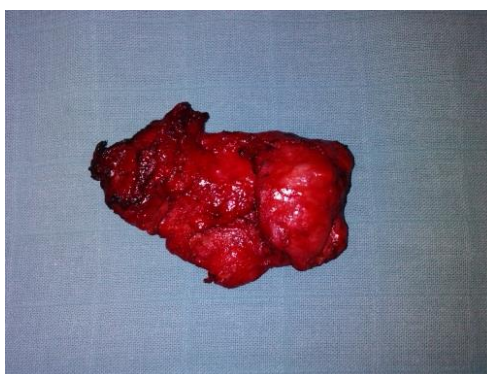


Fig-5:

## DISCUSSION

Elastofibroma is a benign parietal tumor, rare with a prevalence of 2% [7]. It is most often located in the subscapular region, but other localizations are described: deltoid muscle, ischial tuberosity, greater trochanter, olecranon and foot [8]. Elastofibroma is most popular in people over 55 years of age. The average age is 70 [9]

This tumor is characterized by a slow evolution spread over several years. It is asymptomatic in 50% of cases. Sometimes, there is discomfort to the mobilization of the shoulder, stiffness, squealing or functional impotence [10]. In our study, the symptomatology is characterized by gravitational pain with a sensation of cervical neurological electrical discharge. Clinical examination shows a firm mass, well circumscribed, fixed in the deep plane, movable

with respect to the superficial plane, without signs of local inflammation, or cutaneous infiltration, difficult to delimit compared to the neighboring structures, it is the more often painless, but can become painful during arm movements [11].

Standard radiography may be of little importance in the diagnosis of elastofibroma, as it is in most cases normal [12]. In our study, only the standard radiography of two patients, had shown opacity related to the lesion.

Several features of the elastofibroma allow for a more accurate ultrasound diagnostic approach [13]. The main characteristic found in the vast majority of cases in the literature is the typically infra and peri-scapular localization of the mass that appears partially covered by the scapula [13]. In some cases, the dynamic ultrasound examination demonstrates very well the characteristic displacement of the scapula with respect to the mass during the movements of antepulsion and abduction of the arm and thus the absence of adhesion between the two. The second element in favor of the diagnosis is the fibrillar and fasciculated aspect of the echostructure of the mass characterized by hyperechoic striations parallel to the major axis.

The typical appearance of the elastofibroma in computed tomography (CT) is that of a more or less limited mass [14], non-encapsulated, lenticular, with a large craniocaudal axis, isodense compared to neighboring muscle structures (fibrous density) , and having hypodense streaks of greasy density [15]. Magnetic resonance imaging (MRI) is the non-invasive reference examination for the diagnosis of elastofibroma [15]. It makes it possible to objectify the double tissue, fibrous and greasy contingent, while showing the usual very characteristic localization. The elastofibroma thus constitutes a well-limited mass, or on the contrary, of poorly defined contours, which can be adherent to adjacent planes [15]. Its content is heterogeneous comprising on the one hand a fibrous type tissue which has a weak signal in T1 and T2 weighting, which is practically similar to that of the muscles.

The elastofibroma has a typical macroscopic and histological aspect making its anatomopathological diagnosis easy. The anatomopathological analysis shows a poorly defined, rubbery tissue with a combination of collagen pauci cellular tissue and masses of fat cells [16].

The therapeutic attitude seems to be based on several criteria: the presence or absence of symptoms, the typical or non-clinical character of the clinical and radiological data [1], the size and location of the lesion, age and general condition of the patient and finally evolution. [12]. Therapeutic abstention with follow-up is a therapeutic option of elastofibroma that can still be

considered [16] since malignant transformation has never been reported in the literature [15]. Surgical excision of the elastofibroma is indicated for signs of compression, pain, asymmetry of the chest wall, movement limitation [6, 7], atypical site, atypical imaging [15], aesthetic discomfort, or simply following the patient's request.

## CONCLUSION

Dorsal elastofibroma is a very rare benign soft tissue lesion, whose neoplastic or reactive nature is still controversial. Its characteristic localization and its evocative clinical picture distinguish it from malignant tumors of the soft tissues.

Surgical treatment may be proposed if the lesion is symptomatic or in case of doubt diagnosis. It consists of a complete excision with healthy surgical margins, thus allowing a precise histological diagnosis.

The evolution is favorable with a risk of recurrence if incomplete excision. To date, no case of malignant degeneration has been reported.

## CONFLICT OF INTEREST

The authors do not report any conflict of interest in this study

## AUTHORS CONTRIBUTIONS

All authors contributed to this study since conception, reading, and approved the latest version.

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