

Scapula chondromyxoid fibroma

Fibroma condromixoide de escápula

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Summary

A case of chondromyxoid fibroma is reported that presents as a mass located in the scapula, a tumor that occurs in less than 1% of bone tumors and with few cases described in the literature located in the scapula. A patient is followed up with radiography, tomography and magnetic resonance imaging, characterizing the findings prior to the histopathological report, obtained by biopsy with a core needle and subsequent surgical excision. Previous reports of this pathology in the literature are reviewed taking into account the location on the scapula.

Key words (MeSH)

Scapula
Bone neoplasms
Magnetic resonance imaging

Palabras clave (DeCS)

Escápula
Neoplasias del hueso
Imagen por resonancia magnética

Resumen

Se presenta un caso de fibroma condromixoide que se observa como masa localizada en la escápula, cuya prevalencia es inferior al 1% de los tumores óseos y con pocos casos descritos en la literatura localizados en escápula. Se hace seguimiento de un paciente con radiografía, tomografía y resonancia magnética, caracterizando los hallazgos antes del informe histopatológico obtenido por biopsia con aguja gruesa y posterior excisión quirúrgica. Se revisan informes previos de esta patología en la literatura teniendo en cuenta la localización en escápula.

Introduction

Chondromyxoid fibroma was first described in 1948 by Jaffe and Lichtenstein (1). It is the least common cartilage-derived tumor. It accounts for less than 1% of bone tumors and less than 2% of benign bone tumors (2, 3).

A literature search was conducted in PubMed using the following terms ("Scapula"[Mesh]) AND "Chondromyxoid fibroma" in English, with no date limit, to identify reports of similar clinical cases. A scarcity of cases described in the medical literature on chondromyxoid fibroma located in the scapula was detected.

Case description

We describe the case of a 28-year-old man with pain on palpation in the dorsal region of the right shoulder and scapula. The patient reported a sensation of bone protrusion without other symptoms. Physical examination revealed no mass or inflammatory changes in the skin, and there were no limitations to passive or active mobilization of the shoulder joint. There was no significant personal or family history of disease.

An X-ray of the affected shoulder was performed. This showed an alteration in the usual morphology of the right scapula: an image of an expansive lytic appearance (Figure 1).

Computed tomography (CT) scans showed findings consistent with those seen on the X-ray and consistent with a bone lesion that was probably benign (Figure 2).

Magnetic resonance imaging (MRI) showed an intramedullary mass in the spine of the scapula, which was expansive, had a high signal in T2-weighted sequences, and an intermediate signal in T1-weighted sequences, with no restriction on water diffusion and a cystic component with high signal content in T1 and T2 (Figure 3).

A histological sample was initially taken from the mass in the scapula using a thick needle. Microscopic evaluation with hematoxylin-eosin staining and immunohistochemistry showed findings of a benign neoplasm positive for smooth muscle actin and vimentin, negative for S-100 and desmin, positive for osteoclast-like giant cells, a Ki67-mediated cell proliferation index of 3%, giant cell tumor versus chondromyxoid fibroma inconclusive, findings limited by sample size.

The patient underwent open surgery for excision of the lesion; a larger specimen was obtained with histological findings of chondromyxoid tumor indicative of chondromyxoid fibroma (Figure 4).

Discussion

Very few cases of chondromyxoid fibroma located in the scapula have been described (Table 1).

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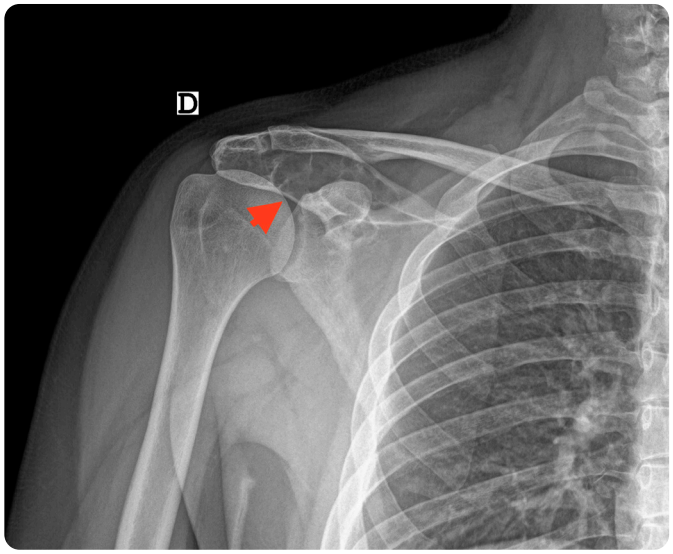


Figure 1. X-ray of the right shoulder in external rotation. Expansive lytic lesion, without cortical rupture, with thin non-sclerotic edges, located in the spine of the scapula, measuring 2.8 × 8.7 cm in the frontal projection (red arrow). The glenohumeral and acromioclavicular joint relationships are preserved. No soft tissue involvement is observed.

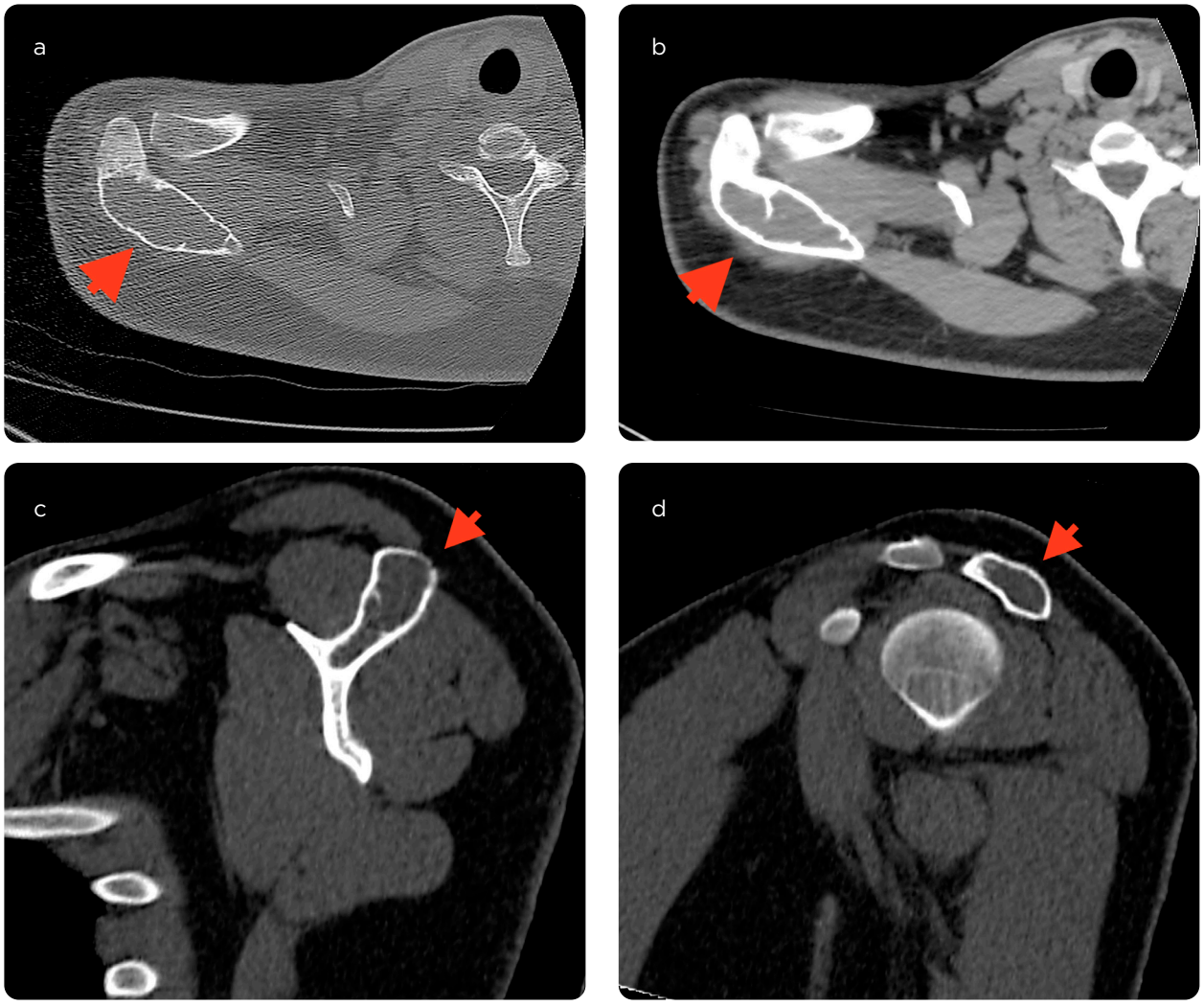


Figure 2. CT scan of the right shoulder. a and b) Axial slice in bone and soft tissue window; c) coronal slice in soft tissue window; d) sagittal CT scan in soft tissue window. Lithic, expansive lesion without cortical disruption, with thin bone edges located in the spine of the scapula, measuring 4.5 × 8.9 × 2.8 cm, with no soft tissue involvement or periosteal reaction (red arrows). The acromioclavicular and glenohumeral joints (not shown) are preserved. The supraspinatus, infraspinatus, subscapularis, deltoid, coracobrachialis, pectoralis major, triceps, and biceps muscles retain their usual morphology. No increase in the density of the adjacent fatty tissue is observed.

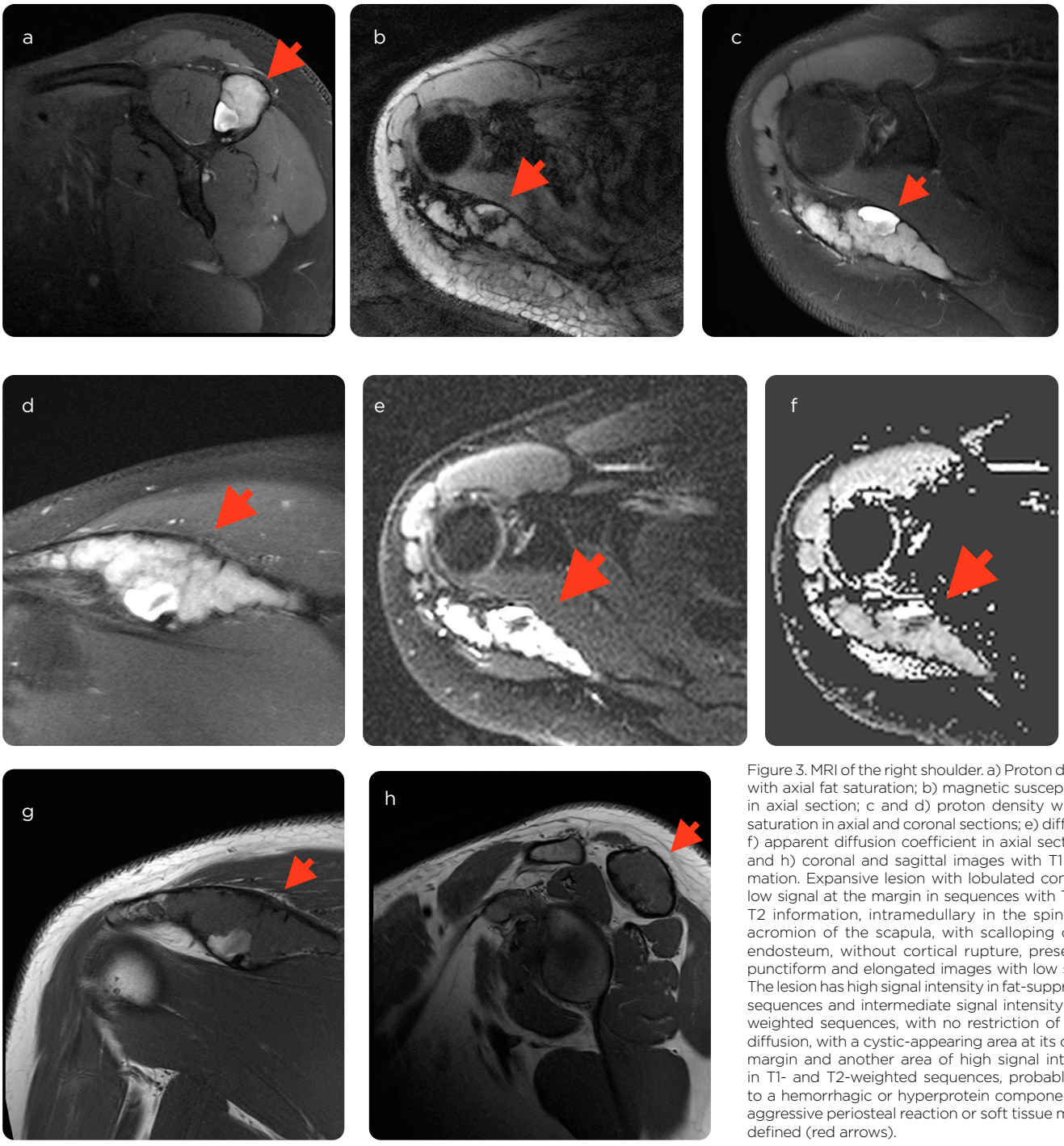


Figure 3. MRI of the right shoulder. a) Proton density with axial fat saturation; b) magnetic susceptibility in axial section; c and d) proton density with fat saturation in axial and coronal sections; e) diffusion; f) apparent diffusion coefficient in axial section; g and h) coronal and sagittal images with T1 information. Expansive lesion with lobulated contours, low signal at the margin in sequences with T1 and T2 information, intramedullary in the spine and acromion of the scapula, with scalloping of the endosteum, without cortical rupture, presenting punctiform and elongated images with low signal. The lesion has high signal intensity in fat-suppressed sequences and intermediate signal intensity in T1-weighted sequences, with no restriction of water diffusion, with a cystic-appearing area at its caudal margin and another area of high signal intensity in T1- and T2-weighted sequences, probably due to a hemorrhagic or hyperprotein component. No aggressive periosteal reaction or soft tissue mass is defined (red arrows).

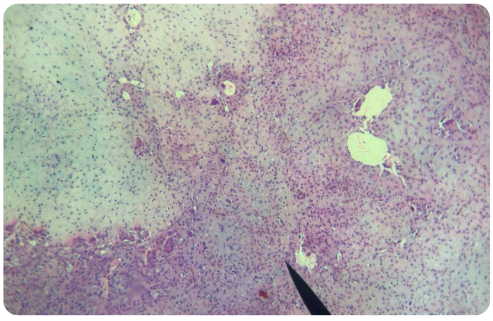


Figure 4. Histological section of excisional biopsy stained with hematoxylin and eosin. A lobulated neoplastic process is observed, showing chondroid and fibromyoid hypocellular centers with few fibroblastic cells with stellate cytoplasm surrounded by peripheral hypercellular areas densely populated by spindle cells, fibroblastic cells with elongated nuclei, mononuclear cells, and scattered multinucleated giant cells. Absence of pleomorphism. Low mitotic index. Anatomopathological diagnosis: chondromyxoid tumor suggestive of chondromyxoid fibroma.

Table 1. Reported cases of chondromyxoid fibroma in the scapula, according to search method and engine*

Lead author	Reference	Number of patients	Age	Clinical picture	Location of the lesion
Jani JB (4)	Am J Orthop. 2009;38(5):E85-8.	1	13 years old	Female. Incidental finding on MRI after injury in gym class. No pain, sensation of mass, or movement impairment. No systemic symptoms.	Lateral border of right scapula
Macdonald D (5)	Skeletal radiology. 2000;29:168-70	1	29 years old	Male. Pain in right shoulder for 7 years after playing baseball. Pain on palpation over the acromioclavicular joint. Decreased range of motion in the shoulder. Atrophy of the supraspinatus and deltoid muscles.	Right scapular acromion
Mizuno K (6)	Radiation Medicine. 1999;17(5):383-7.	1	21 years old	Male	Scapula
Halbert AR, (7)	Cancer genetics and cytogenetics. 1998;104(1):52-6.	1	11 years old	Female. Asymptomatic. Incidental finding on left shoulder X-ray after fall. No alteration in passive and active range of motion of the shoulder. No palpable mass. No lymphadenopathy. Neurological examination of upper limb without alterations.	Body of the scapula
Baklouti S (8)	International orthopaedics. 1992;16(2):193-5	1	23 years old	Female. Pain in right shoulder for 5 years. Pain on palpation over the shoulder. Full range of motion with slight pain at the end.	Right shoulder blade
Uematsu A (9,10)	Southern Medical Journal. 1979 Jan 1;72(1):4-7 Medical Journal. 1977;70(12):1469-71	1	39 years old	Female. Pain in the superoposterior region of the right shoulder after a fall 5 months prior, which worsened with arm abduction. Full range of motion. No mass visible on inspection.	Right scapula
Rahimi A (11)	Cancer. 1972;30(3):726-36	1	N/A	Seen in consultation	N/A
Schajowicz F (12)	The Journal of Bone & Joint Surgery British Volume. 1971;53(2):198-216	1	32 years old	Female. 5 years of pain. Trauma associated with medical history.	Lower angle of left scapula
Feldman F (13)	Radiology. 1970;94(2):249-60	5	N/A	Description of 5 cases in the international literature of chondromyxoid fibromas located in the scapula	N/A
Prichard RW (14)	JBJS. 1964;46(8):1759-60	1	38 years old	Male. Clinical history of 14 months of pain.	Right scapula

*PubMed ("Scapula"[Mesh]) AND "Chondromyxoid fibroma".

Chondromyxoid fibroma is prevalent in the under-30 age group (9% in the 0-9 age group, 27% in the 10-19 age group, and 19% in the 20-29 age group), but with appearances as early as age 3 or as late as age 79, with a predilection for males (60% versus 40%) (13, 15).

It mainly appears in long bones, followed by flat bones and, to a lesser extent, in the bones of the hands and feet and the skull and face. Of the long bones, the most affected structures are the tibia, femur, and fibula (16). The most affected flat bones are the ilium (including the acetabulum), ribs, and vertebrae. The overall proportion, including all bones, is described as 28% for the tibia, 17% for the femur, and 6% for the fibula (13).

With regard to radiographic characteristics, chondromyxoid fibroids appear as lucid (lytic) lesions, with expansion of the bone cortex and margins in the bone. They have a cartilage-like matrix composed of chondroid, fibrous, and myxoid areas in varying proportions (15). Particularly, if they occur in long bones, they have an eccentric involvement with the epicenter in the metaphysis; in contrast, in flat bones, they are centrally located, occupying the entire width of the structure. They do not show matrix calcification (13, 16).

The standard treatment has been excision with curettage. There is still no consensus on the type of adjuvant treatment, but it is geared toward functionality, complications, and the probability of recurrence, which ranges from 3% to 22% (12, 15, 17-19). Bharmra et al. suggest that the use of polymethyl methacrylate cement as an adjuvant, regardless of the size of the defect after excision, could promote the destruction of residual tumor cells by thermal damage (20), to prevent recurrence, in addition to preventing the morbidity of autogenous bone grafts and assisting in the postoperative radiographic evaluation of signs of local recurrence (21). Cases of radiotherapy as a treatment option for tumors that are too extensive to be removed have also been described (13, 22, 23), but they carry the risk of radiation-induced malignancy (15).

Finally, another factor to consider in its prognosis has been the potential for malignant transformation, but reports have been few (<2%) (20); transformations to fibrous histiocytoma and fibrosarcoma have been described (16).

Conclusion

Chondromyxoid fibroma is a benign tumor with an unusual presentation and limited information in the literature, which, added to the probable dilemma in histological analysis, makes it a diagnosis that warrants discernment before ruling out other more common bone tumors with similar location, epidemiology, and radiological characteristics.

Describing this location of chondromyxoid fibroma in the scapula adds something unusual to an already rare tumor, as described in the literature.

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