



Chondroblastoma of the acromion mimicking fibrous dysplasia

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The authors report the case of a 65-year-old man who presented with an expansive osteolytic lesion in the right acromion, mimicking cystic fibrous dysplasia. Magnetic resonance imaging showed a lesion with intermediate-signal intensity on T1-weighted images and a high-signal intensity on fat suppressed T2-weighted images. The biopsy led to the diagnosis of chondroblastoma. This tumour is rare in flat bones, and may mimic other benign or malignant lesions. It is therefore essential to perform a biopsy in order to obtain a definite diagnosis. The acromion was excised, and replaced with an iliac crest graft.

CASE REPORT

A 65-year-old man presented with a history of increasing right shoulder pain at night which was exacerbated by activity. He was suffering from intermittent episodes of right-sided shoulder pain since two years and he had been involved in a sporting accident (horse riding) 25 years before. The clinical diagnosis of subacromial bursitis suggested a conservative therapeutic approach. Radiographic examination revealed a well marginated expansive osteolytic lesion (fig 1), which was interpreted as monostotic fibrous dysplasia at that time.

Physical examination revealed a slight atrophy of the deltoid, supraspinatus and infraspinatus muscles bilaterally. There was a painless swelling over the right acromion. The range of motion of both shoulders was slightly reduced, but there were no clinical signs of a rotator cuff lesion. The patient

showed no abnormal skin pigmentation. Blood cell count, erythrocyte sedimentation rate, and serum alkaline phosphatase were within the normal range.

Radiographic examination showed an expansive osteolytic lesion of the right acromion with a slight ground glass-like appearance (Lodwick grade Ib). The CT-scan (fig 2) showed a periosteal disruption as a sign of aggressive behaviour. Obvious flocculent matrix calcifications could be seen; at that time their importance was not realised. MRI showed an intermediate signal intensity on the T1-, and a high signal intensity on the T2-weighted images, with a moderate contrast enhancement (fig 3 a, b).

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Fig. 1. — AP view of the right shoulder, showing an expansible, well margined osteolytic lesion of the acromion.

The tumour growth remained quite limited during the subsequent two years, but arthroscopic bursectomy then became necessary, because of increasing night pain and typical symptoms of subacromial bursitis. During the same anaesthesia a needle biopsy was carried out through a separate approach, using a Jamshidi needle. Microscopic examination led to the diagnosis of chondroblastoma. After the bursectomy the patient was pain free and he had normal shoulder mobility. He refused any operation for a period of two years, as his condition remained stable. The pain then recurred, and loss of function became obvious. The patient then accepted a surgical procedure. The tumour was resected and an acromioplasty was done with an autogenous iliac crest graft and screw fixation (fig 4). Three months later the patient was seen again, with a painless and complete range of motion.

DISCUSSION

Chondroblastoma is a rare benign bone tumour, although metastases may occur. It accounts for less than one percent of all primary bone tumours (2, 11). It usually presents in the second decade of life. At that age it is typically localised in the epiphyses of



Fig. 2. — CT-scan showing periosteal disruption as a sign of aggressive behaviour. Flocculent matrix calcifications are obvious.

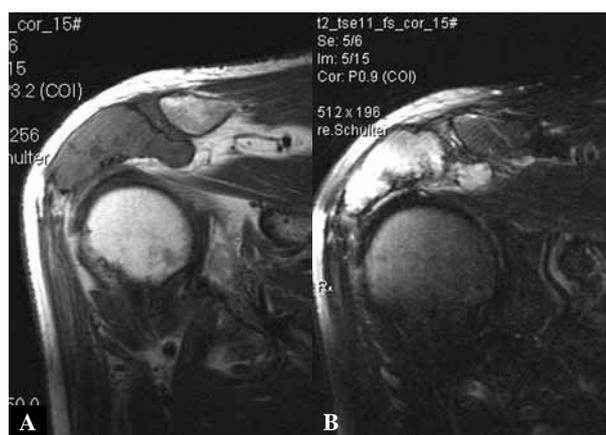


Fig. 3. — **A.** T1-weighted MRI image : homogeneous intermediate signal intensity. **B.** Contrast-enhanced T2-weighted MRI image : homogeneous signal with moderate contrast enhancement, compatible with a cartilaginous lesion.

the long bones (1, 3, 11). Localisation in flat bones is unusual. In the shoulder girdle, the proximal humerus is the area of predilection, whereas the scapula - to our knowledge - has been involved in only four cases (6, 11, 12). In elderly patients chondroblastoma is rare, and more frequently seen in an atypical localisation. Chondroblastoma shows



Fig. 4. — Postoperative A.P. view : acromioplasty with an iliac crest graft.

a more aggressive behaviour in the flat bones (Lodwick grade 1b or 1c) than in the long bones (usually Lodwick grade 1a or 1b) (7, 8, 10).

As a result, radiographic diagnosis of an atypical chondroblastoma is more difficult because of a variety of possible diagnoses, including benign and malignant lesions (1, 2).

The characteristics of chondroblastoma on MRI are also aspecific. The tumour shows an intermediate signal intensity on T1-, and a high signal intensity on T2-weighted images with a halo of bone oedema (6, 11). CT-scans can be useful to show matrix calcifications, which occur in up to 60% of the cases (6). Fibrous dysplasia can be excluded by the presence of matrix calcifications. On the other hand, a chondrosarcoma cannot be excluded in a Lodwick Ib or Ic lesion with flocculent matrix calcifications. A biopsy is therefore essential to obtain the correct diagnosis. Nevertheless, cross section imaging studies as MRI and CT are useful for the operative planning (8, 10, 11).

The treatment of choice is curettage or marginal resection, and filling of the defect with autogenous or allogeneous bone grafts (1, 11). Local recurrence is reported in 15% of the cases and is more common when the localisation is atypical (7, 8, 10, 11). Although chondroblastoma is a benign lesion, pulmonary metastases have been reported (4, 5, 7, 9, 12). Our case shows that a chondroblastoma can exist for many years in an atypical localisation, without significant growth. Nevertheless, we would recommend operative treatment, because the biological behaviour of this tumour remains uncertain.

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