Painful swelling in the proximal third of the arm

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Answer

Calcific tendinitis of the long head of the biceps tendon with intraosseous extension.

Calcific tendinitis, tendonitis or tendinopathy is a common condition, caused by calcium hydroxyapatite deposition, and subsequent inflammatory response. Patients may be asymptomatic, or present with acute or chronic pain. In its usual presentation, diagnosis is not challenging and can be achieved through the demonstration of calcification in the tendon or the adjacent bursa [1].

In exceptional cases, its imaging features can be aggressive, with involvement of underlying bony structures [2]. It has been suggested that calcium hydroxyapatite deposition might produce reactive hypervascularity, increasing focal bone resorption with cortical erosion and in some cases cyst formation. The process can also result in periosteal reaction [3]. These findings can trigger confusion with neoplastic processes, such as chondroid lesions and juxtacortical malignancy (juxtacortical chondrosarcoma, periosteal and parosteal osteosarcoma) and require further invasive investigation [4, 5].

The patient, a 56-year-old woman, presented with ongoing shoulder pain, which had recently worsened. There was also painful swelling in the inner aspect of the arm.

Oblique sagittal spectral adiabatic inversion recovery (SPAIR) MR image (Fig. 1) demonstrated the presence of a heterogeneous nodular structure with a hypointense rim and hyperintense core, adjacent to the humeral cortex, surrounded by a region of increased signal intensity in the adjacent soft tissues. The humeral cortex appeared irregular, and there was associated edema-like signal within the medullary space. On the axial proton-density-weighted image (Fig. 2), the nodular lesion abutted the cortex with a hypointense rim and hyperintense center, similar to the appearance on the SPAIR image, supporting the suspicion of peripheral calcification. The oblique sagittal T1-weighted MR image (Fig. 3) better demonstrated the variable signal of the cortex with hyperintense foci and a mottled pattern of hypointense foci in the medullary space. Following the administration of intravenous contrast medium, the fat-suppressed T1-weighted image (Fig. 4) demonstrated intense perilesional enhancement extending into the medullary space. On the CT image (Fig. 5), performed before biopsy, there was confirmation of a rim of calcification associated with the nodular focus and intramedullary calcification.

Biopsy of the nodular lesion was performed under CT guidance.

Hematoxylin and eosin stain from the sample obtained (Fig. 6) demonstrated pseudonodular foci of calcification (hydroxyapatite deposition) surrounded by fibrocartilaginous tissue containing chondrocyte-like cells. The sample also included red cells (blood cells).

In this case, the clinical history and imaging findings on MRI and CT suggested calcific tendinitis with intraosseous extension as the probable diagnosis. There was no evidence for a discrete soft-tissue mass in the medullary space or associated with the nodular lesion, thus lowering the possibility of a malignant lesion. In the evaluation of differential diagnoses, extension of an intramedullary chondroid lesion was thought unlikely on the basis of the lack of an associated soft-tissue mass [6]. Juxtacortical lesions, such as juxtacortical chondrosarcoma, periosteal or parosteal osteosarcoma, were considered unlikely on the grounds of the location, the lack of a soft-tissue mass, and the fact that there was no predominance

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of the extraosseous component, aside from the age of the patient [7–9].

Biopsy confirmed the radiological suspicion of calcific tendinitis of the long head of the biceps tendon.

Compliance with ethical standards

Conflicts of interest The authors declare that they have no conflicts of interest.

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