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Images in Clinical Rheumatology

Tophaceous Gout of the Shoulder Joint[☆]

Afectación del hombro en la gota tofácea

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We present the case of a male aged 58, a smoker of 60 packs of cigarettes per year and drinker of 80 g of alcohol per day, was diagnosed with gouty arthropathy in 1999 from observation of monosodium urate (MSU) crystal deposits in proximal interphalangeal joint of the fourth finger of the right hand. At that time he did not present with tophi or a history of nephritic colics. No analysis was carried out and the patient did not return to the surgery until 2005, when he had been diagnosed with high blood pressure and

dyslipidemia. Tophi were then observed in his hands and elbows (Fig. 1A). Uricemia was at 10.4 mg/dl, uricosuria at 745 mg/24 h, whilst liver and kidney functions were normal. Since that time the patient has attended check-ups with great irregularity and is treated with anti-inflammatory drugs and a 15–30 mg/day dose of prednisone, 1 mg/day dose of colchicine and 300 mg/day dose of allopurinol according to his own criteria. In 2011 he started treatment with febuxostat, which he takes inconsistently. In 2012 he

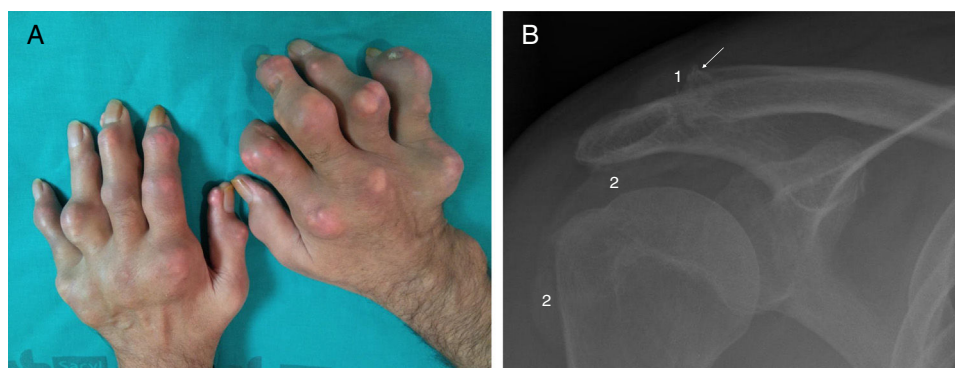


Fig. 1. (A) Hands with multiple tophi. (1) Simple X-ray of right shoulder in anteroposterior projection. In the clavicle region of the right acromioclavicular joint a punched-out eccentric bony erosion is observed, formed by the replacement of the bone by a less dense tophus (1). Due to the slow, benign growth the bone reacts forming a sclerotic “ring” which surrounds the tophus and even overlaps the anatomical limits of the bone forming a raised edge (→). The change in the glenohumeral joint is mainly apparent in plain X-ray due to the occupation of the subacromiodeltoid bursa (2).

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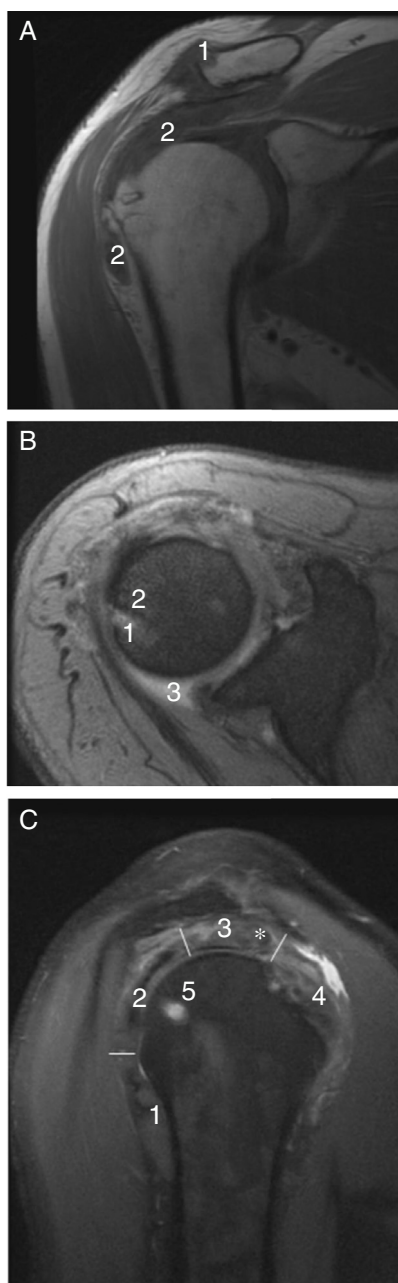


Fig. 2. (A) MR image of the right shoulder in coronal plane in T1 weighted sequence. In one image superimposed onto the X-ray of Fig. 1B we may observe the tophi as hypointense soft tissue masses in T1 along the upper ridge of the distal end of the clavicle (1) and in the subacromiodeltoid bursa (2). (B) Image in axial T2 gradient-echo plane. The MR reveals a lesion compatible with gouty tophus (1) in the glenohumeral joint edge which is not clearly visible in plain X-ray. It is hyperintense in T2 weighted sequence, interrupts the bony cortex and has a highly hypointense ridge from bone sclerosis (2). Mild synovial effusion is present (3). (C) Proton density image in sagittal plane which enables vision of the section of the tendon which forms in the sleeve of the rotator cuffs: teres minor (1), infraespinatus (2), supraspinatus (3) and subescapularis (4). The supraspinatus is particularly de-structured by the presence of a nodule suggestive of intratendinous tophus (*). Similarly to the T2 weighted sequence, the bony tophus is hyperintense (5).

was operated on in another hospital for articular retraction of the fifth finger and carpal tunnel syndrome due to tophaceous material. In 2013, amputation of the distal phalanx of the second finger on the right hand was performed due to epidermoid carcinoma. In 2014, he suffered a transient ischaemic attack due to complete

thrombosis-occlusion of the right internal carotid artery. In 2015 the patient presented with omalgia of the right shoulder of 4 month onset when making certain movements and when lying down on his side at night. Examination revealed limitation in the last degrees of internal rotation and active and passive abduction. Plain X-ray was performed (Fig. 1B) and magnetic resonance (MR) of the right shoulder (Fig. 2A–C) with analgesic treatment leading to an improvement in clinical symptoms.

The presence of tophaceous gout is correlated with persistence over time of hyperuricaemia and/or ineffective treatment. Tophi deposits have been described in many atypical locations,¹ but of these the glenohumeral joint is rare.^{2,3} The first description was made by O'Leary, when the tophi were observed after performing an arthroscopy as they had not been detected in the MR.² Radiologic characteristics of tophi include erosions with well defined margins, preservation of joint space and dense nodules of soft tissues which are sometimes calcified.⁴ Ultrasound scan is more sensitive and specific for the detection of microcrystalline deposits in bursae, tendons, ligaments and soft tissues.⁵ Double energy computerised tomography (DECT) is also used for the detection and measurement of tophi in unusual locations or when they mimic infection or malignancy, as 3d reconstruction of images is enabled. The highest limitation is radiation and its use in major joints such as the shoulder and hip, where precision is lost.⁶ MR provides information for deep tissue joints and for intraosseous deposits, but although it is highly sensitive for detection, the tophi offer a non specific pattern similar to other soft tissue masses, with low intensive signalling in T1 and variable intensity in T2. As a result the patient's medical history is required for accurate diagnosis.⁷

Ethical Liabilities

Protection of people and animals. The authors declare that for this research no experimentation has been carried out on human beings or animals.

Data confidentiality. The authors declare that they have adhered to the protocol of their centre of work on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the informed consent of the patients and/or subjects referred to in this article. This document is held by the corresponding author.

Conflict of Interests

The authors have no conflicts of interest to declare.

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