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Case Report

Asymptomatic Papules and Subcutaneous Nodules as First Sign of Gout

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Abstract

The authors describe a case report characterised by asymptomatic papules and non-tender subcutaneous nodules as the isolated manifestations of gout.

Introduction

Gout is a metabolic, well-known disorder, which first descriptions had been reported since the ancient time [1]. Although its prevalence varies among different populations and racial groups, recent epidemiological data underline how gout is becoming progressively common in the Western countries, with an estimated worldwide prevalence of 2.5-3.9%. It is more commonly described in male and adult-senescent patients [2-4].

Gout is caused by disordered purine metabolism, resulting in a hyperuricemic condition, which is defined by an increase in the serum level of uric acid over 7.2 mg/dL. The disease may derive by an overproduction of uric acid (primary gout), by an increased production of a purine or by a decreased excretion of uric acid (secondary gout). Well, known risk factors are obesity, alcohol consumption, purine-rich diet. Additionally, the intake of thiazide diuretics or cyclosporine increases the risk to develop gout [1,5].

A persistent hyperuricemia leads to the accumulation and aggregation of monosodium urate monohydrate (MSUM) crystals, also known as tophi. Tophi gradually deposit and accumulate in the synovial fluid and, less commonly, in other tissue [6]. Cutaneous symptoms may lead to diagnosis [7].

Case report

An overweight, 61-year-old male subject, doctor in general medicine, referred to us with multiple papules and subcutaneous, non-tender, pink-reddish in colour, nodules. Lesions were symmetrically

distributed in the skin upon the elbow of both arms and averaged from 0.2 to 1.3 cm in diameter (Fig.1-2). Both papules and nodules were completely asymptomatic, and they were present by more than three months. No other signs, both local and systemic, of infection or inflammation were detected. The patient denied a history of any form of arthropathy.

There were no hints to local trauma, infections or contact with local irritants.

The patient suffered from a mild form of hypertension, treated with a thiazide diuretic. He showed no familiarity for dermatologic and rheumatologic diseases.

The patient did not refer previous treatments of the lesion, except for 15-days of topical corticosteroid and antibiotics (betamethasone plus gentamicin cream), without any beneficial effects.

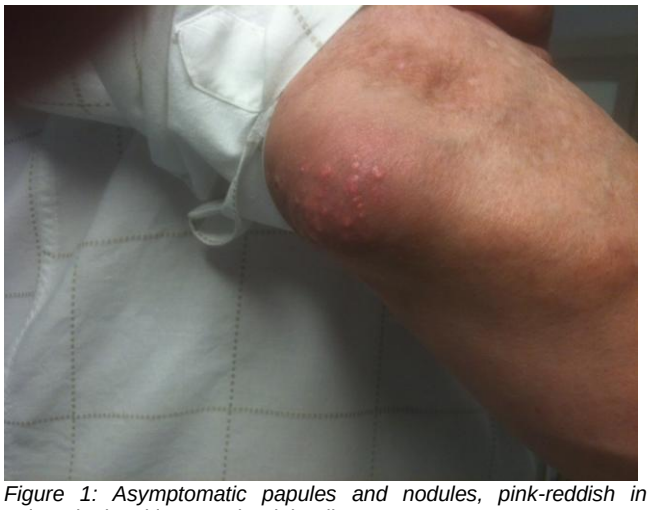

Figure 1: Asymptomatic papules and nodules, pink-reddish in colour, in the skin upon the right elbow

During the clinical evaluation, no other lesions were observed in any other part of the body. A rheumatologic evaluation showed no apparent joint involvement. Routine blood testing for inflammation, infections and autoimmune diseases (ANA, rheumatoid factor, antiphospholipid antibodies) were negative. An excisional biopsy was performed. The histopathological diagnosis of gout tophi was made, which is negatively birefringent under polarised light. Based on the histologic finding, the patient performed an additional laboratory test for uric acid and underwent to an orthopaedic evaluation. While the uric acid resulted to be elevated (15.0 mg/dL), confirming the diagnosis of hyperuricemia, the clinical and X-ray evaluation of the arms, did not show any signs of arthropathy.

Because of the diagnosis of gout, the patient started a diet poor of purines and changed the thiazide diuretic treatment with a beta-blocker drug.

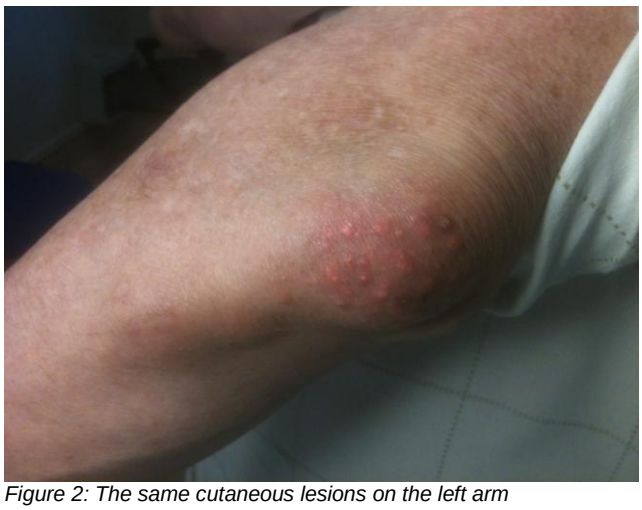

Figure 2: The same cutaneous lesions on the left arm

Finally, he started a proper therapy with allopurinol 300 mg/die.

Discussion

The main clinical characteristic of gout is the arthropathy, due to the deposition of tophi. Even if the great toe is the most commonly affected (podagra), other finger joints, as well as ankle and wrist may also be involved. Initially, there is a typical joint inflammation, characterised by severe pain, erythema and oedema [7]. In some cases, the inflammation of the synovial-based structures (e.g. bursae and tendon) has been described too. If not properly diagnosed and treated, gout arthropathy leads to affect multiple joints, becoming destructive and disabling [8].

Some patients may present the MSUM crystals deposition in the renal system. The phenomenon may vary from a mild and asymptomatic urolithiasis to a severe renal failure [9].

Although rarely, tophi have been reported in other body sites, such as nasal and thyroid cartilages, vocal cords, eyelids, cornea, mitral and tricuspid valves, hyoid bone and spine [10, 11].

Patients with gout may also present a cutaneous involvement, characterised by the development of intradermal or subcutaneous nodules as a sign of the tophi deposition. They are typically described in avascular tissues, such as in the ears (helix and antihelix areas) or in the periarticular acral areas, where they are often associated with an involvement of bursae or tendons [12, 13].

Less commonly, pustules or ulcerations have been described [14]. Rarely, a panniculitis has been reported as a sign of gout. Clinically it is characterised

by nodular lesions, which may ulcerate. It represents an inflammation of the lobular subcutaneous tissue, due to the tophi depositions. Even if lesions may have different localisations, more commonly they are detected on the legs or the trunk [15]

Another rare skin manifestation is the miliarial cutaneous gout (or disseminated one), which is characterised by the diffuse deposition of tophi all over the skin [16,17].

The diagnosis of gout is clinically supported by specific tests. The clinical recognition of tophi is highly suggestive for gout. A synovial aspiration [7] may be useful to detect the presence of MSUM and to exclude the presence of infection. Also, an X-ray may be performed to for the diagnosis of chronic gout [18]. The histologic examination of a lesional biopsy and the laboratory test for the uric acid, lead to the definitive diagnosis.

The principal treatment goals in chronic gout are (a) the symptomatic treatment of the acute joint inflammation and (b) the causal treatment of the underlying metabolic cause, the hyperuricemia. Acute gout should be treated by non-steroidal anti-inflammatory agents (NSAIDs) or cyclooxygenase-2 inhibitors, such as colchicines, and corticosteroids. Even if different medical therapies are available to regulate the uric acid concentration, allopurinol is considered as the first line drug. It acts inhibiting the production of uric acid. A valid alternative to allopurinol is probenecid, which increases the renal excretion of uric acid, by the inhibition of its reabsorption. Recently, febuxostat has been introduced for the treatment of gout. Like allopurinol, it stops the uric acid production by the inhibition of the xanthine oxidase [19]. All these treatments aim to lower the concentration of serum uric acid levels below 360 µmol/L (6 mg/dL).

Surgical removal of tophi is recommended only in patients with severe pain, joint deformities, or cutaneous lesions which tend to enlarge or ulcerate [20]. More recently, a new technique based on Metal-assisted and microwave-accelerated decrystallization (MAMAD), has been proposed for gout's treatment [21].

In conclusion, gout is an important metabolic disease, which derives by a hyperuricemia condition. Even if the arthropathy, due to the deposition of tophi, is most common sign of gout, the disorder may have different clinical manifestations. A proper diagnosis and treatment are fundamental to avoid the chronic course of the disease, which is characterised by disabling arthropathies, and by the risk of renal failure and cutaneous morbidities.

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