
Chronic tophaceous gout mimicking rheumatoid arthritis

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ABSTRACT

Gout is a disorder of purine metabolism, usually associated with recurrent bouts of arthritis in the joints of the lower limbs, affecting men 40 to 50 years of age, which leads to the development of subcutaneous tophi in patients with long-lasting disease. Cases of patients with chronic gouty arthritis mimicking rheumatoid arthritis, and vice-versa, are rare. This report describes the case of a 56-year old male with symmetric, deforming, and polyarticular arthritis affecting, specially, the joints of the hands and wrists, with diffuse subcutaneous nodules throughout his body, atypical radiographic findings, and urolithiasis. Following clinical evaluation and additional tests, this patient received a diagnosis of chronic tophaceous gout mimicking mutilating rheumatoid arthritis.

Keywords: gout, deforming polyarthritis, subcutaneous tophi, rheumatoid arthritis.

INTRODUCTION

Gout is a metabolic disease that affects, specially, middle aged and elderly men and postmenopausal women. It is six times more common in males than in females.^{1,2} Classically, it presents as: acute, usually monoarticular, arthritis, intercritical period, and chronic tophaceous gout,^{3,4} associated with hyperuricemia and the presence of mono sodium urate (MSU) crystals in connective tissue tophi and kidneys.^{5,6} After several bouts of acute arthritis, some patients develop synovitis and chronic polyarthropathy that can be mistaken by rheumatoid arthritis (RA).^{1,2}

Differentiating polyarticular tophaceous gout from RA can be extremely difficult^{1,2,3}, since both have a high prevalence in the adult population, of approximately 1%,^{2,7,8} and polyarthritis, symmetrical distribution, and morning stiffness, or positive rheumatoid factor (RF), can be seen in both disorders.²

Rare cases of chronic tophaceous gout mimicking RA have been reported in the literature.^{9,10} We report a rare case of a patient with polyarticular tophaceous gout with atypical involvement of the joints of the hands and diffuse subcutaneous nodules that, after clinical evaluation and complementary exams, received a diagnosis of mutilating gout mimicking RA.

CASE REPORT

A 56 year old mulatto male, from João Pessoa, PB, Brazil, was referred by a primary care physician and he was seen at the rheumatology outpatient clinic on 04/20/2008 due to symptoms of pain and deformity of the joints for approximately six years.

The patient reported that, initially, he developed arthritis in the left knee, which improved after one week. This was followed by more frequent, intermittent, episodes of arthritis in both knees, hands, wrists, ankles, and feet, without morning stiffness or podagra. He did not seek the care of a specialists, but his symptoms worsened with persistent, symmetrical polyarthritis, and limiting deformities in hands and knees (hindering ambulation), besides the development of painless nodules, initially affecting the legs, which later spread to the forearms and ankles. He had a history of alcohol abuse for more than 40 years; weight loss of 12 kg in one month; dysuria and kidney stones. He denied pathologies in any other organ or system, allergies, blood transfusion, and malignancies.

On physical exam, the patient was awake, cooperative, mucous membranes were pale (2+/4+), he was underhydrated (1+/4+), eupneic, afebrile, and blood pressure was normal. Other changes in the cardiovascular and respiratory systems were not observed.

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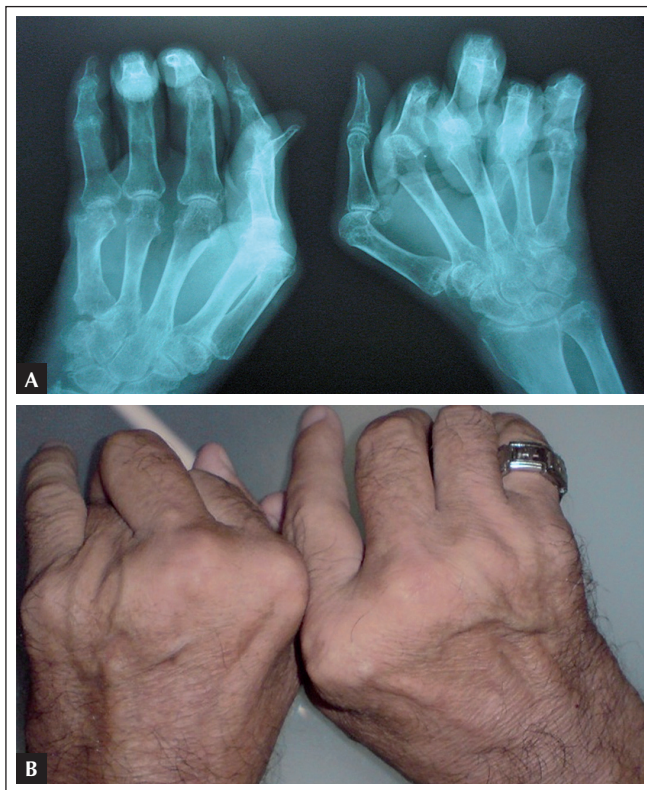


Figure 1. Deforming arthropathy of MCPs and PIP joints (A) and bilateral radiographic changes (porosis, periarticular erosions, epiphyseal cysts, and subluxation of distal and middle phalanges) (B).

Physical exam of the locomotor system showed muscle atrophy in all four limbs and bilateral interossei muscles; arthritis and multiple deformities, especially in wrists, metacarpophalangeal (MCP) joints, proximal interphalangeal (PIP) joints (Figure 1A), knees, and ankles. Skin exam showed subcutaneous nodules of different sizes, some measuring approximately 1 cm (extensor aspect of the forearms), without signs of inflammation, increased consistency, and fixed to deeper planes, and similar nodes of 2 cm in diameter on the anterior and lateral aspects of mid-distal legs and lateral aspect of the ankles. The left lateral maleolus had a fistulized nodule draining a wet chalk-like material.

Due to the articular findings and the presence of subcutaneous nodules, the diagnostic hypotheses included tophaceous gout and rheumatoid arthritis. Complementary exams and biopsy of a subcutaneous node were requested. The patient was treated with prednisone (5 mg/day) and non-steroid anti-inflammatory drugs.

Laboratorial exams requested in April 2008 revealed: hemoglobin 10.7 g/dL, hematocrit 32.6%; 13,000 leukocytes/mm³; 370,000 platelets/mm³, erythrocyte sedimentation rate 24 mm/1st hour; C-reactive protein 12 mg/L, uric acid 15.2 mg/

dL, creatinine 2.3 mg/dL; negative rheumatoid factor (RF), normal levels of aminotransferases, blood glucose 105 mg/dL. Urinalysis showed 25-39 pyocytes/field, red blood cells > 100/field, several uric acid crystals, and bacteria. X-Rays of the hands and wrists showed periarticular erosions, especially in MCP joints, epiphyseal cysts in hands and wrists, and bilateral subluxation of distal and middle phalanges (Figure 1B). Prednisone (10 mg/day) and tramadol (50 mg/day) were prescribed for pain relief due to altered renal function.

Exams requested on June 4, 2008 showed: serum creatinine 1.6 mg/dL; uric acid in 24-hour urine 752.4 mg, and creatinine clearance 36.7 mL/min/1.73 m². Pathological examination of the nodule removed from the left forearm proved the presence of tophi with no atypical cells (Figure 2). A diagnosis of tophaceous gout was made and the patient was treated with allopurinol 100 mg/day, colchicine 0.5 mg/day, and prednisone 5 mg/day. The patient showed good evolution with this medication and currently is being treated with 300 mg/day of allopurinol and 1 mg/day of colchicine.

DISCUSSION

The presence of symmetrical polyarthritis, morning stiffness, or positive RF, although characteristic of RA, can also be seen in patients with gout.² In our patient, despite the history of alcohol abuse, intermittent bouts of arthritis, and high serum levels of uric acid, suggestive of gout, the differential diagnosis between gout and rheumatoid arthritis (or the concomitant presence of both) was due to the presence of important symmetrical articular deformities of MCPs and PIPs, presence of diffuse subcutaneous nodules, and some radiographic changes in hands and wrists, although serum RF levels were negative.

In 1999, Schapira *et al.*⁹ reported two cases of chronic gouty arthritis mimicking RA. The correct diagnosis was based on: family history of gout, alcohol abuse, nephrolithiasis, and prior use of diuretics; presence of subcutaneous tophi; characteristic radiographic changes (asymmetrical erosions with marginal and periarticular sclerosis); and the presence of hyperuricemia and/or hyperuricosuria. The diagnosis was confirmed by the presence of mono sodium urate (MSU) crystals in the synovial fluid and tophi.

The coexistence of gout and other autoimmune disorders, such as ankylosing spondylitis and RA, is rare.^{2,7,8} Besides, in the rare cases reported, only one report in the English literature described the coexistence of intradermal tophi and RA; the remaining cases were acute gouty arthritis and RA.³

In RA, joint deformities and destruction are secondary to bone and cartilaginous erosion and^{11,12,13,14}, unlike gout, which affects mainly the joints of the lower limbs, hands and

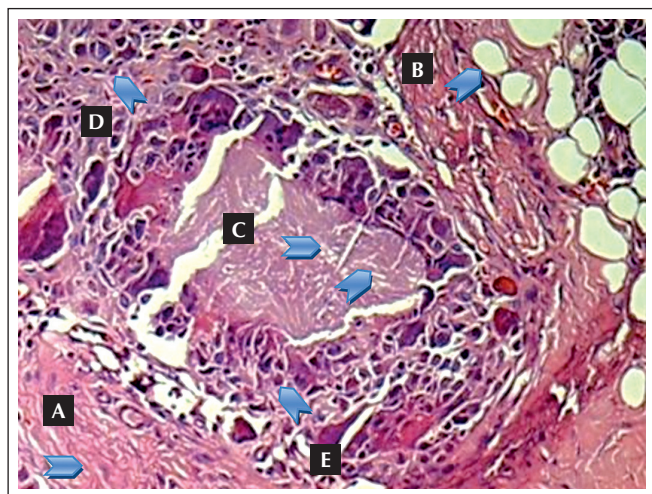


Figure 2. Hematoxylin-eosin stain: node surrounded by dense fibrous connective collagenous tissue (A), hypervascularized, partially surrounded by adipose tissue (B). Incomplete fibrous connective septa trap abundant amorphous material (indicative of mono sodium urate) (C), exuberant inflammation (D), and multinuclear giant cells (E).

wrists are the main site involved in almost all patients with RA, frequently evolving with deformities, such as swan neck, boutonniere deformity, and ulnar deviation.¹²

The most characteristic radiographic findings in gout include asymmetrical, erosive arthritis with preserved articular space (except in late phases) and periarticular bone density. Bone erosions are caused by deposits of tophi, and lower limb involvement, which can be intra-articular (beginning on the margins and progressing towards the center), para-articular (eccentric, usually oval or rounded, surrounded by a sclerotic rim), or away from the joints, predominates.¹⁰

In the patient presented here, despite radiographic changes uncommon in gout (reduced bone density, erosions, epiphyseal cysts, subluxation of distal and middle phalanges, and cysts in the wrists), some marginal erosive lesions, extra-articular bone cysts, and preserved articular spaces of MCP and wrists, direct the diagnosis to chronic tophaceous gout mimicking RA.

Subcutaneous nodes are present in 30% of the cases of RA, and virtually all of them are seropositive. In patients with nodules and negative rheumatoid factor, the presence of tophaceous gout should be investigated¹², since tophi develop as gross tumefactions in hands and feet; they are usually painless, but they can limit joint mobility, with the consequent deformity of articular and peri-articular structures, leading to the development of deforming or mutilating arthritis, seen in our patient. The skin overlying the tophi can ulcerate and release a urate-rich whitish substance resembling wet chalk,⁴ similar to that observed in our patient, whose anatomopathologic evaluation confirmed the presence of MSU crystals.

In a study with seven cases of coexisting gout and RA, the authors observed that only one of the patients was anti-CCP positive (RF was also positive), and the authors suggested that could be explained by the fact that this antibody does not have enough sensitivity to detect all cases of RA, although it is more specific than RF², and it is not fundamental to determine the coexistence of gout and RA.¹⁵

In view of the literature data and the finding of hyperuricemia, uric acid lithiasis, history of alcohol abuse, and anatomopathologic confirmation of crystals (MSU) in subcutaneous nodes; absence of morning stiffness, fatigue, and rheumatoid factor; and excellent response to allopurinol and colchicine, we concluded that this patient has a rare form or mutilating tophaceous gout mimicking rheumatoid arthritis.

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