

## Case Series

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## Gouty Tophi: Two Case Report

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### INTRODUCTION

Gouty tophi represent a symptom of chronic form of gout resulting from accumulation of monosodium urate crystals in tissues, which is the most prevalent form of inflammatory arthritis. The tophus represents a granulomatous inflammatory response to monosodium urate crystals.<sup>1,2</sup> Women are less likely to have gout than men but they develop it in the postmenopausal years and have comorbidities such renal disease, diabetes or concomitant use of diuretics more common as compared with men.<sup>3</sup> We present two cases of gouty tophi.

### CASE REPORTS

#### Case 1

A 66-year-old man presented with an intense joint pain and deformities on his toes (Figure 1). Furthermore, the patient had an additional lump in his left elbow. He had personal history of hypercholesterolemia and hypertriglyceridemia. He had elevated levels of uric acid a year ago but in treatment with allopurinol the levels had descended to normality; uric acid 3.33 mg/dL (normal range 3.5-7.2), Histological study was consistent with gouty tophi. He was referred to rheumatologist.

#### Case 2

A 84-year-old man with multiple co-morbidities such as dyslipidemia, hypertension and hyperuricemia, presented to us with multiple soft tissue masses over several metacarpals associated with severe joint deformities (Figure 2). He had not been treated regularly for gout. Laboratory tests included urea 78.8 mg/dL (normal range 17.1-49.2), uric acid levels of 9.98 mg/dL (normal range 3.5-7.2), creatinine 1.63 mg/dL (normal range 0.8-1.3). We establish diagnosis of gouty tophi and referred to his physician for appropriate treatment. The patient started therapy with allopurinol 100 mg daily with resolution of symptoms.

Figure 1: Gouty tophi on the Right Toes.



Figure 2: Tophi on the Right Hand Associated with Severe Joint Deformities



## DISCUSSION

The prevalence of gout and hyperuricemia is on the rise in developing countries probably related to population aging, alcohol intake, hypertension, obesity, metabolic syndrome and use of diuretics. The prevalence increases with age. Being male and black person are also risk factors. Gout is caused by the deposits of monosodium urate crystals (MSU) in the synovial fluid and other tissues and it is associated with hyperuricemia. Crystal deposition then triggers immune activation. Tophi are subcutaneous nodules comprised of aggregates of crystals in and around joints or soft tissues. Commonly affected sites are the first metatarsophalangeal joint (MTPJ), midtarsal joints, ankles, knees, fingers and ankles. It usually appears in chronic hyperuricemia but occasionally the patient may develop them without previous gouty arthritis episodes. Superficial tophi can lead to ulcerations of the overlying skin. Histopathological features include deposit of urate crystals surrounded by an intense inflammatory reaction of macrophages, lymphocytes and large foreign body giant cells. The birefringence of the crystals is a specific sign of urate crystals. Suboptimal management of gout has been shown.<sup>1-4</sup>

The diagnosis of an acute gout attack in the elderly can be a challenge. Management of gout must include a definitive diagnosis (clinical, and laboratory features, presence of tophi, ultrasound examination, and demonstration of MSU crystals in synovial fluid or in the tophus); a swift treatment of acute attacks, use of urate-lowering therapies for prevention and lifestyle advice (optimizing weight, restriction intake of purines-rich food and limiting alcohol consumption).<sup>5,6</sup>

Treatment of acute attacks includes non-steroidal anti-inflammatory drugs, low-dose colchicine regimen and oral, intramuscular or intraarticular corticosteroids. Allopurinol is the first-line medication for reducing serum uric acid. Probenecid, colchicine, other xanthine oxidase inhibitors as febuxostat may also be used as urate-lowering therapies (ULT). The 2012 American guidelines support ULT initiation during an acute attack of gout. ULT should be started at a low-dose, and the dose gradually increased. Despite the low levels of uric acid of the analysis of the patient is possible the presence of tophi and arthritis. A patient starting ULT are at risk of gout arthritis due to the deposit of acid uric crystals in joints. To avoid this arthritis is recommended a concomitant treatment based on colchicine or COX-2 inhibitors or low-dose prednisolone.<sup>6-8</sup>

## CONCLUSIONS

The prevalence of gout increases with the population aging and it is associated with comorbidities. If no hyperuricemia treat-

ment is given the disease may develop into chronic tophaceous gout involving soft tissues or joints. It is important for clinicians be able to diagnose and improve the quality of gout management.

## CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

## CONSENT

The authors have taken oral consent from the patients.

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