

# Chronic Tophaceous Gout Manifesting with Bilateral Diffuse Pedal Swelling: Cytology Revisited with an Update in Its List of Differentials

Krishnendu Mondal, Rupali Mandal

Department of Pathology, Sonoscan Healthcare, Malda, West Bengal, India

## Abstract

Gout, a disorder of purine metabolism, presents with acute or chronic arthritis and deposition of urate crystals in connective tissue and kidneys. Rarely, patients progress into chronic tophaceous gout (CTG). We emphasize on a 74-year-old male patient, who developed multiple gouty tophi over both his hands. In addition, both his feet were diffusely swollen. On detection of characteristic urate crystals from both his hands and feet lesions, the diagnosis of CTG was confirmed.

**Keywords:** Chronic tophaceous gout, cytology, diffuse pedal swelling, urate crystals

## INTRODUCTION

The diagnosis of chronic tophaceous gout (CTG) is favored from its initial clinical presentation and subsequent biochemical profile of the patient. In general, the patients are hyperuricemic. The tophi are girdled around the joints only. Rheumatoid nodules, tendinous xanthomas, synovial cysts, sarcoidosis, granuloma annulare, and multicentric reticulohistiocytosis are its closest possible differentials. Furthermore, the likely coexistence of other multifocal cutaneous cysts or tumors within the milieu needs to be excluded. However, the cytological demonstration of urate crystals from gouty tophi forthwith establishes its definite diagnosis.<sup>[1]</sup>

## CASE REPORT

A 74-year-old male presented with a history of recurrent asymmetric arthralgia involving both his hands and feet for the past 8 years. Later on, he gradually developed multiple painful subcutaneous nodules over both his hands, along with aching diffuse swelling of both feet over the past 1 year. His feet appeared edematous at both its plantar and dorsal aspects. On palpation, these were noncompressible hard as seen with nonpitting edema. All the small joints there exhibited negligible

range of mobility. A deeply burrowing ulcer was noticed across the inner border of the left foot. Proximal parts of all limbs above the wrist or ankle joints maintained its normal morphology [Figure 1]. Fine needle aspiration cytology (FNAC) was performed from his hand nodules and the most eminent areas on the feet. Exfoliative samples were obtained from the ulcer. Under microscope, all the smears appeared indifferent. It featured shaggy tangles of brown-colored, long and slender, needle-like crystals, i.e., morphologically reminiscent of classic urate crystals from the gout. Brisk lymphohistiocytic inflammatory infiltrate and foreign body reaction was present [Figure 2]. His serum biochemical investigations revealed hyperuricemia at 12.2 mg/dl (normal: 4–7 mg/dl). The patient was then instituted upon hypouricemic therapy alongside other supportive management.

## DISCUSSION

Diffuse pedal swelling is commonly observed in congestive cardiac failure, renal failure, erysipelas, cellulitis, deep

**Address for correspondence:** Dr. Krishnendu Mondal, C/O Barendra Nath Mondal, Vill-Fularhat, PO and PS Sonarpur, South 24 Parganas, Kolkata - 700 150, West Bengal, India. E-mail: krishnendu.kriss@gmail.com

Submission: 23-11-2019

Revision: 30-11-2019

Acceptance: 21-12-2019

Web Publication: 25-02-2020

### Access this article online

Quick Response Code:



Website:  
www.tjdonline.org

DOI:  
10.4103/TJD.TJD\_39\_19

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** reprints@medknow.com

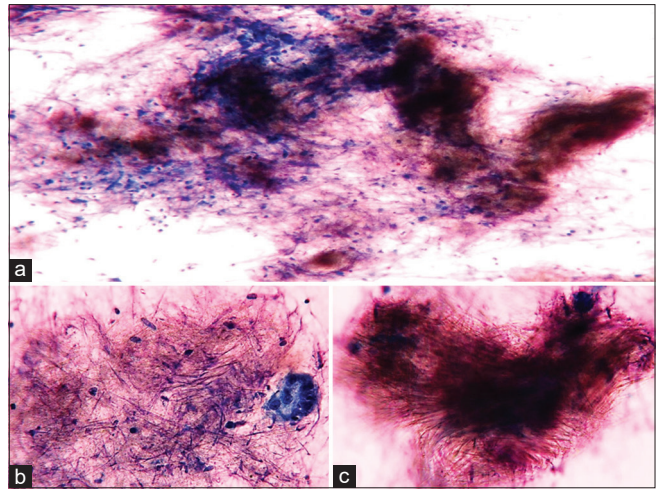
**How to cite this article:** Mondal K, Mandal R. Chronic tophaceous gout manifesting with bilateral diffuse pedal swelling: Cytology revisited with an update in its list of differentials. *Turk J Dermatol* 2020;14:23-4.



**Figure 1:** Clinically, multiple nodules over the dorsum of the right hand and a few around the left wrist joint. Bilateral diffuse pedal swelling at both plantar and dorsal aspects, with an ulcer on the left foot

vein thrombosis (DVT), and lymphedema from filariasis or any other cause. Bilateralism is usually observed with cardiac or renal ailments, but the edema in association is pitting by nature. Localized tenderness along with fever and cutaneous rash/blisters are features of cellulitis and erysipelas. DVT-related pain or swelling tends to extend far more proximally than described in the present case. Filariasis precipitates into nonpitting limb edema, but symmetrical involvement is unlikely.<sup>[2,3]</sup> However, generalized diffuse enlargement of both feet caused by precipitation of urate crystals is also unusual. No such description of CTG could be traced from the already published literatures even after careful scrutiny. In the present case, the pedal lesions were readily approached by cytological techniques, and the pathology came out as same as the hand nodules. Thereby, the diagnosis of CTG was established with an ease.

Like in the discussed report, an unorthodox presentation of CTG requires demonstration of urate crystals for confirmatory diagnosis, which can be performed through synovial biopsy, joint fluid analysis, or biopsy from the tophi. The signature monosodium urate crystals are best visualized under polarized microscopy and smear preparations, as on routine processing for histology, these crystals often disintegrate. Cytological detection of the crystals from the tophi is also a useful alternative.<sup>[4]</sup> In the discussed patient, all his pathological lesions were sampled very well with FNAC and scrape cytology. He was detected hyperuricemic as well. From such an overall



**Figure 2:** Cytologically, clumps of amorphous brown-colored crystals intermingled with lymphohistiocytic cells ([a] Pap,  $\times 100$ ) and foreign body giant cells ([b] Pap,  $\times 400$ ); on magnification, the crystals appear needle-shaped slender with pointed both ends ([c] Pap,  $\times 400$ )

presentation, CTG was the diagnosis of choice. The present case reconciles about an uncommon pedal manifestation in CTG and therefore an updated consideration to its related differential diagnoses.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

#### Financial support and sponsorship

Nil.

#### Conflicts of interest

There are no conflicts of interest.

#### REFERENCES

1. Khandpur S, Minz AK, Sharma VK. Chronic tophaceous gout with severe deforming arthritis. *Indian J Dermatol Venereol Leprol* 2010;76:69-71.
2. Ely JW, Osheroff JA, Chambliss ML, Ebell MH. Approach to leg edema of unclear etiology. *J Am Board Fam Med* 2006;19:148-60.
3. Traves KP, Studdiford JS, Pickle S, Tully AS. Edema: Diagnosis and management. *Am Fam Physician* 2013;88:102-10.
4. Walke V, Ramraje S, Jadhao V. Cytodiagnosis of gouty tophus. *Cytojournal* 2013;10:11.