

Gouty Tophi - Uncommon Entity on Cytology

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Abstract

Gouty tophi are nodular masses of monosodium urate crystals deposited in soft tissues, common sites being fingers, toes, bursae of elbows and helix of ears. Rarely tophi can develop without acute gouty arthritis. Here we report such a clinically unsuspected case of gouty tophi, which presented with a soft tissue swelling on elbow, but was diagnosed as gouty tophi on FNAC.

Keywords: Gouty tophi, Monosodium urate crystals, Hyperuricemia

Introduction

Gouty tophi are nodular masses of monosodium urate crystals deposited in soft tissues. These tophi are usually seen around joints and subcutaneous tissues, mainly knee joint, olecranon process, Achilles tendon, helix of the ear and volar aspect of the forearm.¹ It is believed that the above-mentioned sites are cooler parts where uric acid crystals get precipitated; hence these sites are the more common sites of occurrence of gouty tophi.² They are a late complication of hyperuricemia and tend to develop in more than half of the patients with untreated gout. Rarely tophi can develop without acute gouty arthritis. "Gout nodulosis" is sometimes used to describe widespread subcutaneous deposits of monosodium urate crystals without gouty arthritis.³ FNAC is an effective method in making diagnosis of gouty tophi in clinically unsuspected cases.

Case Report

Recently, a 25-year-old man presented with a soft tissue swelling on his right elbow (Fig. 1a) measuring 1.5 cm in diameter, since 6 months. It was nontender, firm and nonmobile. Clinically a diagnosis of bursal cyst was entertained. Patient was then referred for FNA of soft tissue swelling. FNA performed yielded chalky white material. Giemsa-stained smears revealed clumps of dense amorphous acellular material containing thin long-needle-shaped crystals along with a few inflammatory cells (Fig. 1b). On polarizing microscopy the crystals were negatively birefringent, distributed singly and were arranged in stacks and clusters (Fig. 1c,d). Based on FNA findings, the diagnosis of gout was suspected with hyperuricemia and the patient was investigated for serum uric acid levels. Serum uric acid levels were raised to 15.2 mg/dL (normal: 3.0–7.5 mg/dL).

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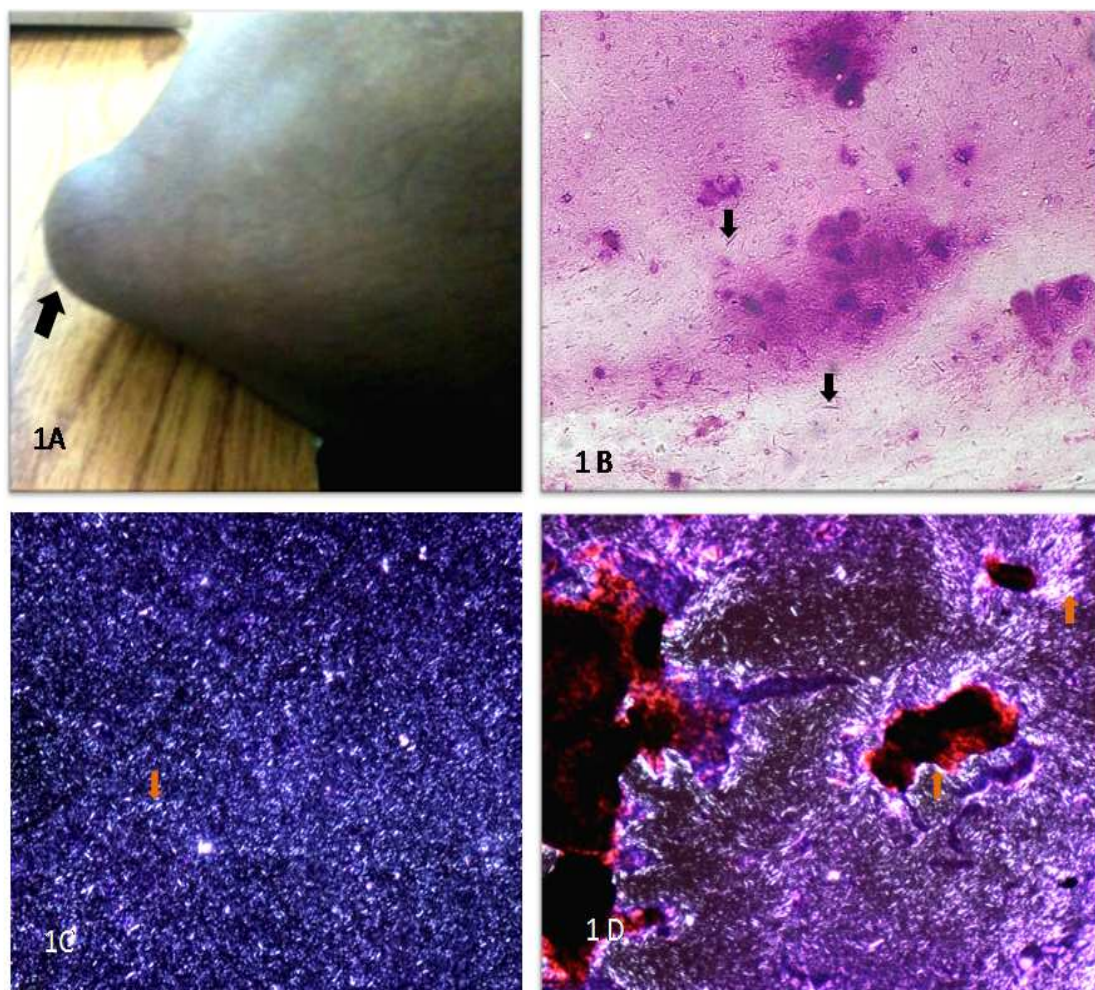


Figure 1a). Soft Tissue Swelling on Right Elbow. 1b) Smears Showing Thin Long-Needle-Shaped Crystals along with a Few Inflammatory Cells. 1c,d). Polarizing Microscopy Showing Negatively Birefringent Crystals Distributed Singly and Arranged in Stacks and Clusters

Discussion

The presentation of gouty tophi as periarticular masses is not very common. The cytological differential diagnosis of chalky white material other than gout includes tumor calcinosis and tophaceous pseudogout. The deposits in tumor calcinosis are amorphous and are intensely basophilic and lack a crystalline structure.⁴ In tophaceous pseudogout, calcium pyrophosphate crystals are smaller with blunted or squared ends and have weakly positive birefringence while gout crystals of monosodium urate are long-thin-needle-shaped and show strong negative birefringence. Although gouty tophi have classical histological features, however the definitive diagnosis is based on the demonstration of crystals which are often dissolved at the time of tissue processing.⁵

FNAC is a simple, cheap and diagnostic tool in diagnosing gouty tophi with additional advantage of excellent preservation of crystals.

Conflict of Interest: None

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