

Case Report

## Chronic Tophaceous Gout Mimicking Soft Tissue Neoplasm

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### ABSTRACT

Gout is a chronic metabolic disorder of uric acid resulting in deposition of Monosodium urate crystals commonly in joint spaces and sometimes in soft tissues. Gouty tophi presenting as periarticular masses are uncommon and often are mistaken for a soft tissue neoplasm. We present a case of 78 year old male with a swelling in right index finger. Fine needle aspiration cytology helped us to arrive at the definitive diagnosis and ruled out the possibilities of soft tissue neoplasms and other benign lesions like giant cell tenosynovitis, rheumatoid nodules.

**Keywords:** Gout, crystals, neoplasm, monosodium, urate.

### INTRODUCTION

Gout is a disorder of uric acid metabolism which result in deposition of Mono sodium urate (MSU) crystals in joints and soft tissue. <sup>(1)</sup> Chronic tophaceous gout can present as a soft tissue mass and hence it needs to be differentiated from rheumatoid nodules, fibromas, giant cell tumor of tendon sheath. <sup>(2,3)</sup> Gout presenting as soft tissue mass is quite rare and sometimes mimics soft tissue neoplasm clinically as well as radio graphically, posing a challenge in their diagnosis. The definite diagnosis is made by demonstration of Mono sodium urate crystals in the synovial fluid or soft tissue mass. <sup>(2)</sup>

### CASE HISTORY

A 78 year old male presented to orthopedics OPD with a swelling over the right index finger since 5 months. It was gradually increasing in size and was causing pain and discomfort to the patient. On examination, it measured 2.5 x 1.8x 1.2 cm, firm to hard, immobile, tender

swelling.(Figure 1).On routine investigation, haemogram was normal with increased Erythrocyte sedimentation rate upto 40 mm/hr. His serum uric acid was elevated upto 8.9 mg/dl (reference range 3.4-7.2 mg/dL) with serum creatinine up to 2.2 mg/dl (reference range 0.6-1.2 mg/dL) and blood urea nitrogen up to 85 mg/dl (reference range 35- 45 mg/dL).X ray revealed soft tissue swelling without any bony erosion or involvement.(Figure 2).FNAC was done after explaining the procedure to the patient. The material aspirated was amorphous and granular. Smear revealed clumps of non cellular material showing needle shaped crystals. (Figure 3 & Figure 4).The diagnosis of gouty tophus was rendered. The patient was put on anti gout treatment and was follow up after 4 months .Patient responded well and showed decrease in the size of swelling as well as uric acid level in blood.



Fig 1: A 2.5 x 1.8x 1.2 cm, firm to hard, immobile swelling at the base of right index finger.



Fig 2: X ray revealed soft tissue swelling without any bony erosion or involvement.

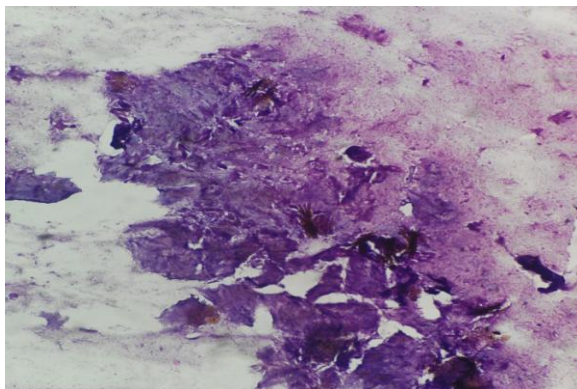


Fig 3: Microscopy shows amorphous or granular myxoid material with needle shaped crystals H & E, 100X)

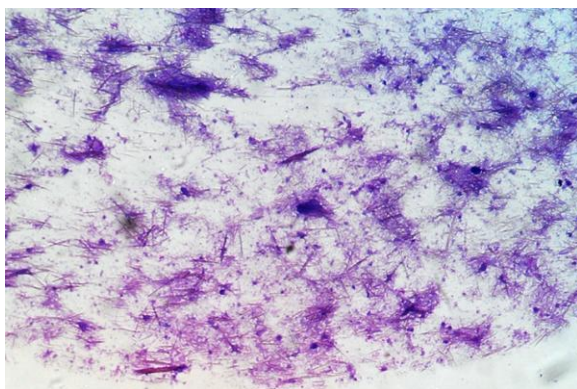


Fig 4.High power view showing needle shaped crystals against granular background.( H & E, 200X).

## DISCUSSION

Gout is a chronic hyperuricemic state which can be either primary as a result of inborn error of purine metabolism or decreased renal excretion of uric acid or secondary to conditions with extensive cell turnover or acquired renal disorders. <sup>(1)</sup> Gouty tophi are usually discovered in synovial membrane, periarticular ligaments, tendons, soft tissue, subcutaneous tissues, achilles tendon and helix of ear. <sup>(2)</sup> Gout usually presents as acute arthritis but can also present in the form of asymptomatic nodule in the soft tissue or asymptomatic hyperuricemia or nephrolithiasis. <sup>(4)</sup> Soft tissue tophi without concomitant arthritis often mimic neoplasm clinically as well as radiologically <sup>(5)</sup> Hence FNAC plays crucial role in the diagnosis of this condition. Gout is usually seen in patient having hyperuricemia and present with arthritis. However few cases show only gouty tophi without arthritis and hyperuricemia. Such condition is common in alcoholic and diabetic. <sup>(5,6)</sup> Iglesias *et al* used the term gout nodulosis to describe the subcutaneous deposits of MSU without gouty arthritis as initial manifestations. <sup>(7)</sup> Our case patient presented with asymptomatic hyperuricemia along with gouty tophus. Radiologically, gouty tophus show soft tissue mass and bone erosion, which challenges its diagnosis and can be seen in various benign and malignant lesions. <sup>(5)</sup> In our case, patient showed only soft tissue mass without bony erosion. On FNAC, aspirates are usually chalky white granular material which has tendency to wash off easily on slides. Hence, Nasser *et al* recommended air dried smears stained with Diff Quick Romanowsky stain such cases. <sup>(8)</sup> Microscopical examination shows amorphous or granular myxoid material with foamy histiocytes, multinucleated giant cells and chronic inflammatory infiltrate and needle shaped crystals. Neutrophils and epithelioid cells can also be seen in some cases. <sup>(9,10)</sup> MSU crystals are needle shaped rods about 5-20 nm in length with pointed tips. These crystals are strongly

birefringent. <sup>(11)</sup> Our case revealed similar features. On cytology differential diagnosis of crystalline tophus includes tumor calcinosis and tophaceous pseudogout. <sup>(1)</sup> Tophaceous pseudogout is a rare disease shows deposition of calcium pyrophosphate dihydrate crystal deposition in anatomical sites like temporo mandibular joint, fingers, toes, cervical spine, wrist, hip etc. <sup>(12)</sup> It differs from gout from the fact that it shows calcification commonly and the crystals are rhomboid and not needle shaped as described in gout. Tumor calcinosis is an idiopathic condition in which there is calcium deposition in the soft tissue around the joints. These calcium accumulations are outside the joint capsule. They may be hereditary or secondary in patients undergoing renal dialysis. On cytology it shows amorphous intensely basophilic granular appearance. <sup>(12)</sup> FNAC is thus simple cost effective, less invasive technique to diagnose gout as compared to biopsy which need sterile setup. Moreover it has an added advantage of excellent preservation of crystals. Our patient was put on anti uric acid drugs along with diet modifications. He responded well after period of 3 months and showed reduction in swelling size as well as in serum uric acid levels.

## CONCLUSION

FNAC has now becomes a very popular investigating modality in diagnosing gouty tophi as it is simple to perform and give definitive result and spares the patient from invasive procedures like biopsy.

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