

Cytological Diagnosis of Chronic Topaceous Gout without Clinical Arthritis

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ABSTRACT

The typical first manifestation of gout is an acute episode of monoarticular arthritis. Gout presenting as painless subcutaneous nodules close to the joints without clinical arthritis is uncommon and can be often mistaken as neoplasms. In such settings Fine Needle Aspiration Cytology of these nodules would facilitate the clinical diagnosis of gout and treatment. We wish to report one such case with an unusual presentation of gout with multiple subcutaneous gouty tophi without any clinical manifestations of arthritis with all its clinicopathological details .

Keywords: Arthritis, Fine Needle Aspiration Cytology , gout, monosodium urate crystals

INTRODUCTION

Multiple subcutaneous periarticular nodules can be because of various causes which include rheumatoid nodules, ganglion cysts, pigmented villonodular synovitis, synovial chondromatosis and synovial sarcoma^[5]. Gouty tophus is also an important differential diagnosis. Clinically its diagnosis can be difficult in cases of unusual presentations in the absence of arthritis and / or hyperuricemia. A minority of individuals particularly elderly patients taking diuretics or corticosteroids are known to present with tophi without acute arthritis^[10]. Fine needle aspiration cytology (FNAC) can act as an initial valuable and cost effective tool in diagnosis of gouty tophi as soft tissue nodules.

CASE HISTORY

A 42 year old male presented with multiple periarticular, subcutaneous, soft and painless swellings on both upper and lower limbs at multiple sites and also ear pinnas since 3 years. There was no history of any joint pains ever related with these swelling or any history of any chronic drug therapy. On examination all the swellings were subcutaneous nodules, freely mobile, soft in consistency and nontender. Nodules ranged from 6 x6cm to 0.5x0.5cm

in size. Tenderness was present only over over right ring finger. Some swellings on foot showed surface ulceration with thick white granular discharge.

X-rays revealed all swellings were soft tissue masses in the vicinity of the joints but no radiological features of arthritis was noted in adjacent joints [figure 1 A & B]. X-ray of right index finger showed bony erosion of the distal end of middle phalynx and proximal end of distal phalynx [figure 1 B]. Serum uric acid levels were found to be 9.5mg/dl.

Wet film preparation of the oozing thick white discharge showed refractile, long needle like crystals of monosodium urate (MSU) on microscopy [figure 2].

FNAC was done from all the swellings using 23 gauge needle. White material was aspirated from which alcohol fixed and air dried smears were prepared which were stained with hematoxyllin and eosin and Leishman stains, respectively. The smears showed amorphous material along with long needle like MSU crystals with foreign body giant cell reaction [figure 3].

A swelling in the proximity of right elbow was also excised and sent for histopathological examination. On

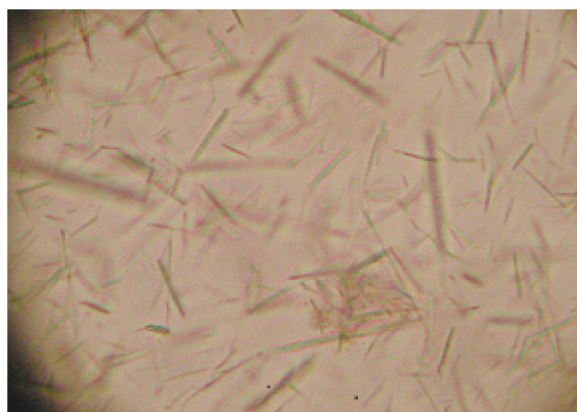


Figure 1- X-Rays of tophi as soft tissue masses [A,B] and bone erosion [B]

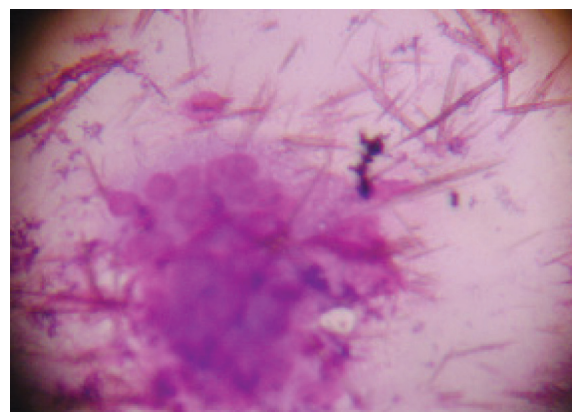


Figure 2- Needle like MSU crystals in wet mount of white discharge [400X]

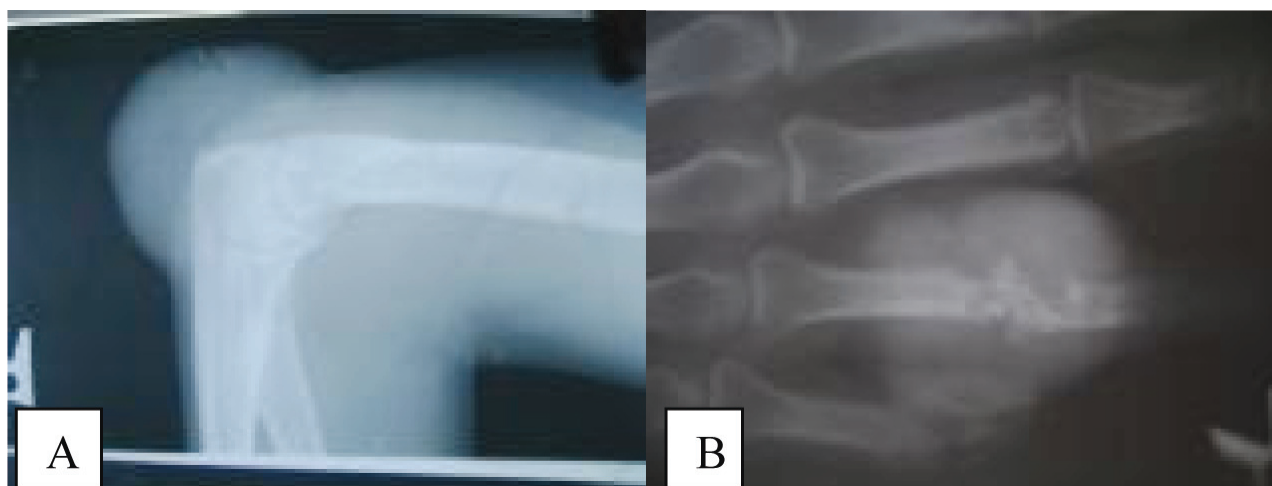


Figure 3 – MSU crystals along with foreign body giant cell in FNAC smears stained with leishman [400X]

gross a nodular white mass was received with white, chalky, powdery surface and cystic spaces on cut surface. Hematoxyllin and eosin stained sections showed gouty tophi with central deposits of urate crystal surrounded by inflammatory reaction consisting of lymphocytes, plasma cells and foreign body giant cells.

DISCUSSION

Gout is caused when chronic hyperuricemia leads to formation of crystals of MSU in various body tissues. It usually manifests as acute arthritis but can also present in the form of asymptomatic hyperuricemia, chronic tophaceous gout or nephrolithiasis^[9]

Tophi are soft tissue masses usually periarticular, that develop after a long standing gouty arthritis. But rarely may develop without concomitant arthritis^[10]. Iglesias et al^[3] used the term "gout nodulosis" to describe the subcutaneous deposits of MSU without gouty arthritis as initial manifestation. Soft tissue tophi can be mistaken for neoplasm clinically and radiologically^[9].

Gout is easy to diagnose in presence of arthritis and hyperuricemia. But arthritis and hyperuricemia may not be rarely absent. Uric acid levels can be normal especially in diabetics and alcoholics^[6,9]. Uric acid levels were raised in the present case but with no clinical or radiological evidence of arthropathy, but bone erosion was present.

Interleukin-1 β has been implicated in bone destruction

and erosions in gouty arthritis also MSU crystal deposition is associated with activation of osteoclasts and the receptor for activation of nuclear factor κ B (RANK) and RANK ligand (RANK-RANKL) which is also considered to be the cause of gouty bony erosions^[7]

FNAC aspirates from tophi in most of the cases reported were chalky white as with the present case^[1,2,5,8,9,11,12]. Nasser et al recommended the use of air dried smears stained with Diff Quick Romanowsky stain as they did not find wet fixed smears to be useful for demonstration of MSU crystals^[8]. But in our study we found MSU crystals can also be well demonstrated in wet fixed smears stained by hematoxylin and eosin along with in air dried leishman stained smears. Crystals can also be demonstrated in wet mount preparations as in present study^[8].

Microscopy showed in most of the cases, amorphous or granular material with needle like MSU crystals and multinucleated giant cell along with chronic inflammatory infiltrate this correlates with the present study findings^[1,2,5,8,9,11,12]. Neutrophils^[1,13] and epithelioid cells can also be seen in some cases^[1].

On cytology, differential diagnosis of crystalline tophus includes tumoural calcinosis and tophaceous pseudo-gout but both can be excluded radiologically as they show calcification^[2,4]. In the present case the diagnosis of gout was further confirmed by histopathology.

Thus, FNAC is proving to be a valuable tool and a good alternative to synovial biopsy and synovial fluid analysis for crystal demonstration. It is less invasive, simpler and cost effective technique as compared to synovial biopsy, which causes more tissue trauma and requires sterile set up.

CONCLUSION

1] FNAC is valuable in confirming the nature of subcutaneous nodules.

2] FNAC is useful in diagnosing gouty tophi and cytopathologist should be aware of their morphological features especially in cases of atypical presentation.

3] Whenever chalky white, amorphous or granular

material is aspirated on FNAC a possibility of gouty tophus should be considered.

REFERENCES

1. Bhadani PP, Sah SP, Sen R, Singh RK. Diagnostic value of fine needle aspiration cytology in gouty tophi: a report of 7 cases. *Acta Cytol* 2006; 50 :101-4.
2. Gupta A, Rai S, Sinha R, Achar C. Tophi as an initial manifestation of gout. *J Cytol* 2009;26:165-6.
3. Iglesias A, London JC, Saaibi DL, Pena M, Lizarazo H, Gonzalez EB. Gout nodulosis: widespread subcutaneous deposits without gout. *Arthritis Care Res* 1996; 9 : 74-7.
4. Ishida T, Dorfan DH, Bullough PG. Tophaceous pseudogout (tumoural calcium pyrophosphate dihydrate crystal deposition disease). *Hum Pathol* 1995; 26 : 587-93.
5. K Agarwal, S Pahuja, C Agarwal, A Harbhanjanka. Fine needle aspiration cytology of gouty tophi with review of literature. *J Cytol* 2007;24:142-5.
6. MC Carty DJ. Gout without hyperuricemia. *JAMA* 1994; 271: 302-3.
7. Naomi Sclesinger, Ralf G Thiele. The pathogenesis of bony erosions in gouty arthritis. *Ann Rheum Dis* 2010;69:1907-1912.
8. Nasser IA, Fayyad LM, Soudi NM, Bardawil RG. Fine needle aspiration cytology in the diagnosis of gouty tophi: the role of Diff-Quick stain in the evaluation of unexpected lesions. *Acta Cytol* 1994; 38 : 840.
9. Nicol KK, Ward WG, Pike EJ, Geisinger KR, Capperllari JO, Scott EK. Fine needle aspiration biopsy of gouty tophi: lessons in cost effective patient management. *Diagn Cytopathol* 1997; 17 : 30-5.
10. Oxford Text Book of Orthopedics and Trauma. Vol-2, pg 1378.
11. Ramdas A, Gyanadoss JJ, Mani A, Varghese R.G. cytological diagnosis of gout- a report of two cases. *Journal of Cytology* 2005;22(1):48-49.
12. Rege J, Shet T, Naik L. Fine needle aspiration of tophi for crystal identification in problematic cases of gout. A report of two cases. *Acta Cytol* 2000; 44 : 433-6.
13. Sah SP, Rani S, Mahto R. Fine needle aspiration of gouty tophi: a report of two cases. *Acta Cytol* 2002; 46 : 784-5.