CASE REPORT: DIAGNOSIS OF GOUTY TOPHI ON FINE NEEDLE ASPIRATION CYTOLOGY

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ABSTRACT

Fine needle aspiration cytology (FNAC) is an important diagnostic tool in the diagnosis of soft tissue nodules around joint. Our patient was a 55 year old man a known hypertensive, diabetic with history of multiple skin coloured nodular lesions on both feet involving ankle, malleoli, Achilles tendon and dorsum of the forth toe associated with discharging sinuses since two years. He did not have any other clinical symptoms. The X ray of both feet showed osteolytic lesions. FNAC of the lesions revealed, monosodium urate crystals (MSU) which are birefringent needle shaped crystals under polarising microscopy. Diagnosis on FNAC was given as gouty tophi. Further investigations done revealed high levels of serum uric acid (10.4mg %) and a confirmed diagnosis of gout was given. It is important that pathologist should be conversant with the cytomorphological features of gout and also should be aware that FNAC can play an important role in the diagnosis of these lesions.

Keywords: *Gout, tophus, periarticular, Uric acid, FNAC*

INTRODUCTION

The causes of periarticular nodules could be a wide range of conditions like, ganglion cysts, pigmented villonodular synovitis, synovial sarcoma, gouty tophi, rheumatoid nodules, and synovial chondromatosis.[1] Diagnosis of gouty tophus is difficult in those cases with atypical presentation and in absence of hyperuricemia. Fine needle aspiration cytology (FNAC) is safe, cost effective method in the diagnosis of periarticular soft tissue nodules and the pathologist should know the relevant cytomorphological features for the differential diagnosis of gouty tophi. We present clinico-cytological feature in our patient of gouty which was not associated with accompanying arthritis.

CASE REPORT

We present a case of a 55 year old male hypertensive, diabetic with history of multiple skin coloured nodules on both feet involving ankle, malleoli, Achilles tendon and dorsum of the forth toe associated with discharging sinuses since two years. He did not have any other clinical symptoms. The lesions varied in size from 5-2.5cm diameter. On palpation the nodules were firm to feel, non-tender and not fixed to underlying bones. [Fig.1]. Radiographs of both the feet (foot lateral view and ankle AP view) showed evidence of cortical break in cuboid bone, calcaneal spur, and osteophytes in lower end of tibial bone. Clinically patient was suspected as tumour calcinosis (metastasis) and PSA level was done which was normal. Second clinical diagnosis kept in mind was second degree renal failure; however investigations showed BUN and Serum creatinine within normal limits. Thus no definite clinical diagnosis was given and patient was referred for FNAC.

FNAC was performed from all the three sites using a 23-gauge needle. The aspirate was white, chalky granular in nature. Papanicolaou (Pap) stained smears demonstrated chronic inflammatory infiltrate, abundant granular amorphous, retractile deposits on scanner view and on high power view it showed scattered stacks and sheaves of slender needle shaped crystals. [Fig. 2] Polarizing microscopy of the same smears showed birefringent crystals, consistent with monosodium urate (MSU) crystals [Fig. 3 and 4]. Diagnosis of gouty tophi was given on the basis of cytomorphological features. Following this report patient was investigated for serum uric acid which was found to be raise 10.4mg %.(Normal Range 3.5-7.7mg %).

Fig. 1: Multiple nodules ranging in size from 0.5-2.5cm diameter, firm and mobile, non-tender. (Inset showing closer view of nodules)

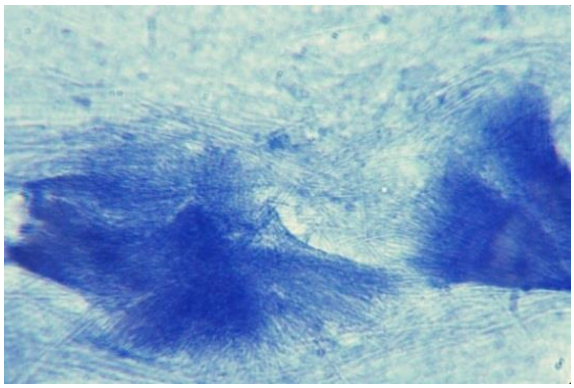

Fig. 2: Amorphous granular material (Pap 40x) (Inset showing elongated crystals)

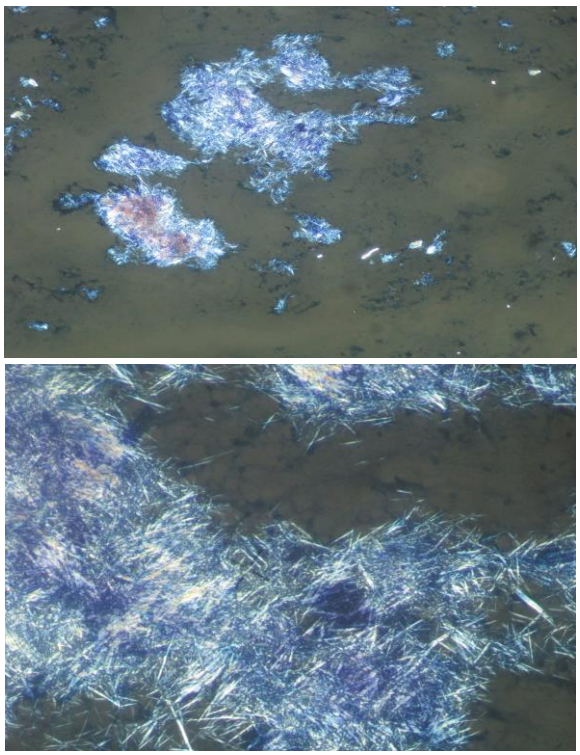

Fig. 3: Elongated needle shaped crystals under polarising light (Pap stain 40x)

DISCUSSION

The presentation of gouty tophi as periarticular masses is not very common. As a result these masses may be mistaken for tumour. The reason for this nodule not getting diagnosed as gouty tophi may be, because the clinical presentation gout in many instances is not straightforward .In such a cases, fine needle aspiration cytology (FNAC) of the gouty tophi would be helpful in making the clinical diagnosis and thereby also help in the treatment.

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. It is believed that the above mentioned sites are cooler parts of the body where uric acid crystals gets precipitated, hence these sites are the more common sites of occurrence of gouty tophi.[2] Tumour calcinosis and tophaceous pseudogout are the differential diagnosis in such cases, as both show soft tissue calcification on radiograph. [3], [4]

FNAC of tumoral calcinosis shows intensely basophilic, calcified material unlike the needle-like crystals observed in gouty tophi.[4] Tumoral calcinosis deposits are granular and lack a crystalline structure. Monosodium urate crystals (MSU) are longer and show strong negative birefringence, while crystals of pseudo gout are smaller, rhomboid or needle-shaped which are non-birefringent.[4] On radiology calcification is uncommon in gout. It is to diagnose gout In the presence of arthritis and hyperurecimia, however, arthritis and hyperuricemia may not be present in all the cases. In diabetics and alcoholics uric acid levels may be normal. [2, 5] Gouty arthritis does not have any specific radiological feature. The radiological features seen are soft tissue masses (tophi), soft tissue swelling and bone erosion which can be seen in many other conditions.[5] Although gouty tophi have classical histological features however for the definitive diagnosis is based on the demonstration of crystals which are often dissolved at the time of tissue processing .[6]

FNAC is a simple, cheap diagnostic tool in diagnosing the cause of nature of periarticular nodules.[6, 7] in case of gouty tophus , the other advantage with FNAC is the excellent preservation of crystals .

In the diagnosis of subcutaneous nodules, white, chalky granular material is aspirated on FNAC gouty tophus should be considered in the differential diagnoses.

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