

Case Report

Role of FNAC in diagnosis of gouty tophi - A case report

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Abstract

Periarticular nodules may not be recognized as tophi because the clinical diagnosis of gout in many instances is not straightforward. In such a setting, fine needle aspiration cytology (FNAC) of gouty tophi would facilitate the clinical diagnosis and treatment. FNAC is valuable in confirming the nature of periarticular nodules especially in case of gouty tophi as compared to the histopathology. Thus FNAC is the gold standard for the diagnosis of gouty tophi presenting as periarticular nodules.

Key words

Periarticular nodules, Fine Needle Aspiration Cytology (FNAC), Gouty tophi.

Introduction

Gouty tophi presenting as periarticular masses are uncommon and often mistaken for a neoplasm. These nodules may not be recognized as tophi because the clinical diagnosis of gout in many instances is not straightforward. In such a setting, FNAC of gouty tophi would facilitate the clinical diagnosis and treatment [1-5]. Here we have reported one of a 48 years old patient with multiple periarticular masses diagnosed as gouty tophi on FNAC.

Case report

A 48 years old male presented with history of multiple periarticular swellings since 4 years.

The periarticular swellings were initially small in size and gradually increasing in size and involved right and left metacarpals and phalanges (**Photo – 1**) both elbows, both ankles and tarso of both great toe (**Photo – 2**). Patient had history of multiple joint pains and he was on treatment for the same. On investigations, his hemogram, liver function tests, and rheumatoid factor were within the normal limits. FNAC was performed from [6-10] all periarticular swellings and thick chalky white material was aspirated. The slides were stained with Hematoxylin and eosin stain. Microscopy revealed numerous needle-shaped crystals in stacks and dispersed singly with few scattered chronic inflammatory cells (**Photo - 3, 4, 5**). On further investigation,

the serum uric acid levels were found to be elevated. A diagnosis of gouty tophi was established based on these findings.

Photo – 1: Gouty nodules on hands.



Photo – 2: Gouty nodules on feet.



Photo – 3: Amorphous eosinophilic material with plenty of needle shaped crystals. (H&E, 20X)

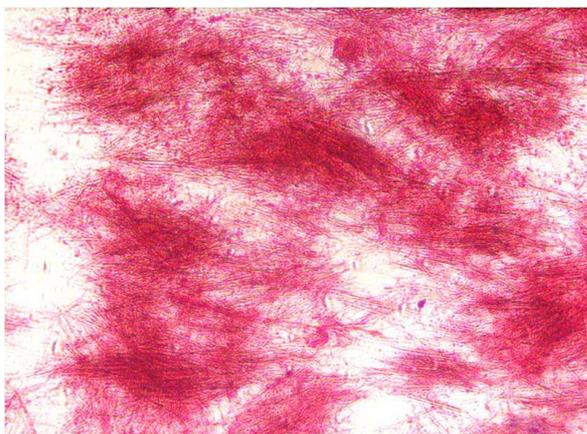


Photo – 4: Plenty of needle shaped crystals with pointed end. (H&E, 40X)

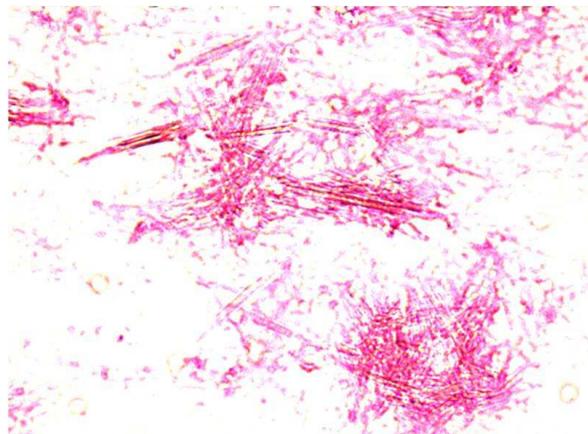
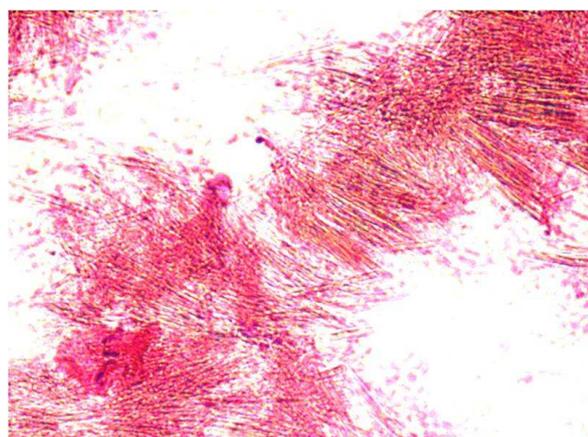


Photo – 5: Plenty of needle shaped crystals with few inflammatory cells. (H&E, 40X)



Discussion

Needle aspiration is very valuable in elucidating the nature of a periarticular nodule and thereby confirming the nature of an associated arthritic process [11]. Gout is a common disease associated with monosodium urate (MSU) crystal deposition in articular or Periarticular tissues and in the renal tract. Generally it progresses through four clinical stages if left untreated: asymptomatic hyperuricemia, acute gout, intercritical or interval gout and chronic tophaceous gout [12].

Gout is caused by persistent chronic hyperuricemia which can be either primary as a result of inborn errors of purine metabolism or diminished renal excretion of uric acid or can be

secondary due to conditions with extensive cell turnover or acquired renal disease. Gout usually manifests as acute arthritis but can also present in the form of asymptomatic hyperchronic tophaceous gout or nephrolithiasis [13].

On FNAC differential diagnosis of articular nodules includes giant cell tumor of tendon sheath, giant cell tumor of bone and metastatic tumor [14].

There is also possibility of tumoral calcinosis and tophaceous pseudogout [11]. In case of calcinosis cuties the calcium salts are intensely basophilic, amorphous calcified material on FNAC in contrast to the distinct, needlelike crystals of gouty tophi. The calcium pyrophosphate dehydrate crystals of pseudogout are smaller, rhomboid or needle shaped and have weakly positive birefringence as opposed to MSU crystals, which are longer and needle shaped and have strongly negative birefringence [15, 16]. Thus demonstration of monosodium urate crystals in FNAC smears from nodular masses establishes the diagnosis of gout unequivocally [17].

Measurement of serum uric acid is of limited help in the diagnosis of chronic tophaceous gout. The uric acid level in some patients with diabetes may be low or normal due to the uricosuric action of increased blood glucose levels. Lower levels of uric acid are also seen in alcoholics [18, 19].

MSU crystals are often lost during histologic processing. However, they are preserved in cytologic smears that are alcohol fixed and hence polarization of fixed smears for confirmation of MSU is possible [19]. Thus FNAC is the gold standard for the diagnosis of gouty tophi presenting as periarticular nodules.

Conclusion

FNAC is valuable in confirming the nature of periarticular nodules. FNAC of gouty tophi is an easy alternative to synovial biopsy or fluid

analysis since it is much less traumatic and simpler and thus should be encouraged in clinical practice.

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