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GIANT CELL TUMOR – A CASE REPORT & ROLE OF CYTOLOGY

Pathology

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ABSTRACT

Giant cell tumor is commonly seen in skeletally mature patients and affects people more than 20 years of age [1]. GCT is more commonly seen in women than men and occurs more frequently in China than in Western countries [2]. Giant cell tumor commonly affects the epiphysis of long bones and then it may spread to metaphysis and can extend into cortex, can cross joint space via structures like ACL (Anterior cruciate ligament) or ligamentum teres. The most commonly affected sites (in order of frequency) include distal femur, proximal tibia and distal radius [1]. GCT also occurs in humerus, fibula, skull especially the sphenoid bone. Occasionally giant cell tumor affects children [3] in metaphyseal or diaphyseal location. Herein we present a case of 38-year-old male patient who presented with painless nodular slow growing firm swelling in the middle finger of right hand. The X-ray revealed soft tissue swelling near the proximal interphalangeal joint. Fine-needle aspiration cytology (FNAC) revealed a diagnosis of giant cell tumor. The case is presented because of the unusual and rare site of the tumor and the characteristic cytopathological findings.

KEYWORDS

Giant cell tumor, FNAC, Cytology

INTRODUCTION

Giant cell tumor (GCT) is a benign neoplasm and an aggressive tumor with potential for metastatic spread and malignant transformation with frequent local recurrences.[4] GCT commonly occurs in young adults of age group 20 to 40 years with peak incidence seen in 3rd decade. The females are commonly affected than males with a male - female ratio of 3:4. Almost 85-90 % of GCT cases occur in epiphyses location of long bones out of which 46.2% are seen around knee joint.[5] The other frequently affected sites include distal radius, fibula and proximal humerus. 4% of cases are seen in pelvic bone. The small bones of hands and feet are very rarely affected.[6] The Giant cell tumors of hands account for only 2% of cases.[5] Herein we present a case of giant cell tumor of Proximal Interphalangeal joint of middle finger of right hand which is diagnosed by FNAC, and is a very rare site for such tumor.

Case Report

A 38-year-old male patient presented to the Surgery OPD with chief complaints of painless nodular slow growing firm swelling in the middle finger of right hand for 3 months. The swelling was insidious in onset and gradually increased in size. The patient did not have any history of trauma or constitutional symptoms. On physical examination, there was a localized ovoid swelling 3 x 2 cm over the interphalangeal joint of the middle finger of right hand with well-defined margins but the overlying skin was unremarkable. The swelling was firm in consistency and was not tender on palpation. Radiographs revealed a well defined soft tissue swelling and mild cortical erosion. The complete blood count was within normal limits. The patient had no other comorbid conditions. The patient was clinically diagnosed as Implantation Dermoid cyst and sent for FNAC work up. Fine needle aspiration was performed for the patient which revealed smears with mild to moderate cellularity and is composed of cells arranged in irregular tiny clusters, sheets and in dispersion. The smears show polygonal to spindled mononuclear cells with round to oval nuclei with moderate amount of cytoplasm. Also seen are numerous Osteoclast-like Multinucleated giant cells. The Osteoclast-like giant cells show bland nuclear features and have a well-demarcated cytoplasm and contain few to numerous monomorphic nuclei. Few mononuclear cells exhibit mild anisonucleosis. The background shows RBCs and scant inflammatory infiltrates. Cytological diagnosis of Giant cell tumor was made.

Radiological Findings:

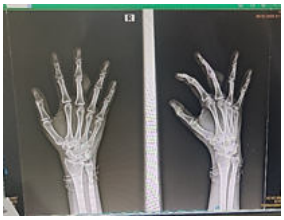

Figure 1: Xray of right hand showing swelling near proximal interphalangeal joint.

Microscopic Findings:

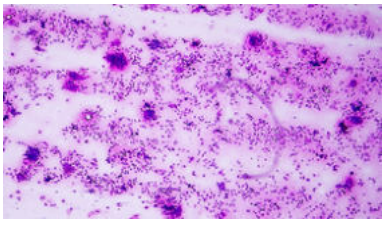

Figure 2: Cytological smears showing spindled mononuclear cells and Osteoclast Giant cells (Low power view)

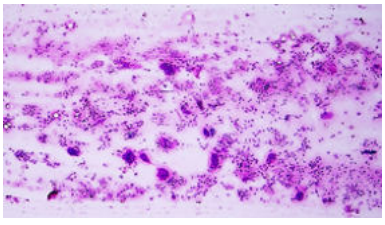

Figure 3: Low power view of Cytomorphology showing GCT

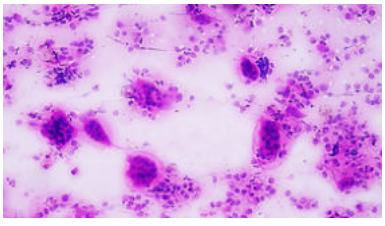

Figure 4: High power view showing mononuclear stromal cells and Osteoclast giant cells

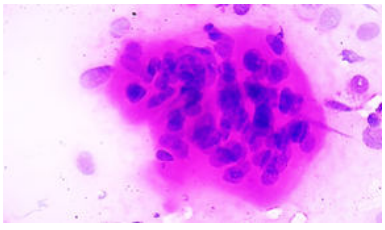

Figure 5: Osteoclast like Multinucleated giant cells

DISCUSSION

Giant cell tumor is a locally aggressive, benign neoplasm with potential of metastatic spread and malignant transformation. GCT is a neoplasm composed of mononuclear connective tissue stromal cells and Osteoclast type multinucleated giant cells. [7,8] Giant cell tumors are predominantly (85-90%) seen in epiphysis of long bones. The other frequently affected sites include distal radius, fibula and proximal humerus. 4% of cases are seen in pelvic bone. The small bones of hands and feet are very rarely affected.[6]. Radiological features most often reveal expansile and lytic lesion with soap bubble appearance[9]. Cytological features includes cellular smears consisting of mononuclear spindle cells and giant cells of osteoclastic type [10]. Differential diagnosis of GCT includes giant cell tumor of tendon sheath, ABC (Aneurysmal Bone Cyst), osteoblastoma, chondroblastoma, chondromyxoid fibroma, non-ossifying fibroma, brown tumor of hyper-parathyroidism, Giant cell reparative granuloma and osteosarcoma. The treatment of GCT is mostly surgical which consists of curettage with bone grafting or en bloc excision along with replacement by allograft.[9]

CONCLUSION

Giant cell tumor which involves the proximal Interphalangeal joint is a very uncommon site for GCT. Giant cell tumor involving small bones of hand presents as a challenge for both radiological diagnosis and pathological diagnosis due to the uncommon site for a common tumor and also due to the differential diagnosis of various giant cell lesions. The case is presented because of the rare site of the tumor and the characteristic cytomorphological features.

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