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Case Report

Giant Cell Tumor of Metacarpal Bone with Aggressive Behavior

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ABSTRACT

Giant Cell Tumor (GCT) is a benign but locally aggressive tumor. The majority of GCT of the bone arises in epiphyseal-metaphyseal region of long bones. Incidence of GCT of metacarpal of bone is extremely rare. We are presenting a case of GCT of right hand at third metacarpal bone. An 18 year old male patient presented with complaints of pain and swelling in right hand of 3 months duration. On clinical, radiological and histopathological features it was diagnosed as GCT of 3rd metacarpal bone of right hand, showing recurrence and aggressive behavior.

Key words **–** Giant Cell Tumor, Tumor hand, Metacarpal bone, Osteoclastoma

INTRODUCTION

GCT of bone arising from the metacarpal bone of hand is extremely rare. Only about 2% of all the reported GCT is found in hand, [1-3] and here too phalyngeal location of tumor is more common than metacarpals. [4] Giant Cell Tumor is a benign but locally aggressive tumor. In very rare cases a malignant change may occur.

CASE HISTORY

An 18 year old male patient presented to the surgery department with the complaint of swelling on the dorsum of hand since 3 months. Swelling was not associated with pain and there was no history of trauma to the hand. On detail history, patient gave the history of similar swelling 8 months back which was operated and bone grafting was done at another hospital. The biopsy was reported as giant cell tumor of the metacarpal bone. The swelling recurred 3 months back and was increasing in size. On local examination Right hand showed a swelling at 3rd metacarpal joint measuring 5 x 3 cms with restricted mobility. Radiological investigations showed circumscribed, expansile mass reaching upto the subarticular surface of the third metacarpal of the middle finger (Figure 1). All other investigations were within normal limits. Excision of the mass was performed and the specimen was sent for histopathological examination. Grossly the mass measuring 4x3.5x3 cm was noted arising from the third metacarpal of the finger. Cut section of the mass was reddish brown, soft to firm with areas of haemorrhage and necrosis (Figure 2). Microscopic examination revealed

numerous multinucleated osteoclasts like giant cells scattered throughout the stromal mononuclear cells (Figure 3). Individual cells showed ovoid, vesicular nuclei with central nucleoli and having abundant eosinophilic cytoplasm (Figure 4). Few of the cells showed atypia. On the basis of clinical, radiological and histomorphological examination, diagnosis of giant cell tumor of 3rd metacarpal of middle finger of right hand was given. On follow-up, patient is doing well without any complaints and there was no evidence of any metastasis on radiological evaluation.

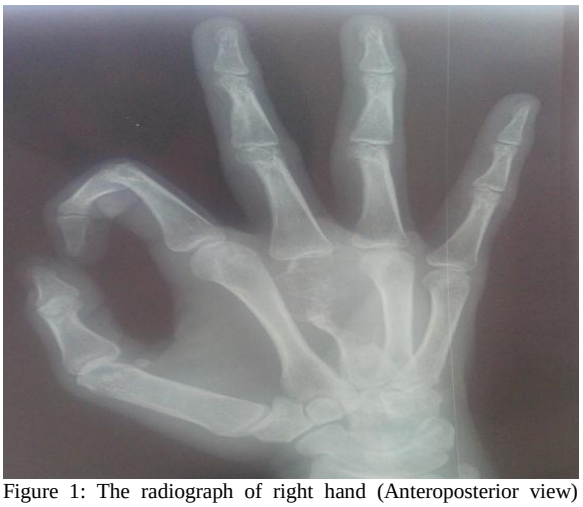

Figure 1: The radiograph of right hand (Anteroposterior view) reveals an expansile lytic lesion with soft tissue involvement and reaching upto subarticular surface.

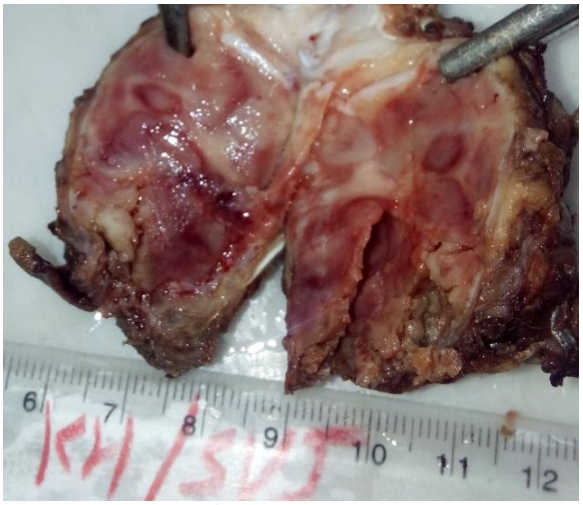

Figure 2: Photograph of gross specimen showing reddish brown cut surface alongwith areas of haemorrhage and necrosis.

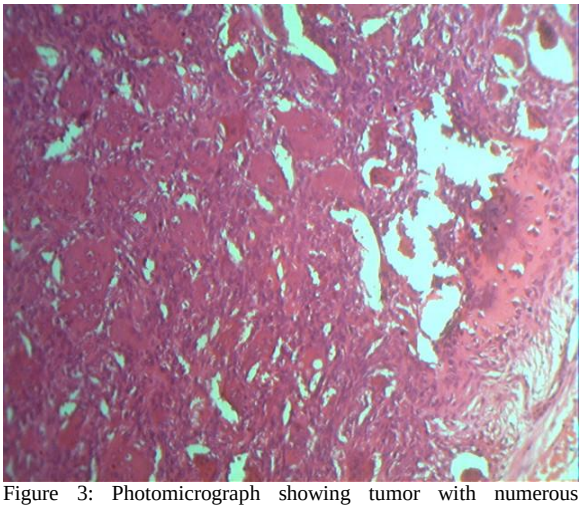

Figure 3: Photomicrograph showing tumor with numerous osteoclast like giant cells with highly cellular stromal mononuclear cells.(H&E, 100x)

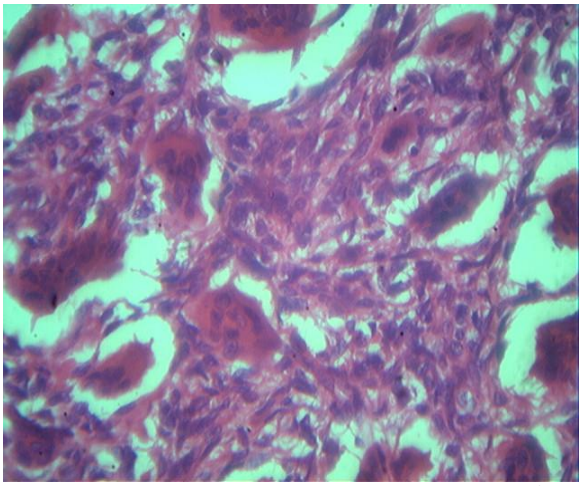

Figure 4: Photomicrograph showing high power image of the tumor. (H&E, 400x)

DISCUSSION

GCT of the bone is pathologically defined as a neoplasm of cytologically benign, oval or polyhydral mononuclear cells admixed with numerous, evenly distributed osteoclast like giant cells. GCT of the bone is described as locally invasive tumor with high rate of recurrence. It usually affects the metaphyseal region of long bones. Although any bone can be involved but most common sites include the distal femur, proximal tibia, distal radius, sacrum and proximal humerus. [5] It occurs in second to fourth decade of life with slight female preponderance (F:M – 1.2:1). GCT

of the metacarpal bone occurs in the younger age group and display more aggressive behavior [6] as seen in our case. Usually, GCT is solitary and in 1% of the cases they are multifocal. In our case it was of 3 months duration, excised 5 months back and it rapidly recurred showing aggressive behavior.

On histopathology it showed neoplasm composed of benign oval, spindle or polyhydral mononuclear cells admixed with numerous multinucleate giant cells. We had taken multiple sections from the tumor to rule out any malignant transformation.

The several other benign tumors and tumorlike lesions with giant cells such as giant cell reparative granuloma, brown tumor, aneurysmal bone cyst, chondroblastoma, metaphyseal non-ossifying fibroma and osteosarcoma should be distinguished.

The diagnosis of this tumor requires precise clinical, radiological and histopathological evaluation. [7,8] Radio-logically, giant cell tumor of bone manifests as an eccentric, large, lytic mass that frequently extends from the subchondral bone plate into metaphysic. In cases of cortex destruction and soft tissue extension MRI study is superior to CT in delineation of GCT of bone. [9] GCTs are best described as aggressive lesions. About 40 – 60% of them recur after curettage. [1] Approximately 4% cases result in distant metastasis mainly to lung. In our case there was no evidence of metastasis on X-ray.

CONCLUSION

As GCT of metacarpal bone occurs in younger age group, shows aggressive course & recurrence, regular follow-up is essential to manage the patient for better healthcare.

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