

Giant cell tumor in first metacarpal bone: A rare entity

Shipla Roy, Sanghamitra Mukherjee, Manisha Mahata, Jayati Datta, Tushar Kanti Das

Department of Pathology, R G Kar Medical College, Kolkata, West Bengal, India.
Correspondence to: Shipla Roy, E-mail: shipla.medico@gmail.com

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Abstract

Giant cell tumors (GCT) commonly occur at the ends of long bones. However in rare cases, they can occur in bones of hands and feet. We here report a case of giant cell tumor of first metacarpal bone in a 33-year-old male to highlight the importance of occurrence of such a common bone tumor in extremely rare location. Diagnosis of giant cell tumor should not be missed even in extremely rare location as GCT is well known for its aggressive behavior and local recurrence.

KEY WORDS: small bones, first metacarpal, giant cell tumor

Introduction

Giant cell tumor of bone is a locally aggressive neoplasm with a tendency of local recurrence and distant metastasis.^[3] It is commonly seen in skeletally mature long bones like distal femur, proximal tibia, and distal radius.^[9,10] The occurrence of this tumor in phalanges and first metacarpal are very rare^[1] (1.7%).^[6] Though the clinical features are nonspecific, majority of cases are present as expansile lesions associated with pain.^[3] Here we present a case of giant cell tumor affecting the first metacarpal bone that is an extremely rare location.

Case Report

A 33-year-old man presented with swelling, pain, and redness of soft tissue around thumb of left hand for last 2 years. X-ray of the hand showed an expansile osteolytic lesion having soap bubble appearance at the base of first metacarpal bone [Figure 1]. Radiological differential diagnoses were giant cell tumor and aneurismal bone cyst. MRI showed a heterointense expansile lesion measuring 51 mm × 48 mm × 67 mm replacing the first metacarpal bone [Figure 2]. The lesion had

non-enhancing cystic components and enhancing solid components with associated bone destruction and extension into adjacent periosteal soft tissues.

Surgical debridement was done and tissue submitted for histopathological examination. Grossly the first metacarpal bone showed a growth measuring 6×5×4 cm. Cut section showed variegated appearance with cystic and hemorrhagic areas.

Microscopical examination showed sheets of round to oval mononuclear cells with bland chromatin and conspicuous nucleoli uniformly interspersed with numerous osteoclast-like giant cells with nuclei similar to that of the mononuclear cells confirming the histopathological diagnosis of giant cell tumor [Figure 3].

Discussion

Giant cell tumor is well known for its occurrence in epiphyseal region of skeletally mature long bones.^[3] Involvement of the bones of hands are very rare (1.7%).^[6] Since the lesions of small bones are more commonly multifocal, patients should undergo skeletal survey to exclude similar lesions elsewhere in the body.^[3]

Patients usually present with localized pain, swelling, limitation of nearby joint movements, and pathological fracture. Radiological feature shows eccentric well circumscribed lytic expansile mass with destruction of cortex without any periosteal reaction.

The treatment of choice is aggressive curettage or resection of the tumor followed by bone grafting. Better results have been reported with curettage, cryosurgery, and cementation.^[10,11]

Grossly, the tumor appears soft and dark brown with variegated appearance. On microscopy, uniform distribution of

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Figure 1: X-ray of the hand showing an expansile osteolytic lesion having soap bubble appearance at the base of first metacarpal bone.

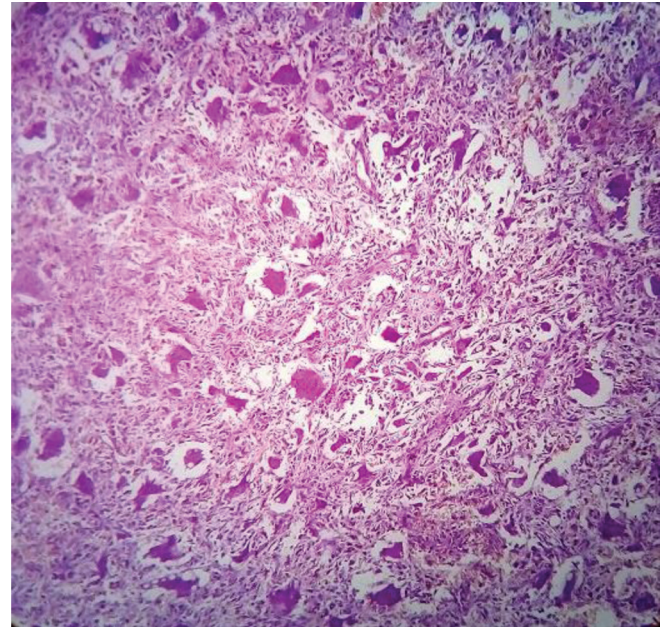


Figure 3: Histopathological examination of tumor.

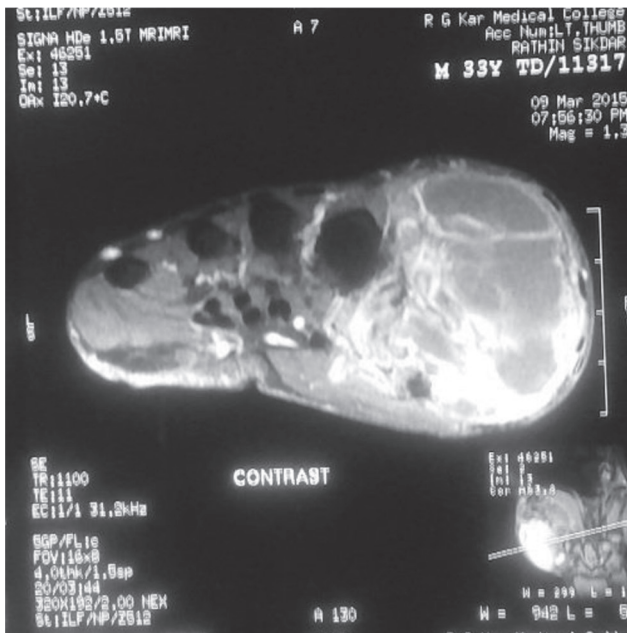


Figure 2: MRI showing a heterointense expansile lesion replacing the first metacarpal bone.

osteoclast-like giant cells against a background of mononuclear round to oval cells is the most important diagnostic clue.

GCT has a very high local recurrence rate varying between 30.7% and 88%.^[9,10] Distant metastasis is rare. Lungs and lymph nodes are occasionally involved.^[2] Giant cells containing lesions in small bones are usually aneurismal bone cyst or giant cell reparative granuloma. Hence, these should be included in differential diagnosis of GCT in small bones.

Conclusion

However rare the location may be, giant cell tumor should be kept in mind as differential diagnosis for bone tumors arising in small bones of hand as it is associated with high aggressiveness, high recurrence rate, and multicentricity.

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