Case Report

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Trans-Foceal Approach for Curretage and Bone Grafting in Pediatric Femoral Head Osteoclastoma

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Abstract

A fifteen-year-old male patient complains of pain in left hip and plain radiographs revealed an eccentric lesion in the epiphyseal region of femoral head. Lesion was excised by curettage with "g" bone graft through Ganz surgical safe dislocation of hip with trochanteric osteotomy. Histopathology report showed osteoclastoma. Full weight bearing after 3 months, with no recurrence after 2 years.

Keywords: Osteoclastoma; Transfoveal approach to hip; Bone graft.

INTRODUCTION

Osteoclastoma presents in the epiphysis of long bones (distal femur, proximal tibia and distal radius) with pain, swelling and restriction of movements of joints. Ten to thirty-five presents with pathological fracture and 95% of cases are solitary and those with multiple lesions are typically younger in age. Osteoclastoma of bone is a benign but locally aggressive tumor, characterized by proliferation of mono nuclear stromal cells interposed with many multinucleated giant cells. Incidence most commonly occurs between 20-40 years of age.[1] Macroscopically the lesion is characteristically chocolate brown, spongy, soft, and friable. Giant cell tumors (GCT) are highly vascular[2], often producing blood filled cystic cavities with variable degree of cortical expansion however the periosteum is rarely breached.

Microscopically shows giant cell tumor composed of diffusely arranged mononuclear short spindle cells mixed with many osteoclastic type multinucleated giant cells distributed throughout the lesion other important features include hyper cellularity, presence of large hyperchromatic nuclei with abundant mitotic figures, invasion of neighboring blood vessels by the tumor cells.

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CASE REPORT

A 15-year-old boy presented to KAHER KLE Dr Prabhakar Kore Hospital & MRC, Belagavi with a history of pain left hip for one year. Patient had no history of fever, and no history of loss of appetite or weight. On examination, patient had tenderness on left hip, movements of the left hip are painful and Restricted. Blood examination was within normal limits. x-ray shows lytic lesions in the head of femur. The MRI scan reported osteoblastoma.

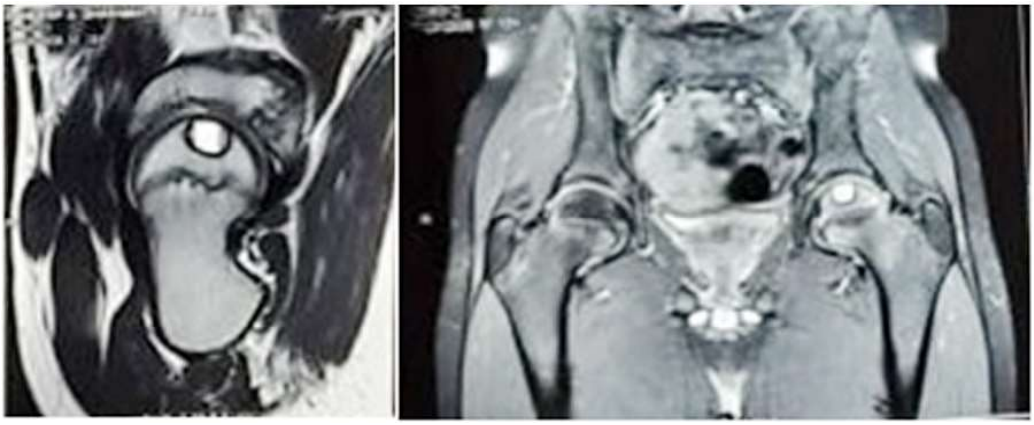

Fig. 1: T 2 weighted MRI

Fnac was inconclusive. The lesion was opened by Ganz surgical dislocation approach. Under image located lesion, did ½ cm x 1/2 cm elevation of cartilage, curettage the lesion, packed with 'g' bone, reduced the dislocation, trochanteric osteotomy, fixed with two titanium screws. Histopathology reported osteoclastoma of head of femur.

Immobilization for 6 weeks. Weight bearing after 3 months. The patient had good recovery no recurrence and avascular necrosis after 2 years.

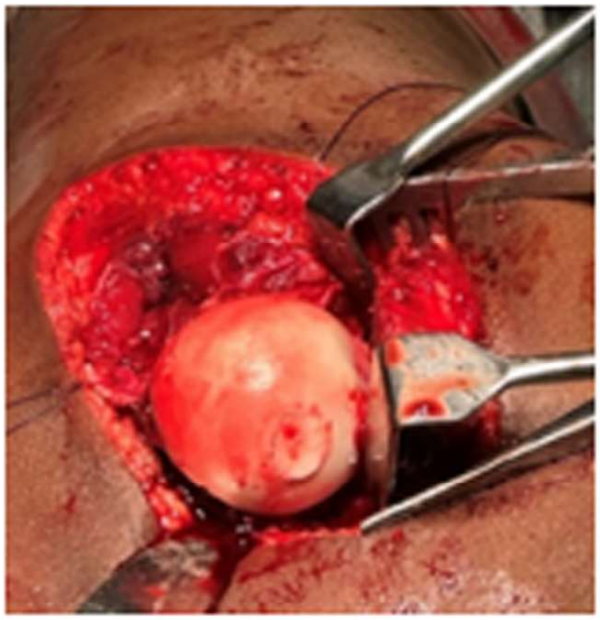

Fig. 2: Intra-operative picture of femoral head

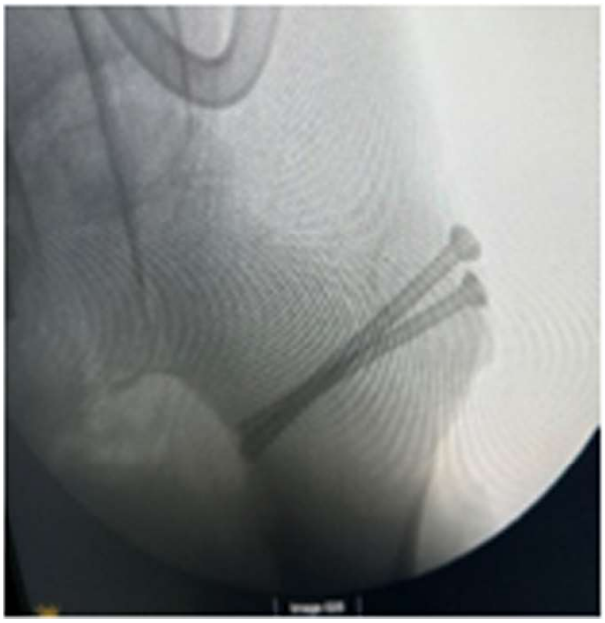

Fig. 3: Radiograph of left hip showing fixation of Greater trochanter with 2 CC screws.

DISCUSSION

Surgical access to neoplastic lesions of the femoral head are associated with significant morbidity, including contamination of intra osseous access tracks, avascular necrosis of femoral head or recurrence due to incomplete curettage.[3]

The treatment of giant cell tumor remains. Controversial. Complete excision of the involved

area is usually curatable but entails sacrifice of the adjacent joint and requires some for reconstruction, which may have an unpredictable long-term outcome. Although there is some evidence that filling the cavity after curettage with cement reduces the rate of recurrence.

Diagnostic studies include plain x-ray following with CT or MRI of the affected area for more complete evaluation of full local extent, total body scan to rule out additional asymptomatic bony lesions and chest radiograph to exclude lung involvement. Biopsy is mandatory to confirm the diagnosis and is done via core needle or open biopsy.

For treatment curettage is the preferred technique for most cases of giant cell tumor with local recurrence at the rate of 10–20%. Various adjuvants such as chemical or physical agents including phenol[6], liquid nitrogen, bone graft, bone cement[7,8] and hydrogen peroxide[8] have been used to reduce the local recurrence rates. While enblock resection produces the least recurrence rates is recommended for expendable cases. Radiation therapies are reserved for inaccessible lesions or for patients for whom surgical intervention is not feasible. Surgery should be delayed till final pathology results is accepted.

Injecting denosumab 60mg subcutaneously once in six months helps in reducing the size of the lesion. Denosumab is a human monoclonal antibody blocking the rank-l from formation and activation of multinucleated osteoclasts as giant cell form rank l positive mononuclear pre-osteoclasts.[4,5] Malignant variants of osteoclastoma have a poor prognosis.

CONCLUSION

Giant cell tumor of proximal femur constitutes only 5.5% of giant cell tumors. Osteoclastomas are commonly seen in the 2nd and 3rd decade after skeletal maturity of the capital femoral epiphysis should be carefully assessed radiologically and its accessibility via different approaches should be considered. A peripheral lesion, especially one in the inferior aspect of capital femoral epiphysis may be best approached directly whilst a lesion below the weight bearing surface superiorly is far more challenging. In skeletally mature patient there is no risk of injury to the femoral head growth plate but there is increased risk of local recurrence. In skeletally immature patients the risk of injury to growth plate is high in the routine approach hence Ganz safe dislocation of hip is a alternate as the risk of avascular necrosis is significantly lesser. Case is 15 year child and Not Commonly Involving Head of Femur, Very Few Cases Are Reported In Literature.

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