www.jmscr.igmpublication.org
Impact Factor 5.84
Index Copernicus Value: 83.27
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v5i8.74

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Giant Cell Tumor of the Distal end of Femur: A Case Report

Authors
Bhupinder Singh Brar, Satbir Singh, Amandeep Singh Bakshi
Department of Orthopaedics, Government Medical College, Patiala, Punjab, India 147001

ABSTRACT
Bone giant cell tumor (GCT) or osteoclastoma is a rare, generally benign and locally aggressive tumor. It represents approximately 3% to 5% of all primary bone cancers. We present a case of 26 year old male with Pathological fracture of distal end of left femur with inability to mobilize the limb. Patient was managed operatively with excision biopsy, extensive curettage, internal fixation with Bone grafting. The patient has improved symptomatically with no pain, no joint stiffness and near normal range of motion.
Key Words: *Pathological Fracture; Excision biopsy; Extensive Curretage; Internal Fixation; Giant Cell Tumour.*

INTRODUCTION

GCT is more common seen between the ages of 20 to 40 years. It is very rare in children or adults older than 65 years of age. GCT occurs in approximately one person per million per year. Usual site is at the long bone metaphysis, especially the distal radius and femur, proximal humerus and tibia[1].Current case reports GCT distal end femur with pathological fracture for which excision biopsy and internal fixation with bone grafting mixed with bone cement was done.

CASE PRESENTATION

A 26 years old male presented in OPD with chief complaints of pain, swelling and inability to move the left lower limb for last 6 weeks with preceding history of trauma to the knee joint. There is no history of fever, chest pain, other joint swelling. He was managed conservatively (POP cast) prior to presenting to our OPD. The distal neurovascular status was intact. On Examination, Local temperature was normal, Tenderness present, bony crepitus present. On plain radiographs, there was diffuse expansile radiolucent lytic lesion with cortical breach on medial, lateral and posterior aspect of the metaphysis of left distal femur extending into condyles (figurea). CT Scan shows a large expansile lytic soft tissue density in the epiphysio-metaphyseal region of left distal femur with haemorrhage and necrosis with breach in bone cortices with erosion of antero-superior patella(figure b, figure c). Excision Biopsy with internal fixation, bone grafting mixed with bone cement was done (figure d, figure e).Following excision biopsy, specimen was sent for Histopathological examination (HPE). On gross appearance, multiple greyish brown, soft to bony, tissue masses of 10*9 cms in dimensions in aggregate seen. On microscopic examination, scattered multinucleated giant cells seen.HPE suggestive of grade 1 GCT (figure f).The whole

procedure was uneventful and Post Operatively Physiotherapy was advised. Immediate post-operative X-rays (figure e) were satisfactory with no pain,no joint stiffness and near normal range of motion.

DISCUSSION

Giant cell tumor (GCT) of the bone is a relatively uncommon benign tumor.. In most patients, GCT have a benign course, but local recurrence is seen in as many as 50% of cases[2]. In 1940, Jaffe and Lichtenstein defined GCT more strictly to distinguish it from other tumors. The incidence increases in patients with Paget disease of the bone, in which GCT is rare[3]. The natural history of GCTs varies widely ranging from local bony destruction to local metastasis, metastasis to the lungs, lymph nodes or malignant transformation (rare)[4]. Pulmonary metastases have been cited as the cause of death in 16-25% of reported cases.[5]

It is slight more common in females[6]. GCT is much less common in children; the rate is 5.7% in skeletally immature patient[7] . Most common location is within the epiphyses of long bones, but often extending into the metaphysis. Approximately 50% of GCTs are located around the knee. Pain is the most common presenting complaint. Swelling and deformity are associated with larger lesions. Soft-tissue extension is common. The incidence of pathologic fracture at presentation is 11-37%[8]

On gross inspection, these lesions are characteristically chocolate brown, soft, spongy, and friable. Yellowish-to-orange discoloration due to hemosiderin may be present. Cystic cavities within the tumor are common. Often, these cavities are blood-filled.

Radiographically, GCTs are lucent and eccentrically located within the bone. Campanacci et al proposed a grading system for GCTs based on the radiographic appearance of the tumors[9].

Various treatment options have been advocated, including the following:

- Curettage
- Curettage and bone grafting
- Curettage and insertion of polymethylmethacrylate (PMMA)
- Radiation therapy
- Embolization of the feeding vessels

In June 2013, the Food and Drug Association (FDA) approved denosumab for the treatment of unresectable GCT of bone in adults and skeletally mature adolescents.

CONCLUSION

The main primary treatment of GCT is surgery, the type of which depends on preoperative evaluation which includes clinical evaluation that involves the site and size of the tumor in relation to surrounding structures, together with plain X-ray, CT scan and/or MRI as indicated and tissue biopsy to define tumor grade. Curettage alone results in high rate of local recurrence. On the other hand, curettage and adjuvant cryosurgery using bone cement or bone grafts give low rate of local recurrence.

REFERENCES

1. Hoch B, Inwards C, Sundaram M, Rosenberg AE. Multicentric giant cell tumor of bone. Clinicopathologic analysis of thirty cases. J Bone Joint Surg Am. 2006 Sep. 88(9):1998-2008.
2. Cooper AS, Travers B. Surgical Essays. London, England:. Cox Longman & Co. 1818: 178-9.
3. McDonald SG. Surgery for Bone and Soft Tissue Sarcomas. NY:. Lippincott Williams & Wilkins. 1998:756.
4. Campanacci M, Baldini N, Boriani S. Giant-cell tumor of bone. J Bone Joint Surg Am. 1987 Jan. 69(1):106-14.
5. Kay RM, Eckardt JJ, Seeger LL, et al. Pulmonary metastasis of benign giant cell tumor of bone. Six histologically confirmed cases, including one of spontaneous regression. ClinOrthop. 1994 May. (302):219-30

6. Frassica FJ, Sanjay BK, Unni KK, et al. Benign giant cell tumor. Orthopedics. 1993 Oct. 16(10):1179-83.
7. Kransdorf MJ, Sweet DE, Buetow PC, Moser RP. Giant cell tumor in skeletally immature patients.Radiology. 1992 Jul. 184(1):233-7.
8. Ennecking W. Musculoskeletal Tumor Surgery. New York, NY:. Churchill Liningstone. 1983.
9. Campanacci M, Giunti A, Olmi R. [Metaphyseal and diaphyseal localization of giant cell tumors]. ChirOrganiMov. 1975. 62(1):29-34.