

MANAGEMENT OF RECURRENT GIANT CELL TUMOR WITH PATHOLOGICAL FRACTURE

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ABSTRACT

Introduction: Giant cell tumor (GCT) is a benign bone tumor but known for its locally aggressive nature and high recurrence rate. Also, it has high rate of complications like pathological fracture, malignant change, pulmonary metastasis.

Case Details: A 32year old male presented with history of pain, swelling and inability to bear weight after a fall. He was previously treated for GCT of distal end femur by intralesional curettage and cementing. X ray showed a recurrent GCT with intra articular pathological fracture. Wide local resection with reconstruction by megaprosthesis was done.

Conclusion: Wide local excision with reconstruction by megaprosthesis offers best solution for a recurrent GCT with intra articular fracture with wide soft tissue involvement.

Keywords: Giant cell tumor; distal femur; megaprosthesis; wide local excision.

INTRODUCTION

Giant cell tumor (GCT) is a primary benign bone tumor representing 3-4% of all primary bone tumors¹. Commonly seen in ends of long bones; the epiphyseal region of knee joint in around 75% cases². It is known for its locally aggressive nature and high recurrence rate. Recurrence rate being around 10-50%³. It has high rate of complications like pathological fractures, malignant transformation, pulmonary metastasis. The best line of treatment is to completely eradicate the tumor and save the joint. Wide local excision is the

standard treatment of choice especially when GCT is present with complications.

CASE DETAILS

A 32year old male presented to us with history of pain, swelling over knee and inability to bear weight on left lower limb after a fall. Past history of similar swelling over left knee 3 years back for which bone biopsy was done and was diagnosed to have GCT on histopathology. After that intralesional curettage with cementing was done. The patient was apparently alright after that surgery.



Figure 1: clinical photograph showing swollen left knee.

Three years later he came with same complaints of swelling over left knee with a history of trivial fall. On examination a scar mark of previous surgery was present on lateral aspect of left distal femur. Mass was firm to hard in consistency. There was no neurovascular deficits.

Investigations were done. X ray showed anexophytic lesion with soap bubble appearance suggestive of recurrent GCT with intra articular pathological fracture of lateral condyle.



Figure 2: preoperative radiograph showing soap bubble appearance of GCT with fracture lateral condyle.

MRI was done. MRI showed a recurrent large expansile lytic mass with multiple fluid fluid levels (suggesting secondary Aneurysmal bone cyst) measuring approximately 12×11×10 cms involving the left distal femur and extending posteriorly and laterally with intra articular fracture of lateral condyle.

Here salvage could not be done as the tumor was recurrent, extensile, with intra articular fracture, no free epiphyseal margins and possibly a high grade tumor. Hence, wide local excision with reconstruction by megaprosthesis was planned.

Patient was placed in supine position. Lateral approach was used and scar of previous surgery was excised. Femur was resected with 2cms tumor free margins. Dissection was done posteriorly.

Neurovascular bundle was found to be free from tumor. The excised tumor measured 11.5×11×11cms in size. Cut surface shows a brownish cystic tumor with a few areas of necrosis and hemorrhage.



Figure 3: Excised specimen showing extensile mass with brownish cystic appearance and few areas of necrosis and hemorrhage.

After preparing the canal, trial was done. Cementing was done and hinged knee megaprosthesis was fixed. There was no shortening. Flexion and extension range of movements was checked. Layered closure was done after achieving good hemostasis.

The post operative surgical specimen showed Campanacci grade 3 which is aggressive variety. Patient is now able to bear weight and walk with the help of walker.



Figure 4: post-operative radiograph showing anteroposterior and lateral view of left knee

CONCLUSION

In GCT, usually extended intralesional curettage is done for bringing local disease control and preserving the joint function. But salvage is not possible when the GCT is recurrent, high grade – Campanacci grade 3 suggestive of aggressive variety, intra articular pathological fracture is present, tumor is extensile, has no free epiphyseal margins.

Wide local excision with tumor megaprosthesis offers best solution in such cases as it helps in removing the disease and also offers good joint function.

CONFLICTS OF INTEREST- NONE**REFERENCES**

1. Management of juxta articular giant cell tumors around the knee by custom mega prosthetic arthroplasty. Natarajan MV, Prabhakar R, Mohamed SM, Shashidhar R. <https://www.ncbi.nlm.nih.gov/pmc/>

articles/ PMC 2989137 / *Indian J Orthop.* 2007;41:134–138. [PMC free article] [PubMed] [Google Scholar]

2. Ghert MA, Rizzo M, Harrelson JM, Scully SP. Giant-cell tumor of the appendicular skeleton. *Clin OrthopRelat Res.* 2002;400:201-10. [PubMed] [Google Scholar]

3. Szendroi M. Giant-cell tumors of bone. *J Bone Joint Surg Br.* 2004;86:5–12. [PubMed] [Google Scholar]

4. Surgical treatment options for giant cell tumors of bone around the knee joint: extended curettage or segmental resection? He H, Zeng H, Luo W, Liu Y, Zhang C, Liu Q. *Front Oncol.* 2019;9:946. [PMC free article] [PubMed] [Google Scholar]

5. Puri A, Agarwal M. Treatment of giant cell tumor of bone: current concepts. *Indian J. Orthop.* 2007;41:101–108. doi: 10.4103/0019-5413.32039. [PMC free article] [PubMed] [CrossRef] [Google Scholar]