

Biological Reconstruction of the Knee Joint in a Case of Giant Cell Tumor of the Tibia of 15yrs Followup- A Case Report

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What to Learn from this Article?

Successful results of biological reconstruction with long term follow up

Abstract

Introduction: A 40 year old male patient presented to us with Giant Cell Tumor of upper end of Tibia involving both condyles with a breach in the posterior cortex. In this case report we tried to retain the joint function by biological reconstruction using the Patella after the wide excision of the tumor mass.

Case Report: A radical excision of the upper end of the Tibia was done. The Patella was used as an articular surface supported by ipsilateral Fibula as struts, thus the joint was reconstructed biologically. The case was followed for 15years.

Conclusion: The tumor was excised in toto, the knee joint was restored by the Patella and the Fibular struts. The results were discussed in details.

Keywords: Giant Cell Tumor, Patella, Biological reconstruction of the knee

Introduction

Giant cell tumors are very common in the epiphysis of the long bones like, around the knee joints, the wrist joints, the ankle joints. They extend into the metaphysis of the long bones. The Giant Cell Tumors are very common in mature skeleton (Ref:1,2,3). The Giant Cell Tumors are also seen in small long bones, Tarsal bones though rare. They are locally malignant hence recurrence is very common when not excised radically (Ref no: 3,7,9).

Case Report

The present case is a 40 year old male patient presented to us with a swelling of the right knee joint of one duration, associated with pain and inability to bear weight on the limb for the past 2 months. He was investigated with radiographs [Fig. 1]. The radiographs reveal a geographic pattern of Ludloff's type 1, with a breach in the posterior cortex. The patient was evaluated for the fitness for anesthesia and for the surgical procedure. We

Author's Photo Gallery



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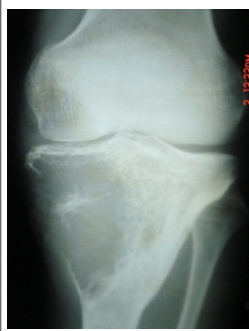


Figure 1: Pre-op radiograph AP view.



Figure 2: Pre-op radiograph lateral view.



Figure 3: Post-op radiograph AP View.



Figure 4: Post-op radiograph Lateral View.



Figure 5: Post-op follow up radiograph showing the bony union.



Figure 6: 15 years of post-op follow up radiographs both Lateral and AP View.

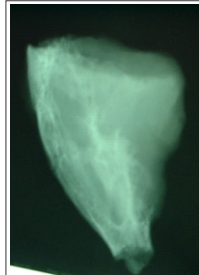


Figure 7: Radiograph of the specimen.

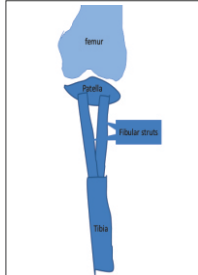


Figure 8: Diagrammatic representation



Figure 9: Clinical photograph no.1



Figure 9: Clinical photograph no.2



Figure 9: Clinical photograph no.3

had taken an anteromedial approach to the knee joint. A radical (wide) excision of the tumor was done taking care of avoiding macroscopic spillage of the tumor mass in the operating field. Then the patella was enucleated without disturbing the extensor mechanism of the Quadriceps. Then the ipsilateral Fibula was excised and cut into two struts. The Patella was cut into two fragments. The articular surfaces of the patellar fragments were facing the both condyles of the femur and supported by two Fibular struts vide in [Fig. 2]. Thus the joint was reconstructed and the whole construct was stabilized with multiple K wires, a cortical screw and the Quadriceps mechanism was retained by fixing the Patellar tendon to the nearby bone and the limb was immobilized in a plaster of Paris splint. The post op period was uneventful. The plaster was removed after the radiological union was evident and allowed range of movements as much as possible. After a period of one year there was a fracture of lateral Fibular strut which was again re-enforced by one more Fibular strut and followed the same post- op protocol as before. During the follow up period of about 15 years there was good consolidation of the Fibular struts and a reasonably good joint preservation as evident in the post op clinical photographs, video Fig no.3 & 4, and the clinical video, vide video no.1r

Discussion

This is a 40 year old male patient presented to us with a swelling of the right knee joint of one duration, associated with pain and inability to bear weight on the limb for the past 2 months. The aim is to radically excise the tumor mass retaining the function of the knee joint. The treatment should also be cost effective. The procedure done has met both the purposes.

Conclusion

We all know that the treatment of choice of Giant Cell Tumor is wide excision as it is a locally malignant disease. The preservation of the joint function in this case can be done by Mega prosthesis. But this patient could not afford the same. We have shown comparable joint function and good bone union with this type of biological fixation. The patient was back to his livelihood with very negligible discomfort.

Clinical Message

Giant Cell tumor is a common benign tumor in mature skeleton around the knee joint. The joint can be salvaged biologically by retaining the joint function in selected cases as demonstrated in this case report. The only disadvantage is that this procedure takes a long period immobilization but the end result is very gratifying both to the patient and the treating surgeon.

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