

Arthroscope assisted intralesional curettage of GCT

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What to Learn from this Article?

Technique of Arthroscope assisted intralesional curettage of giant cell tumor.

Abstract

Introduction: Incomplete intralesional curettage remains the most important factor contributing to the recurrence of the GCT tumor. A 360 degree view of the tumor cavity can be achieved with the help of an arthroscope, which can aid complete intralesional curettage.

Case Report: This technical note describes the use of arthroscope assisted curettage of the distal femur GCT.

Conclusion: Use of an arthroscope can improve the visibility for intralesional curettage of Giant Cell tumor.

Keywords: Giant Cell Tumor; Arthroscope; Curettage.

Introduction

Giant cell tumor is a rare and enigmatic tumor with unpredictable clinical course and treatment outcomes [1,6]. Surgery is the mainstay of treatment and usually consists of intra-lesional curettage [6,7,8] local control rates range from 80% to 90% after this procedure [9,10,11,12]. Patients with extensive, recurrent, and/or biologically more aggressive tumors may require wide excision [13,14]. Intralesional curettage is reasonable when the functional benefit outweighs the risk of recurrence as is the case in many cases of GCT of distal femur [14]. To avoid incomplete intralesional curettage we propose arthroscope assisted curettage and provide the video of the same.

Case report

A 33 yrs old female presented to us with knee pain after history of fall with minimal swelling. Anterior and lateral knee radiograph showed features suggestive of Giant cell tumor and intercondylar

fracture. A CT scan further strengthened the suspicion of GCT (Fig 1 & 2). Surgical decision of arthroscope assisted fixation of the fracture and intralesional curettage of the GCT was contemplated considering the age and proximity to the joint. With knee in 90deg flexion standard antero-lateral portal was taken at the soft spot above the joint line 2cm lateral to the patellar tendon. Hematoma was drained, antero-medial portal was established with outside in technique. The joint was copiously irrigated. The reduction of the fracture was confirmed under vision with the help of the arthroscope. A guide wire was passed from the lateral femoral condyle, 6.5 mm drill bit was used and with a 70mm 6.5mm CC screw with washer fracture was fixed. The portals were closed with 3.0 ethilone. A lateral longitudinal incision was taken on the distal femur extending upto the screw. The fascia was incised to expose the lateral femoral condyle. A cortical window of 2x2cm was made with an intact periosteal hinge 2cms above the screw head (Fig 3). A 30 deg arthroscope with a light source was introduced through

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Figure 1 a: Osteolytic shadow on AP radiograph.

Figure 1 b: CT scan showing the extent of the tumor on Coronal cut.



Figure 2 a: Osteolytic Shadow on the lateral plain radiograph.

Figure 2 b: Osteolytic shadow on the Lateral View CT scan.

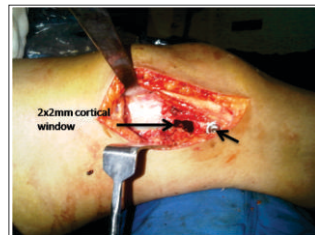


Figure 3 : Intraoperative picture small arrow showing the Cancellous screw used for fixation of fracture. Long arrow showing position of the cortical window

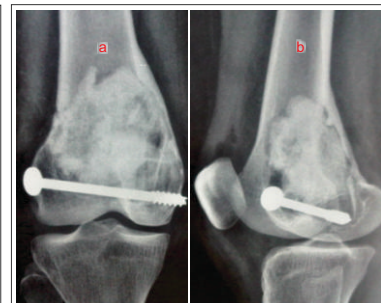


Figure 4 a & b: Immediate post operative plain radiograph AP and Lateral View

the cortical window .After introduction of the scope the light source cable was rotated to have a 360 deg visualization of the tumor cavity.The surrounding structures of the cortical window were covered with sterile mop to avoid spillage of the tumor cells coming out along with the irrigation fluid in the surrounding tissue. The irrigation fluid was started . A small curette , 4.5 mm shaver tip and a high speed burr were used to curette the GCT cavity. The end point of curettage was visualization of the normal cortical bone through the arthroscope. During the curettage copious normal saline was used for irrigation of the cavity .After curettage dry visualization of the cavity was done. Later the cavity was filled with bone graft harvested from the ipsilateral iliac crest. The remaining cavity was filled with poly methyl methacrylate cement. Homeostasis was achieved. Incision was closed in layers over drain. Knee range of movements was started immediate post operatively as tolerated. Patient was advised to walk with a walker non-weight bearing for 4weeks subsequently was advised to bear weight. Patient was asked to come for follow up every month in the initial 6 months. On every visit radiograph of the knee was done to identify signs of recurrence. After one year of follow up the patient has full range of movement and no signs of recurrence on serial radiographs (Fig 4 & 5).

Discussion

Giant Cell Tumor of Bone (GCT) is a primary bone tumor of

mesenchymal origin presenting as a localized osteolytic lesion [10,11,12]. GCT mostly affects the meta-epiphyseal region of long bones [10,11,12].The distal femur and the proximal tibia are the most common sites of occurrences. Females are more commonly affected in their third and fourth decade of life. GCT exhibits locally aggressive features with an unpredictable course of progression [10,11,12].

Although close to 100% local control is achieved with en bloc resection [13] procedure is associated with functional disabilities due to the peri-articular location of the tumor [14]. Hence, intralesional curettage has been accepted as modality of treatment for GCT of bone. This method of treatment carries a inherent risk of higher recurrence rate. Recurrence rates are approximately 16% to 45% [10,13,15,17]. To reduce high local recurrence rates thermal adjuvants and cytotoxic agents are being advocated. These include phenol, polymethylmethacrylate (PMMA), argon beam coagulation, anhydrous alcohol, and liquid nitrogen [18,23].

Blackley et al. reported on the recurrence rates of GCT in 59 patients between 1986 and 1996 treated with intralesional procedures using high-speed burr alone [15]. They concluded that the adequacy of the removal of the tumor rather than the use of adjuvant modalities is what determines the risk of recurrence.

Intralesional curettage is an effective treatment for majority of GCT. Patients with extensive, aggressive, and/or incompletely resectable GCTs are the one's who require wide excision and curettage. [Torres-Eguía RJ](#) et al [25] has described Epiphyseal femoral tumour resection under intraosseous endoscopic control. They had resected 4 benign cystic femoral head tumours under intraosseous endoscopic control. The resections were completely extraarticular through a tunnel made in the femoral neck from the lateral cortex. The procedures were assessed endoscopically with the help of a standardarthroscope. With a minimum follow-up of 1 year (range 1-16 years), there were no recurrences.In our case there was no difficulty in inserting cement or bone graft.

Conclusion

Our technique of use of Arthroscope can be a valuable addition to the treatment GCT. The salient feature of this technique is it gives a 360 deg view of the tumor cavity through a small cortical window thus avoiding fuctional disability by preserving the cortical shell.

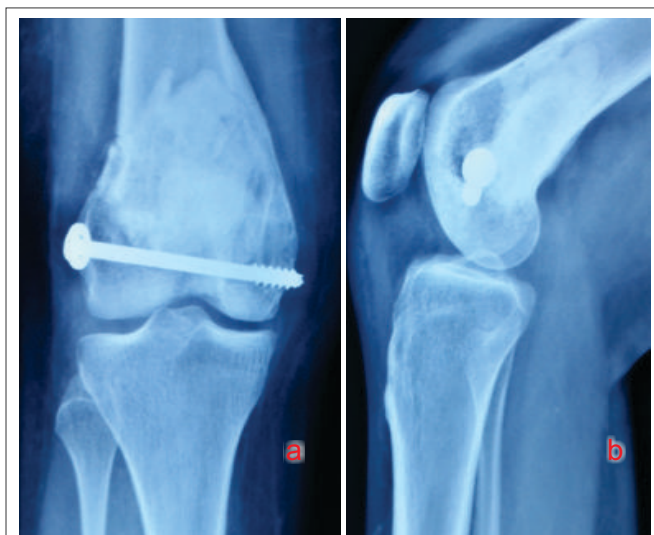


Figure 5 a & b: One year post operative plain radiograph



Clinical Message

Use of arthroscope for intralesional curettage aids in 360 degree visualization of the tumor cavity with minimal compromise of the cortical integrity.

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