

Management of Giant Cell Tumor with Curettage and Bone Cementation

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This study was carried out on 25 patients with giant cell tumour of bone. All patients were in 3rd and 4th decades of their life. Eleven tumours were in distal femur, 8 in proximal tibia, 3 in distal radius, 3 in proximal humerus, all near critical joints. Excision curettage and bone cementing was done in all. Results were good in 17, fair in 3 and poor in 5. Three showed infection, three recurrence and one loosening. The method is very good in selected case as for as joint motion and less rate of recurrence is concerned but it can not be carried out in Enneking stage III patients.

Key Words: Bone cementing, Giant cell tumor, bone tumors.

Giant cell tumour of the bone is a benign but often a locally aggressive neoplasm. The maximum incidence of the tumour stretches from 2nd to 4th decade but has rarely been reported at extremes of ages. It occurs typically around the knee⁵. Females are slightly more predisposed to the tumour².

This tumour has been treated with various modalities, since the earlier decades of 20th century, including surgery, radiotherapy and combination. Over the years surgery has proven to be the treatment of choice³ because of the attendant risks of radiotherapy, including the development of secondary sarcoma. The surgical procedures include, simple curettage and bone grafting⁶, resection arthodesis and amputation. These end up in loss of joint motion and limb, in these otherwise healthy young individuals. To tackle these problems excision curettage and bone cementing has been evolved⁷. This study was designed to evaluate the effectiveness of the method in our setup.

Patients and Methods

Fifteen patients having G.C.T of limbs were randomly chosen. according to the following criteria:

- Clinically useful range of movement at the joint.
- Preserved subchondral bone radiologically.
- No cortical breach radiologically. According to Enneking's classification grade I or grade II.

Patients were treated by excision curettage and bone cementing

Cases were followed by periodic physical and radiological examinations at three months interval. The results were assessed according to the modified Stewarts and Richardson criteria 1952 and grouped into good, fair, and poor, depending upon the level of disability, recurrence and successful salvage of the limb.

Results

All the limbs were successfully salvaged.

The recurrence was noted in only 3 cases with a rate of 12%. Amongst the 25 cases, 18 patients had useful range of motion at the adjacent joint. Six were disabled by stiff joint following postoperative infection in 3 and recurrence in 3. (Table 1).

Table 1: End result evaluation of 25 cases treated with excision curettage and bone cement

Site	R e s u l t s		
	Good	Fair	Poor
Distal femur	7	1	3
Proximal tibia	6	1	1
Distal radius	2	0	1
Proximal humerus	2	1	0

Table 2: Recurrence of Giant cell tumour according to radiological grading of Campanacci treated with excision curettage and bone cement

Grade	n=	Recurrence	%age
I	6	0	0
II	16	2	8%
III	3	1	4%
Total	25	3	12%

The giant cell tumor of the bone often presents difficult clinical problem, because of their location and unpredictable course. The best result in the management of a giant cell tumour were obtained by excising the bone containing the tumour along with a small margin of normal bone. But it is feasible in places like upper end of fibula and distal ulna. In situations like tumor in distal femur or upper tibia, excision of bone leaves behind only the following options.

1. Arthodesis with permanent loss of motion.
2. Custom made prosthesis, expensive and not everlasting.
3. Allograft replacement requiring setting up of bone bank and ending up in degenerative joint disease.

In view of these difficulties excision of the lesion and filling of the cavity with either bone graft or bone cement

are reasonable options. Excision curettage and bone grafting has the disadvantage of increasing the length of surgical procedure and morbidity, late weight bearing and joint mobilization and recurrence of 30 – 60%⁶. Moreover if the procedure fails one is left with very difficult situation. On the other hand filling the cavities with bone cement has the advantages of less morbidity, reduced recurrence by cytotoxic activity of bone cement, early weight bearing and early mobilization of the joint¹. Persson and Wouters showed recurrence of 2 out of 7 cases. If complications of infection, recurrence and loosening occur these can be easily managed.

In this study 25 cases with perfect documentation were followed from one to two years.

Table 3 Postoperative complications

Complications	No. of cases
Infection	3
Deep venous thrombosis	1
Loosening of cement	1

Nineteen grade II (Enneking) tumour situated around knee treated in this way showed one recurrence. Two cases in distal femur showed loosening and three cases developed infection (Table 3). One grade II tumour situated in proximal humerus showed no recurrence. One grade-II lesion in distal femur showed loosening. The cavity was

curretted bone grafting done and after 6 months this case had 60° range of motion of knee.

Two grade-II lesions developed infection postoperatively. The cement was removed, after clearance of infection bone grafting was done. These patients ended up in 20°-30° range of motion of knee.

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