

9,10) (51%), 가 20 (49%) .

가 Campanacci ³⁾ . 가

가 Grade I , 가 ,

가 Grade II 18 (44%),

가

Grade III 23 (56%)

Musculoskeletal Tumor Society (MSTS) Grading System⁶⁾

, 가 가 SPSS for Windows (Version 10, SPSS, Inc, Chicago, IL) Prism (version 4.03, Graphpad software, Inc) , , ,

가 ,

가

Campanacci Multivariate logistic regression test

Campanacci

가

3 mm

가

Kaplan Meier curve p<0.05 .

가

2.

1.

1995 4 2004 8

1 (12) 가 가 가 , 가 가 41 , 가 21 (51%) .

, 20 (49%) . 31.4

, 11 80 .

50 12

122 가 21 7 (17%) (Table 1).

Table 1. Treatment and result of the 7 recurred cases after primary treatment

| Gender/sex | Treatment modalities | No. of recurrence | Time to 1 st recurrence | Treatment after recurrence | Functional score | Follow up period |
|------------|---------------------------------|-------------------|------------------------------------|--|------------------|------------------|
| F/22 | Curettage, burring, cementation | 2 | 6 | 1 st - Curettage, burring, cementation & iliac BG 2 nd - excision (soft tissue recur) | 26 | 17 |
| F/29 | Curettage, burring, cementation | 1 | 14 | Curettage, burring, cementation | 28 | 51 |
| F/50 | Curettage, burring, cementation | 1 | 6 | Wide excision with tumor prosthesis | 26 | 88 |
| M/28 | Curettage, burring, cementation | 1 | 16 | Curettage, burring, cementation | 28 | 112 |
| M/24 | Curettage, burring, cementation | 2 | 7 | 1 st - Curettage, burring, cementation 2 nd - Curettage, burring, cementation | 28 | 73 |
| F/26 | Curettage, burring, cementation | 1 | 14 | Wide Excision with tumor prosthesis | 20 | 145 |
| F/31 | Curettage, burring, cementation | 1 | 7 | Curettage, burring, cementation | 27 | 67 |

(Fig. 1), 2
(Fig. 2).
가
가
Campanacci
(Table 2).
Campanacci
Grade III
가
가
Kaplan Meier curve
102
(Fig. 3).
2
. 1
(Fig. 4), 1
가
16
37
MSTS Grading System⁶⁾
27.8(93%)
26.8(89%),
28.2(94%)
MSTS Score가
가
가

가 가
가



Fig. 1. A 28-year-old woman presented with knee pain (A) The AP radiograph and MRI shows osteolytic, multi-septated lesion in the proximal tibia. Intralesional excision and reconstruction with PMMA and fixation using Endernails were performed. (B) A radiograph & MRI obtained 10 months postoperatively shows newly developed osteolytic lesion and heterogeneously enhancing lesion in proximal tibia around PMMA. Intralesional excision and reconstruction with PMMA were performed repeatedly.

Table 2. Relationship between the clinical characteristics of tumor and local recurrence

| Clinical factors | No of Pts. (N=41) | No of recurrence (N=7) | P value |
|-------------------------|-------------------|------------------------|---------|
| Gender | | | 0.374 |
| Male | 21 | 2 (29%) | |
| Female | 20 | 5 (71%) | |
| Age | | | 0.618 |
| Location | | | 0.401 |
| Distal femur | 21 | 2 (29%) | |
| Proximal tibia | 20 | 5 (71%) | |
| Size | | | 0.323 |
| Subchondral invasion | | | 0.545 |
| Present | 32 | 6 (86%) | |
| Absent | 9 | 1 (14%) | |
| Intraarticular invasion | | | 0.356 |
| Present | 3 | 2 (29%) | |
| Absent | 38 | 5 (71%) | |
| Campanacci grade | | | 0.281 |
| I | 0 | - | |
| II | 18 | 2 (29%) | |
| III | 23 | 5 (71%) | |

5,10,13,15) , , , ,
 5,9,14) 2,4,11,15)
 29- 가
 75% 가 가
 2,5,13) 가
 1969
 1) 47 °C 57 °C
 Phenol , 가 , 가 12) 1.5 ~ 2
 mm, 0.5 mm 가



Fig. 2. A 50-year-old woman presented with knee pain (A) The AP radiograph and MRI shows eccentric, osteolytic lesion in the proximal tibia. Intralesional excision and reconstruction with PMMA were performed. (B) A radiograph & CT obtained 6 months postoperatively shows newly developed osteolytic lesion in proximal tibia around PMMA. Wide excision and reconstruction with tumor prosthesis (Howmedica modular prosthesis system) were performed.

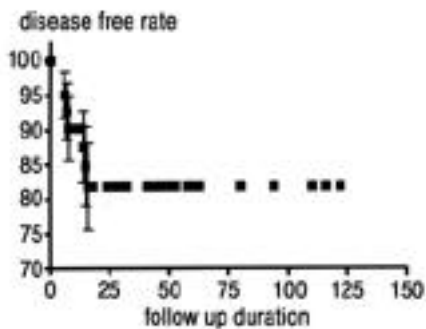


Fig. 3. Kaplan Meier curve shows the time to recurrence in seven patients with confidence intervals. Mean disease free duration postoperatively was 102 months.

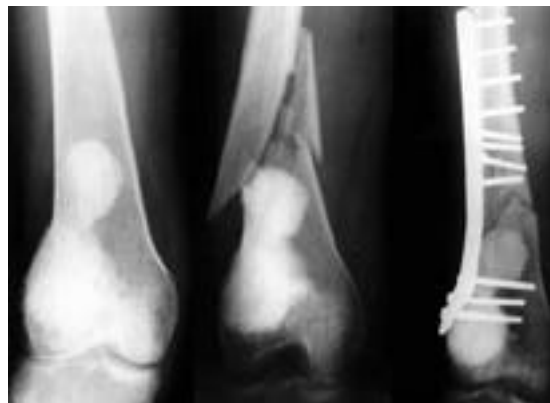


Fig. 4. Intralesional excision and reconstruction with PMMA were performed to giant cell tumor of distal femur. Internal fixation with plate followed by iliac bone graft was performed.

가 : 가

가 가 , 가

가 가 (12,14,15) 가

가 Frassica⁸⁾ 25 ~ 35% 가 (2.5 ~ 45%) 2

가 , Persson¹⁵⁾ 4 ~ 32% Campanacci Grade III

7). Blackeley²⁾

가 5,16,17) Campanacci

Tourcotte¹⁸⁾ 가 Grade III

가 가 가

가 가 10 가 7 (17%)

가 , Ghert⁹⁾ 가 2

가 , Turcotte 가 7

18) 가 2

Campanacci 가

가 17%

가 가 가 가

가 9 Campanacci Grade III 가

가

41

score 93%

MSTS

Campanacci

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Abstract

Treatment of Giant Cell Tumor Around Knee - by Intralesional Excision Using High Speed Burr and Methylmethacrylate -

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Purpose : Distal femur and proximal tibia are the common sites affected by giant cell tumor of bone. There are a variety of treatment modality including wide excision and intralesional curettage. We evaluated the local recurrence rates and the post-operative functional scores of giant cell tumors around knee joint and investigated the identification of possible prognostic factors for recurrence.

Materials and Methods: We reviewed 41 patients pathologically confirmed as giant cell tumors around knee joint that have undergone intralesional curettage using high-speed burr and methylmethacrylate. We evaluated the recurrence rate and post-surgical functional score and possible prognostic factors for recurrence, such as, gender, age, tumor location, size, subchondral invasion, intra-articular invasion and the Campanacci Grades. Mean follow up period was 50 (12-122) months.

Results: The recurrence rate was 17% and mean recurrence onset was 10 months postoperatively. According to Musculoskeletal Tumor Society (MSTS) functional evaluation system, the average score was 27.8(93%) and 78% had excellent function. According to our study, suspected prognostic factors revealed not significant for recurrence.

Conclusion: We found no significant recurrence related factors. Intralesional excision with high-speed burring and PMMA provides a low recurrence rate, similar to others in the literature, and good functional scores.

Key Words: Giant cell tumor, Knee Joint, Intralesional excision, High-Speed Burr, Methylmethacrylate

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