
:	59	37
	: 1995 1 2000 3	
Burring	37	
:	37	(Curettage & Cementation) 13
35%		16
5	3 7	. 2 2
	(Window)	
(11), 2		()
	가	가 (Window
가	가	가
) (85%)		
:	Burring	
	, H ₂ O ₂	
	가	(Window)
	Burring	
	(85%)	
가	가	Burring
가		2

:

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가 15 (41%), 가 22 (59%) . 30 , 12 , 61 . 1940 Jaffe, Lichtenstein, 4 3 24 , 8 1 Portis . 37 , 1,2) 20~40 , , 50 (curettage) (burring) . () . 40 Gy . 3) , 1. (local adjuvants) 가 가 15 (41%), 가 22 (59%) . 30 , 12 , 61 . 가 10 가 6 (16%), 20 가 15 (41%), 30 가 10 (27%), 40 가 5 (14%), 50 가 1 4 3 24 , 8 1 . 2. 가 15 (41%), 가 17 (46%), 가 1 (3%), 가 2 (5%), 가 1 , 가 1 (Table 1). 59 37 7) , 10) , 1995 1 2000 3 15 22 15 17 2 1 2 37 , ,

Table 1.

(N=37)	
1995 1	2000 3
15	22
15	17
2	2
1	1
2	2

3. (Fig. 1). 가
2

37 (polymethyl methacrylate) CMW1 (DePuy, Blackpool, England) (window), curettage & burring, 8 7 , 1 5 4 , 1

4. 6 , 7 13 11 (35%) 13 , 8 (Fig. 3). 5 1 4 5 3 7 . 2 2 (Table 2). 1818 Cooper Traverser 가 , 1919 Bloodgood Giant cell tumor , 1922 Stewart Osteoclastoma ^{8,9)} 1940 Jaffe, Lichtenstein Portis ,

(window) , ,

Table 2. () 13

		1)	2)
1	, 30	,	19
2	, 22	,	16
3	, 16	,	27
4	, 24	,	10
5	, 39	,	14
6	, 30	,	5
7	, 40	,	10
8	, 38	,	16
9	, 33	,	11
10	, 14	,	43
11	, 41	,	15
12	, 42	,	11
13	, 31	,	13

1) . Fig. 1. .
(, : Wp , : Wd , : Pr , : Di)

2)

1,2)

48 ~ 60%

13)

20 ~

40

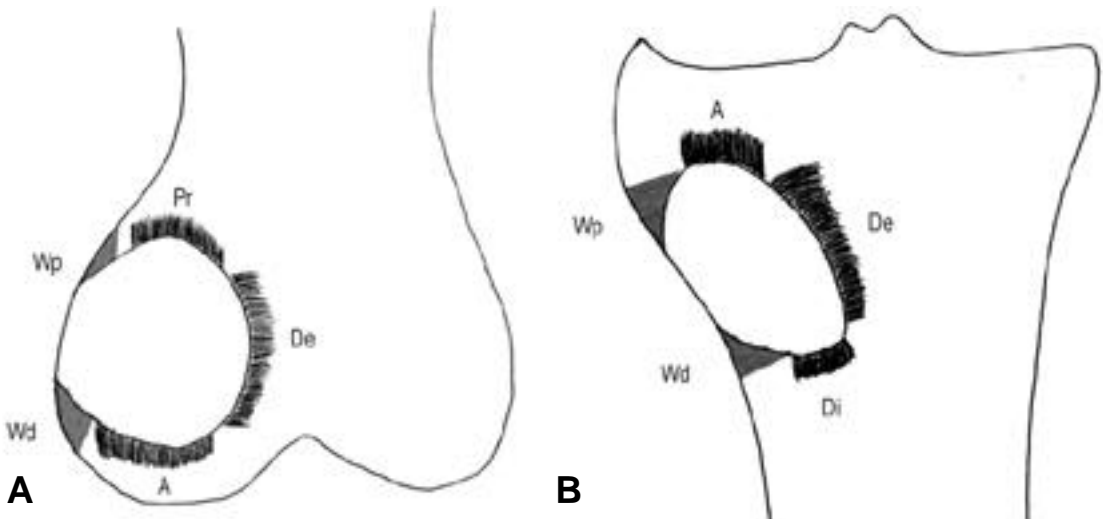


Fig. 1. Schematic figure of coronal MRI for recurrence site.

(A) distal femur (B) proximal tibia

Wp: proximal portion of window Wd: distal portion of window

A: articular portion De: deep portion of marrow

Pr: proximal portion of marrow Di: distal portion of marrow

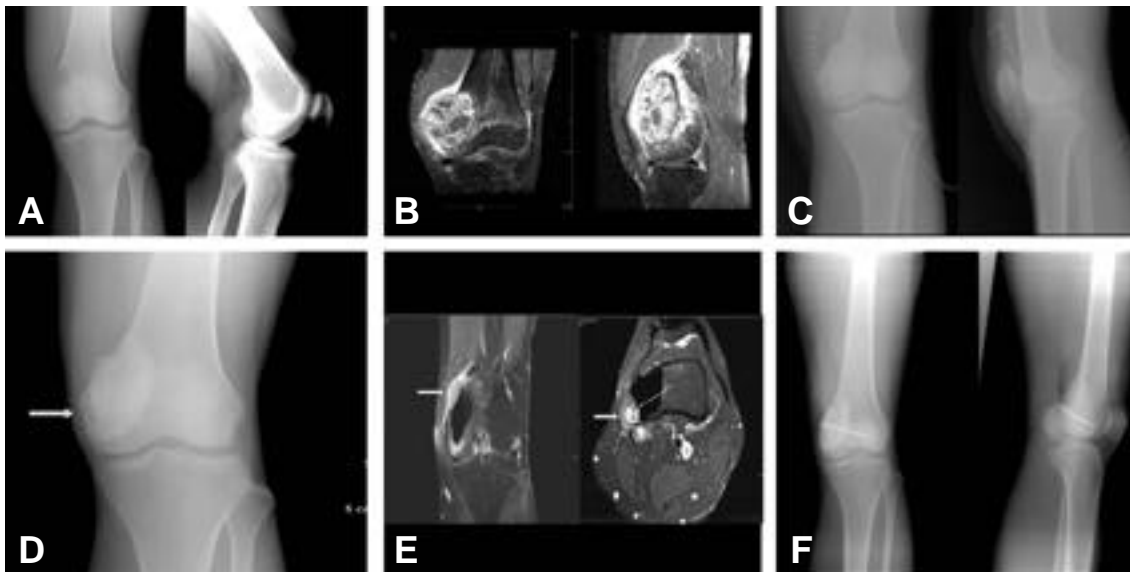


Fig. 2. Twenty-three years old female patient complained knee pain for several months. (A) Initial plain radiographs (B) Initial MRI of distal femur (C) Postoperative plain radiographs after curettage & cementation (D) Follow-up radiographs show recurrence (arrow). (E) Follow-up MRI show recurrence just around window area (arrow). (F) 2nd curettage & cementation for recurrence

4,14) 20 가 15 (41%), 30
 가 10 (27%), 20~40 가 68% ,
 20~40 22
 (59%)
 3 가 92% ,
 가 1 (3%), 가 2
 (5%)
 16,17) 가 local adjuvant treatment
 10,16,17)
 4,18,19)
 , Ghert 18)
 14), 가
 25~50%
 35%(13) ,
 1 4 , 2 (win-
 2 dow)
 , Golden
 berg⁵⁾ 가 ,
 (6) (7)
 Alcohol Phenol 가
 11 2
 13 11 (85%) ,
 가

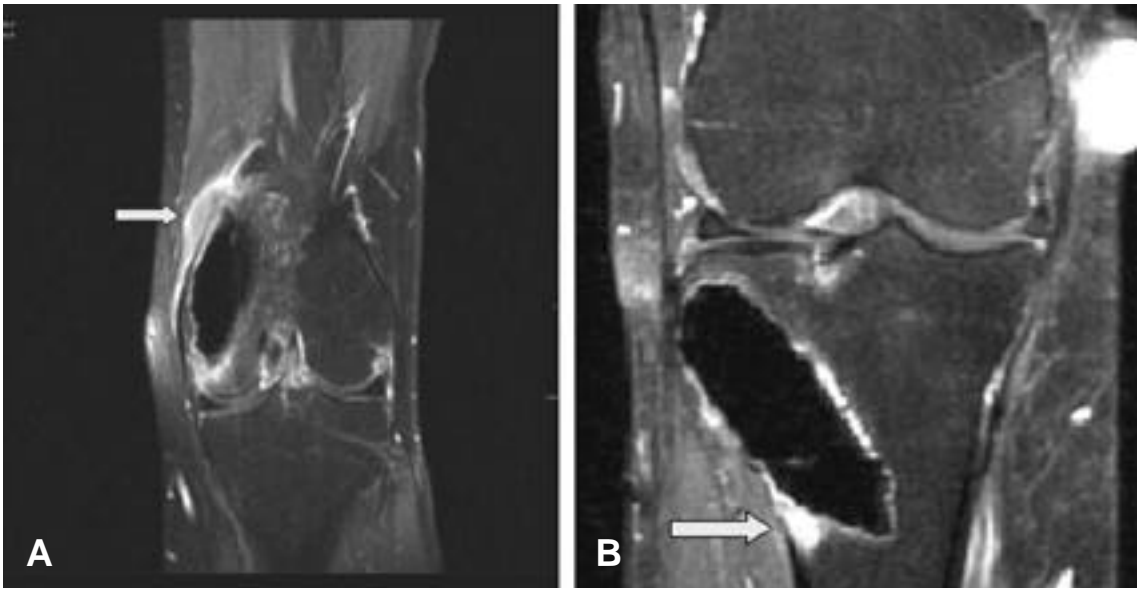


Fig. 3. Main recurrence site is just around the window area. Arrow indicates recurrence. (A) distal femur (B) proximal tibia

, window 가 , 가
window , 가

가 가
(high speed burr) local toxicity (100)
22)

. Binl²⁰⁾ 가 6,20)

, CT, MRI 1995 1 2000 3

37

wiring 가 Mesh
curettage & drilling 가

가 가 가 가
(85%).
(high speed burr)

21)

가 가 wiring 가 Mesh
37 2

(Zimmer, Warsaw, IN, U.S.A)

가

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Abstract

Recurrence Analysis of Giant Cell Tumor after Curettage and Cementation

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Purpose: The purpose of this study is to investigate the characteristic of recurred giant cell tumor after bony curettage and cementation, and to review a way to prevent the recurrence.

Materials and Methods: Thirty seven cases were analyzed, which were pathologically diagnosed giant cell tumor after diagnostic biopsy or surgical excision, followed by curative curettage, burring and cementation. Location, character, and time interval to recurrence were reviewed.

Results: Thirteen out of thirty seven analyzed cases(35%) showed recurrence after primary curettage and cementation. The mean interval to recurrence was sixteen months(5 months to 43 months). Most of recurrence happened within the first two years except two cases. Among the recurred cases, eleven showed recurrence in the vicinity of window area. Two cases recurred in the depth of bone marrow, where cementation was made. The advantage of curettage and cementation is the immediate stability of the operation site, early rehabilitation, and early detection of recurrence. Furthermore, cementation is beneficial in that the cement-producing heat can eradicate the residual tumor burden. In this study, 85% of cases with insufficient curettage (for example, in cases where too small surgical window was made, or where there were anatomical difficulty in approaching the target tumor burden) showed recurrence.

Conclusion: Bony curettage, burring and cementation is widely used as the primary curative modality for giant cell tumor. A few other modalities such as chemical cautery using phenol and H₂O₂; cryotherapy; and anhydroalcohol have also been introduced, but the benefit of these are still questionable. For some cases that relatively small surgical window was made due to anatomically complicated structures (such as ligament insertion or origin site) over the target tumor burden, unsatisfactory curettage and burring was made. This study showed high chance of recurrence after unsatisfactory curettage, and 85% of recurrence developed in the vicinity of the small window area. Most of the recurrence occurred within the first two years.

It is concluded that sufficient window opening, extensive curettage and eradicated burring are key factors to prevent recurrence. Also, it should be reminded that careful and close observation should be made for at least the first two years after initial treatment for early detection of recurrence.

Key Words: Giant cell tumor, Recurrence, Curettage, Cementation

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