

< >

:

가

,

.

:

5

27

12

62 37 가 19 (70.4%), 가 8 (29.6%), 24

78 53 Schatzker 3 (11.1%), 1

(3.7%), 0 (0%), 3 (11.1%), 1 (3.7%) 19 (70.4%) 가

. 27

Blokker 가

:

4 (14.8%), 23

(85.2%) VI 10 (37.0%) 27 10

37%

가 3 , 3 , 3

가 1 . Blokker

가 22 (81.5%)

:

가

,

:

,

$$\vdots$$

634-18

: 063-250-1760, 1770

: 063-271-6538

: kysong@moak.chonbuk.ac.kr

가

1852

1.

Thamhayn²⁸⁾

가 19 (70.4%), 가 8 (29.6%) 가

24

78 53.2

2.

가 27 가 24

(88.9%) 가 6 ,

6 , 12

가 1 , 2 (Table 1).

AO Schatzker

3 (11.1%), 1 (3.7%), 0

(0%), 3 (11.1%), 1 (3.7%)

19 (70.4%) I 가

(Table 2).

Apley^{3,4)}

, DeCoster⁶⁾

Blokker⁵⁾

71%

, Müller¹⁹⁾ Schatzker²⁶⁾ AO

20-40%

27

1996 11 2001 1

27 12

62 36.6

가,

3.

(CT)

Table 1. Causes of injury

Cause	No. of cases
Incar TA	6(22.2%)
Autobike TA	6(22.2%)
Pedestrian injury	12(44.4%)
Fall down	1(3.7%)
Crushing injury	2(7.4%)
Total	27(100%)

Table 2. Types of fracture by Schatzker

Type	No. of cases
I. Pure cleavage	3(11.1%)
II. Cleavage with depression	1(3.7%)
III. Pure central depression	0(0%)
IV. Medial condyle	3(11.1%)
V. Bicondyle	1(3.7%)
VI. Plateau fracture with dissociation of metaphysis and diaphysis	19(70.4%)
Total	27(100%)

22 (81.5%) , 13 (48.1%)
, , 2
(7.4%) 3
(Table 3).
27
9 (33.3%)
4 , 2 ,
3 .

Table 3. Associated fracture and neurovascular injury
(* Combined fractures in 13 patients)

Site	No. of cases
Fibular Fx.	12
Femur Fx.	6
Patellar Fx.	2
Radioulnar Fx.	4
Pelvic bone Fx.	1
Peroneal palsy	2

5.
27
, , ,
, , ,
, , ,
Schatzker
2mm 가 ,
, 7-8mm 2mm
가 , ,
, 가
(stress test)
, ,
5mm ,

Table 4. Methods of fixation

Method	No. of cases
Plate	17(63%)
Cancellous screws only	4(14.8%)
Plate and cancellous screw	6(22.2%)
Total	27(100%)

, 가 ,
4 (14.8%),
17 (63.0%),
6
(22.2%) 가 VI 10 (37.0%)
(Table 4).
6.
2-3 (CPM)
(quadriceps-setting exercise) 4-6
3
10 20
16
102 ,
Blokker⁵⁾
(Table 6). ,
가 가 10
90 가 ,
, ,
5mm ,

Table 5. Complication
(* Combined complications in 3 patients)

Complication	No. of cases
Limitation of ROM	3(11.1%)
Angular deformity	3(11.1%)
Infection	3(11.1%)
Traumatic arthritis	1(3.7%)

Table 6. The criteria of acceptable result by
Blokker

1. Lack of extension of less than 10 degrees and 90 degrees flexion
2. Full activities with no interference in work or at recreation
3. Stable in full extension and no evidence of clinical and radiologic degenerative arthritis
4. Residual depression and condylar widening of less than 5mm
5. Varus and valgus angulation of less than 10 degrees

Table 7. Results by Blokker

Result	No. of cases
Satisfactory	22(81.5%)
Unsatisfactory	5(18.5%)
Total	27

가 10 ,
27 10
37% 가3 ,
3 , 3
가1
(Table 5). 3 ..
2
1 ..
3 2
가 3
1 ,
1 22
(81.5%) (Table 7).

가
.
가
.
Rasmussen²¹⁾

Martin¹⁵⁾
(clear
space)

5cm
가
1cm
. Blokker⁵⁾
15.7%, 9.4%,
25% , Wilppula
Bakalim²⁹⁾ 11%
가
4 , 2
3
가
Moore¹⁷⁾
가
(tibial plateau fracture)
Schatzker²⁶⁾ 1 6

가 4
10 -12
Schatzker
Schatzker 가
I 가
(horizontal beam lateral view),
Rombold²⁴⁾
Hohl¹⁰⁾
, Reibel Wade²²⁾ 가
Luck¹¹⁾ 7,18,27) Hohl Rookwood Green²³⁾
10mm 가 120
5mm 2 102
Lansinger¹⁴⁾
Harper⁹⁾
가 5mm
가 . Blokker
5) 가
가 가

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, Salter Simonds²⁵⁾, Finsterbush⁸⁾
(CPM)
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Fig. 1 : A 45 years old man sustained tibial plateau fracture by autobike TA
A, B) Preoperative AP and lateral radiograph show Schatzker type VI fracture.
C, D) Postoperative AP and lateral radiograph after 14 months show no fracture line and complete union, clinical result was satisfactory.



Fig. 2 : A 24 years old man sustained tibial plateau fracture and MCL rupture by traffic accident
A, B) Preoperative AP and lateral radiograph show Schatzker type VI fracture.
C, D) Postoperative AP and lateral radiograph after 10 weeks show varus deformity.
E, F) Postoperative AP and lateral radiograph after closed wedge osteotomy, clinical result was unsatisfactory due to limitation of motion.

Abstract

The results of Operative Treatment in the Proximal Tibial Plateau Fracture

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Introduction : The purpose of this study was to analyze the results, prognosis and complications in the treatment of proximal tibia plateau fractures, and to suggest the guideline for the proper management in the difficult cases of tibial plateau fractures.

Materials and Methods : We have analyzed 27 cases, which surgically treated during recent five years with average 36.6 months follow-up. Patients ranged in age from 24 to 83 years at the time of hospitalization, consisting of 19 males(70.4%) and 8 females(29.6%). The type of fracture by Schatzker classification revealed in type I 3 cases(11.1%), type II 1 case(3.7%), type III 0 case(0%), type IV 3 cases(11.1%), type V 1 case(3.7%) and type VI 19 cases(70.4%). The associated injury occurred in 22 cases(81.5%), most of them were ipsilateral fibular, ipsilateral femoral and radioulnar fractures. The results were evaluated by Blokker's criteria.

Results : Screw fixation was done in 4 cases(18%) and plate fixation in 23 cases(85.2%), and bone grafting was done in 10 cases(37.0%). There were 10 postoperative complications with 3 cases of knee ankyosis, 3 cases of angular deformity, 3 cases of infection, and 1 case of traumatic arthritis. According to Blokker's criteria, 22 cases(81.5%) had satisfactory results.

Conclusions : Accurate anatomical reduction and rigid internal fixation of the proximal tibial plateau fracture enabled early motion and normalization of injured soft tissues, and also provided functional improvement of the knee.

Key words : Tibial plateau fracture, Operative treatment