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The Journal of the Korean Society of Fractures
Vol.12, No.1, January, 1999

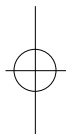
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= Abstract =

Treatment of Tibial Eminence Fracture

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Fracture of tibial intercondylar eminence has a clinical importance in aspect of associated ligament injury, limited range of motion and joint instability. The purpose of this study is to evaluate the intercondylar eminence fracture and to compare the results of treatment by method of arthroscopic reduction and pull-out suture with results of conservative treatment. The results were evaluated with Mayers and McKeever's criteria of result and instability. 23 cases of avulsion fracture of tibial intercondylar eminence were reviewed. Most common type was type . Most common cause was traffic accident. Closed reduction and cast immobilization was performed in 12 cases, of which 10 cases had above good result initially, reduction with pull-out suture by arthroscopy was performed in 11 cases, of which 10 cases had above good result. Type IIIB fracture were reduction with minimal arthrotomy because of the arthroscopic reduction was difficult. 2 cases of instability were in type IIIA and type IIIB. An instability case of type IIIA was treated non-operatively and the other of type IIIB was treated pull-out suture. 1 case of extension limitation was in type II which was treated non-operatively because of multiple injury.

Key Ward : Tibial intercondylar eminence, Fracture, Pull-out suture

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84 • / 12 1

4 (36.2%) 가 ,
3 (27.3%), 1 (9.1%),
1 (9.1%), 가 2 (18.2%)
(Table 2).

Meyers McKeever^{11,12)}
1959 , , A , B
, Zaricznyj¹⁶⁾
Meyers McKeever
가
K pull-out suture가
pull-out suture
가 가
Crawford⁵⁾
1993 1 1997 6
1 가가
23 Meyers McKeever
1993 1 1997 12 5
1 가가 23
, 8 39 (가 14 , 가 9
16.5) ,
가 12 가 ,
8 , 3 (Table 1).
23 16 (69.6%)
, 11 (47.8%)

Meyers McKeever^{11,12)}
5 , 10 ,
A 5 , B 3 , 23
22 , 1 4
stress Lachman
stress

Table 1. Causes of injury

Causes	No. of cases
Traffic accident	12 (52.2%)
Sport injury	8 (34.8%)
Fall down injury	3 (13.0%)
Total	23 (100%)

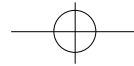
Table 2. Associated injury

Causes	No. of cases
Medial collateral Lig.*	4 (36.2%)
Lateral collateral Lig.	3 (27.3%)
Posterior cruciate Lig.	1 (9.1%)
Meniscus injury	1 (9.1%)
Others	2 (18.2%)
Total	11 (100%)

* Lig. : ligament

Table 3. Classification of fracture

Type	No. of cases	No. of instability
Type	5 (21.7%)	0 (0%)
Type	10 (43.6%)	8 (34.8%)
Type A	5 (21.7%)	5 (21.7%)
Type B	3 (13.0%)	3 (13.0%)
Total	23 (100%)	16 (69.6%)

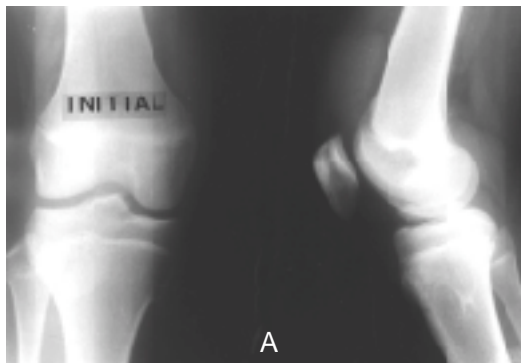
**Table 4.** Result of treatment (by Meyers & McKeever)

Treatment	Type A		Type B	
	Non.op*	Op.†	Non.op	Op.
Excellent	4	3	4	0
Good	1	1	1	1
Poor	0	1	0	1
Total	5	5	5	2

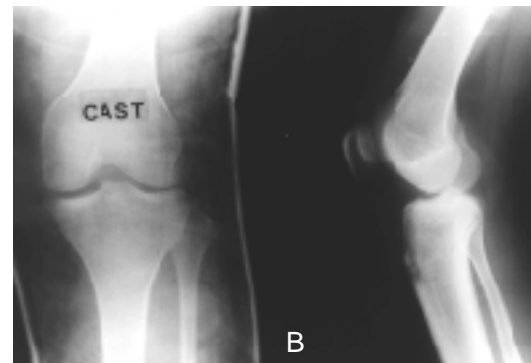
* Non.op : non-operative treatment

† Op. : operative treatment

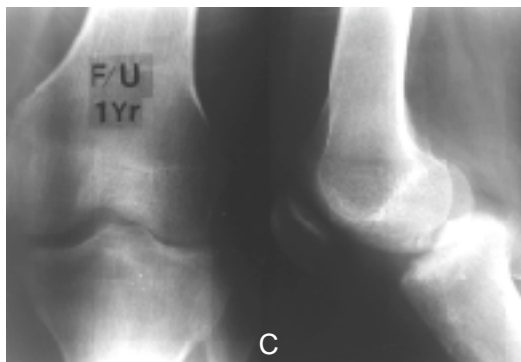
stress II 10 5
 IIIA 5 2
 12 4 6
 (Fig 1), Lachman
 CT 가 , II 5
 stress
 , 2 II 8 , (Fig 2), 8
 IIIA 5 , IIIB 3 가 2 6
 (Table 3). pull-out suture
 Meyers McKeever 5 , 가



A

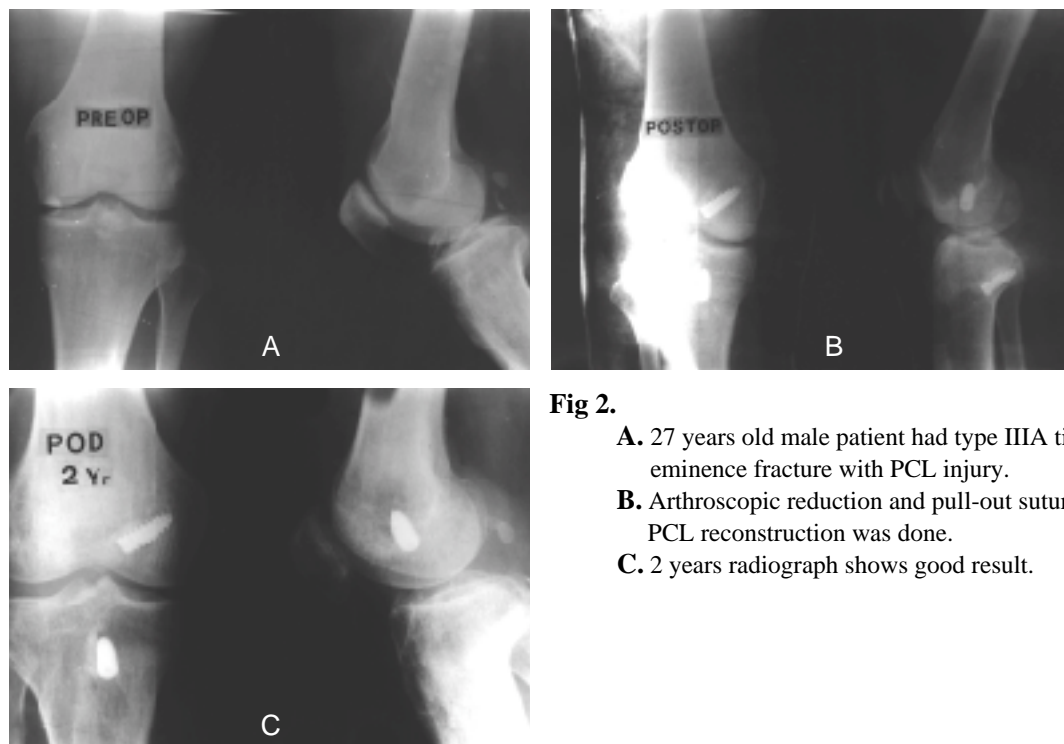
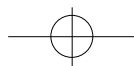


B

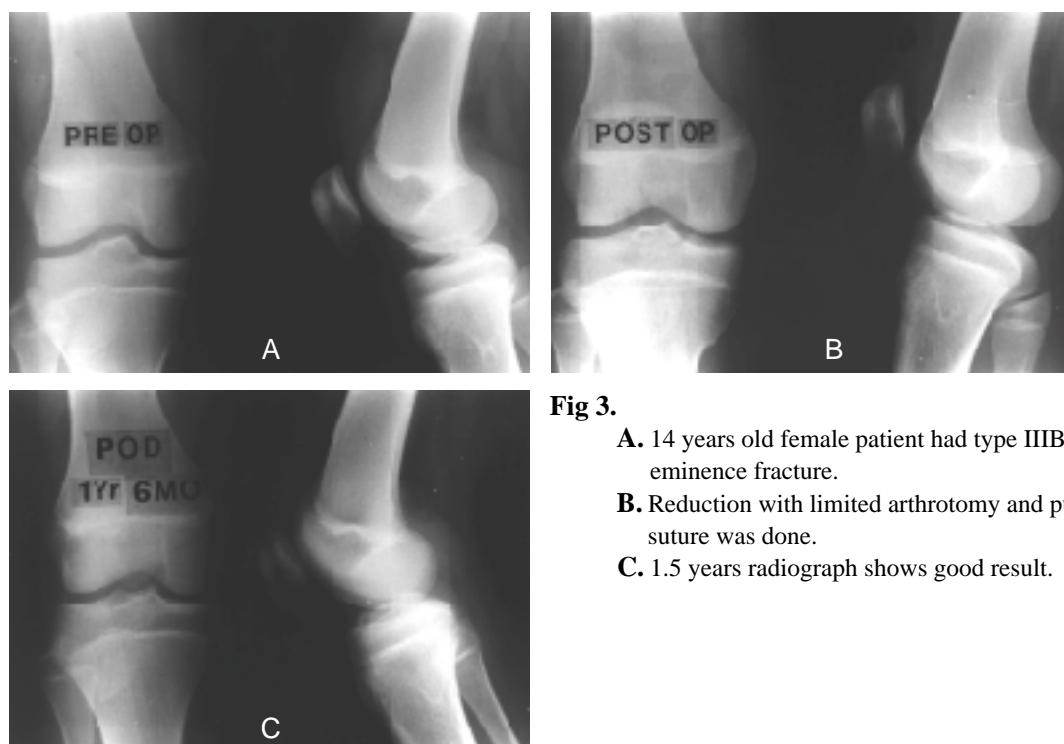


C

Fig 1.**A.** 23 years old male patient had type II tibial eminence fracture.**B.** Long leg cast was done.**C.** 1 year radiograph shows good result.

**Fig 2.**

- A.** 27 years old male patient had type IIIA tibial eminence fracture with PCL injury.
B. Arthroscopic reduction and pull-out suture and PCL reconstruction was done.
C. 2 years radiograph shows good result.

**Fig 3.**

- A.** 14 years old female patient had type IIIB tibial eminence fracture.
B. Reduction with limited arthrotomy and pull-out suture was done.
C. 1.5 years radiograph shows good result.



suture . , , 가

vicryl, wire .

pull-out suture , IIIB

pull-out suture (Fig 3).

0-20 ° , 4-6

2-3 15 . stress 1875 Poncent

(middle genicular artery) ,

(lateral inferior genicular artery) 3).

Meyers McKeever^{11,12}

(excellent), (good) 1).

(poor) . Meyers McKeever^{11,12}

12 10 (83.3%) 가 , 1/3 - 1/2

11 10 (90.9%) , A

(Table 4).

3 , 가 B

2 , Zaricznyj¹⁶⁾가 가

1 . 1 , IV

가 10 가 4,11,12)

3 IIIA 8-15

III B

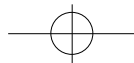
pull-out suture 1 . 10°

1 II . Meyers McKeever^{11,12}

(Table 5).

McLennan¹⁰⁾

가 가 . Meyer



88 • / 12 1

McKeever^{11,12)}8 가 15
, 15 1612 가
8 III
8 7 15가 ,
,

4,8,12-15)

McLennan¹⁰⁾

23

4

3

Meyers McKeever^{11,12)}McLennan¹⁰⁾, Heim Pfeiffer ⁷⁾ A.S.I.F.
small fragment set. McLennan¹⁰⁾1)
Roberts Lovell¹⁴⁾ Meyers McKeever

guide

. Loon Marti⁹⁾ Acufix drill

15-20 ° 4

Molander ¹³⁾

anterior drawer test

6

II

IIIA

wire vicryl
pull-out suture

IIIB

Meyers McKeever^{11,12)}

II

III

가

가 ,

pull-out

suture

Molander ¹³⁾

가

가

, Grankvist ⁶⁾Zariczyj¹⁶⁾

20-25 °

6

, McLennan¹⁰⁾

3

20 °

3

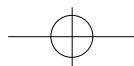
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4-6

0-20 °

Smillie¹⁵⁾

, CPM(continuous passive



motion)

12

23

1. Meyers-McKeeever

10 (43.6%) 가

2. 가 12 (52.2%) 가

, 4 가

3. 10 가가

4. 12

10 (83.3%)

5. pull-out suture 11 10

(90.9%)

6.3 IIIA 1

IIIB 1 2

II 1

7. I

II

II

III pull-out suture

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