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= Abstract =

A MRI Study of Associated Soft Tissue Injury in Tibial Plateau Fractures

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Tibial plateau fractures can occur concomitant with injuries to the collateral, cruciate ligament and mensci. The purpose of this article is to demonstrate the frequency of soft tissue injuries associated with tibial plateau fractures and analyze the pattern of fracture more accurately by magnetic resonance imaging(MRI). Thirty one plateau fractures were evaluated in this study. MRI was more accurate in determining the classification of the fracture and measuring the displacement and depression of fragment. There was a 71%(22 of 31) frequency of associated soft tissue injuries in this series of tibial plateau fractures. The medial collateral ligaments were injured in 32.3%(10 of 31), the anterior cruciate ligaments in 29%(9 of 31), the posterior cruciated ligament in 22.5%(7 of 31), the lateral collateral ligament in 19.4%(6 of 31), and the menisci in 39%(12of 31). Schatzker type II and IV fracture patterns were associated with the highest frequency of soft tissure injuries. Medial collateral ligament injuries were most commonly associated with Schatzker type II fracture patterns. Menisci were most commonly injured with Schazker type IV fracture patterns. Most of the patients with acute tibial plateau

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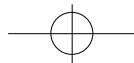
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fracture were commonly associated with ligamentous and meniscal injuries. MRI can aid in accurate evaluation of tibial plateau fracture patterns and decision of treatment plan.

Key Words : Tibia, Plateau fracture, Soft tissue injury, MRI

Table 1. Schatzker classification of tibial plateau fracture

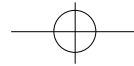
Classification	
Type I	: pure cleavage
Type II	: cleavage combined depression
Type III	: pure central depression
Type IV	: medial condyle fracture
Type V	: bicondylar fracture
Type VI	: dissociation of metaphysis & diaphysis

MRI

1.

1996 1 1998 12

31 MRI 25 (19.4%) 가 MRI 6
6 , 19 71 Schazker 2 (Table 2).
38 . 가 6 7 (23%), 5 4 (13%), 1

**Table 2.** Changes of Classification after MRI Study

	Simple Radiography	MRI
Type I	4(13%)	3(10%)
II	11(35%)	12(39%)
III	2(6%)	2(6%)
IV	2(6%)	3(10%)
V	3(10%)	4(13%)
VI	7(23%)	7(23%)
other Fx.	2(6%)	

Table 3. Depression & Displacement measurement

	Simple Radiography	MRI
Depression > 5mm	10(32.3%)	16(51.6%)
Displacement > 5mm	15(48.4%)	19(61.3%)

Table 4. Association between soft tissue injury and tibia plateau fracture pattern

	I	II	III	IV	V	VI	Total
ACL	0	1	0	3	2	3	9
PCL	2	3	0	1	1	1	7
MCL	1	7	0	0	1	1	10
LCL	0	1	0	2	2	1	6
Meniscus	1	2	1	4	2	1	12
Total	4	14	1	10	8	8	44

4 3 (10%) 3 2 (6%) 7

5mm 가 9 , 3가 5

10 (32.3%) , MRI 16 , 1 4가

(51.5%) 가 ,

15 (48.4%) 19 (61.3%) 가

(Table 3).

Schazker 2 가

MRI 31 22 (71%) , 7 가

12 (39%) (Table 4).

가

10 (32.2%) 가 ,

9 (29%) ,

7 (22.5%)

6 (19.4%) 가

8 가 ,

8

6 가

9.

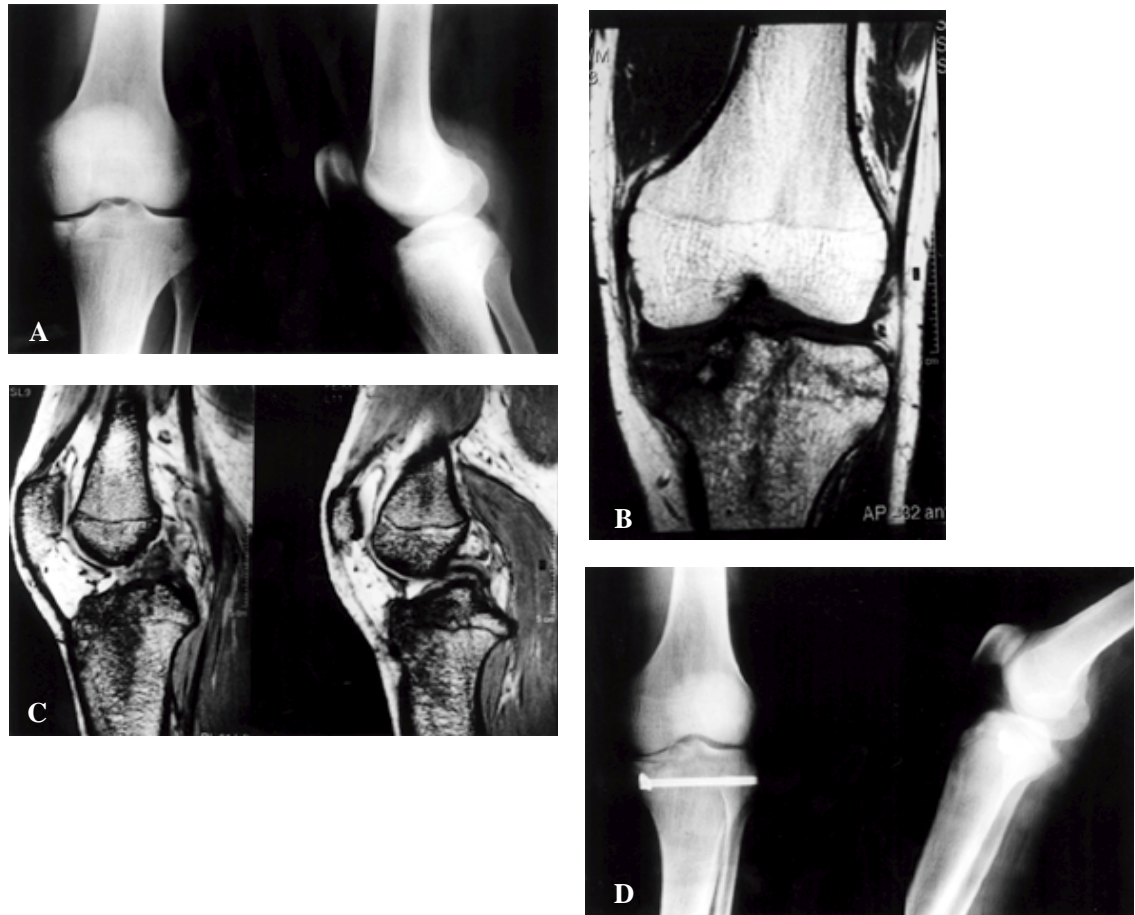


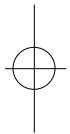
Fig 1A. Thirty nine year old male patient with Schatzker type 2 fracture

1B. Coronal MR image shows depression of lateral tibial plateau

1C. Sagittal MR image shows complete rupture of anterior cruciate ligament and incomplete rupture of posterior cruciate ligament

1D. Open reduction and internal fixation with screw

가		MRI		가		Rasmussne ⁹⁾		10°	
1,2,3,10)						Schatzker ⁷⁾		6가	
						3		36%	
						. Colleti ⁴⁾		2	
								48%	
								2	
								39%	
가 3mm				가		Kode ¹¹⁾			
, Bennet ⁶⁾		5mm				MRI			
		가							



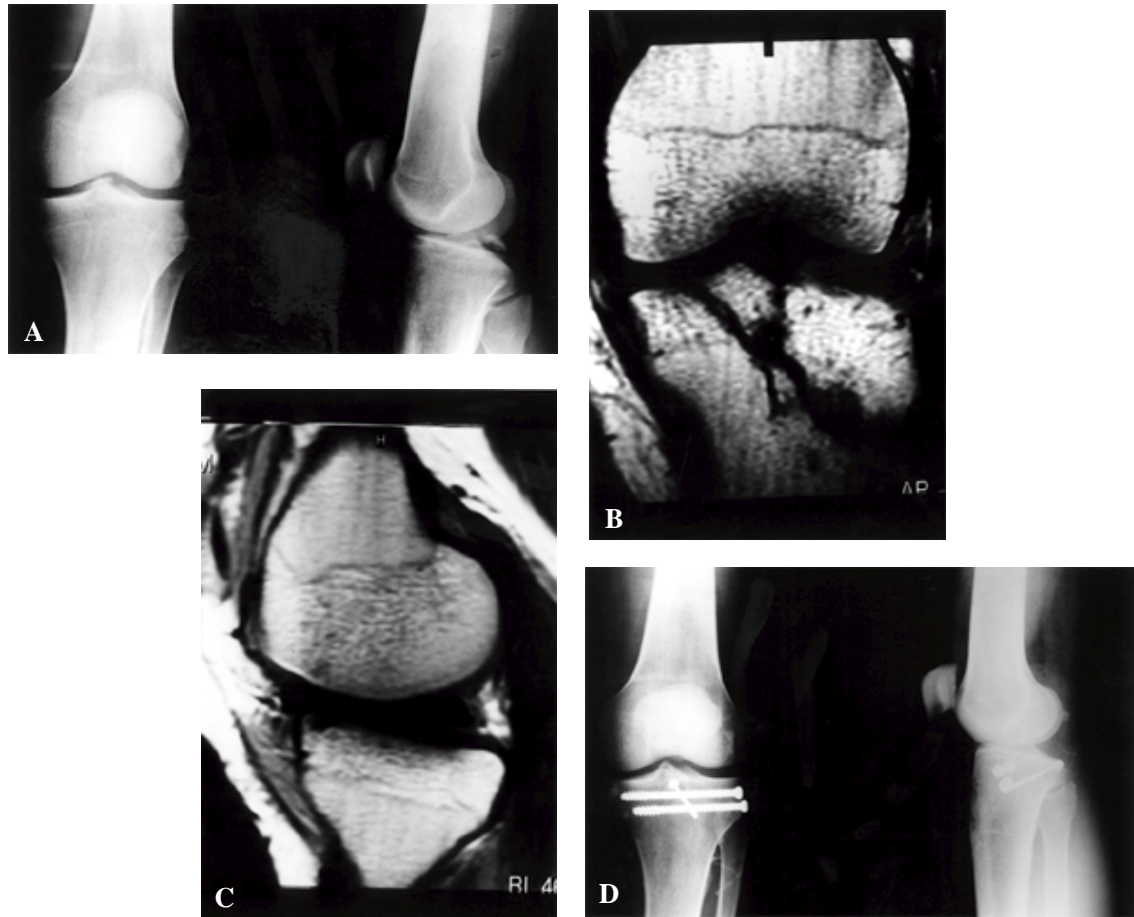


Fig 2A. Twenty five year old male patient with tibial intercondylar eminence fracture
2B. Coronal MR image shows associated with tibial plateau fracture
2C. Sagittal MR image shows tear of medial meniscus posterior horn
2D. Open reduction and internal fixation with screw

연구자	연구 방법	연구 대상	연구 결과
Holt 8)	MRI	가	47.6%
Schazker 가	MRI	가	19.3%, 12.9%
Barrow 5)	MRI	가	19.4%
Schatzker 2 6	MRI	가	19.4%
Colletti 4)	MRI	가	97%
Bennett 6)	MRI	가	56%
Bennet 6)	MRI	가	71%
3)	MRI	가	25.9%, 14.9%



2 4
Schatzker 2 4
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가 .

가

가

MRI

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