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= Abstract =

Management of Acetabular Fracture

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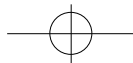
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Acetabular fractures are relatively uncommon, but frequency is becoming increasingly with the increase of automobile accident. Undisplaced acetabular fractures have a good prognosis, but major displaced acetabular fractures have always given rise to difficulty and have a problem if fractures are not accurately evaluated, classified and reduced anatomically. The principles of treatment are to restore the fractured acetabulum to its normal anatomy, to maintain and restore the function and accordingly early joint motion to promote healing and to prevent joint adhesion. However, the treatment of displaced fracture of acetabulum has been controversial. Judet, Pennal and Matta advocated open reduction and internal fixation for displaced fracture of acetabulum. But, Watson Jones and Crenshaw reported that closed reduction such as traction was used, good result could be obtained. The authors studied the sex and age distribution, classification according to roentgenographic findings, associated injuries, methods of treatment and prognosis among 67 patients who were admitted to the department of Orthopedic Surgery of Chonbuk National University Hospital under diagnosis of acetabular fracture and we evaluate the usefulness of spring plate for posterior wall fracture of acetabulum.

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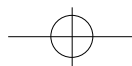


The results were as follows,

1. The prevalent age was fourth decade and the cause of injury was traffic accident in the majority. The most common type of fracture was posterior wall fracture and the second was transverse fracture by Letournel classification
2. The complications were posttraumatic arthritis in 21%, ectopic ossification, peroneal nerve palsy and wound infection. The prognosis of the total hip arthroplasty for complicated traumatic arthritis was relatively poor than others.
3. Satisfactory results by clinical criteria(by Postel) of operative treatment were 71% and conservative treatment 46%. In the majority of displaced acetabular fractures, open reduction and internal fixation was recommended. If surgery is attempted, it is essential to achieve an anatomical reduction and firm fixation by fully understanding the pathologic anatomy and by choosing an appropriate approach fixation device. We can make a satisfactory results by the treatment with spring plates in the comminuted posterior column fractures or posterior wall fractures that was difficulty in the treatment by simple plates.

Key Words : Acetabular Fracture, Spring plate

가 , spring plate
1,2) 12 67 2
spring plate
가 1-4,9,13,14)
Rowe Lowell¹⁹⁾ 70%
Watson-
Jones
, Judet⁸⁾ 1.
67 53 , 가 14 , 가
Pennal¹⁷⁾ 가 40 가
, Matta¹⁴⁾ 23 가 , 37:30
2.
Goulet⁵⁾ 가 67 52
13 , 가 2
(buttress plate)

**Table 1.** Associated injuries

Site of injury	No. of cases
Femoral head Fx.-D/L	16
Bladder and urethral injury	1
Patellar Fx.	2
I.D.K.	4
Other lower extremity Fx.	15
Thoracic and Abdominal injury	13
Head injury	6
Upper extremity Fx.	7
Other pelvic bone Fx.	15
Spine injury	6
Facial L/W and Fx.	7

* IDK = internal derangement of knee, L/W = lower extremity

Table 2. Fracture classification(by Letournel)

Fracture	No.
Elementary(42)	
Posterior wall	20
Posterior column	3
Anterior wall	2
Anterior column	3
Transverse	14
Associated(25)	
T-shaped	6
Posterior wall and column	3
Transverse and posterior wall	5
Anterior wall and posterior hemitransverse	1
Both column	10
Total	67

Table 3. Methods of treatment

Methods	No.
Conservative	18
Operative	
ORIF with Recon. plate	31
ORIF with spring plate	10
ORIF with screws	2
ORIF with wiring	2
Combined op	2
Total	67

Table 4. Roentgenographic Grade Criteria(Matta)

Excellent	Essentially normal roentgenogram
Good	Mild spur formation of femoral head of acetabulum
	Mild joint narrowing
	Mild sclerosis
Fair	Mild mottling of femoral head
	Mild subluxation of femoral head
	Moderate spur formation of femoral head of acetabulum
	Moderate joint narrowing
	Moderate sclerosis
Poor	Any collapse of femoral head
	Moderate-severe mottling of femoral head
	Moderate-severe subluxation of femoral head
	Severe spur formation of femoral head of acetabulum
	Severe joint narrowing
	Severe sclerosis

(Dash-board injury)

15

(Table 1).

3.

가

. 67

Letournel

42

4.

67 ,

20

가

10 가

(Table 2).

10

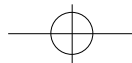
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32

17

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49



50 • / 12 1

Table 5. Clinical Grade Criteria(Postel)

Pain	Point	Ambulation	Pint	ROM(%)	Pont	Clinical Grade	Point
No paine	6	Normal	6	100	6	Excellent	18
				80	5	Good	15-17
Slight or intermittent	5	No cane but slight limp	5	60	3	Fair	12-14
				< 40	<12		
Mild pain after ambulation but disappears with rest	4	Long distances with cane/crutch	4				
Moderately severe permits ambulation	3	Limited even with support	3				
Severe with ambulation	2	Very limited	2				
Severe, prevent ambulation	1	Bedridden	1				

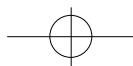
Table 6. Overall radiological results

	Conservative	Operative
Excellent	3	17(4)
Good	3	18(3)
Fair	5	9(2)
Poor	7	5(1)
Total	18	49(10)

*()Spring plate

5.

2 12 , (Table 5) 가 . (Excellent) (Good) 18 6 (33%) , 49 35 (71%) , (Table 6). (Excellent) (Good) 18 9 (50%) , 49 38 (77%) , (Table 7). 2mm , 가 3 10 6 (60%) , 7 (70%) . 6. 2 , 1 , spring plate 1 (Table 3).

**Table 7.** Overall clinical results

	Conservative	Operative
Excellent	1	8(2)
Good	8	30(4)
Fair	2	7(2)
Poor	7	4(2)
Total	18	49(10)

*()Spring plate

Table 8. Complications

	Complication	Conservative	Operative
Early	Peroneal nerve palsy	2	1(1)
	Superficial infection		2
Late	Ectopic ossification	5	2
	Degenerative arthritis	10	4(2)

*()Spring plate

2 (Table 8). 10 view), (outlet view) (inlet view), 17,21) (iliopectineal line), (ilioischial line), tear drop, (anterior lip of acetabulum), (posterior lip of acetabulum) 67† 8,11,13) 45 (obturator oblique view), 45 (iliac oblique view) 9,11,16,21) 3 (three-demansional) CT 21,23) 가 . Westerborn²¹⁾, Stewart Milford²⁰⁾, Rowe Lowell¹⁹⁾, Judet, Judet Letournel⁸⁾ Cooper Malgaigne Letournel¹¹⁾ 가 . Letournel Judet⁸⁾ 126 (26.8%) 21 (4.5%), 10 (2.1%) 22 (4.7%) 43 (9.2%) T 30 (6.4%) 95 (20.2%) (hemitransverse) 23 (4.9%) , Matta(1986) 14)

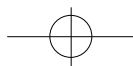


Fig 1-A. Both hip A-P radiograph of 30 years old male who had hip joint fracture and dislocation on Rt. side.

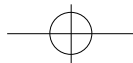
B. Pelvis A-P radiograph after 18 weeks after ORIF with one screw for femoral head fracture and spring plate for acetabular posterior wall fracture.



Fig 2-A. Anteroposterior pelvis radiograph of an 74 years old female who had Rt. transverse and posterior acetabular wall fracture.

B. Pelvis A-P view 3 months after ORIF with two main plates and one spring plate which shows early traumatic osteoarthritic change.

105 44 , T 가 14 , 가 .
19 .
Lipscomb¹²⁾ 20
50 44% , 2)
20 50 58%, 가 ,
1) 20 50 ,
63% . Judet ⁸⁾ 173
가 2.1:1 .
가 3-5)
40 가 23(34%) 가 , 53 , Heeg ^{6,7)}



가 3.5mm Goulet⁵⁾

가 17,18)

가

(redistribution) spring plate

10 spring plate

Matta¹⁴⁻¹⁶⁾ 1mm 3mm (21%) 10

Tile²⁰⁾ 2mm spring plate

가 가

Matta 2-10 Letourmel¹¹⁾

가 8.6% 5.6% , Carnsale³⁾ 11

10 가 45

8,11,21)

가

17) 1 Letourmel¹¹⁾ 18% Carnsale³⁾ 27% 2

. Letourmel¹¹⁾ Kocher- Langenbeck 가 1

(iliofemoral) 가

(ilioinguinal) Letourmel¹⁰⁾ 5.6%

Epstein 8%

(hemitransverse) 2 가

,T , 4 , 2

1986 Matta¹⁴⁾ 75%

3 81% (Excellent) (Good) 50%,

(iliofemoral)

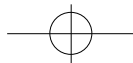
77%

bolt, , spring plate

8,9,17,21) Judet⁸⁾

Judet⁸⁾ (60%), 70%



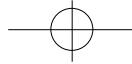


1989
1 1998 1 1 9
67
1. 40 가 가 ,
가 가
2. 14
(21%) 가
55.5%
2 , 1
3,
가 71%,
46%
4.
spring plate

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