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140-743

657

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2/3  
 ,  
7mm  
 .  
10).  
가  
5mm  
5mm  
가  
가  
7,8,10,26,27).  
288  
30  
 , , , ,  
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 , , ,  
가  
18).  
Singh  
3 4  
7,26,27).  
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가  
가  
가  
21).  
Garden  
Garden I, II III, IV  
15).  
1990 1999  
Knowles pin  
288 18 , 12  
30 (10.4%)  
5mm  
Garden  
9-12). 22 83  
15,17,23).  
16 , 14  
1.  
30 18  
Knowles pin 12,13). 14 (8-60 )

Knowles pin  
9  
가 , 5 , 가  
12 가 .  
6 가 8,11,18,27).  
16 (6-30 ) .  
3 3.  
3  
Knowles pin , 9, 4, 5  
가 10 , 1 10 2 1  
60 가 8 , 3 .  
61  
11  
3:2 1:2 .  
2. 4. , ,  
Garden  
stage II가 3 , stage III 11 , stage  
IV 1 ,  
stage III가 13 , stage IV  
2 . Stage IV  
22  
가 Singh  
index 1  
12 2 . 29 15 ,  
10 2 , 8  
3 . 8 .  
Garden stage III 24  
stage IV 3 5 °  
Garden Garden index  
stage II 3 Singh 4  
가 .  
62.3 5.  
61.07 Knowles pin,  
7,18,22,26,27).  
15 , 7 ,

8 . 가 6,9,16,28)  
 9 ,  
 4 , 5 ( , , )  
 6 , 3 ,  
 3  
 3  
 5 (3-6 ) Singh<sup>17)</sup> Singh ,  
 Singh 3  
 26)  
 ,  
 ,  
 1), 가 가 , 가 가 가  
 가 14,18,24,25) Garden (alignment index)  
 unsolved fracture  
 14) 가 가 8)  
 ,  
 가  
 7,9) ( ,  
 가 2,3,5,10,11,12) )  
 Lindequest Tonkvist<sup>22)</sup>  
 , , , ,  
 가 Swionkowski  
 가 20%, 0%  
 5-21%, 7-15%  
 , 6.5%, 3.7%  
 가  
 4,17,18,19,20,,27,30)  
 가  
 22)  
 가  
 가 60

stage III

Singh index 4

Garden

288

30

Garden stage III

27

Garden stage II

3

3

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**Table 1.** Distribution of cases.(Age, Impression)

Age / Internal fixator	AVN			Nonunion(Loss of Fixation)		
	MP	RCHS	COM	MP	RCHS	COM
60	6	2	2	1(1)	0	0
60	3	2	3	5(2)	3	3

AVN : Avascular necrosis / MP : Multiple pinning

RCHS : Richard compression hip screw / COM : Combined use: MP+RCHS

**Table 2.** Distribution of cases.(Garden stage, Complication)

Garden stage / Internal fixator	AVN			Nonunion(Loss of Fixation)		
	MP	RCHS	COM	MP	RCHS	COM
Garden II	2	0	0	1	0	0
Garden III	6	4	3	5(3)	3	3
Garden IV	1	0	2	0	0	0

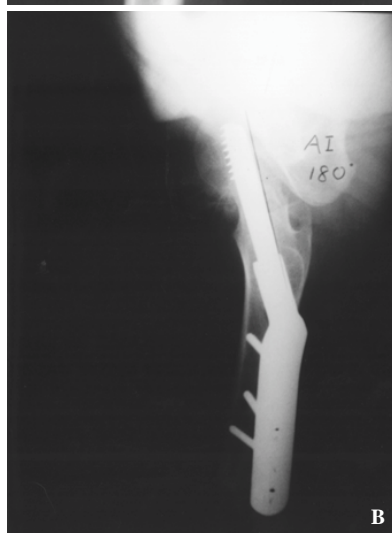
AVN : Avascular necrosis / MP : Multiple pinning

RCHS : Richard compression hip screw / COM : Combined use: MP+RCHS



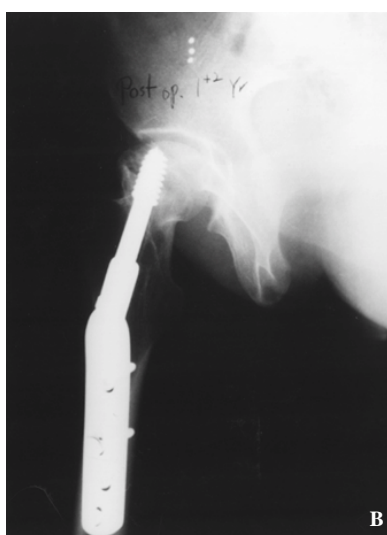
**Fig1-A :** Preoperative hip anteroposterior radiograph of the left hip shows displaced intracapsular femoral neck fracture.

**1-B :** Preoperative hip lateral radiograph of the left hip shows posterior cortical comminuted femoral neck fracture.



**Fig2-A :** Postoperative hip anteroposterior radiograph of the left hip shows well reduced femoral neck fracture.

**2-B :** Postoperative hip lateral radiograph of the left hip shows displaced intracapsular femoral neck fracture with reduced state.



**Fig3-A and B**

Postoperative hip anteroposterior and lateral radiograph at 1 year 2 month after fracture, pins have been remained and avascular necrosis has developed.

These were serial checked films.

## Abstract

## The Significance of Posterior Cortex in Complicated Femoral Neck Fractures which were Internal Fixated.

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**Purpose :** When a surgeon carries out an operative treatment on a patient who has fractures of the femoral neck, he decides to do either the internal fixation for bony union or the aggressive treatment according to his experience and preparation, not according to the objective standard. The aim of this retrospective study is to prepare a guideline for the operative method.

**Materials and Methods :** We analyse possible factors of the patient who has nonunion, avascular necrosis and loss of fixation after doing internal fixation in femoral neck fractures

**Results :** In this treated case of femoral neck, the appearance of complications are influenced by the maintenance of internal fixation, shape of fractures, osteoporosis, and the position of fixations; but in the complicated cases without the loss of fixation, the shape of fractures always have posterior cortical comminution.

**Conclusion :** When we choose between simple fixation and aggressive treatments in cases of fractures of the femoral neck, we must treat according to the patient's condition, displacement of the fracture, operative technique and existence of a posterior cortical comminuted fracture.

**Key Words :** Femur, femoral neck fracture, complication, nonunion, avascular necrosis, posterior cortex

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