

[ ]

: 1 가 가 52

: 1996 1 2001 12

1 가 가 52

Lunceford 가

, Garden , Singh ,

: 23 (44%), 15 (29%), 2 (3.8%), 12

(23.1%) . 52 14 (26.9%) 가 1

, 2 , , ,

Garden , Singh ,

Garden 3 4 Garden 1

4 (odds ratio 3.889), 3

(odds ratio 3.22) (95% ).

:

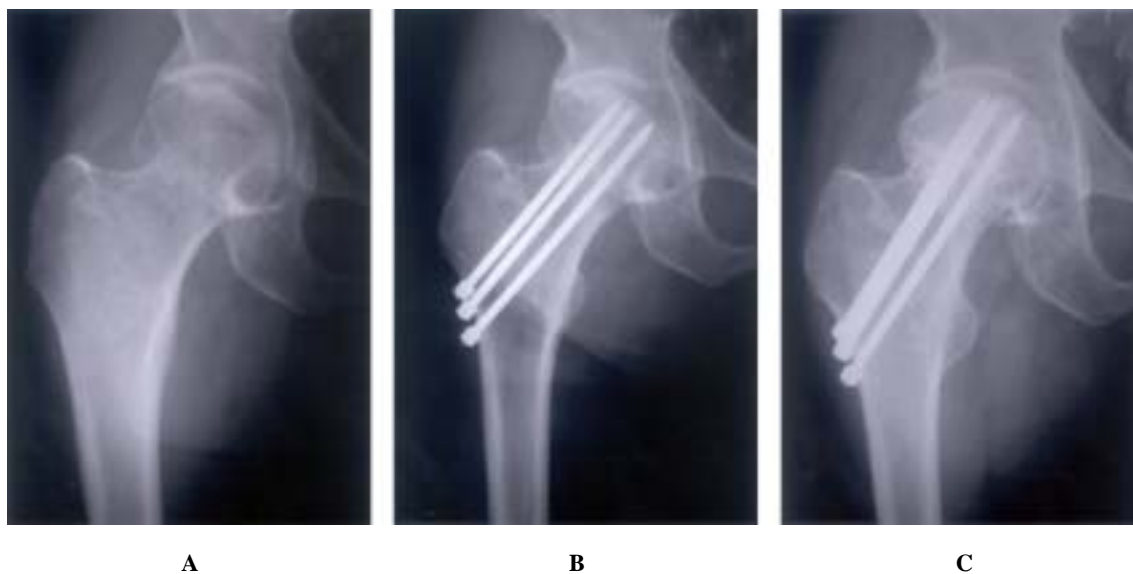
2가 가 가

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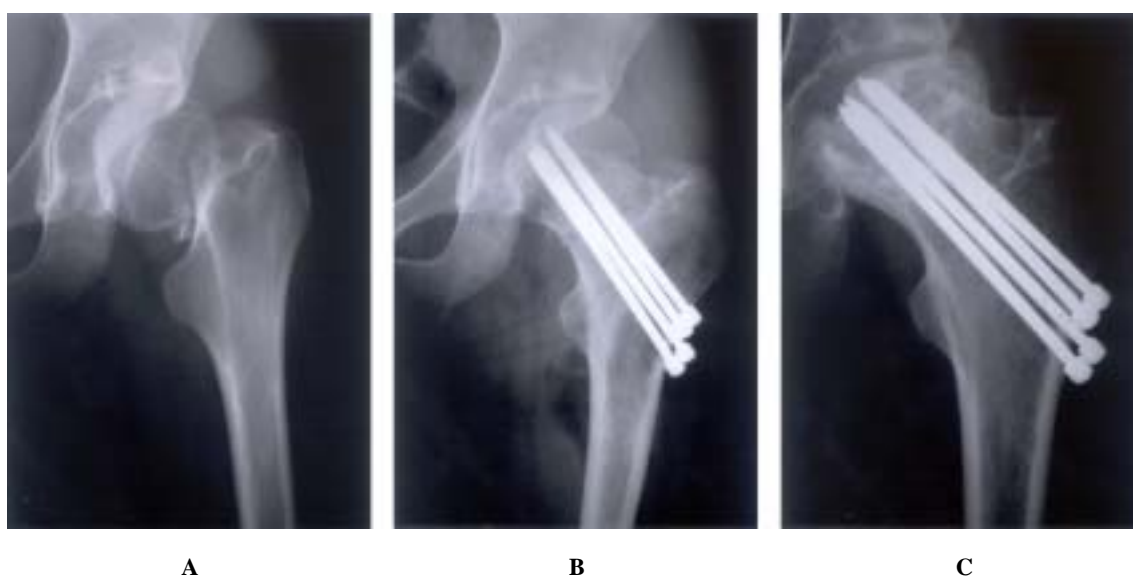
: 136-705, 5가 126-1

: 82-2-920-5323, Fax: 82-2-924-2471  
e-mail: parksw@kumc.or.kr

3 (5%), 13 (25%),  
가 36 (70%) .  
Singh<sup>16)</sup> Singh  
3 가 12 (23%), 4 16 (31%), 5 20  
(39%), 6 4 (7%) .  
38 Knowles pin, 14 cannulated  
screw .  
가 가 38 (73%)  
4.4 .  
가 .  
가 .  
가 52 가 23  
(44%), 15 (29%), 2 (4%), 12  
(23%) . 52 14 (26.9%)  
가 1  
, 2 .  
20 7 4  
(57%), 30 4 2 (50%), 40 11 2  
(18%), 50 60 8 1 (12%)  
70 8 3 (37%), 80  
6 1 (16%)가  
(p>0.05).  
가 가 52 22 6 (27%),  
Lunceford<sup>13)</sup> , 30 8 (26%)  
, Garden , Singh (p>0.05).  
, , 0  
Chi-Square test . 3 25 8 (32%), 4  
7 12 2 (16%), 8 30  
22 87 54.8 15 4 (27%)  
(p>0.05).  
28 , 24 . 36 Garden  
가 , 9 , 6 , 1 17 2 (11%) (Fig. 1-A, B, C),  
1 . 2 7 2 (28%), 3 4  
0 3 가 25 , 4 14 5 (35%) (Fig. 2-A, B, C)  
7 가 12 , 1 1 가 15 . (p>0.05)  
Garden<sup>2,6)</sup> 1 Odds ratio 3.889 (95% )  
가 17 (32%). 2 7 (14%),  
3 4 가 14 (27%) .  
Garden<sup>6)</sup> Singh 3  
3 (25%), 4 4 (25%), 5 6



**Fig. 1A.** Preoperative radiograph of 73 years old male patient showing Rt. femur neck fracture of Garden stage 1.  
**1B.** In situ pinning was performed.  
**1C.** Rt. femur head avascular necrosis was observed in postoperative 2 years 8 month radiograph.



**Fig. 2A.** Preoperative radiograph of 25 years old female patient showing Lt. femur neck fracture of Garden stage 4.  
**2B.** Immediate postoperative radiograph showing anatomic reduction and internal fixation.  
**2C.** Postoperative 2 years radiograph, avascular necrosis of Lt. femur head was noted.

(30%), 6 1 (25%)

( $p > 0.05$ ).

Knowles pin  
 9 (24%), cannulated screw

5 (35%)

( $p>0.05$ ). 20 30 57%, 50%  
 가 3  
 , 13 4 (31%) ,  
 36 7 (19%)  
 ( $p>0.05$ ). Calandruccio Anderson<sup>3)</sup> 24  
 Odds ratio 3.22 (95% 2~3  
 ) Graham<sup>7)</sup>  
 .  
 Barnes <sup>2)</sup> 1  
 가 가  
 .  
 가 1 1 가  
 52 15  
 Garden 1  
 ,  
 .  
 Albert Jervaeus<sup>1)</sup> 가  
 Holmberg <sup>8)</sup>  
 가  
 가  
 8)  
 Knowles Odds ratio가  
 pin, cannulated screw, 3 4 3.889 1  
 4  
 12,17) We-  
 inrobe <sup>19)</sup> 12%, 11% Patrick Nel-  
 Kim <sup>10)</sup> 30.9% son<sup>14)</sup> 가 가  
 가 20.6% Singh  
 가 26.9% .  
 1 2 가 Thomas <sup>18)</sup>  
 Barnes <sup>2)</sup>  
 가 1,5,9,11,15)  
 가 Odds ratio 3.22  
 9) 3

가  
가

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**Abstract****Factors Predisposing to Complications After Internal Fixation of Femoral Neck Fracture**

**Sang Won Park, M.D., Chang Yong Hur, M.D.,  
Jong Ryoan Baek, M.D., Seong Jun Park, M.D.**

*Department of Orthopedic Surgery, Korea University Hospital, Seoul, Korea*

**Purpose:** To analyze the factors predisposing to complications after internal fixation of femoral neck fracture.

**Materials and Methods:** We reviewed retrospectively the results of percutaneous internal fixation of femoral neck fracture using multiple pinning, in 52 cases who were treated from Jan. 1996 to Dec. 2001. Relationship between the complications and several factors such as the age, sex, time interval from injury to operation, Garden stage, Singh index, internal fixation device and state of reduction were analyzed.

**Results:** The functional results by Luncford criteria were excellent in 23 cases (44%), good in 15 cases (29%), fair in 2 cases (3.8%) and poor in 12 cases (23.1%). The avascular necrosis of the femoral head were occurred in 14 cases (26.9%). Among these, 1 case of non-union, 2 cases of mal-union were accompanied. No statistically significant relationship between the age, sex, time interval from injury to operation, Garden stage, Singh index, internal fixation device, state of reduction and complication. However, there was 4 times higher complication rate in Garden stage 3 or 4 group than its rate in Garden stage 1 (odds ratio 3.889), and 3 times higher complication rate in non-anatomical reduction group (odds ratio 3.22).

**Conclusion:** Factors predisposing to complications after internal fixation of femoral neck fracture seemed to closely relate with Garden stage and state of reduction.

**Key Words:** Femoral neck fracture, Internal fixation, Complication, Prognostic factor

**Address reprint requests to** \_\_\_\_\_

Sang Won Park

126-1, 5-ka, Anam-Dong, Sungbuk-ku, Seoul, Korea

Department of Orthopedic Surgery, Korea University Hospital

Tel : 82-2-920-5323, Fax : 82-2-924-2471

E-mail : parksw@kumc.or.kr