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140-743

657

TEL : 02-621-9256

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2/3

7mm

10)

가

5mm

5mm

가

7,8,10,26,27)

7,27,29)

가

가

288

30

가

가

18)

Singh

가

가

3

4

가

7,26,27)

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

5

가

가

12

6

가

8,11,18,27)

16 (6-30)

3

3.

3

Knowles pin

,

9, 4, 5

60

가 10 ,

1

10

2 1

61

가 8 ,

3

11

3:2

1:2

4.

2.

Garden

2 , 2 , 1

stage II가 3 ,

stage III 11 , stage

IV 1

2 , 3 , 1

stage III가 13 , stage IV

2

. Stage IV

22

가

Singh

index

1

1

12

2

29

15

2 ,

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10

3

8

Garden stage III 24

5°

stage IV 3

Garden

Garden index

stage II 3

Singh 4

가

5.

62.3

Knowles pin,

61.07

7,18,22,26,27)

15 ,

7 ,

8 . 가 6,9,16,28)
 9 ,
 4 , 5 (, ,)
 6 , 3 ,
 3
 3
 5 (3-6) Singh¹⁷⁾ 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). (,
 2,3,5,10,11,12).) Lindequest Tonkvist²²⁾
 , , , ,
 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

27

Garden stage III

Garden stage II

3

3

REFERENCES

- 1) **Arnold WD, Lyden JP, and Minkoff J** : Treatment of intracapsular fractures of the femoral neck.. J Bone Joint Surg, 56-A: 254-261, 1974.
- 2) **Bently G** : Impacted fractures of the neck of the femur. J Bone Joint Surg, 50-B: 551-561, 1968.
- 3) **Blackman RC** : Percutaneous Knowles pinning for fracture of the neck of the femur. J Bone Joint Surg, 29: 13-18, 1947.
- 4) **Brown TI** : Failure of sliding nail plate fixation in subcapital fracture of the femoral neck. J Bone Joint Surg, 61-B: 342-346, 1979.
- 5) **Calandruccio RA** : Impaction screw fixation of hip fracture. J Bone Joint Surg, 56-A: 153-156, 1974.
- 6) **Canasal, PG and Anderson LD** : Primary replacement of femoral neck fracture. Arch Surg, 110:27-35, 1975.
- 7) **Chapman MW, Stehr JH, Eberie GF, Blomm, MH and Bovil, EG** : Treatment of intracapsular hip fracture by Deyerle method. J Bone Joint Surg, 57-A: 735-743, 1975.
- 8) **Clark DI, Crofts CE and Saleh M** : Femoral neck fracture fixation, Comparison of sliding screws. J Bone Joint Surg, 72-B: 797-800, 1990.
- 9) **Crawford HF** : Conservative treatment of impacted fracture of femoral neck. J Bone Joint Surg, 42-A: 471-479, 1960.
- 10) **Crenshaw E** : Treatment of femoral neck fracture. Campbell 's operative Orthopedics. 9th Ed:2209-2222, 1998.
- 11) **Deyerle WM** : Multiple peripheral pin fixation, Fracture of femoral neck. J Bone Joint Surg, 38-A:23-37, 1956.
- 12) **Deyerle WM** : Multiple pin peripheral fixation in fracture of neck of the femur, Immediate weight-bearing. Clin Orthop, 39: 135-156, 1965.
- 13) **Deyerle WM** : Absoute fixation with contact compression in hip fracture. Clin Orthop, 39: 279-285, 1965.
- 14) **Dickson JA** : The“ Unsolved fracture. ”J Bone Joint Surg, 35-A: 805-822, 1953.
- 15) **Garden, RS** : Malreduction and arascular necrosis in subcapital fracture of the femur. J Bone Joint Surg, 53-B: 183-196, 1971.
- 16) **Gingras MS, Clarke J and Evarts M** : Prosthetic replacement in femoral neck fractures. Clin Orthop, 152-157, 1980.

17) **Jhonson JH and Crothers O**: Nailing versus prosthesis for femoral neck fracture. *J Bone Joint Surg*, 57-A: 686-692, 1975.

18) **Kenneth J, Koval MD, Joseph D and Zuckerman MD** : Hip Fracture:1 Overview and evaluation and treatment of femoral neck fracture. *AAOS Instructional Course Lectures*, 2: 141-149, 1994.

19) **Kim YM, Lee SH, Choi S** : Functional review of the Hemiarthroplasty Vs Total joint Replacement in the Femur neck fracture. *J Korean Orthop Surgery*, 17: 464-473, 1982.

20) **Kim BK, Yoo MC, Ahn JH, Song YH, Khang SM** : Treatment of Femoral Neck fracture. *J Korean Orthop Surgery*, 16: 575-586, 1981.

21) **Lane, JM, Sculco TP and Zolan S** : Treatment of Pathological fracture of Pathological fractures of the Hip by Endoprosthesis Replacement. *J Bone and Joint Surg*, 62-A: 954-959, 1980.

22) **Lindequist S and Tornskvist HT** : Quality of reduction and cortical screw support in femoral neck fractures. *J Orthop Trauma*, 9: 215-221, 1990.

23) **Metz CW, Sellers TD, Feagin JA, Levine MI, Onkey RG, Dyer JW, and Eberbard EG.**: The displaced intracapsular fracture of the neck of the femur. *J Bone Joint Surg*, 52-A: 113-127, 1970.

24) **Meyer MH, Harvey JP and Moore RM** : Treatment of displaced subcapital and transcervical fracture of the femoral neck by muscle-pedicle-bone graft and internal fixation. A preliminary report on one hundred and fifty cases. *J Bone Joint Surg*, 55-A: 257-274, 1973.

25) **Montgomery SP and Lawson LR** : Primary Thompson Prosthesis for Acute Femoral Neck Fractures. *Clin Orthop*, 137: 62-68, 1978.

26) **Michal RB, Thomas FH: Rockwood and green 's fractures in Adults** : 4th ed., Hong-kong, Lippincott-Raven, 1594-1606, 1996.

27) **Pugh WL** : A-self-adjusting nail-plate for fracture about hip joint. *J Bone Joint Surg*, 37-A: 1085-1098, 1955.

28) **Sim FH and Stauffer R.N** : Management of Hip Fractures by Total Hip Arthroplasty. *Clin Orthop*, 152: 191-197, 1987.

29) **Schmidt A** : Femoral neck fractures. *Orthop Clin North America*, 33: 97-111, 2002.

30) **Swionkowski MF** : Current concept review. Intracapsular fractures of the hip. *J Bone and Joint Surg*, 76-A: 129-138, 1994.

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.

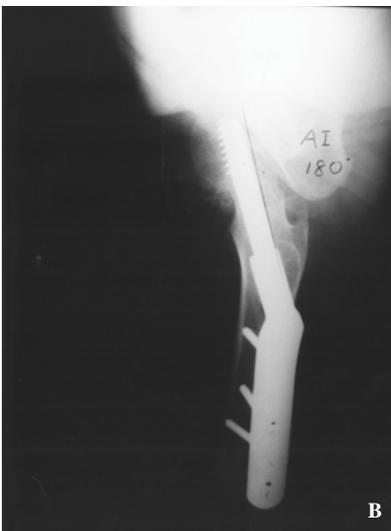


Fig2-A : Postoperative hip anteroposterior radiograph of the left hip shows well reduced femoral neck fracture.

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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