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= Abstract =

Bipolar Hemiarthroplasty for the Treatment of Displaced Femoral Neck Fracture in Elderly Patients

- Uncemented versus Cemented femoral stems -

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Forty five patients above the age of 60 with displaced femoral neck fractures were treated by bipolar hemiarthroplasty in Kangbuk Samsung hospital from January 1990 to January 1995. We evaluated these patients for comparison of the results between the cemented and uncemented femoral fixation, especially in elderly patients with medical illness or osteoporosis. During a follow up period of more than two years, the authors found less thigh pain(5.2% versus 38%) and slightly higher Harris hip scores(84.5 versus 80.0 points) in the cemented group in comparison with the uncemented group. Radiographic examination showed less radiolucent

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108 (110-102)

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1998

35

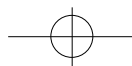




zones in the cemented group. Comparing the operative time(86.2 versus 83.8 minutes), hospital stay(4.7 weeks versus 5.3 weeks), blood loss(385 versus 381 ml) during the operation. The postoperative mortality rate was 2%, and the follow-up mortality rate was 11% in the first year. There was no significant difference between two groups in mortality rate. Thus in bipolar hemiarthroplasty in elderly patients with displaced femoral neck fracture, we have obtained satisfactory results despite of poor bone condition and osteoporosis except thigh pain. But the follow up period was too short to assess the late complications of the hemiarthroplasty such as acetabular erosion, implant loosening, so long-term follow up will be necessary

Key Words : Femoral neck, Displaced fracture, Bipolar hemiarthroplasty, Cemented, Uncemented

24 .
가 가 , 60 가
. 60
12) (stem) ,
6 , 15 68.5 ,
9 , 15 72.4 .
가 , 가, 4 ,
가 , 17)
, 8).
,
(reactive line) 가
9). Garden III 27 , IV 17
8 (2 -21)
12 (26%) 가
, 7 (16%), 7 (16%),
7 (16%), 4 (9%), 4
(9%), 3 (7%), 2
(4%), 1 (2%) .
3
1990 1 1995 1 (cefmetazole 2.0g/day) ,
60 ,
(300mg/day) .
45 , 45 21 , 가
,



2 , (24 - 48) ,
6 . chi-square test student 's t-test .
21 Omnifit
(Osteonics, Allendale, USA), 24
17 AML(Anatomic Medullary Locking; DePuy,
Warsaw, USA), 7 ABG(Howmedica, Rutherford,
USA)가 . 가
, Harris Hip Score 가가 , (p>0.05, Table 1).
가 1 , 2
1)¹ , 2)² 1 ,
(radiolucent line),³⁾ 8
,⁴⁾ (osteolysis) (p=0.02, Table 2) ,
Eng⁹⁾ .
가 2mm 35.3
가 , 2mm 33.5 , 31 28.5 Harris Hip
가 . Score 84.5 80
70 1
Gruen ¹⁴⁾ , Johnston (p>0.05).
¹⁶⁾ tear drop 가 2mm 1 ,
24 . 2mm
50 32 , 31 , 3 (14%)

Table 1. Comparison of operation time, intraoperative blood loss, and length of hospital stay

	Cemented group	Uncemented group	Student t-test
Operative time (minutes)	86.2(60-120)	83.8(60-110)	p>0.05
Intraoperative blood loss(ml)	385(200-800)	381(150-1000)	p>0.05
Hospital stay (weeks)	4.7(1.5-10)	5.3(3-12)	p>0.05

Table 2. Hip and thigh pain in follow up period

Pain	Cemented group		Uncemented group		Chi-square test
	No.	%	No.	%	
Thigh pain	1	5.3	8	38.3	p=0.02
Groin pain	1	5.3	1	4.8	p>0.05

**Table 3.** Postoperative radiographic results

	Cemented group		Uncemented group		Chi-square test
	No.	%	No.	%	
Acetabular erosion	1	5.3	1	4.8	p>0.05
Protrusio acetabuli	0	0	0	0	
RL*	0	0	3	14.3	p>0.05
Subsidence of femoral stem(>2mm)	0	0	0	0	

* Radiolucent line around femoral stem(>2mm)

Gruen zone III, IV

(Table 3, Fig 1, 2).

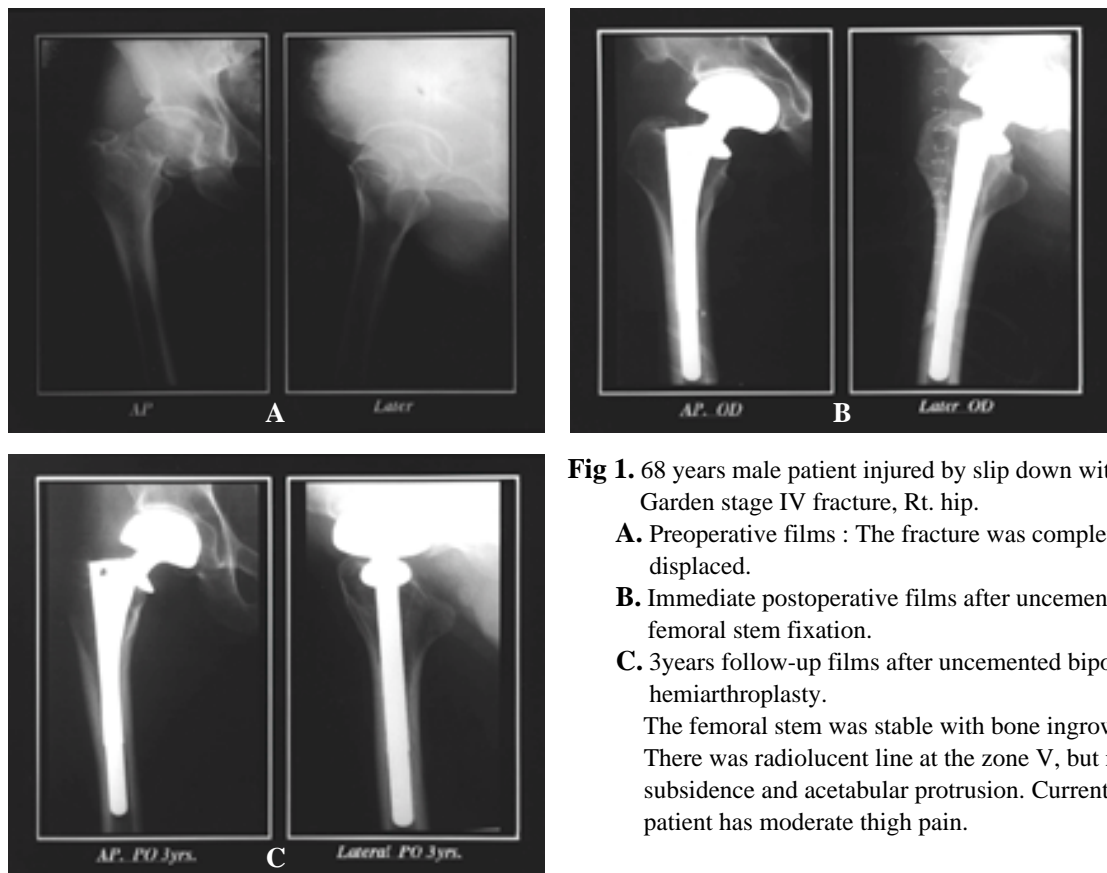


Fig 1. 68 years male patient injured by slip down with a Garden stage IV fracture, Rt. hip.

A. Preoperative films : The fracture was completely displaced.

B. Immediate postoperative films after uncemented femoral stem fixation.

C. 3years follow-up films after uncemented bipolar hemiarthroplasty.

The femoral stem was stable with bone ingrowth. There was radiolucent line at the zone V, but no subsidence and acetabular protrusion. Currently patient has moderate thigh pain.

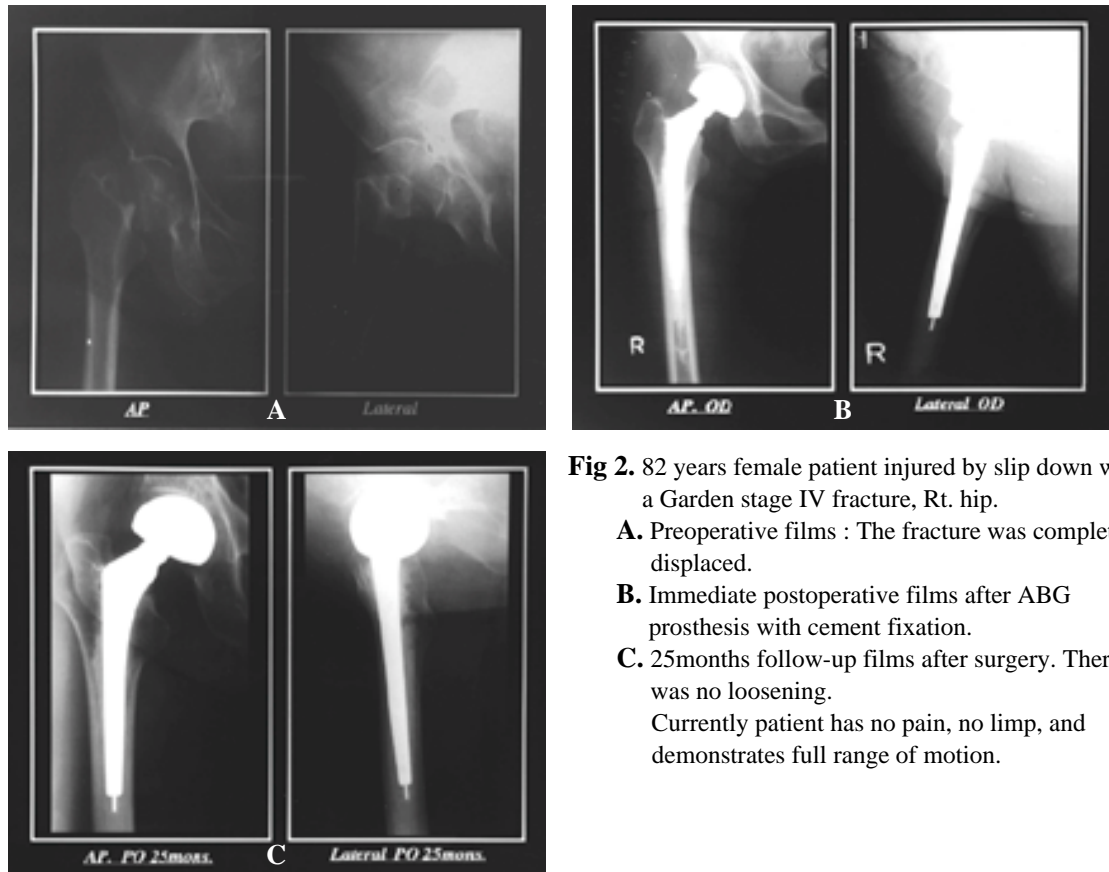


Fig 2. 82 years female patient injured by slip down with a Garden stage IV fracture, Rt. hip.

A. Preoperative films : The fracture was completely displaced.

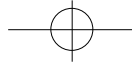
B. Immediate postoperative films after ABG prosthesis with cement fixation.

C. 25months follow-up films after surgery. There was no loosening.

Currently patient has no pain, no limp, and demonstrates full range of motion.

45
3
1 1
1
2
1
1 44
가
7 , 10
2 , 6
5,12,15,19)

1
2
stem , 1
ABG
28 , 33
AML
1



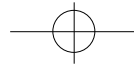
200 • / 12 2

rasp 가
ABG
2
가
가
HA
2,6,18)
가
1),
7,9),
Gingras 13)
Thompson
Thompson
Follacci 11)
가
Tressler Johnson²¹⁾
44 20
Beckenbaugh 4)
가
17)
Lennox
가 60
가
1 가
1
1 3
3,12,17,20,22)
Fitzgerald 10)
Harris Hip Score



REFERENCES

- 1) , , , : 가. , 5:81-92, 1993.
- 2) , , : HA-coated CLS stem non-coated CLS stem , 6:22-31, 1994.
- 3) , , : 가. , 9:136-143, 1997.
- 4) **Beckenbaugh RD, Tressler HA and Johnson EW** : Results after hemiarthroplasty of the hip using a cemented femoral prosthesis: A review of 109 cases with an average follow-up of 36 months. *Mayo Clin. Proc.* 52:349-353, 1977.
- 5) **Bray TJ, Hofer ES and Hooper A** : The displaced femoral neck fracture. Internal fixation versus bipolar endoprosthesis. Result of a prospective, randomized comparison. *Clin Orthop*, 230:127-140, 1988.
- 6) **Callaghan JJ** : Total hip arthroplasty : Clinical perspective. *Clin Orthop*, 276:33-40, 1992.
- 7) **Carlsson AS and Nilsson BE** : The relationship of bone mass and loosening of the femoral component in total hip replacement. *Acta Orthop Scand*, 51:285-288, 1980.
- 8) **Carnesale PG and Anderson LD** : Primary prosthesis replacement for femoral neck fractures. *Arch Surg*, 110:27-29, 1975.
- 9) **Engh CA, Massion P and Suther KE** : Roentgenographic assesment of the biologic fixation of porous-surfaced femoral components. *Clin Orthop*, 257:107-128, 1990.
- 10) **Fitzgerald RH, Brindly GW and Kavanagh BF** : The uncemented total hip arthroplasty: Intraoperative femoral fractures. *Clin Orthop*, 235:61-66, 1988.
- 11) **Follacci FM and Charnley J** : A comparison of the results of femoral head prosthesis with and without cement. *Clin Orthop*, 62:156-161, 1969.
- 12) **Gebhard JS and Amstutz GC** : A Comparison of total hip arthroplasty and hemiarthroplasty for treatment of acute fracture of the femoral neck, *Clin Orthop*, 282:123-131, 1992.
- 13) **Gingras MB, Clarke J and Evarts CM** : Prosthetic replacement in femoral neck fractures. *Clin Orthop*, 152:147-157, 1980.
- 14) **Gruen TA, Mcneice GM and Amstutz HC** : Modes of failure of cemented stem-type femoral component. A radiographic analysis of loosening. *Clin Orthop*, 141:17-27, 1979.
- 15) **Hinchey JJ and Day PL** : Primary prosthetic replacement in fresh femoral neck fracture. *J Bone Joint Surg*, 46A:223-240, 1964.
- 16) **Johnston RC, Fitzgerald RH, Harris WH, Poss R, Muller ME, Sledge CB** : Clinical and radiographic evaluation of total hip replacement. A standard system of terminology for reporting results. *J Bone and Joint Surg*, 72-A:161-168, 1990.
- 17) **Lennox IAC and McLauchlan J** : Comparison the mortality and morbidity of cemented and uncemented hemiarthroplasties. *Injury*, 24:185-186, 1993.
- 18) **Livesley PJ and Srivastiva VM** : Use of a hydroxyapatite-coated hemiarthroplasty in the management of subcapital fractures of the femur. *Injury*, 24(4):236-240, 1993.
- 19) **Lowe WH, Chin WM, Huang CK, Chen TH, Chiu FY and Chin CM** : Bateman bipolar hemiarthroplasty for displaced intracapsular femoral neck fractures. *Clin Orthop*, 302:75-82, 1994.



20) **Nather A, Seow CS, Iau P** : Morbidity and mortality for elderly patients with fractured neck of femur treated by hemiarthroplasty. *Injury*, 26:187-190, 1995.

21) **Tressler HA and Johnson EW** : Cited by Sledge, C.B., In the hip, proceedings of the fifth open

scientific meeting of the hip society, P124. St Louis, CV Mosby, 1977.

22) **Van Dortmont LMC and Wereldsma JCJ** : Complications of hemiarthroplasty, *INT SURG*, 81:200-204, 1996.

