

AO C

1. 1. 1. 2. 2. 2

- 1.
- 2.

< >

:

가

15 AO C

: 1990 12 1999 11

AO C

27 1 가 15 1 5 (1 3

3) , 43.6

11 4 Ilizarov

Schatzker Lambert 가

: 4 1 2 1 4 1 1

81%

75%

: AO C 가

가

: , , AO C ,

가

, ,

1,10,19)

, , ,

가

:

23-20

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(angle blade plate) 1 ,
2 가
가 8).
AO C 4 , 2 Ilizarov
가
2 ,
.
.
1990 12 1999 11
27 AO C
6 Schatzker Lambert⁽¹²⁾
가 , 6 1 가 , , , 15
, 1 가 15 (Excellent) 6 , (Good) 6 , (Fair) 2 ,
, 1 5 (1 - (Poor) 1 80%
3 3) 가 10 , 가 5 , 11 5
43.6 (18 - 87) . , 4 , 1 , 1 ,
4 1 , 2 , 1 ,
가 12 , 가 3 , 15 12 81%
75%
4 가
3 . C1 4 ,
AOC 3 , 1 , C2 2 , 2 ,
, 1 , 1 , C3 1 C1 87%,
Schatzker Lambert⁽¹²⁾ 가 C2 67%, C3 100%
.
15 C1 8 , C2 6 , C3 1 , 1 , 2 , 1 ,
, 5 , 1 60% ,
C1 1 , C2 3 , C3 1 . 3 , 5 , 1 , 1
11.2 (-27) 80% .
, 3 , 3 ,
1 가 ,
,
, 2 ,
3 , 1 1 가
가 ,
2 .
4 , 1 , 3 , 2 , 1
(DCS, dynamic condylar screw) 6 , .

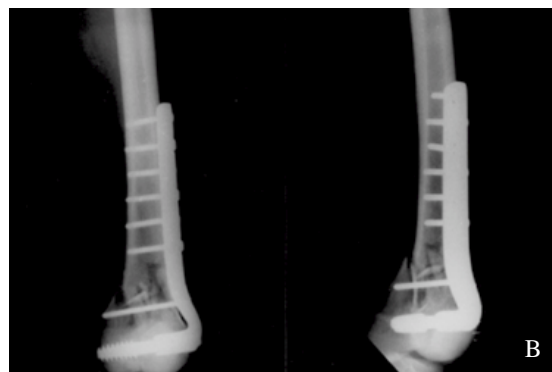


Fig.1-A. Preoperative radiograph shows AO type C2 supracondylar fracture of the distal femur. The lateral view could not be checked due to emergency operation of abdomen.

Fig.1-B. Anatomical reduction and rigid internal fixation with DCS was performed.

Fig.1-C. The latest follow-up radiograph shows good bony union. The clinical result was excellent.

0°-125°

, ,
(Fig.2-C).

1
36 C2
(Fig.1-A),
(Fig.1-B) 3
(Fig.1-C),
0°-140° ,
.
2
32 C3
(Fig.2-A),
1 Ilizarov
(Fig.2-B), 9 Ilizarov
1 6 0°-90°
0°-120° 2

10%-15% 5),
10,16,19), 가
13.3% 33.3% 9,13,17)
5
(30%) C1 1 , C2 3 , C3 1
가
3 (20%)
가

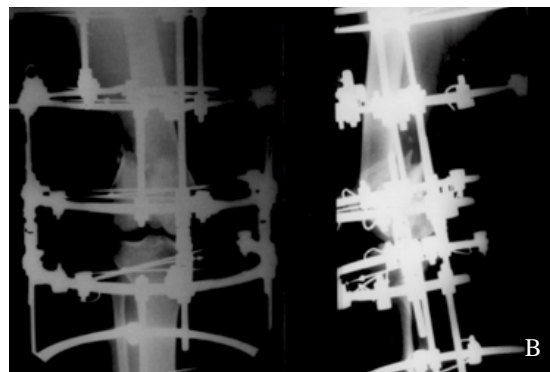


Fig.2-A. Preoperative radiograph shows AO type C3 supracondylar fracture of the distal femur.

Fig.2-B. At 1 week after trauma, initial fixation using Ilizarov apparatus was performed.

Fig.2-C. Postoperative two years follow-up radiograph shows a good bony union. The clinical result was good.

가
¹⁹⁾. 1970 (anatomical plate), (angle blade plate),
 (dynamic compression plate, DCP),
 (dynamic condylar screw, DCS), Judet
 plate
 가
⁸⁾,
^{4,10,17)}. Schatzker
²³⁾ 75%, Siliski ¹⁸⁾ 85%, Hearly Brooker²⁾
 93%
 , 80%
 .
 Mize ⁷⁾, Slatis¹⁹⁾, Johnson Hicken ³⁾
 ,
 ,
 ,
 ,
 blade
⁴⁾. 4 ,
 Iliotibial
¹⁵⁾.

6 , 1 , , ,
 ,
 81% .

가 .

20)

Ilizarov 77%
 .
 2 , 가 1 ,
 1 Ilizarov 75% .

,
 .

11).

Ilizarov 5 , 3
 가

C1 1 C2 1
 , 5 2

60%
 (80%)
 4 75%

가

Meer⁹⁾ Olerud¹⁰⁾ 20%
 0-8%

7,16,19) Shelton¹⁶⁾ 14 2 , Schatzker¹²⁾

5 3 , 17) 59 6 .
 1 3

3

AO C

REFERENCE

- 1) **Brown A, Brington, and DeArcy, JC:** Internal fixation for supracondylar fractures of femur in the elderly patients. J Bone Joint Surg, 53-B: 420-424, 1971.
- 2) **Healy WL and Brooker AF Jr:** Distal femoral fractures. comparison of open and closed method of treatment. Clin Orthop, 174: 166-171, 1983
- 3) **Johnson KD and Hicken G:** Distal Femoral Fractures. Orthop Clin North Am, 18: 115-132, 1987.
- 4) **Lee SH:** Supracondylar fractures of the femur. J Korean Orthop Assoc. 6: 213-216, 1993.
- 5) **Moehring DH:** Regional fractures of the Knee. (cited from Larson RL and Grana WA ed. The Knee. Philadelphia, WB Saunders Co: 147-174, 1993).
- 6) **Mooney V, Nickel VL, Halvey JP Jr and Snelson R:** Cast-brace treatment for fractures of the distal part of the femur. A prospective controlled study of the one hundred and fifty patients. J Bone Joint Surg, 52-A: 1563-1578, 1970.
- 7) **Mize KD, Bucholz RW and Grogan DP:** Surgical treatment of displaced, comminuted fracture of the distal end of the femur. An extensile approach. J Bone Joint Surg, 64-A: 871-879, 1982.
- 8) **Miller ME, Allgower M, Schneider R and Willenegger H:** Manual of internal fixation. 3rd ed. Springe-Verlag: 140-141, 1991.
- 9) **Neer CS, Grantham SA and Shelton ML:** Supracondylar fractures of the adult femur. A study of one hundred and ten cases. J Bone Joint Surg, 49-A: 591-613, 1967.
- 10) **Olerud, S:** Operative treatment of supracondylar-condylar fractures of the femur. Technique and results in fifteen cases, J Bone Joint Surg, 54-A:

- 1015-1032, July, 1972..
- 11) **Rockwood CA and Green DP:** Fractures in adults. 4th ed. Philadelphia, JB Lippincott Co: 334-338, 1996
 - 12) **Schatzker J and Lambert DC:** Supracondylar fractures of the femur. Clin Orthop. 138: 77-83. 1979.
 - 13) **Schatzker J, Horne G, and Waddal J:** The toronto experience with the supracondylar fracture fo the femur. Injury, 6: 113-128, 1975.
 - 14) **Seinsheimer F:** Fractures of distal femur. Clin Orthop, 153: 169-179, 1980.
 - 15) **Seo GT:** Supracondylar-Intercondylar fractres of the femur. Journal of Korean Society Fractures, 6: 217-225, 1993.
 - 16) **Shelton MD, Grantham SA, Neer CS, II and Singh, R:** A new fixation device for supracondylar and low femoral shaft fractures. J Trauma, 14: 821-835, 1974.
 - 17) **Shin KH, Han DY and Park BM:** A clinical study on the supracondylar fractures of the femur. J Korean Orthop Assoc. 18: 322-334, 1983.
 - 18) **Siliski SM, Mahring M, and Hofer HP:** Supracondylar intercondylar fracture of the femur. Treated by internal fixation. J Bone Joint Surg, 71-A: 95-104, 1989
 - 19) **Slati P, Ryoppy S and Huittinen VM:** AO osteosynthesis of fractures of the distal third of the femur. Acta Orthop Scand, 42: 162-172, 1971.
 - 20) **Yoo MC, Cho YJ, Kim KT, Chun YS, Pyo NS and Kim SG:** Treatment of comminuted supracondylar fractures of the femur using Ilizarov method. Journal of Korean Society of Fractures, 12: 529-537, 1999
 - 21) **Wise DA:** Fractures of the Knee. (cited from Rockwood CA, Green DP and Buchole RW ed. Fractures in adult. 3rd ed, Vol 2. Philadelphia, JB Lippincott Co: 1778-1797, 1991).

Abstract

Operative Treatment for AO Type C Supracondylar Fractures of the Distal Femur

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Purpose : Treatment of supracondylar fracture of the distal femur is challenging because of its characteristic anatomy and common occurrence of severe comminution. We evaluated the clinical results of 15 cases of AO type C supracondylar fracture.

Materials and Methods : From December 1990 to November 1999, fifteen of 27 cases of AO type C supracondylar fracture of the distal femur were treated operatively. Mean follow-up period was one year and 5 months (range, 1 year-3 years and 3 months).

The mean age of patients was 43.6 years. Eleven cases were treated by internal fixation and four cases by Ilizarov. Clinical results were evaluated by Schatzker and Lambert criteria.

Results : There were 5 excellent, 4 good, 1 fair and 1 poor results (81% satisfactory) in 11 cases treated by internal fixation and 1 excellent, 2 good, 1 fair results (75% satisfactory) in 4 cases treated by external fixation.

Cocclusion : To get satisfactory results, AO type C supracondylar fracture of the distal femur need to be reduced anatomically and require rigid internal fixation. External fixation using Ilizarov can be an effective method of treatment in cases of open fracture and severe comminution with osteoporosis.

Key words : femur, supracondylar fracture, AO type C, operative treatment