

*

*

< >

J

: 1996 10 2000 5 J

가 12 1 가 가 11

Morrey 가

가

12 (10~18)

126 (90~150) Morrey

4 , 6 , 1

J

: , , J

(dual plate)

가

2,4,7)

J

, Y

2,3,6)

: 가 685,

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*

2001

Table 1. Characteristics of the patients.

| Serial Number | Age | Sex | Cause | AO Classification | Complication | Flexion Contracture | Further Flexion | Functional Score |
|---------------|-----|-----|-------|-------------------|------------------|---------------------|-----------------|------------------|
| 1 | 37 | M | TA* | A3 | | 0 | 110 | Excellent |
| 2 | 35 | F | TA | A2 | | 0 | 150 | Excellent |
| 3 | 17 | F | FD‡ | A3 | | 0 | 130 | Good |
| 4 | 21 | M | FD | A2 | | 0 | 150 | Excellent |
| 5 | 33 | M | TA | A3 | | 10 | 120 | Good |
| 6 | 34 | M | FD | A3 | | 0 | 120 | Good |
| 7 | 45 | F | TA | A3 | | 20 | 120 | Fair |
| 8 | 50 | F | FD | A3 | Numbness on hand | 15 | 90 | Good |
| 9 | 25 | F | TA | A2 | | 10 | 150 | Excellent |
| 10 | 31 | M | TA | A3 | | 0 | 120 | Good |
| 11 | 29 | M | SD‡ | A3 | | 10 | 130 | Good |

* Traffic accident / ‡ Fall down / † Slip down

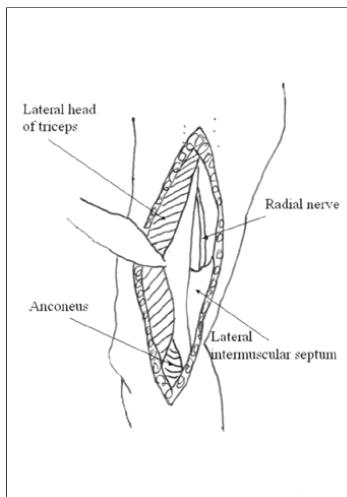
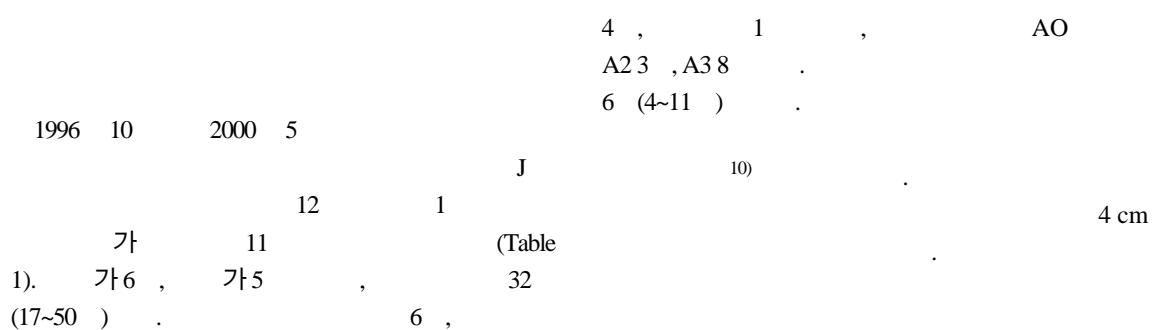


Fig. 1 : Photograph of modified lateral approach of humerus.



Fig. 2 : Photograph of lateral J plate.



| | | | |
|-------------------------|----------------|---------------|------------------|
| | (Fig. 1). | 3 | 1 |
| , | , | 6 (0~20), | |
| , | 126 (90~150) | , | |
| J | (Egire , Osteo | Morrey | 가 |
| Concept, Paris, France) | . J | | 4 , 6 , 1 |
| | | | |
| | J | | |
| | (Fig. 2). | | |
| A3 8 | | | |
| | 3 (2~4) | 가 | |
| , | | 1,3,9,12,13), | |
| | 3 | | |
| 가 | | | Jupiter |
| | | 5) | |
| 가 | 1 | | 5,6), |
| , Morrey ¹²⁾ | (Table 2.) | 가 AO | |
| | | , | 1/3 semitubular |
| | | | 7,8,11,13,15,16) |
| | | | |
| | Y | | |
| | 12 (10~18) | | |
| | (Fig. 3). 1 | | |

Table 2. Morrey 's functional score.

| | | | |
|------------------------|---|---|--|
| Pain (30 points) | None - 30 Moderately severe - 10 | Slight - 20 Severe - 5 | Moderate - 15 Completely disability - 0 |
| Motion (37 points) | Extension - 0 to 8 | Flexion - 0 to 17 | Pronation/supination - 0 to 12 |
| Function (12 points) | 12 functions Normal - 1 Difficulty - 0.5 | Mild compromise - 0.75 With aid - 0.25 | Unable - 0 |
| Strength (15 points) | Flexion, extension, pronation, supination Normal - 5 Poor - 2 | Good - 4 Trace - 1 | Fair -3 None - 0 |
| Instability (6 points) | Anterior/posterior, medial/lateral None - 3 Moderate - 1 | Mild - 2 Severe - 0 | |

Excellent=95-100; Good=80-94; Fair=50-79; Poor=<50



Fig. 3-A : Preoperative roentgenogram of case 5 shows distal humeral shaft and metaphyseal fracture (AO classification-A3 type).

3-B : Postoperative 15 months roentgenogram shows lateral J plate fixation and good union.

Moran¹⁰⁾

plate)
2,4,7)
(dual
J

2,4,7)
Gerwin⁴⁾

14)
J
. Schemitsch

94%
55%

14)
J
94%
55%

J
1/3
1/3

J

REFERENCES

1. Caja VL, Moroni A, Vendemia V, Sabato C and Zinghi G : Surgical treatment of bicondylar fracture s of the distal humerus. Injury, 25: 433-438, 1994.
2. Ebraheim NA, Andreshak TG, Yeasting RA, Saunders RC and Jackson WT : Posterior Extensile approach to the elbow joint and distal humerus. Orthop Rev, 22: 578-582, 1993.
3. Fornasier C, Staub C, Tourne y, Rumelhart C and Saragaglia D : Biomechanical comparative study of three types of osteosynthesis in the treatment of the supra and intercondylar fractures of the humerus in adult. Rev Chir Orthop Rep App Mot, 83: 237-242, 1997.
4. Gerwin M, Hotchkiss RN and Weiland AJ : Alternative operative exposures of the posterior aspect of the humeral diaphysis. J Bone Joint Surg, 78-A: 1690-1695, 1996.
5. Jupiter JB : Complex fractures of the distal part of the humerus and associated complications. In: Jackson DW ed. American Academy of Orthopedic Surgeon, Instructional Course Lectures. Vol. 44: 187-198, 1995.
6. Jupiter JB : Internal fixation for fractures about the elbow. Techniques Ortho, 4: 31-48, 1994.
7. Kang SY, Lee HJ and Chung JY : Modified lateral approach to the distal humerus fractures. J Korean Orthop Assoc, 35: 705-710, 2000.
8. Kim KY, Bin SI and Kim YJ : Surgical treatment of comminuted distal humerus intercondylar fracture in adult using transolecranon approach and AO method. J Korean Orthop Assoc, 27: 1060-1067, 1992.
9. Kundel K, Braun W and Ruter A : Distal intra-articular humerus fracture in adult. Results of surgical treatment. Unfallchirug, 95: 219-223, 1992.
10. Moran MC : Modified lateral approach to the distal humerus for internal fixation. Clin Orthop, 340: 190-197, 1997.
11. Papaioannou N, Babis GCh, Kalavritinos J and Pantazopoulos T : Operative treatment of type C intraarticular fracture of the distal humerus: the role of stability achieved at surgery on final outcome. Injury, 26 : 169-173, 1995.
12. Pereles TR, Koval KJ, Gallagher M and Rosen H : Open reduction and internal fixation of the distal humerus: functional outcome in the elderly. J Trauma, 43: 578-584, 1997.
13. Sanders RA, Raney EM and Pipkin S : Operative treatment of bicondylar intraarticular fractures of distal humerus. Orthopedics, 15: 159-163, 1992.
14. Schemitsch EH, Tencer AF and Henley MB : Biomechanical evaluation of methods of internal fixation of distal humerus. J Orthop Trauma, 8: 468-475, 1994.
15. Sodergard J, Sandelin J and Bostman O : Mechanical failure of internal fixation in T and Y fractures of the distal humerus. J Trauma, 33: 687-690, 1992.
16. Yang KH, Park SJ and Park SY : Lateral plate fixation in intercondylar fracture of the humerus. J Korean Orthop Assoc, 35: 559-563, 2000.

Abstract

Fracture in Distal Humeral Shaft and Metaphyses

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Purpose : This is a retrospective study to analyze the clinical results of the usefulness of the lateral J plate fixations in distal humeral shaft and metaphyseal fractures.

Materials and Methods : From October 1996 to May 2000, eleven patients with distal humeral shaft and metaphyseal fracture were treated by open reduction and internal fixations with lateral J plate fixations. The clinical results were analyzed according to Morrey's functional rating scale. Radiological unions, complication, and range of motion of the elbow were assessed.

Results : All fractures were united at 12 weeks (range, 10 ~ 18) in average. Finally, average range of motion of the elbow joint was flexion contracture 6 degrees in average(range, 0 ~ 20) to further flexion 126 degrees in average (range, 90 ~ 150). Morrey's functional rating scale were as follows; excellent 4, good 6, and fair 1.

Conclusion : Lateral J plate fixations can be a good treatment method for the transitional zone of distal humeral shaft and metaphyseal fractures.

Key Words : Humerus, Distal shaft and metaphyseal fracture, Lateral J plate

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