

13, 4, 2000 10

The Journal of the Korean Society of Fractures
Vol.13, No.4, October, 2000

< >

:

K-

: 1996 7 1999 6

Jakob stage I, II 7

6.3 (2 5 , 11 7)

:

13

가 . 7 K- 6

5.9 (5 , 9)

1 , 3 , 1 , Hardacre

가 7

:

Jakob stage I

가 Jakob stage II

:

12-17%

7,20)

: Sung Soo Kim.

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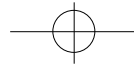
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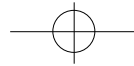
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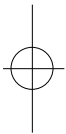
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가 , 2
 . 2
 가
 , 3 , 4
 ,
 13-15,17,18,28)
 가
 가 Jakob stage III
 가
 8). 가
 1996 7 1999 6 가
 28 , 가
 7
 가 C-arm
 K- 가
 2 3 K-
 , Jakob stage II 5 C-arm
 가 K-
 1996 7 1999 6 33 (25 42)
 . 2-3
 28 가
 , Jakob stage I II Badelon type I 5.1 ,
 II 7 K-
 2 5 11 7
 6 3 가 5 , 가 Hardacre ¹²⁾ 가
 2 , 4 3 (Table 1).
 가 4 , 가 2 ,
 가 1
 Milch²⁰⁾
 7 Milch type II ,
 Jakob ¹⁴⁾ Badelon ²⁾ ,
 Jakob stage I 2 , stage II 가 5 , Badelon type I 13 . K- 7 22
 3 , type II 가 4 . 6
 5.9 (5
 7 5 2 9)

12
(125_o- 135_o)
131 ° (125_o- 135_o)
가 (Table 1).
가
가
Maylahn
Fahey¹⁹⁾ Sandegard²⁷⁾
, Rockwood Green²⁴⁾ 2mm
가
Flynn^{7,8)} 2mm
Fontanetta⁹⁾
Hardacre
7
(Table 1).
Badelon²⁾ 2mm
가
Mintzer
Tachdjian²⁹⁾
Foster
Flynn^{7,8)} 2mm



가
 . Jakob stage II
 stage I
 가
 , stage I
 stage I
 ,
 1)
 , Odgen²²⁾
 가
 .
 가
 stage
 가
 ,
 I
 .
 2mm
 stage I
 (Fig. 1),
 가
 K-
 2mm
 가
 stage II
 가
 ,
 K-
 K-
 , Jakob stage II
 III
 .
 stage III
 가
 (Fig. 2).
 2mm
 가
 가
 stage I
 stage II
 3-4
 가
 가
 9-10
 가
 가
 31)
 4,11,32)
 Jakob stage III
 6)
 (MRI)
 stage I
 2
 3 2 , 1 5.
 . Jakob stage II
 5
 stage



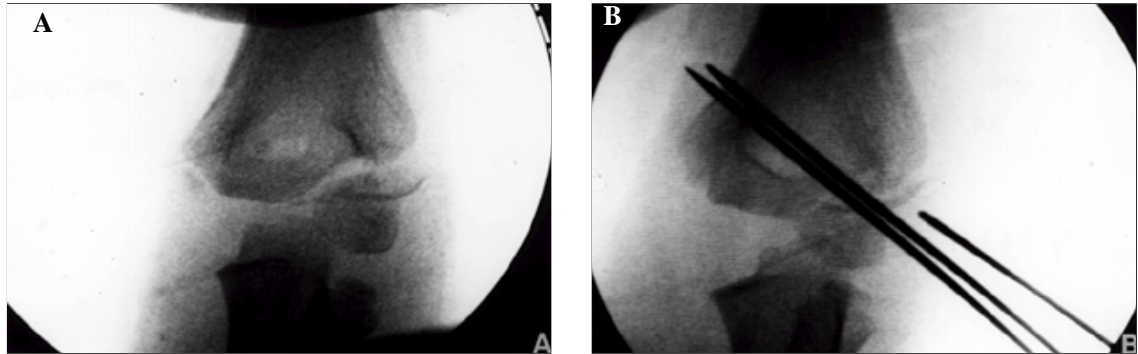
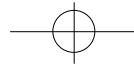


Fig 1. Unstable stage I fracture of the humeral lateral condyle.

1A. Anteroposterior x-ray showed increased displacement of the metaphyseal segment in varus stress examination.

1B. Closed reduction and percutaneous pinning was performed in valgus stress position.

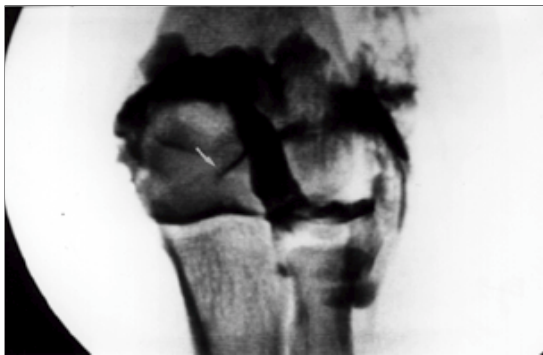


Fig 2. The valgus stress arthrogram showed the reduced fracture line with an intact cartilage hinge (arrow).

Hardacre¹²⁾ 4-6, Rockwood Green²⁴⁾ 3-4 가
5.1

, 6 7
12

가
Wadsworth³⁰⁾ 28%, Rang²³⁾ 60%
1 (14%)

Maylahn Fahey¹⁹⁾ 가 28%
3 (43%) 가
1)

가

C-arm

K-
12)

Hardacre

K-

1

Hardacre¹²⁾

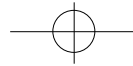
2

가

, Rutherford²⁵⁾ 15%

K-
가
Foster¹⁰⁾ 6.5 ,

가 40%



25,28)

26,28)

5.

가

가

가

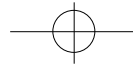
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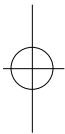
- 25,28) .
 - 26,28) .
 5. 가
 - 가
 - 가
 - 가
 - 가

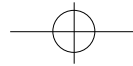
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Abstract

Varus Stress Test and Percutaneous Fixation of the Lateral Condyle Fracture of the Humerus in Children

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Purpose : The current study is planned to evaluate varus stress test and a result of percutaneous K-wire fixation in the minimally displaced lateral condyle fracture of humerus in children.

Materials and Methods : We have analyzed seven patients of Jakob stage I or II lateral condylar fracture of the humerus clinically and radiologically who were managed with closed reduction and percutaneous K-wire fixation from July 1996 to June 1999. Their ages at the time of injury ranged 2.5 to 11.7 years (average 6.3 years). We checked varus stress view for evaluating fracture stability and treatment plan.

Results : The patients were followed up for average 13 months postoperatively and showed no differences in carrying angle, range of motion and physical activity compared with contralateral elbow. K-wires were removed average 6 weeks postoperatively. The fractures were united at average 5.9 weeks (5-9 weeks). There were minor complications ; one case of bony overgrowth, three cases of bony spur and one case of pin site infection. The treatment results according to Hardacre 's assessment were excellent in all cases.

Conclusion : Varus stress view is necessary to evaluate the fracture stability and to make treatment plan in minimally displaced lateral condyle fracture, and closed reduction followed by percutaneous K-wire fixation can be used successfully in the cases of unstable Jakob stage I and reducible Jakob stage II.

Key word : Humerus, Lateral condyle fracture, Varus stress test, Closed reduction and percutaneous fixation

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