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— Abstract —

**The Surgical Treatment in Type III Acromioclavicular
Dislocation Patients Over 45 Years
- Primary Clavicular Lateral End Resection Method vs. Conventional
Acromioclavicular Joint Reduction Method -**

Eun-Sun Moon, M.D., Myung-Sun Kim, M.D.*, Bong-Hyun Bae, M.D., Jin Choi, M.D.

Department of Orthopedic Surgery, Chonnam National University Hospital, Gwangju, Korea

Purpose: To compare and analyze the outcome of primary clavicular lateral end resection method and conventional acromioclavicular (AC) joint reduction method in type III AC dislocation patients over 45 years.

Materials and Methods: This study was performed on selected 24 cases of type III AC dislocation patients, over 45 years of age, operated at our hospital from 1998 to 2002. Group I consist of 12 patients who underwent primary clavicular lateral end resection methods (average age: 54.3 years(45~72)). Group II consist of 7 patients using Bosworth methods and 5 patients using Phemister methods (average age: 54.4 years(45~71)). Clinical outcome was evaluated by Weaver and Dunn method. Radiological results were compared by measuring coracoclavicular distance between normal and injured side.

Results: As clinical outcome, good was 10 cases(83%); fair 2(17%) in Group I, and good 6(50%); fair 3(25%); poor 3(25%) in Group II. In contrast, the difference of coracoclavicular distance was not statistically significant between two groups before or after surgery, and last follow up. At the last follow up, there was no special correlation between the difference of coracoclavicular distance and clinical outcome.

Conclusion: We considered that primary clavicular lateral end resection may be effective for prevention of arthritis in AC joint in type III AC dislocation patients over 45 years.

Key Words: Acromioclavicular joint dislocation, Clavicular lateral end resection, Phemister method, Bosworth method

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Tel: 062) 227-1640, Fax: 062) 225-7794, E-Mail: rhamsses@chol.com
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I (12)(Fig. 1)

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Phemister

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16, 26, 27, 33, 35, 38), Deitch¹⁶⁾

)(Fig. 2)

Bosworth (7)(Fig. 3)

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Fig. 1. (A) The preoperative radiograph of 46-year old male showed type III acromioclavicular dislocation due to traffic accident. (B) Clavicle lateral end resection and K-wire fixation was performed at the 5th day after injury. (C) The patient showed no shoulder pain, full range of motion and good cosmetic result at postoperative 2 years 6 months and the final clinical result was good.

Fig. 2. (A) The preoperative radiograph of 51-year old male after traffic accident. (B) The Phemister operation was done at 10th day after injury, and the immediate postoperative radiograph showed successful acromioclavicular joint reduction. (C) K-wire breakage was detected at postoperative 6 weeks. The K-wires were removed but the broken K-wire was remained. (D) The patient showed full range of motion and good cosmetics. There was no migration of remained K-wire. But slight pain at acromioclavicular joint during activity was remained and the final clinical result was fair.

Fig. 3. (A) The preoperative radiograph of 59-year old female showed type III acromioclavicular dislocation due to slip down. (B) The Bosworth operation was done at the third day after injury. Note that the acromioclavicular joint has been reduced. (C) Redislocation of right acromioclavicular joint occurred with screw loosening at postoperative 7 days. (D) Clavicular lateral end resection and fixation using screw and K-wires were performed at postoperative 11 days. The final clinical result was poor due to second operation. (E) At last follow-up after the second operation, the patient showed no shoulder pain, full range of motion and good cosmetics.

(coracoclavicular distance) , .

가 , 가 , (pain) (range of motion), (cosmetic result) 가 , Weaver Dunn³⁸⁾ , (Good), (Fair), (Poor) (Table 2). , (sclerosis) (osteolysis) (tenderness), (cross body adduction)

I II 54.3 (45 ~ 72) SPSS

) 54.4 (45 ~ 71) , Student t test Spearman correlation test

II 가 5 , 가 7 , 가 8 , 가 4 .

I 4 , 8 , II 6 , 6 .

34 (20 ~ 74) 32 (18 ~ 76) (Table 1). I 가 7 (58%), 가 2 (17%), 가 1 (8%), 2 (17%) , II 가 6 (50%), 가 4 (33%), 가 2 (17%) .

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Table 2. Evaluation of clinical outcome (According to Weaver et al.³⁸⁾)

Score	
Good	Full range of motion No pain Good cosmetic results
Fair	Slight fatigue pain Residual deformity Slight loss of full elevation of the arm
Poor	Significant pain Loss of motion Gross deformity or Need for 2nd operation

Table 1. Clinical materials

	Group I	Group II
	Primary clavicular lateral end resection	Conventional AC* joint reduction
Operation method	12 cases	Bosworth: 7 cases Phemister: 5 cases
Mean age (years)	54.3 (45 ~ 72)	54.4 (45 ~ 71)
Male/Female ratio	5:7	8:4
Mean F/U [†] duration (years)	34 (20 ~ 74)	32 (18 ~ 76)
Right/Left ratio	4:8	6:6

* acromioclavicular, [†] follow-up

11 (79%), 2 (14%) 1 (7%) , 2 (10)
 5 (50%), 3 (30%)
 2 (20%)
 가 (Fig. 5). 2
 10 I 6 , II 4
 4 ,
 I 6 2 가
 6 (50%), 3 5 , 4 ,
 12 , 15 , 16 , 23
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 1
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 (p-value=0.751(),
 2 (14) 0.830(), 0.630() (Fig. 6).

Fig. 4. The clinical results according to scoring system by Weaver et al.³⁸⁾. Ten cases(83%), 2 cases(17%), and 0 case(0%) for group I and 6 cases(50%), 3 cases(25%), and 3 cases(25%) for group II were good, fair and poor respectively.

Fig. 5. The relationship between the interval to operation and the clinical results. Eleven cases(79%), 2 cases(14%), and 1 case(7%) for early surgery group(≤ 2 weeks, 14 cases) and 5 cases(50%), 3 cases(30%), and 2 cases(20%) for delayed surgery group(>2 weeks, 10 cases) were good, fair and poor respectively.

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($r_s=0.181$, $p=0.503$)
35) 11,21,22,25) 13,38) Taft

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(Table 3).

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15,31)

15,23,39)

Fig. 6. The difference of coracoclavicular distance between normal and injured sides at preoperative, postoperative and last follow up were 6.7 mm, 0.2 mm, and 1.0 mm for group I and 7.4 mm, -0.3 mm, 0.3 mm for group I respectively.

Table 3. Complications

	Group I	Group II
Pin tract infection	2	0
K-wire migration	1	0
K-wire breakage	0	1
Screw loosening	0	2 (at Bosworth)

63 27 (43%),
가^{19,28,39)} 52 13 (25%),
, Weaver³⁸⁾
(primary clav-
icular lateral end resection)
Pfahler²⁶⁾ Tossy³⁶⁾
2 17 3 48 65, 가
5.3 Tension band wiring 가
43%, Bosworth repair -
30%, PDS (Polydioxanon), ,
17% ,
. Deitch¹⁶⁾ ,
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1, 2 ($r_s=0.181$, $p=0.503$),
3 가
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(evidence-based treat- 2
ment guideline)
, 가 2 (14)
. Shaw³³⁾ 11 (79%), 1 (7%), 2
(10) 5 (50%),
2 (20%) ,
. Moushine²⁷⁾ Tossy³⁶⁾
1, 2
6.3 ,
27% 가 II Bosworth
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Taft³⁵⁾ Allman⁹⁾ Grade III
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52 10.8 ,
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12 5 (42%),

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