

OUTCOME OF RESULTS WITH CONSERVATIVE MANAGEMENT OF ROCKWOOD TYPE III ACROMIOCLAVICULAR DISLOCATION

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ABSTRACT

BACKGROUND

The acromioclavicular joint is commonly involved in traumatic injuries that affect the shoulder. Treatment of these injuries has been controversial and continues to evolve.

The aim of the study is to evaluate clinical outcome in patients with type III acromioclavicular dislocation managed conservatively.

MATERIALS AND METHODS

Clinical outcome in 12 patients with type III acromioclavicular dislocation treated conservatively is evaluated 6-8 months after injury. Functional outcome was done using Constant-Murley score and pain was measured using Visual Analogue Score (VAS).

RESULTS

There is 75% excellent result and 25% good functional outcome as assessed by Constant-Murley score. The average pain as assessed by visual analogue score is 1.7 mm.

CONCLUSION

Conservative management of type III acromioclavicular dislocation gives excellent/good outcome, but the cosmetic appearance is not improved by conservative treatment.

KEYWORDS

Constant-Murley Score, Dislocation, Type III Acromioclavicular, Visual Analogue Score (VAS).

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BACKGROUND

The acromioclavicular joint is commonly involved in traumatic injuries that affect the shoulder. Treatment of these injuries has been controversial and continues to evolve.¹

According to literature, type I and II injuries are treated by conservative modalities and stage IV, V and VI injuries are advised to undergo surgery.¹ There is no consensus regarding management of type III acromioclavicular dislocation.^{2,3}

In this study, classification of acromioclavicular by Tossy-Rockwood is followed. In type III acromioclavicular dislocation, a severe force is applied to the point of the shoulder, which tears the acromioclavicular and coracoclavicular ligaments resulting in a complete acromioclavicular dislocation. The distal clavicle appears to be displaced superiorly as the scapula and shoulder complex drop inferomedially. Radiographic findings include a 25-

100% increase in coracoclavicular space in comparison to normal side.¹

The key to the diagnosis of type III injury is that the acromioclavicular joint can be reduced with upward pressure under the elbow or by having the patient actively shrug and reduce the joint. This is known as "shrug test." A type III reducible injury is thus differentiated from type 4 or 5 injury, which cannot be reduced if the deltopectoral fascia is interposed.^{1,4}

MATERIALS AND METHODS

Twelve patients with type III acromioclavicular dislocation who attended the Mount Zion Medical College between September 2014 and November 2016 were included in this study. Patients with previous history of shoulder pathology (periarthritis shoulder), patients with previous history of shoulder injuries and instabilities and associated fractures around the shoulder joint are excluded from this study.

There were 10 male patients and 2 female patients. Age of the patients' ranges from 24 to 58 years and the average age is 37.16 yrs. The dislocation was on nondominant side in 8 patients and on the dominant side in 4 patients. The diagnosis of type III acromioclavicular dislocation was based clinical and radiological examination. Radiological diagnosis of type III acromioclavicular dislocation was confirmed when a complete dislocation of the joint is seen on AP (15 degrees cephalic tilt) view. No stress studies were performed.

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The mechanism of injury includes RTAs, fall on outstretched hands and fall on the side of the shoulder.

All the patients were treated conservatively with arm sling for 3-4 weeks and short course of analgesics. Home exercises and physiotherapy were started early in all patients. Patients were taught scapular squeeze/retraction exercises after 3 days. Active assisted range of movements, Codman's pendular exercises, wall climbs and shoulder isometrics were done in the first week. Active range of movement exercises was done after one week when the pain subsides and resistance band exercises were started after 3 weeks for strengthening. The intensity of the exercises was gradually increased depending upon pain. Normal activity is achieved in 6-12 weeks.

The patients were assessed between 6-8 months after injury for functional outcome using Constant-Murley score and pain was assessed by Visual Analogue Score (VAS).

RESULTS

Functional outcome was evaluated using Constant-Murley score. Grading was done using difference in score between normal and injured side. In this study, 9 patients (75%) had excellent results and 3 patients had good results (25%) as assessed by Constant score. The average pain as assessed by VAS was 1.7 mm. Pain mainly occurred during lifting heavyweights and overhead activities. All the patients have bump/step deformity in the lateral aspect of clavicle. Range of movement was compared with normal shoulder. In two patients, there was terminal restriction of abduction and forward flexion (less than 15°) compared to opposite shoulder, but it did not affect the function of the shoulder, in all other patients, full range of movements was achieved at 6-8 months follow-up.

Patient	Sex	Age	Type of Injury	Difference in CM Score Compared to Opposite Side	Subjective Results
1	Male	42	RTA	6	Excellent
2	Male	24	S	8	Excellent
3	Male	28	RTA	9	Excellent
4	Male	39	Fall	13	Good
5	Female	32	Fall	7	Excellent
6	Male	46	RTA	12	Good
7	Female	41	RTA	6	Excellent
8	Male	58	Fall	4	Excellent
9	Male	33	RTA	12	Good
10	Male	40	RTA	7	Excellent
11	Male	34	RTA	9	Excellent
12	Male	29	RTA	6	Excellent

Table 1. Data of Patients

RTA- Road traffic accident; S- Sports; CM Score- Constant-Murley Score, Grading of the CM shoulder score is done by difference between normal and injured side; difference <11 excellent, 11-20 - Good, 21-30 - fair; >30 - poor.

DISCUSSION

The main finding in this study was that conservative treatment of type III acromioclavicular dislocation gives excellent to good functional results as assessed by Constant-Murley score.^{5,6}

The European Society for Shoulder and Elbow Surgery (ESSES) adopted the scoring system of Constant and Murley.^{5,6} The scoring system consists of 4 variables that are used to assess the function of the shoulder. The left and the right sides are assessed separately. The subjective variables are pain and Activities of Daily Living (ADL) (sleep, work, recreation/sport), which give a total of 35 points. The objective variables are range of motion and strength, which give a total of 65 points. The total score is 100. Grading of the Constant shoulder is done by difference between normal and abnormal side. Difference less than 11 is excellent, 11-20 good, 21-30 fair, more than 30 poor.

In this study, 9 patients (75%) had excellent results and 3 patients (25%) had good results as assessed by Constant score. The best treatment for type III acromioclavicular dislocation is still controversial. Surgical management in young active patients is preferred by some surgeons,^{7,8} while others recommend conservative treatment because of lower complication rate and recovery time.^{9,10} Also, there are studies, which showed no difference in outcome between the conservative and operatively treated patients.¹¹

Studies by Galpin et al and Larsen et al indicate that although conservative treatment doesn't restore the anatomy of the joint, it allows for rapid rehabilitation.^{12,13} Even if the clinical results are comparable regarding pain relief, range of motion and strength, complications are more in the surgery group than in the conservative group.^{14,15,16}

Complications of surgery include early complications like infection, wound breakdown, fixation failure and residual deformity and late complications like hypertrophic scar, traumatic arthritis, calcification of coracoclavicular ligament and requirement for reoperation.

All the patients in our study have persistent step deformity over the lateral aspect of the clavicle. The only potential advantage in surgical treatment is the reduction in residual deformity; however, the degree of deformity does not correlate well with the long-term improvement in pain, motion or strength.¹⁷ The advantages of conservative treatment are shorter period of rehabilitation and avoidance of hospitalisation.¹⁴ All the patients in our study were discharged on the same day and advised review after 3 days.

Physiotherapy and home exercises were started early in all patients and gradual progression was done depending on pain. All the patients in this study returned to work between 3 days to 5 weeks depending upon the side involved (dominant/nondominant) and the type of work. Patients involved in clerical job and nondominant side returned to work early, but in those patients doing manual work with involvement of the dominant side returned to work late.

Limitations of the study include small sample of the study and short-term followup. In this study, no attempt is made to compare conservative treatment with surgical management of type III acromioclavicular dislocations.

CONCLUSION

Conservative treatment gives excellent/good functional outcome in type III acromioclavicular dislocation as assessed by Constant-Murley score. Cosmetic appearance is not improved and there is persistent deformity over the lateral aspect of clavicle following conservative treatment.

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