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ACROMIO-CLAVICULAR SEPARATIONS TREATED CONSERVATIVELY

A 5-year Follow-up Study

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Seventy patients with acute acromio-clavicular separation were examined retrospectively after treatment with a minimum of immobilization. The mean interval between injury and follow-up was 6 years. In 37 patients with partial separation, the results were excellent in 24 and good in 13. In 30 patients with complete separation, the results were excellent in 7, good in 23 and unsatisfactory in 3. The radiographic findings are discussed. At follow-up, complete separation had often caused remodeling with stability of the joint.

Key words: acromio-clavicular joint; conservative treatment, dislocation

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In the literature, there is almost full agreement on non-surgical treatment for partial separations of the acromio-clavicular joint, where the a-p radiogram shows the distal end of the clavicle subluxated – that is, the displacement is less than the height of the joint (Allman 1967).

There is, however, still debate about whether complete dislocations – where the distal end of the clavicle is above the superior surface of the acromion – should be treated conservatively or surgically. More than 30 different operative techniques have been described, and surgical treatment is recommended by several authors. In retrospective and prospective studies, however, comparable or even better results have been reported with conservative treatment (Arner et al. 1957, Jacobs & Wade 1966, Rosenörn & Pedersen 1974, Imatini et al. 1975).

We have studied the long-term results of conservative treatment in patients with partial as well as complete separations of the acromio-clavicular joint.

PATIENTS AND METHODS

From 1961 to 1979, 77 patients with partial or complete acromio-clavicular separations were examined in the departments of orthopaedic surgery in Falun and Gävle. Five patients had been treated operatively and two patients were dead at the time of follow-up. These seven patients were excluded from the study. The injury was caused by traffic accidents in 25 patients, mostly cyclists, and other falls on the shoulder, mostly during sport activities, in 45 patients.

In all patients but five, no attempt was made to reduce the dislocation. The patients were encouraged to exercise the shoulder as soon as pain permitted.

The initial radiograms were reexamined, and the dislocation classified according to Allman (1967). In 37 patients the separation was classified as partial (PS-group) and in 33 as complete (CS-group).

The mean interval between injury and follow-up was 6 years in both groups, with a minimum of 2 years. In both groups the mean age was 35 (14–66) years at the time of the injury.

The patients were evaluated clinically using a four-grade scale (Table 1). Attention was paid to cosmetic complaints due to prominence of the acromio-clavicular joint. The length of the period during which the patient was unable to work was recorded.

Table 1. The criteria used for assessing functional results

Evaluation	Pain	Activity level	Patient's evaluation
Satisfactory			
Excellent	Absent	Normal	Satisfied
Good	Occasionally, mild	Normal	Satisfied
Unsatisfactory			
Fair	Occasionally, moderate	Slightly decreased (sport activities)	Not satisfied
Poor	Continuously	Decreased (normal activities)	Not satisfied

Sixty-seven patients were reexamined radiographically; in the PS-group three patients did not want to participate for different reasons. A-p radiograms were obtained of both shoulders with 10 kg weights hanging from the wrists and of the injured shoulder without traction. The amount of vertical displacement at the follow-up was compared to the initial displacement. The stress and non-stress radiograms were compared. The amount of calcification in the coraco-clavicular area was estimated on a three-grade scale. Attention was paid to remodelling of the joint.

RESULTS

As shown in Table 2, all 37 patients in the PS-group had satisfactory results, with 24 excellent and 13 good. Sixteen patients held jobs entailing heavy physical work.

In the CS-group, 30 patients had satisfactory and three unsatisfactory results with seven excellent and 23 good. Among the 30 patients with a satisfactory result, 15 held jobs entailing heavy physical work. The major complaint by those classified as good was occasional pain.

Table 2. End-results on follow-up examination

	Satisfactory		Unsatisfactory	
	Excellent	Good	Fair	Poor
Partial separation	24/37	13/37	–	–
Complete separation	7/33	23/33	1/33	2/33

There was a prominence over the acromio-clavicular joint in all patients in the CS-group and in 16 patients in the PS-group. There were few cosmetic complaints and the deformity seemed to be of minor importance if the shoulder was functioning well. In general, the patients in both groups could return to work 4–6 weeks after the accident. Two patients in the PS-group and three in the CS-group were unable to work for more than 8 weeks. One patient in the CS-group, classified as good, was incapacitated from working for more than 3 months due to additional injuries.

Radiographic follow-up

In the PS-group the vertical displacement of the clavicle was less than the total height of the joint in all patients. In four patients there was no radiographic dislocation at all at the time of follow-up, three patients had minor calcifications in the area of the coraco-clavicular ligaments and in five patients there was significant remodelling of the joint surfaces.

In the CS-group, 16 patients had significant remodelling of the lateral end of the clavicle so that the vertical displacement was now less than the total height of the joint; in 17 patients complete dislocation persisted. Moderate to extensive calcifications in the area of the coraco-clavicular ligaments were observed in 21 patients.

In the majority of cases, stress did not affect the displacement at the time of the radiographic follow-up. In the PS-group the displacement increased in three patients by 2–4 mm, and in the CS-group the displacement increased in three patients by 2, 5 and 10 mm; the latter patient was one of those classified as poor.

DISCUSSION

At the time of the follow-up, there was a clear difference between the two groups concerning calcification in the area of the coraco-clavicular ligaments; calcification in this area is evidence of

an old rupture (Urist 1963). Therefore, it seems reasonable that our radiographic classification separated partial (Type II) from complete (Type III) dislocations according to Allman (1967).

All the patients with partial separations of the acromio-clavicular joint had satisfactory results at the time of the follow-up. Conservative treatment is the method of choice, but in contrast to many authors (Tossy et al. 1963, Allman 1967), our results suggest that there is no need for reduction followed by a long-lasting immobilization with a cast or varieties of slings or harnesses.

The treatment of complete separations is more controversial. In this series the majority had a satisfactory long-term result corresponding to the results in other retrospective studies (Jacobs & Wade 1964, Rosenörn & Pedersen 1974). Like Imatini et al. (1975) and Glick et al. (1977), we believe that total separations can favourably be treated non-operatively in a simple way without reduction and a short time of immobilization.

In complete separations, the acromio-clavicular joint seems to have a considerable potential to alter and adapt to the new position of the clavicle. A more horizontal joint space is formed and in most cases the new joint is stable and thus not influenced by traction of the arm.

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