

Coracoid process transfer for acromioclavicular dislocation

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Seventeen patients with complete separation of the acromioclavicular joint were operated on acutely with transposition of the coracoid tip to the clavicle. All the patients were examined after a mean follow-up time of 7.5 years. Twelve patients had good function, 3 had slight pain in extreme positions, and 2 had poor function with pain at rest. Eleven patients had the screw removed, 2 of them because of deep infection. In 3 patients the coracoid tip fragmented during the operation. Two patients had an unsatisfying cosmetic result.

As long as nonoperative treatment gives equal or better long-term functional results, we do not recommend this operation in acute dislocations.

Most surgeons advocate operative treatment for complete acromioclavicular dislocation, especially in young and active patients (Roper and Levack 1982). However, good results can also be obtained by conservative means (Bjerneld et al. 1983, Galpin et al. 1985, Larsen et al. 1986). In our department, 17 patients with complete acromioclavicular dislocation were operated on acutely with transposition of the tip of the coracoid process to the clavicle. We report the long-term results.

Patients and methods

During the years 1970-1983, 17 consecutive patients with complete separation of the acromioclavicular joint were operated on in the acute phase, 12 within 1 week and 5 within 3 weeks. The mean age was 38 (23-62) years and the mean follow-up time 8 (3-17) years. Traffic accidents and sports injuries with direct trauma to the shoulder were the main causes.

All the patients were operated on as described

by Bailey (1965) and Dewar and Barrington (1965), which entails dynamic repair by transferring the tip of the coracoid with the tendons of the short biceps head and coracobrachialis to the clavicle. The arm was immobilized for 3 weeks.

All 17 patients were evaluated clinically in terms of residual pain, shoulder motion and strength, and disfiguring scar or deformity. Passive and active abduction, adduction, flexion, and extension were measured and compared with the noninjured shoulder. Muscular strength was measured as maximal static power in various positions using a Zadig (1963) dynamometer. No correction was made for dominance, and the results were assessed as strength ratios between the operated and nonoperated on shoulders (Table 1). Both shoulders were examined radiographically in AP view, including films with 5-kg loads in each hand.

Table 1. Average strength ratio for shoulder motion in 17 patients after transfer of the coracoid process for acromioclavicular dislocation

Motion	Strength ratio
External rotation	0.9 (0.8-1.3)
Internal rotation	1.0 (0.8-1.3)
Abduction	0.9 (0.7-1.3)
Flexion	0.9 (0.8-1.2)
Throwing movement	0.8 (0.7-1.0)

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Results

Surgical difficulties resulting in fragmentation of the coracoid tip occurred in 3 patients. Two patients were reoperated on because of deep infection, 7 patients had the screw removed because of local irritation, and 2 patients had the screw removed without previous complaints. All the patients developed a prominent scar, although by most considered of minor importance. One patient was not satisfied because of a broad, disfiguring scar, and 1 patient complained of a prominence over the lateral clavicle.

Twelve patients were completely free of pain and 3 had slight pain in extreme movements of the shoulder. Two patients had pain at rest; nevertheless, they could accomplish their usual work. Regarding shoulder motion, there were no differences between operated and nonoperated on shoulders. Two patients had weakening of more than 20 percent measured as the average ratio for the five examined movements; these were the 2 patients who had pain at rest. Radiography revealed no remaining complete separation, but 4 patients had subluxation of 5 mm or more. The dislocation did not increase upon loading. Calcification in the area of the coracoclavicular ligament was found in 12 patients. Seven patients had radiographic signs of arthrosis.

According to the classification of Ejeskär (1974), the result was excellent in 9 patients, good in 6, and fair to poor in 2 patients.

Discussion

Our study has limitations. It was retrospective and lacked a control group. The number of patients was small, but the follow-up time was reliably long.

Pain and impaired function were closely related. The 2 patients who complained of pain at rest also had more than 20 percent reduction of the average strength ratio. A reduction less than 20 percent has been claimed to be of minor clinical importance (Walsh et al. 1977). Neither the grade of residual dislocation nor ectopic ossification seemed to influence function, confirming previous reports (Allman 1967, Bjerneld et al. 1983). Two patients were not satisfied with the cosmetic result. It is possible that nonoperative treatment gives a more prominent clavicle, but avoiding the scar is probably preferable (Imatini et al. 1975, Rosenørn and Pedersen 1974).

The functional results were comparable to earlier studies on acute transposition of the coracoid (Glorien and Delplace 1973, Berson et al. 1978) and to results of conservatively treated cases (Rosenørn and Pedersen 1974, Bjerneld et al. 1983, Larsen 1986). The main findings in our study remain the questionable functional and cosmetic benefit and the high incidence of complications. In addition, Caspi et al. (1987) have recently reported 3 cases of musculocutaneous nerve injury following coracoid process transfer. Hence, we do not recommend "the dynamic repair" for acute complete dislocation of the acromioclavicular joint.

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