

# Rolla et al Technique for Arthroscopic Treatment of V grade Acromioclavicular Joint Dislocation. A Case Report

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## ABSTRACT

**Keywords:** Rolla et al technique; AC joint dislocation

## Introduction

Acromioclavicular joint dislocation is a common shoulder injury that often occurs by direct force by falling on the point of the shoulder with the arm adducted or with an extended arm, mostly during sports activities. The treatment of these injuries depends on the dislocation grade, the patients complain, and the postinjury period. For Rockwood I and II dislocations, non-operative treatment shows very satisfying results and is favoured by many clinicians<sup>1-3</sup>. The treatment modalities for acute Rockwood III dislocations are not uniform. In primary, painless patients without physical demands, satisfactory results can be obtained with conservative treatment.

However, in younger patients and athletes with high physical demands, early stabilization is favoured by many surgeons to archive good anatomic, functional and clinical results, and complete pain reduction<sup>3-5</sup>. Chronic Rockwood III instabilities can be addressed surgically when the patient has a functional limitation or pain.

Acute Rockwood IV and V dislocations are a clear indication for surgery. For chronic Rockwood IV and V AC joint instability,

operative stabilization is indicated if the patient's shoulder is painful, weak, and limited mobility. Patients with Rockwood III, IV, V AC joint instability<sup>6</sup> with the indication for surgical treatment could benefit from a less invasive method that allows an earlier start of rehabilitation and early return to their professional or sports activities, as well as cosmetic advantages.

Modified Rockwood technique used 7-mm cannulated screw<sup>7</sup>. Bosworth described the technique of stabilizing the clavicle to the coracoid process using a screw without any ligament reconstruction<sup>7</sup>. Rolla, et al.<sup>7</sup> described a different arthroscopic procedure using a cannulated screw to fix the clavicle to the coracoid.

We report a case of V grade acromioclavicular joint traumatic dislocation in an otherwise healthy labourer in whom arthroscopic reduction and stabilization by Rolla et al technique was performed.

## Case Report

A 28-year-old, left hand-dominant iron mill worker presented with a chief complaint of continued left shoulder pain was

dropped directly into his shoulder area approximately 2 weeks before the initial evaluation. He denied paresthesias or any other injuries. On physical examination, the patient was a well-developed young man. There was minimal deformity of the left shoulder with swelling noted near the acromioclavicular joint area. Range of motion was 30°, with pain at flexion, adduction, and abduction. Neurovascular examination findings were normal.

Radiograph demonstrated an acute Rockwood V acromioclavicular joint dislocation (**Figure 1**).



**Figure 1:** Left shoulder. Preoperative anteroposterior radiograph of V AC joint dislocation

Rolla et al for the treatment of acute acromioclavicular joint dislocation, was proposed. It consisted of a closed reduction and stabilization of AC joint, positioning a cannulated screw between the clavicle and coracoid under arthroscopic control, without any exposure to x-rays. The conoid and trapezoid ligaments are not sutured or reconstructed (**Figures 2-10**). The clinical result at follow up evolution showed, after the screw removal, a stable AC joint, with a full range of motion and absence of any residual pain. The radiograph assessment often showed an ossification of the coracoclavicular ligaments (**Figure 11**).

#### Operative technique according to Rolla, et al<sup>7</sup>.

The surgery is performed in beach-chair position without an arm holder. A 30° arthroscope is inserted in the glenohumeral joint through a standard posterior portal.

A 7-mm soft plastic cannula is positioned through an anterior mid-glenoid portal with outside-in technique. This portal must allow the instruments to reach the anteriorinferior surface of the base of the coracoid process passing between the superior and middle glenohumeral ligament and following the superior edge of the subscapularis tendon from lateral to medial.

The subscapularis tendon leads the surgeon to the hidden coracoid base. Soft tissue ablation from the inferior surface of the coracoid process is started with a radiofrequency ablator to prevent bleeding and completed with full-radius shaver blade. A standard anterosuperior portal is created, and a switching stick is inserted.

The scope is switched from posterior to the anterosuperior portal and directed medially to show the base of the coracoid. The debridement must be continued until the bare anteriorinferior surface of the base of the coracoid process can be seen easily.

The anterior working cannula is removed to allow insertion through the soft tissues of the aiming device of a Pinn-ACL tibial guide. The tip is inserted and maintained in the middle of

the previously prepared anteroinferior surface of the base of the coracoid. The clavicle is now reduced by external maneuver and maintained by an assistant. A small skin incision is created over the clavicle, 3 cm medially to AC joint. Two spinal needles are inserted at the same site against the anterior and posterior edges of the clavicle. The ACL guide is set to an angle that usually ranges between 30° to 60° depending on the inclination of the anterior working portal. The correct position of the pin-sleeve of the ACL guide is right in the middle of the clavicle, indicated by half of the distance between the 2 needles. The guide is locked under tension to hold the reduction of the clavicle. A 2-mm K wire is drilled until the inferior surface of the coracoid process.



**Figures 2-10:** Arthroscopic technique. It consists of a closed reduction and stabilization of AC joint, positioning a cannulated screw between the clavicle and coracoid under arthroscopic control, without any exposure to x-rays.



**Figure 11:** Radiograph showed a permanent reduction of AC joint visible at 6 months follow-up.

The ACL guide is removed. The tip of the K-wire is held by a grasper to maintain the K-wire in place during and after the drilling. A 4.5 cannulated drill bit is used to create the bony tunnels in the clavicle and in the coracoid. A 7-mm cannulated screw is driven along the K-wire. The reduction is stable. The skin portals are sutured.

### Discussion

In the past, Bosworth<sup>7</sup> reported the technique of stabilizing the clavicle to coracoid process using a screw without any ligament reconstruction. Other techniques were proposed for AC joint repair. We believe that Rolla et al. technique is a good procedure for acromioclavicular stabilization because the patient had a complete functional recovery and no residual pain was seen. The cosmetic aspect of this technique is really appreciated by patient, because it is limited to 4 small skin incisions. The cost of cannulated screw is cheaper than a suture anchor or synthetic cable. In conclusion, this technique is the minimally invasive procedure of the choice for treatment acromioclavicular joint dislocations.

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