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

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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 complains, and the postinjury period. For Rockwood I and II dislocations, non-operative treatment shows very satisfying results and is favored by many clinicians [1-3]. The treatment modalities for acute Rockwood III dislocations are not uniform. In primary, painless patients without physical demands, satisfactory results can be obtanined with conservative treatment.

However, in younger patients and athletes with high physical demands, early stabilization is favored by many surgeons to archive good anatomic, functional and clinical results, and complete pain reduction [4-6]. Cronic 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 limitated mobility. Patients with Rockwood III, IV, V AC joint instability [6] with the indication for surgical treatment could benefict from a less invasive method that allows an earlies start of rehabilitation and early return to their professional or sports activities, as well as cosmetic advantages.

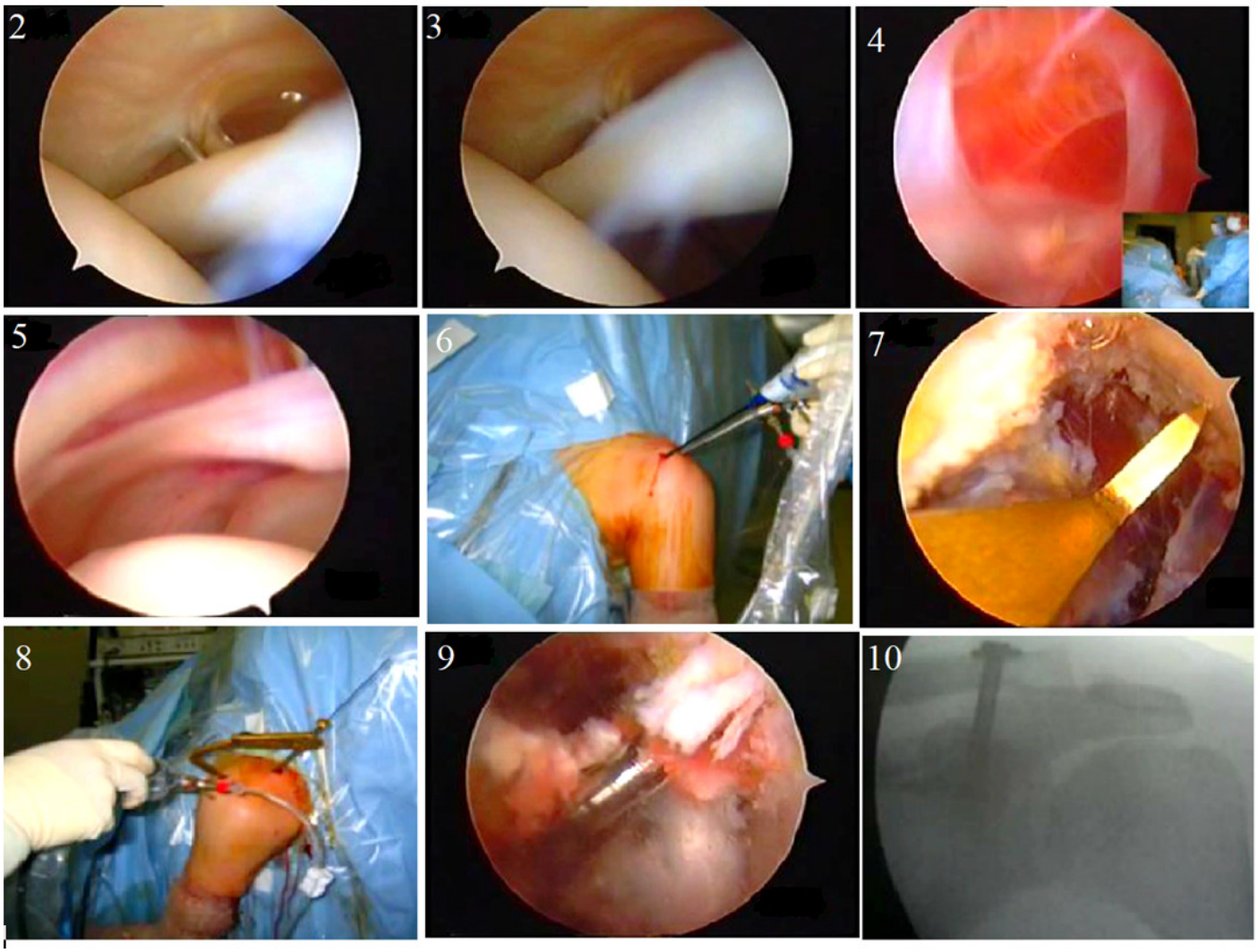
Modified Rockwood technique used 7-mm cannulated screw [7]. Bosworth described the technique of stabilizing the clavicle to the coracoid process using a screw without any ligament reconstruction [7]. Rolla et al. [7] described a different arthroscopic procedure using a cannulated screw to fix the clavicle 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 were 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 evoluation. 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, addution, and abduction. Neurovascular examination findings were normal. Radiograph demonstrated an acute Rockwood V acromioclavicular joint dislocation (Figure 1).

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, 3, 4, 5, 6, 7, 8, 9, 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

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



Figures: 2, 3, 4, 5, 6, 7, 8, 9, 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 esposure to x-rays.

ossification of the coracoclavicular ligaments (Figure 11).

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

Operative technique according to Rolla et al. [7]

The surgery is performed in beach-chair position without an arm older. 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 subscapolaris 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 radiofraquence ablator to prevent bleeding and completed with full-radius shaver blade. A standard anteriosuperior 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 debridment must be continued until the bare anteroinferior 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 manteinded 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 holt the reduction of the clavicle. A 2-mm K wire is drilled until the inferior surface of the coracoid process.

The ACL guide is removed. The tip of the K-wire is helt 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 [7] 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 techinique is really appreciated by patient, because it is limitated to 4 small skin incisions. The cost of cannulated screw is cheaper than a suture anchor or syntetic cable. In conclusion, this technique is the minimally invasive procedure of the choice for treatment acromioclavicular joint dislocations.

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