



Arthroscopic Stabilization of Acute Acromioclavicular  
Joint Dislocation using the TightRope® System

Surgical Technique



# AC Joint TightRope Fixation

## Background

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Disruption of the coracoclavicular ligaments is a common occurrence. In many cases the injury can be treated conservatively and the only residual problem is that of a mild cosmetic deformity.

Several groups of patients, however, do not tolerate the injury well. These include the very thin, the very large and the overhead athlete. If the joint is reduced acutely and held reduced during the healing phase, the native ligaments will heal restoring the stability of the joint.

The TightRope System is a device designed originally for the reduction and stabilization of the tibiofibular syndesmosis of the ankle. It is two metal buttons, one circular and one oblong, joined by a continuous loop of #5 FiberWire®.

This technique provides a simple, reproducible, minimally invasive technique for acute acromioclavicular joint stabilization which enables a rapid return to activity for the acute injury.

*AC TightRope Repair Kit*



*4 mm Cannulated Drill and Adapter™ Drill Guide C-Ring assembled with Coracoid Drill Stop Adapter*

## Indication

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This technique is indicated for acute acromioclavicular joint dislocation (Rockwood type III to VI) of less than one month duration.

## Contraindication

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It is not intended that this technique be used as the sole means of reconstructing a chronic acromioclavicular joint dislocation.

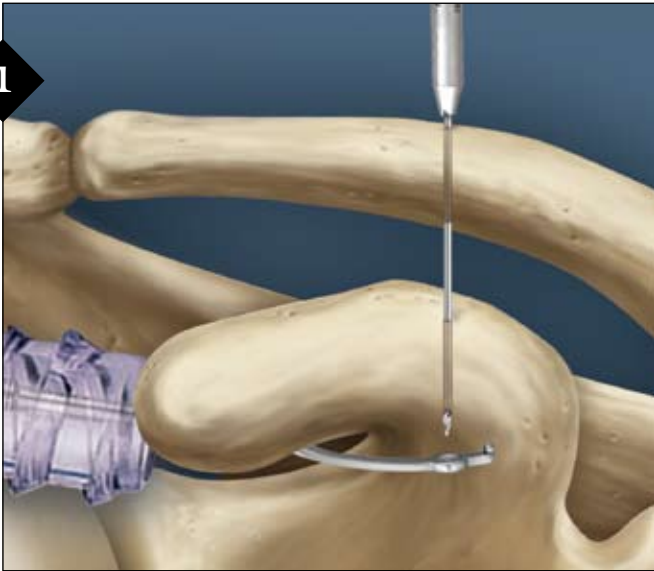
## Surgical Technique

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Position the patient in the beach chair or lateral decubitus position under a general anesthesia supplemented with a scalene block. Introduce the arthroscope into the glenohumeral joint via a standard posterior portal. Create an anterior/superior portal with an outside/in technique using a spinal needle for position. Insert a 7 mm Partially Threaded Cannula into this portal. Create an anterior/inferior portal near the tip of the coracoid, with an outside/in technique using the spinal needle to ensure that the base of the coracoid can be reached. Insert an 8.25 mm Twist-In Cannula through this portal and start the debridement of the rotator interval. Introduce a 4.5 mm full radius shaver blade through the anterior/inferior cannula and into the rotator interval and debride until the tip of the coracoid can be visualized.

Using a 70° arthroscope may be necessary to view the base of the coracoid. It is necessary to completely release the superior glenohumeral ligament and partially release the middle glenohumeral ligament. It may be necessary to retract the anterior/inferior cannula behind the rotator interval to completely reach the superior and middle glenohumeral ligaments. Once the interval has been cleared, start to expose the base of the coracoid using a mechanical shaver and radio-frequency device. At this stage, the arthroscope can be moved to the superior portal which facilitates the view of the base of the coracoid. Strip the bursa and periosteum from the base of the coracoid to obtain a full view of the undersurface. There is no need to expose the superior aspect of the coracoid, as this is not required.

1



Insert the assembled Adapteur Drill Guide C-Ring with the Coracoid Drill Stop and Graduated Guide Pin Sleeve through the anterior/inferior portal. The guide should be set to the full open position (80°) and securely locked. To automatically limit the depth of the guide pin the optional Drill Stop for Adapteur Drill Guide can be preassembled onto the pin sleeve. Position the drill stop tip under the base of the coracoid as close to the scapula as possible. Position the top of the Guide Pin Sleeve over the superior clavicle at its midline approximately 25 mm from the distal clavicle through a 1.5 cm incision made in Langers lines by splitting the deltotrapezial fascia.

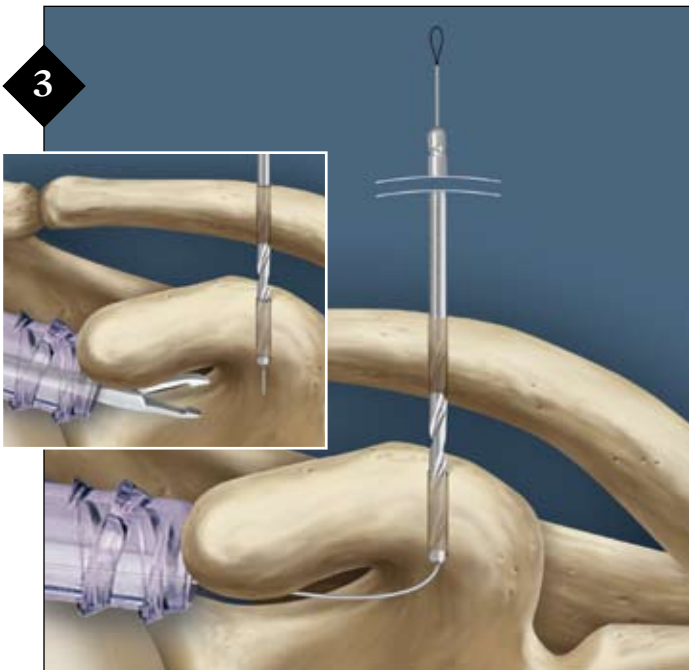
Using a power drill, insert a 2.4 mm Drill Tip Guide Pin into the guide pin sleeve and advance it through the clavicle and coracoid. The tip of the guide pin is captured by the drill stop at the base of the coracoid under direct visualization. Check the position of the pin in relation to the coracoid and if incorrect, redrill the guide pin. Remove the C-Ring and leave the guide pin in situ.

2



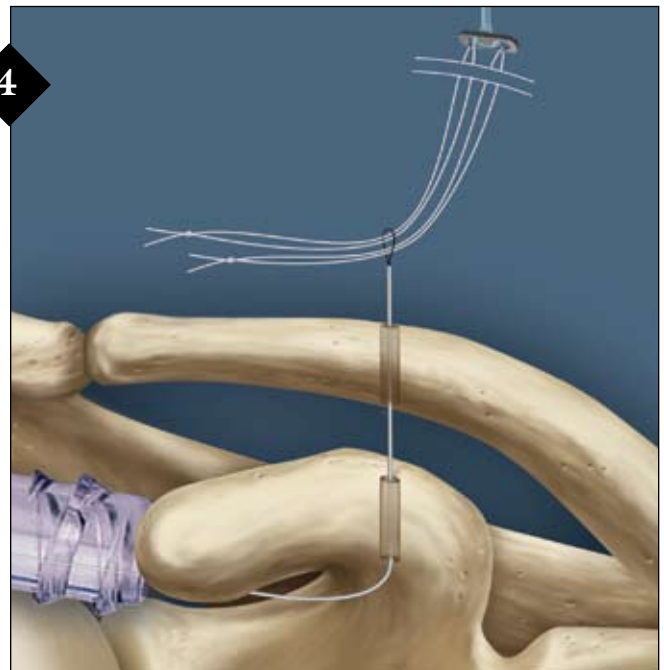
Attach the Coracoid Drill Stop to a Tear Drop Handle, using the optional Coracoid Drill Stop Adapter, to hold the guide pin in place while drilling over it. Another option to prevent advancement of the guide pin while drilling is to hold the guide pin with a grasper hand instrument. Using a power drill, advance the 4 mm Cannulated Drill over the pin and through the clavicle and coracoid. Cannulated drilling beyond the coracoid must be avoided under direct arthroscopic visualization. Remove the guide pin and leave the Cannulated Drill in situ.

3



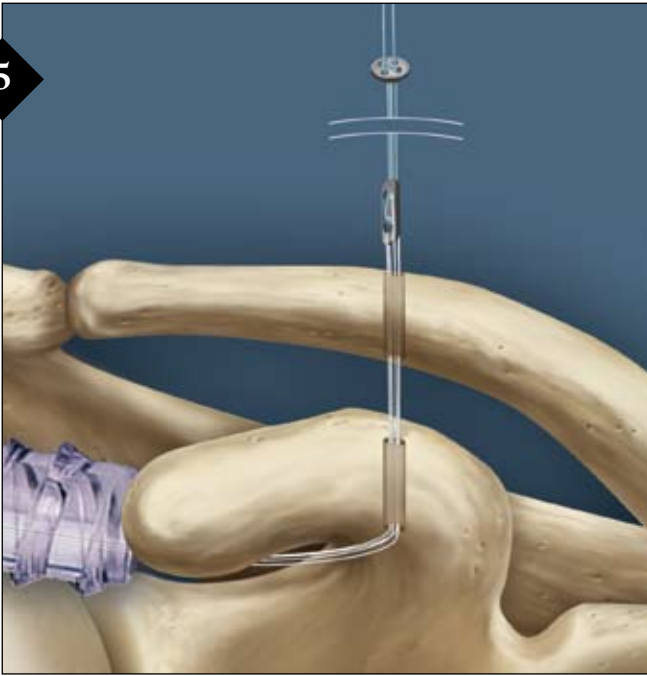
Advance an 18" Nitinol suture passing wire down through the Cannulated Drill and grasp the tip with the arthroscopic grasper. Remove the drill prior to delivering the wire tip out of the anterior/inferior portal, leaving the wire loop superiorly.

4



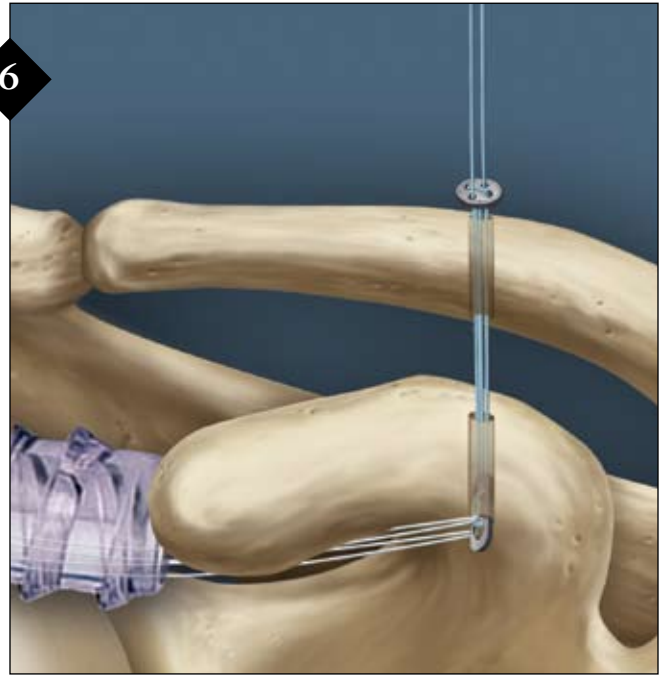
Insert the two white traction sutures from the oblong button of the TightRope System through the wire loop of the Nitinol suture passing wire.

5



Pull the suture passing wire to retrieve the two white traction sutures out of the anterior/inferior cannula. Pull on one of the two white traction sutures to flip the oblong button into a vertical position suitable for advancement through the bone tunnels.

6



Advance the oblong button through the clavicle and the coracoid under direct visualization until it exits the coracoid base. A grasper may be used to pull both white traction sutures down until the oblong button emerges from the bone tunnel. Independently pull on each of the white traction sutures of the oblong button to flip the button onto the underside of the coracoid base.

7



Once the security of the oblong button is confirmed, place the arthroscope into the subacromial bursa through the posterior portal. Reduce the clavicle until the position is felt to be satisfactory under direct visualization. Pull on

both of the blue TightRope suture tails to advance the round button down to the surface of the clavicle. Tie the sutures over the top of the TightRope making a surgeon's knot and three additional half-hitches, reversing posts and throws. This step completes the reduction and stabilization of the acromioclavicular joint. The suture tails can be sewn under the deltotracheal fascia to minimize the knot stack.

Remove any remaining white traction sutures by cutting and pulling them out of the buttons. Fluoroscopy may be used at this stage to confirm reduction.

If a distal clavicle resection is not performed, the stability of the repair can be further enhanced by suturing the acromioclavicular capsule with 2-0 FiberWire before standard closure of the incision site.

### Postoperative Protocol

Place the patient in a shoulder immobilizer for a period of four weeks. Allow the patient to remove the shoulder immobilizer only for washing and elbow flexion extension exercises. Motion below shoulder height is permitted until six weeks, at which time full active motion is commenced. Avoid heavy resistance work until three months post operation.

## Ordering Information

### *Implants:*

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AC TightRope Repair Kit, titanium <i>(packaged with 18" Nitinol suture passing wire)</i>	AR-2257
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### *Acromioclavicular Joint Reconstruction Instrumentation Set (AR-2255S) includes:*

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Adapteur Drill Guide C-Ring	AR-1875
Graduated Guide Pin Sleeve for 2.4 mm Pins	AR-1876
Coracoid Drill Stop	AR-2251
Cannulated Drill, 4 mm	AR-1204L
Cannulated Drill, 4.5 mm	AR-1204.5L
AC Tenodesis Screw Driver	AR-2255D
AC Joint Reconstruction Instrumentation Case	AR-2255C

### *Optional Instruments:*

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Tear Drop Handle	AR-2001
Drill Stop for Adapteur Drill Guide	AR-1877
Coracoid Drill Stop Adapter	AR-2251H

### *Disposables:*

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Drill Tip Guide Pin, 2.4 mm	AR-1250L
Twist In Cannula, 8.25 mm x 7 cm	AR-6530
Partially Threaded Cannula w/No Squirt Cap, 7 mm x 7 cm	AR-6567



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*This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's Directions For Use.*

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