Arthrex®

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

Surgical Technique

AC Joint TightRope Fixation

Background

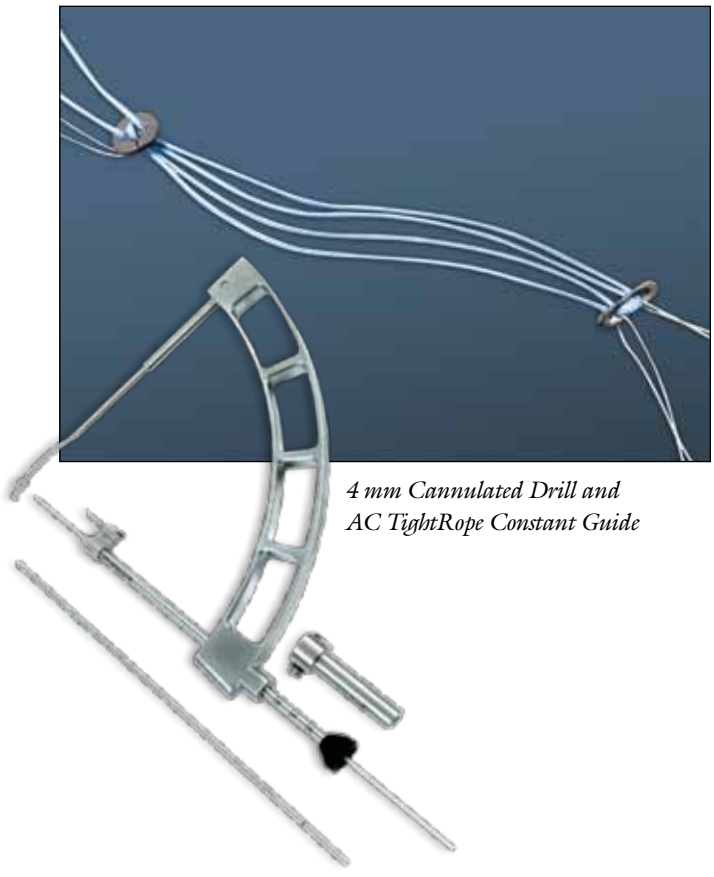
Disruption of the coracoclavicular ligaments is a common occurrence. In many cases the injury can be treated conservatively and the only residual problem is that of a mild cosmetic deformity.

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 may heal, restoring the stability of the joint.

The TightRope System is a device that consists of two buttons - one round clavicle button and one oblong coracoid button. The buttons are 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



4 mm Cannulated Drill and AC TightRope Constant Guide

Technique Uses

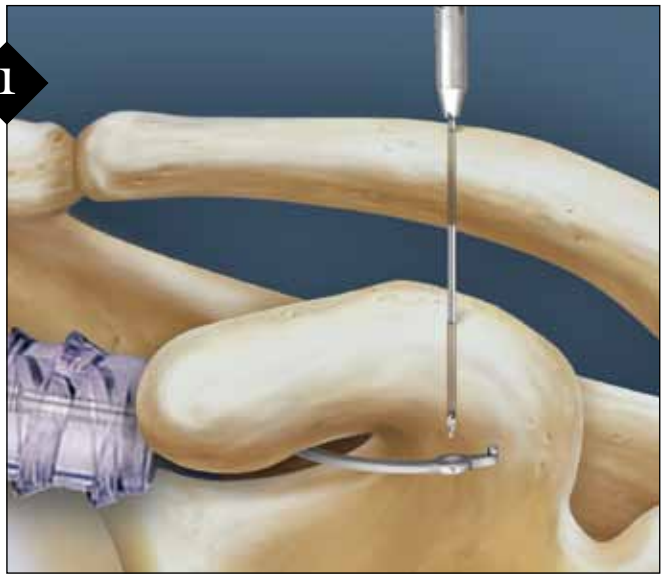
This technique is intended for acute Grade IV-VI AC separations, as well as Type III separations which require operative treatment.

Technique Warning

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

Surgical Technique

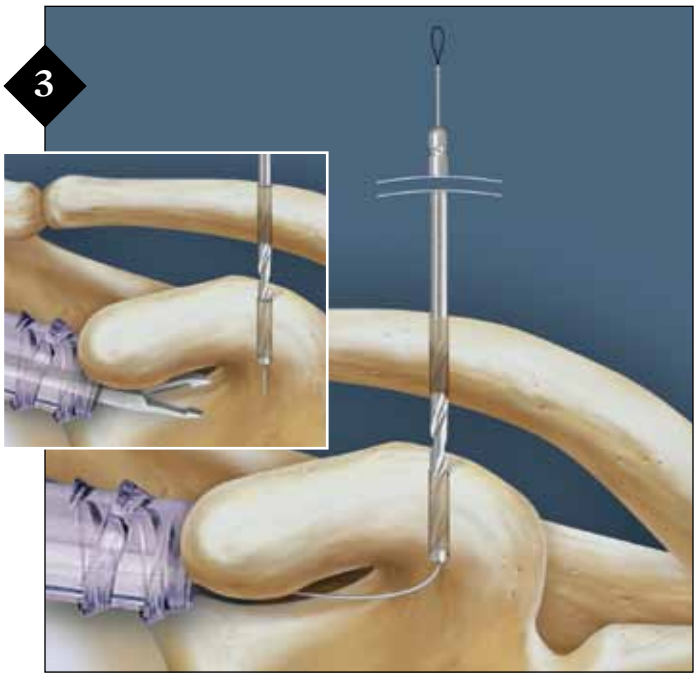
Position the patient in the beach chair or lateral decubitus position under a general anesthesia supplemented with a scalene block. Introduce the arthroscope into the glenohumeral joint via a standard posterior portal. Create an anterior/superior portal with an outside/in technique using a spinal needle 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 full radius shaver blade through the anterior/inferior cannula and into the rotator interval and debride until the base of the coracoid can be visualized. Once the interval has been cleared, start to expose the base of the coracoid using a mechanical shaver and CoolCut™ RF Probe. A 70° arthroscope may be necessary to view the base of the coracoid.



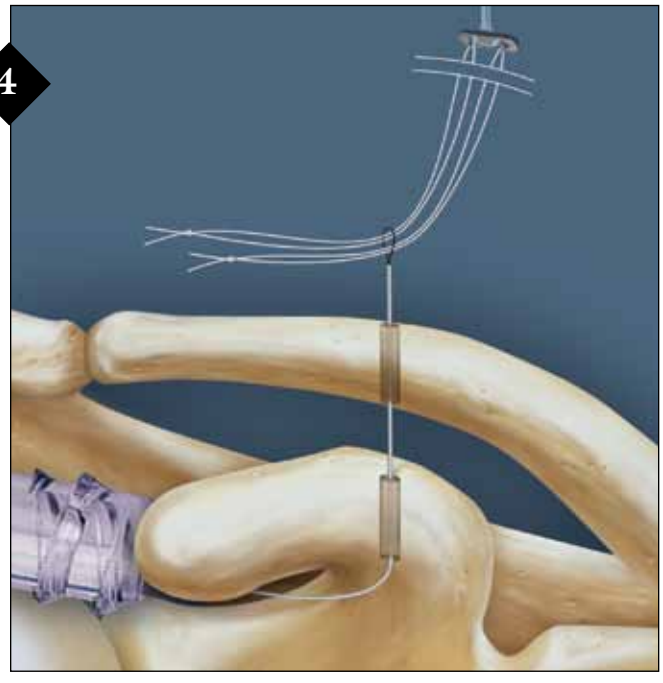
Insert the AC TightRope Constant Guide. Position the drill stop tip under the base of the coracoid as close to the scapula as possible. Make certain there will be sufficient bone bridges around the 4 mm reamed tunnel. Position the Guide Pin Sleeve over the clavicle at its midline approximately 35 mm 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 Constant Guide and leave the guide pin in situ.

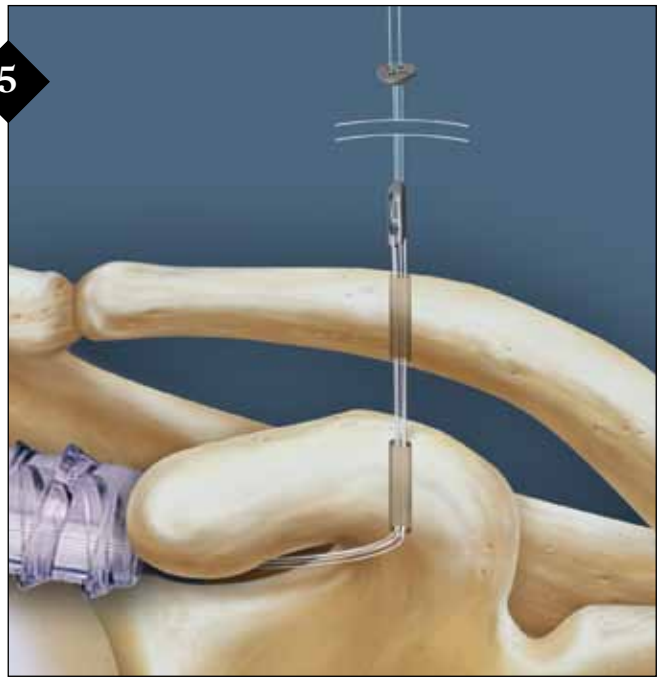
Remove the drill sleeve and reposition the drill guide under the pin to keep it from advancing while reaming. Alternatively, the guide can be removed and a curette or open window of a shaver blade can be used to accomplish this. Using a power drill, slowly advance the 4 mm Cannulated Drill over the pin and through the clavicle and coracoid. Leave the reamer in position, but remove the inner guide pin. Cannulated drilling beyond the coracoid must be avoided under direct arthroscopic visualization.



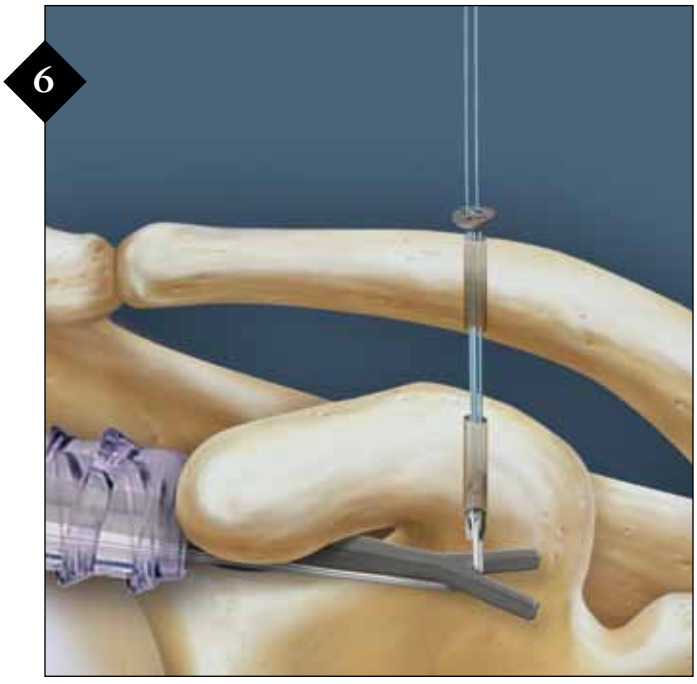
Advance an 18" Nitinol suture passing wire down through the Cannulated Drill and grasp the tip with the arthroscopic grasper. Remove the drill prior to delivering the wire tip out of the anterior/inferior portal, leaving the wire loop superiorly.



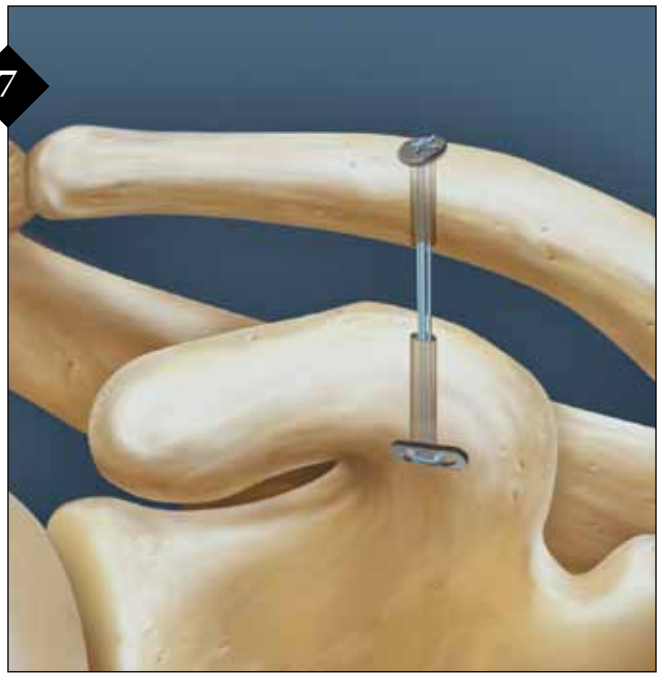
Insert the two white traction sutures from the oblong button of the TightRope System through the wire loop of the Nitinol suture passing wire.



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.



Advance the oblong button through the clavicle and the coracoid under direct visualization until it exits the coracoid base. It is possible to use a forked probe, suture retriever, or knot pusher to leverage the suture beneath the coracoid, while pulling on the suture from outside the anterior portal. This will facilitate delivery of the coracoid button through the coracoid. Independently pull on each of the white traction sutures of the oblong button to flip the button onto the underside of the coracoid base.



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 four 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 deltotrapezial 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.

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 at least six 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

AC TightRope Repair Kit (AR-2257) includes:
- AC TightRope Implant
- 18" Nitinol Suture Passing Wire

Required Instrumentation:

Acromioclavicular Joint Reconstruction System (AR-2255CGS) includes:

Constant Guide for AC TightRope	AR-2255CG
Long Drill, 4 mm Cannulated	AR-1204LX
AC Joint Coracoid Graft Passing Instrument, left	AR-2256L
AC Joint Coracoid Graft Passing Instrument, right	AR-2256R
AC Joint Tenodesis Screw Driver	AR-2255D
Cannulated Headed Reamer, 5 mm	AR-1405
Cannulated Headed Reamer, 5.5 mm	AR-1405.5
Cannulated Headed Reamer, 6 mm	AR-1406
Cannulated Headed Reamer, 6.5 mm	AR-1406.5
AC Joint Reconstruction System Instrumentation Case	AR-2255CGC

Optional Instrumentation:

Forked Probe	AR-6002
FishHook SutureLasso	AR-2259
(SutureLasso SD Wire Loop not included)	

Required Disposable:

Drill Tip Guide Pin, 2.4 mm	AR-1250L

Optional Disposables:

SutureLasso SD Wire Loop	AR-4068-05SD
Button Inserter	AR-2262

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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