



Stabilization of Acromioclavicular Joint Dislocation
using the AC GraftRope™ System

Arthroscopic & Open Surgical Techniques



AC GraftRope System

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The AC GraftRope, another logical evolution of the TightRope®, combines strength, simplicity, and a biologic component to address both chronic and acute acromioclavicular joint indications. With this system, an allograft or autograft is easily secured to the coracoid button and the unique cortical washer allows for Tenodesis Screw fixation of the graft to the clavicle. The metal clavicle washer and coracoid button are joined by a continuous loop of #5 FiberWire, providing fixation during the healing phase. This technique can be completed arthroscopically or open.

Intended Use

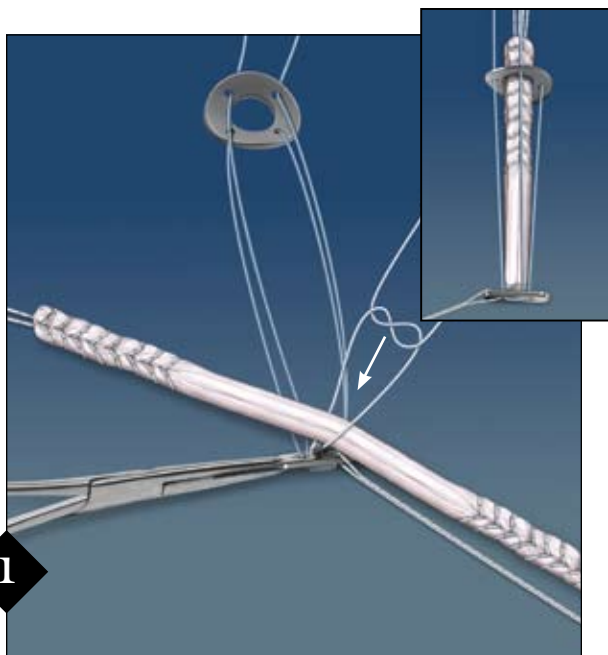
The AC GraftRope is intended for chronic and acute Grade IV-VI AC separations, as well as Type III separations per surgeon's discretion.

Arthroscopic Surgical Technique

Place the patient in the lateral or beach chair 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 portal with an outside/in technique using a spinal needle to verify position. Insert an 8.25 mm cannula through the anterior portal. Introduce a full radius shaver blade through the anterior cannula and work through the rotator interval. Debride until the base of the coracoid can be visualized. Fully expose the inferior border of the coracoid using a the shaver and OPES® RF probe. A 70° arthroscope may facilitate visualization and exposure of the coracoid base.

Graft Preparation

An autograft or allograft semitendinosus, gracilis or tibialis is cleaned and prepped. The graft length should be approximately 12-15 cm, and the folded graft should pass through a 4.5-5.5 mm sizing block. If the graft is too wide, simply place the graft longitudinally on a graft board and use an #11 blade knife in-line with the tendon fibers to contour its width. The graft should be whipstitched on each of the free ends, and this can be simplified with a FiberLoop® or TigerLoop™. In order for there to be whipstitching inside the clavicle tunnel, it is important to begin stitching approximately 30 mm from the graft center point. When doubled over, the graft with whipstitching should easily pass through a 6 mm sizing block. Procedure-specific allografts prepared and sized to fit within the AC GraftRope product are available through Allograft Tissue Systems Inc. (ATSI).



1 Remove the coracoid button and white FiberWire® suture labeled "Graft" from the package. Place the midpoint of 12-15 cm allograft or autograft over the button's "basket handle." Tie the graft suture over the graft, making sure to tie sufficient half-hitches. Cut suture leaving a 2 mm tail. Pull the whipstitched sutures and graft limbs through the clavicle washer. Keep graft/construct moist until implanted. *Note: Make certain that the entire construct passes easily through a 6 mm sizing block.*

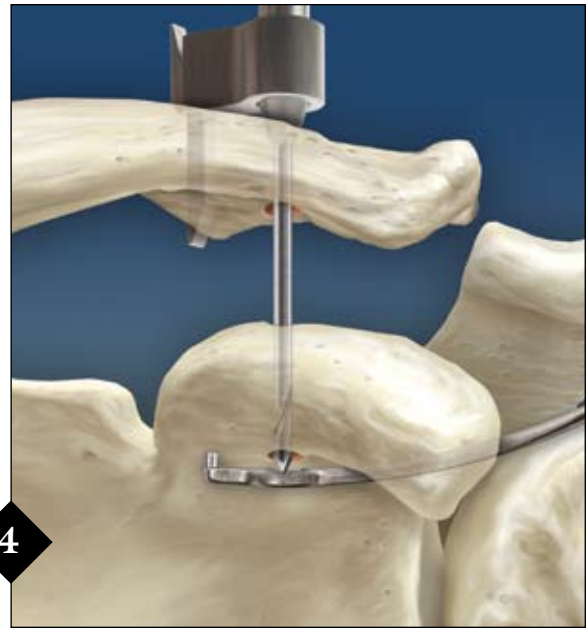


2 Drill a 2.4 mm unicortical hole in the clavicle at desired location, which is typically 35 mm from the distal clavicle. The drill hole should be placed in the center of the clavicle in the anterior to posterior plane. Leave pin in place. Ream unicortical 6 mm hole over the pin. Remove both pin and reamer. This will serve as pilot hole for AC guide placement.



3

Position the AC TightRope® drill guide in the previously drilled clavicle pilot hole. Place the coracoid target on the inferior border of the base of the coracoid. The ideal location on the inferior coracoid is close to the base where it projects off of the glenoid. Make certain there will be sufficient bone bridges both anteriorly and posteriorly to the 6 mm reamed tunnel.



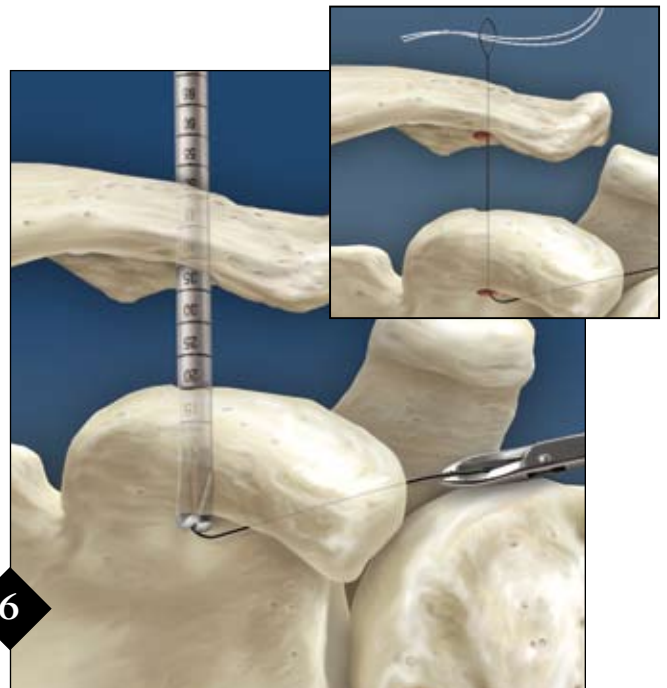
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Drill a 2.4 mm pin through the inferior cortex of the clavicle and through the coracoid. Leave the pin in position.



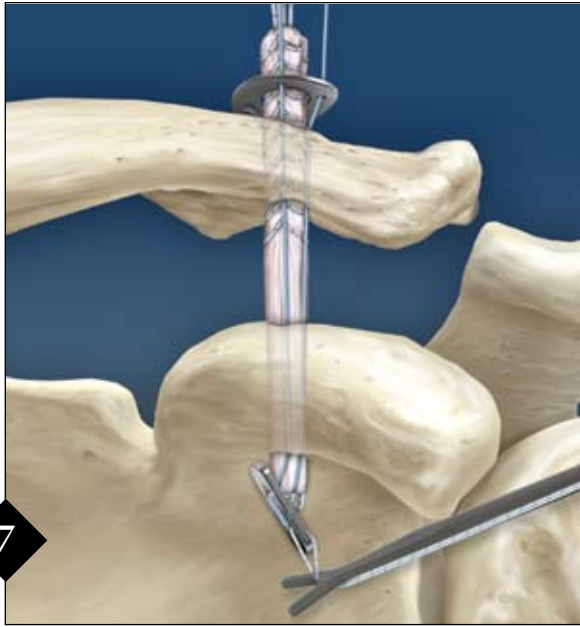
5

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. Use a 6 mm cannulated reamer over the pin and slowly ream through the clavicle and coracoid. Leave the reamer, but remove the inner guide pin.



6

Pass the SD lasso wire through the reamer, making sure to keep the loop end up. Use a grasper to pull the lasso out of the anterior portal. Remove the cannulated reamer and load end of “Traction” (TigerWire) suture of the GraftRope construct into the SD lasso loop. Use the SD lasso loop to draw “Traction” suture through the clavicle and coracoid, and out the anterior portal.



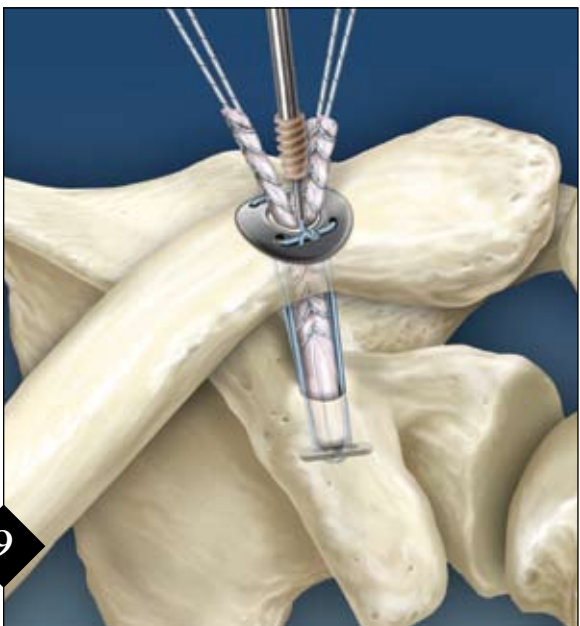
7

Pull “Traction” suture to deliver the coracoid button through the clavicle. 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 and graft through the coracoid. Once the button is through the coracoid, use a probe to maneuver the button into the desired position at the coracoid base.



8

Reduce the clavicle. While an assistant holds the clavicle reduced, tighten the #5 blue FiberWire. Use your index finger to “walk” the clavicle washer to the clavicle. Tie the washer down making sure to throw multiple half-hitches. Cut suture leaving adequate suture tails.



9

Separate limbs of the graft and pull tight on both limbs. Place a 1.1 mm Nitinol wire through both cortices of the clavicle tunnel to act as a guide. Place a 5.5 mm Tenodesis Screw and Tenodesis driver over the guide wire and insert screw until flush.



10

For final construct, cut the graft limbs at screw level, or consider running the limbs to the AC joint and securing them to the capsule with FiberWire, or anterior and posterior acromion with 3 mm SutureTaks.

Open Surgical Technique

Incision and Exposure

Make a 4 cm saber incision beginning approximately 3.5 cm proximal to the AC joint and cut inferiorly toward the coracoid. Split the deltotrapezial fascia longitudinally over the distal clavicle. Split the deltoid fibers inferiorly toward the coracoid. Expose the superior surface of the coracoid.

Clavicle/Coracoid Tunnel Preparation

A 2.4 mm guide pin is drilled through both cortices of the clavicle, approximately 35 mm proximal to the AC joint. The guide pin is overreamed with a 6 mm reamer to create a bicortical clavicular hole. The guide pin and reamer are removed from the clavicle. Further expose the superior surface of the coracoid. Define the medial and lateral border at the base of the projection of the coracoid. Under direct visualization, drill a 2.4 mm guide pin through the midpoint of the base of the coracoid. Make certain that there will be sufficient bone bridges both medially and laterally to the coracoid tunnel. Overream with a 6 mm reamer to create a bicortical coracoid hole. To protect from advancing the guide pin distally, place a retractor of choice under the coracoid. The guide pin and reamer are removed from the coracoid.

Positioning of the Passing Wire

The SutureLasso™ SD wire is fed through the Coracoid Graft Passing Instrument (right or left) which in turn is used to pass the wire through the coracoid tunnel. The wire is retrieved lateral to the conjoined tendon and inferior to the coracoacromial ligament. The Coracoid Graft Passing Instrument is removed and the portion of the wire above the coracoid is passed retrograde through the clavicle tunnel.

GraftRope Positioning/Implantation

Load end of “Traction” (TigerWire) suture of the GraftRope construct into the SD lasso loop. Use the SD lasso loop to draw “Traction” suture through the clavicle and coracoid and inferior to the coracoacromial ligament. Pull “Traction” suture to deliver the coracoid button through the clavicle. It may be necessary to use a suture retriever or knot pusher to leverage the “Traction” suture beneath the coracoid, while pulling on the suture. This may facilitate delivery of the coracoid button and graft through the coracoid. Once the button is through the coracoid, use a finger to maneuver the button into the desired position at the coracoid base. Reduce the clavicle. While an assistant holds the clavicle reduced, tighten the #5 blue FiberWire. Use index finger to “walk” the clavicle washer to the clavicle. Tie the washer down making sure to throw multiple half-hitches and leaving adequate suture tails. Separate limbs of the graft and pull tight on both limbs. Place a 1.1 mm Nitinol wire through both cortices of the clavicle tunnel to act as a guide. Place a 5.5 mm Tenodesis Screw and Tenodesis driver over the guide wire and insert the screw until flush. For final construct, cut the graft limbs at screw level, or consider running the limbs to the AC joint and securing them to the capsule with FiberWire, or anterior and posterior acromion with 3 mm SutureTaks®. *Note: If the surgeon desires, the graft can be passed beneath/around the coracoid instead of tied to the coracoid button. In this case, it is possible to drill a 4 mm tunnel to pass the button alone and the graft limbs can be passed through the clavicle tunnel and clavicle washer.*

AC GraftRope Instrumentation/Implants

Required Implants:

- AC GraftRope Kit (includes AC GraftRope Implant and SutureLasso SD Wire Loop) AR-2258
- GraftRope Allograft Tendon (Catalog #239404) – available from ATSI*
- Tenodesis Screw (*one of below required*)
 - PEEK Tenodesis Screw, 5.5 mm x 8 mm AR-1655PS
 - PEEK Tenodesis Screw, 5.5 mm x 10 mm AR-1655PS-10
 - PEEK Tenodesis Screw, 5.5 mm x 12 mm AR-1655PS-12
 - PEEK Tenodesis Screw, 5.5 mm x 15 mm AR-1555PS
 - Bio-Tenodesis Screw, 5.5 mm x 15 mm AR-1555B

Required Instruments:

- 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

Required Disposables:

- Drill Tip Guide Pin, 2.4 mm AR-1250L
- Guide Pin, Nitinol, 1.1 mm AR-1249
- Cannulated Headed Reamer, 6 mm AR-1406
(required when using AC Joint Instrument Set AR-2255S)

**The GraftRope tendon is a specifically prepared and sized allograft made to fit within the AC GraftRope product. All GraftRope tendons are processed with a validated and patented sterilization technique and processed by FDA registered and AATB accredited tissue banks.*

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.

