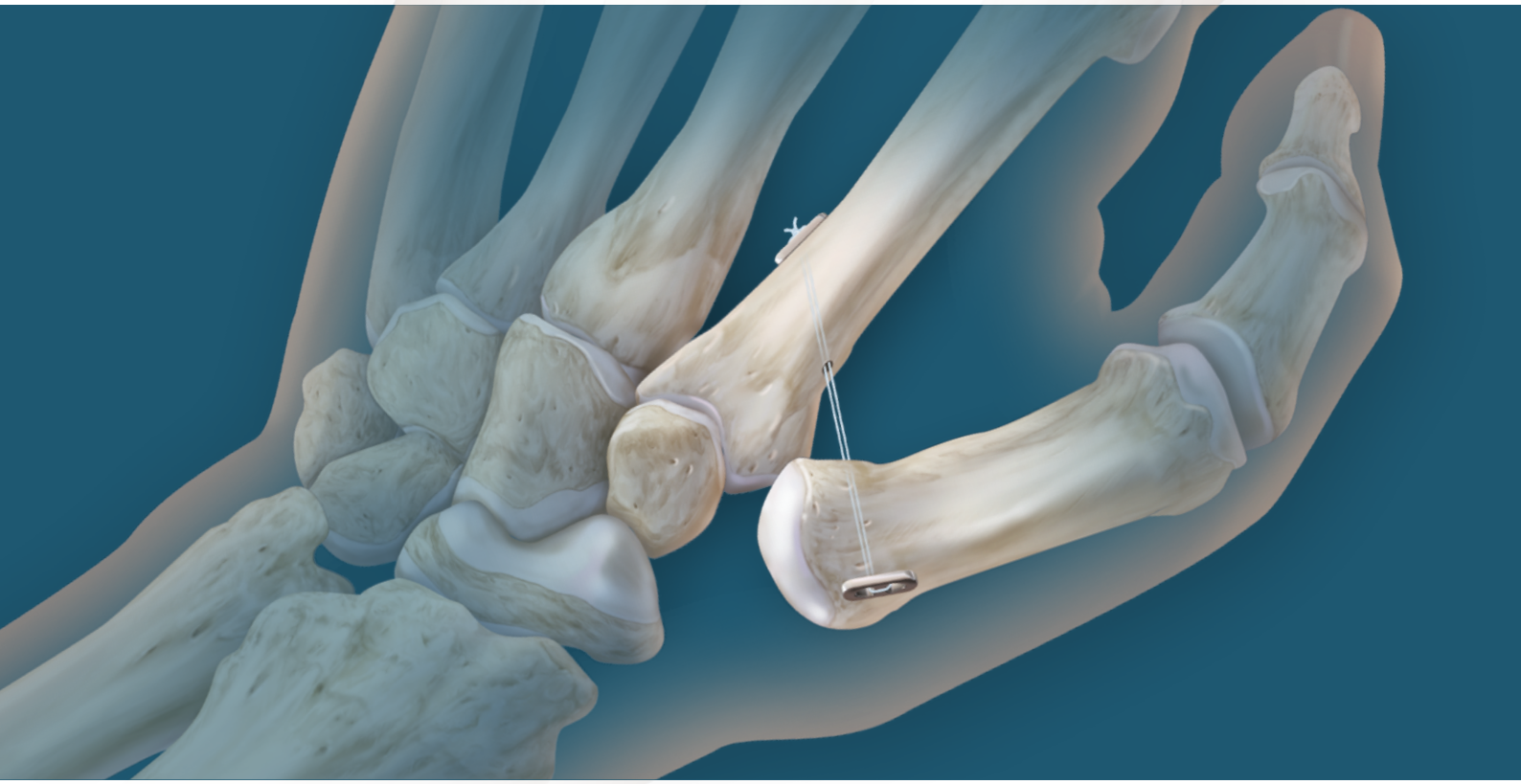
Mini TightRope® CMC

Surgical Technique



Arthrex®

Mini TightRope® CMC Fixation

The Mini TightRope provides a unique means of suspending the thumb metacarpal for treatment of CMC arthritis.

The Mini TightRope supports and maintains the thumb and index metacarpals in the proper relationship while allowing for capsular healing, hematoma, and scar tissue formation in the trapezial space. The construct consists of 2 strands of #2 FiberWire that are fixed with 2 oblong stainless steel buttons for cortical fixation.

Some clinical outcomes for this technique that have been reported in the literature include:

“A study of 21 patients who underwent partial or complete trapeziectomy with TightRope fixation, followed by a 10-day immobilization period, resulted in 20/21 patients without adverse events and successful outcomes in all patients at 2 years. A standard immobilization protocol for K-wire fixation is 4 weeks.”
Yao J. and Y Song (2013).

Suture-Button Suspensionplasty for Thumb Carpometacarpal Arthritis: A Minimum 2-Year Follow-Up.
J. Hand Surg Am.

“A study of 21 patients who underwent partial or complete trapeziectomy with TightRope fixation showed a trapezial height of 74% +/- 20% of the pre-operative height at two years of follow-up”
Yao J. and Y Song (2013). Suture-Button Suspensionplasty for Thumb Carpometacarpal Arthritis:
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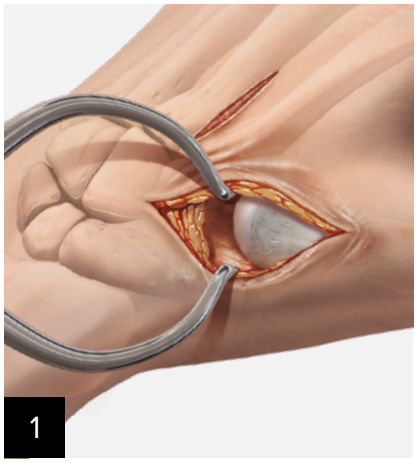
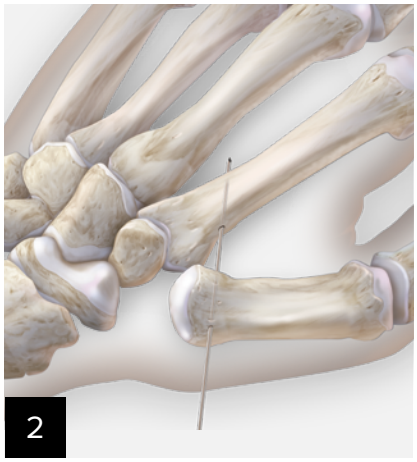
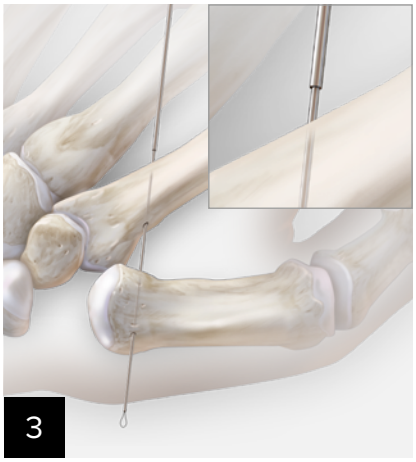
Mini TightRope® CMC Fixation Technique



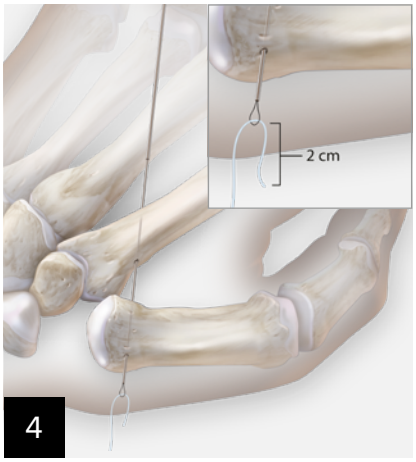
Create a 3 - 4 cm dorsoradial skin incision over the trapeziometacarpal joint. Safely retract the radial artery by means of a vessel loop, and take care to protect the branches of the dorsal radial sensory nerve. Make a longitudinal incision in the capsule and sharply dissect around the abductor pollicis longus, which is attached to the radial base of the thumb metacarpal. Perform a hemi or full trapeziectomy to eliminate the bone-on-bone contact that is the source of pain. Inspect the trapezial space and remove any remaining bone fragments or osteophytes surrounding the joint space to prevent impingement or continued pain. Make an additional 2 cm incision between the second and third metacarpal bases. Elevate the second dorsal interosseous muscle subperiosteally from the ulnar aspect of the second metacarpal to view the ulnar base of the index metacarpal – the eventual exit point of the K-wire. There is always a branch of the dorsal radial sensory nerve that should be identified and protected in this wound.



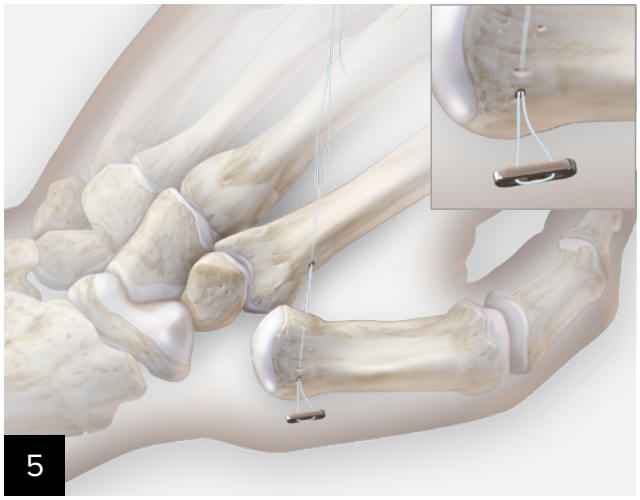
Place the 1.1 mm tapered suture-passing K-wire, starting on the proximal dorsoradial aspect of the first metacarpal. The K-wire should start as close to the base of the first metacarpal as possible. The hand should be in a relaxed, neutral position. Providing axial traction, palmar abduction, and extension at the base of the first metacarpal will help reduce the metacarpal into the proper position (placing a rolled towel between the thumb and palm will help maintain the position of the thumb in an abducted position). The K-wire is advanced through the base of the first metacarpal, aiming towards the second metacarpal base. The recommended trajectory is to place the K-wire within the proximal one-third of the second metacarpal.
A more proximal trajectory is easier to accomplish and suggested. The wire must exit in the central portion of the second metacarpal. Confirm the trajectory under fluoroscopy, while advancing the K-wire. An aiming guide is very useful and available if desired.
Note: Advancing the K-wire under oscillation is suggested and maximizes control of the K-wire.



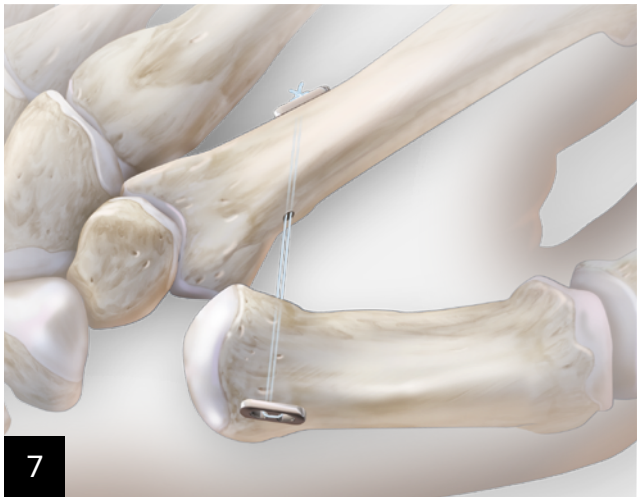
Once the proper trajectory is established, continue to advance the K-wire through the second metacarpal, exiting through the small incision in the interspace. Four cortices should be penetrated. Continue to advance the K-wire until the thinner, tapered portion of the guide wire is completely through all 4 cortices. The K-wire should now slide easily by hand.



Place the single strand of the Mini TightRope into the nitinol loop of the K-wire. Only place 2 - 3 cm of suture though the loop, as more may bind in the small tunnel.



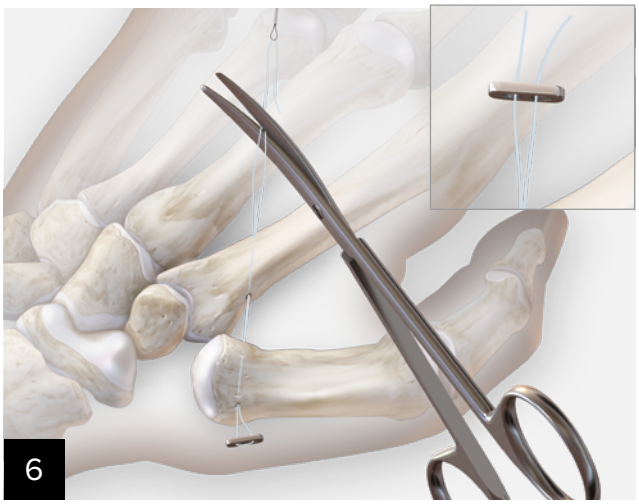
Pull the opposite end of the suture-passing K-wire, bringing the suture completely through and exiting the second metacarpal. Pull the suture and bring the oblong button into contact with the radial side of the thumb metacarpal.



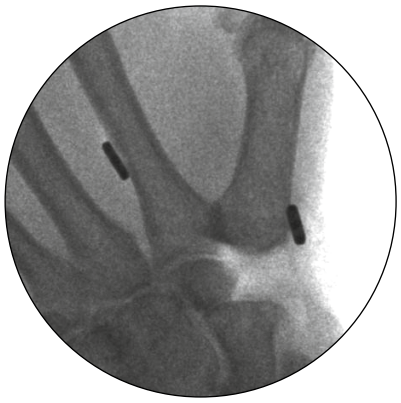
Tie approximately 5 knots over the second ulnar button to lock the construct into place. The knot strands may be left long and buried beneath the second dorsal interosseously to prevent irritation. The second dorsal interosseous fascia, CMC capsule, and skin are closed in a standard fashion.

Post-Op Protocol Example

Follow up with hand therapy at 10 - 14 days. Provide a thermoplastic, hand-based thumb spica splint to be worn for lifting > 2 kg and for sleep. Otherwise, allow partial mobilization of up to 50 % of grip power between 2 and 6 weeks. Increase mobilization steadily and advance to strengthening, as tolerated, until week 12. Afterwards, allow full mobilization with no activity restrictions.



Cut the suture on the ulnar side to create 2 strands of FiberWire and load the second oblong button onto the suture, bringing the oblong button down to the 2nd metacarpal. Remove any slack from the construct and position the thumb into the desired position. The thumb can be reduced into the desired anatomic resting position by applying axial traction (to restore height until the base of the first metacarpal is in line with the base of the second metacarpal), palmar abduction, and extension at the base of the first metacarpal. Over-tightening the suture is not recommended as it may lead to decreased range of motion and possibly impingement of the base of the thumb metacarpal on the base of the second metacarpal. Tie 1 provisional knot and check the range of motion clinically and under fluoroscopy to confirm full motion and no impingement.



Device Removal

If removal of the device is required, a small incision over each cortical button can be made to gain access to the oblong button. The sutures through the buttons are cut, the buttons removed, and the suture construct is removed with a forceps or other appropriate suture-grasping instrument.

Ordering Information

CMC Mini TightRope® Repair Kit

Product Description	Item Number
CMC Mini TightRope® Repair Kit	AR-**8919DS**
Suture-passing K-wire, 1.1 mm, short Suture-passing K-wire, 1.1 mm, long Suture-passing wire, 20 cm Oblong button, for Mini TightRope®, 2.6 mm TightRope® suture construct, 1.1 mm Trapeziectomy tool	

Optional Accessories

Product Description	Item Number
Wrist drill guide	AR-**8816G**
Guide sleeve, for wrist drill guide, single bore, Ø 1.1 mm	AR-**8816G-03**

For a list of indications, please refer to the directions for use for the Mini TightRope device (http://bit.ly/23IsFgs) or contact Arthrex or your Arthrex representative for the latest revision of the appropriate instructions for use.

Products advertised in this brochure/surgical technique guide may not be available in all countries. For information on availability, please contact Arthrex Customer Service or your local Arthrex representative.

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