



Ligament Reconstruction – Tendon Interposition  
for Thumb CMC Arthritis

Surgical Technique



# LRTI for Thumb CMC Arthritis

## Ligament Reconstruction – Tendon Interposition for Thumb CMC Arthritis

Thumb basilar arthritis is a debilitating condition often accompanied by subluxation of the metacarpal and concomitant attenuation of the ligamentous stabilizers of the carpometacarpal (CMC) joint. The ligament reconstruction-tendon interposition (LRTI) remains one of the most common procedures performed to restore pain-free mobility of the thumb.

### *CMC Ligament Reconstruction Implant System*

The CMC Ligament Reconstruction Kit provides a convenient all-in-one solution for ligament reconstructions of the base of the thumb. By combining our state-of-the-art Tenodesis Screw™ System with a convenient disposables kit, the CMC Ligament Reconstruction Kit will enable a convenient repair.

Drill hole preparation of the first metacarpal is achieved by utilizing the included Guide Pin and 4 mm Cannulated Drill. The QuickPass Tendon Shuttle® is included to allow for easy, hassle-free passage of the tendon graft through the prepared tunnel. The 4 mm x 10 mm PEEK Tenodesis Screw provides immediate fixation of the graft, which allows for a more robust repair and enables precision tensioning of the graft.

### *Preoperative Planning*

History, clinical examination, and adjunctive tests such as radiographs, determine the need for surgical intervention as well as the presence of any osteophytes which may need debridement. Appropriate equipment is essential in the operating room. Anatomic landmarks and neurovascular structures at risk must be familiar to the surgeon.

### *Patient Positioning*

The patient is supine and a pneumatic tourniquet is applied to the ipsilateral biceps region. Typically, the table and patient are rotated 90° after anesthesia is induced. After prepping and draping the limb, landmarks and incisions are drawn outlining the flexor carpi radialis (FCR) tendon and the radial artery. The limb is exsanguinated and the tourniquet is inflated.



### *Postoperative Treatment and Patient Rehabilitation*

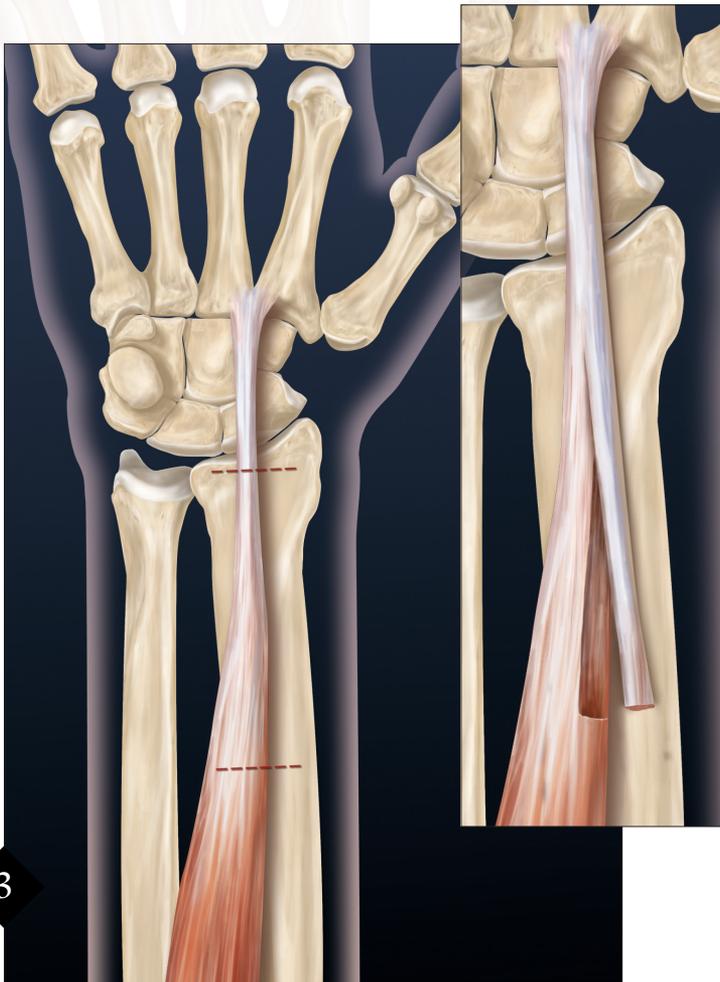
The patient is placed into a thumb spica splint. After the sutures and postoperative splint are removed, a short arm thumb spica cast should be considered for up to four weeks. A splint is worn again after that period which limits overuse, but is removed for self-care, therapy exercises, and controlled situations where the repair is not put at risk. This splint is weaned as range-of-motion and comfort increase. Postoperative care is always patient and surgeon dependent. Referral to occupational therapy or a certified hand therapist is recommended to maximize rehab potential. For additional information, please refer to the Directions For Use packaged with the product.



The longitudinal incision on the dorsoradial aspect of the wrist is made only through the dermis to avoid injury to the sensory branch of the radial nerve. The CMC joint is incised longitudinally between the APL and EPB tendons. The capsule is dissected off the trapezium and into the scaphotrapezium joint.



The trapezium is excised. A thorough inspection of the resultant cavity is important to remove any residual bone or osteophytes commonly found distal and palmar to the volar beak of the proximal thumb metacarpal.



A transverse incision is made over the FCR tendon approximately 10 cm from the proximal wrist crease and the tendon is divided sharply. A second incision is made over the FCR at the wrist crease and the cut tendon is withdrawn distally into the wound. Through the cavity created by the trapezium excision, the FCR is withdrawn further distally to be redirected from its attachment at the base of the index metacarpal. The tendon can then be divided sharply to a 4 mm strip, creating a uniform tendon graft.

*Optional method:*

A portion of the FCR can be harvested through the trapezium space thereby eliminating the need for a second incision. Transecting the FCR proximally in the trapezium space near the scaphotrapezium-trapezoid joint should produce a 4 – 5 cm graft. This eliminates the need for a second incision to harvest the FCR. *Note: This shortened graft length will preclude the surgeon from using the graft as an interpositional spacer.*



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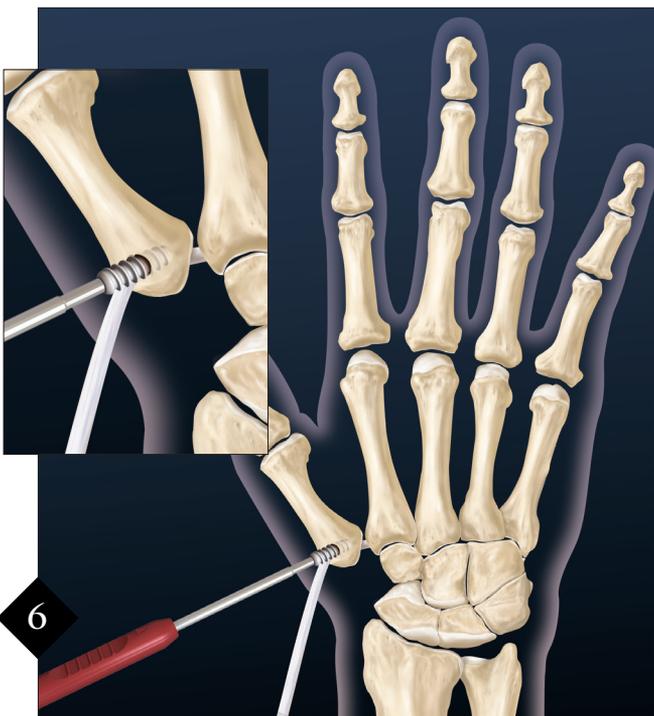
The dorsal aspect of the proximal half of the metacarpal is dissected free of periosteum. The short guide pin followed by the 4 mm Cannulated Drill is used to create a hole from the dorsal metacarpal into the volar beak. The starting point should be approximately 1 cm distal to the articular surface to minimize the chance of breaking the metacarpal. A retractor can be placed beneath the volar beak to protect the FCR tendon and tendon insertion.



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*Dorsal View*

The QuickPass Tendon Shuttle® is placed over the end of the FCR tendon. The tip of the tendon shuttle is advanced through the trapezial space and out the hole created in the metacarpal, pulling the FCR with it. The tendon shuttle is removed.



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While maintaining tension on the FCR and pressure on the metacarpal, a 4 mm x 10 mm Tenodesis Screw™ is placed in the drill hole and advanced until it is flush with the cortex and secures the FCR against bone.



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The remaining portion of FCR is folded upon itself, sutured, and put back into the trapezial cavity. The capsule and periosteum are closed incorporating the FCR as it exits the bone and turns back into the cavity using 3-0 FiberWire® suture. There is no need to repair the FCR back to itself. The remaining closure is performed per the surgeon's preference.

### *Ordering Information*

CMC Ligament Reconstruction Implant System (AR-1677BC-CP) includes:

Guide Pin, 1.57 mm  
Cannulated Drill, 4 mm  
QuickPass Tendon Shuttle, small  
BioComposite Tenodesis Screw, 4 mm x 10 mm  
Tenodesis Driver, 4 mm x 10 mm  
Ruler  
Suture Passing Wire

Suture Options:

2-0 FiberLoop, curved taper needle	AR-7232-05
2-0 FiberLoop, straight diamond point needle	AR-7232-03
2-0 FiberLoop, curved diamond point needle	AR-7232-02



*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.*

*Developed in conjunction with John J. Faillace, M.D., Darnall Army Community Hospital, Fort Hood, TX.*



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