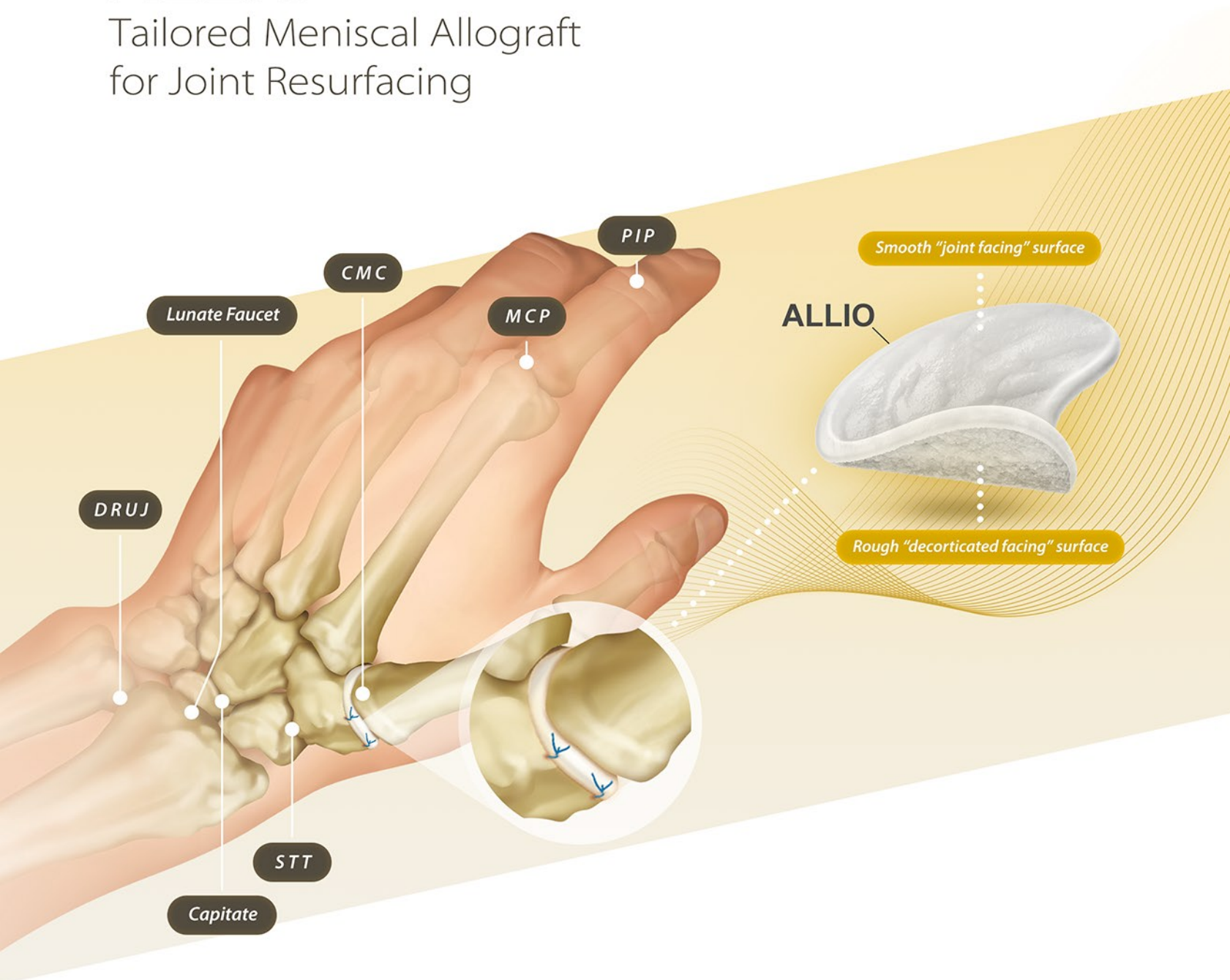
A.M. SURGICAL, INC.

ALLIO

Tailored Meniscal Allograft for Joint Resurfacing



MCP Joint Resurfacing Surgical Technique

Manufactured by ***MTF Biologics***

Distributed by ***A.M. Surgical, Inc***

Surgical Technique Described By:

Brian Tinsley, MD & David Kulber, MD

Advantages and Indications:

The signature advantage of the ALLIO "no bridges burned" technique is the offering of a simple, biologic surgical solution which retains all available options for the future if needed.

The indications for the AM Surgical ALLIO graft include typical surgical indications for arthritis in the wrist and hand. The ALLIO graft techniques have the advantage of allowing motion inherent in other types of joint replacement without the potential complications (mechanical failure and foreign body reaction) and loss of bone stock found with other implant arthroplasty techniques.[1]

MCP Resurfacing Surgical Technique

This technique describes using the ALLIO graft to resurface the metacarpal head. Most often only one side of the joint (most arthritic) needs to be resurfaced, which is determined via preoperative imaging and intraoperative evaluation of the exposed joint.

One can use any approach to the MCP joint as typically used for an MCP arthroplasty procedure.

Anesthesia:

General, MAC, or WALANT techniques are all appropriate.

This author typically uses MAC sedation and local injection of about 10ml, 0.25% Bupivicaine.

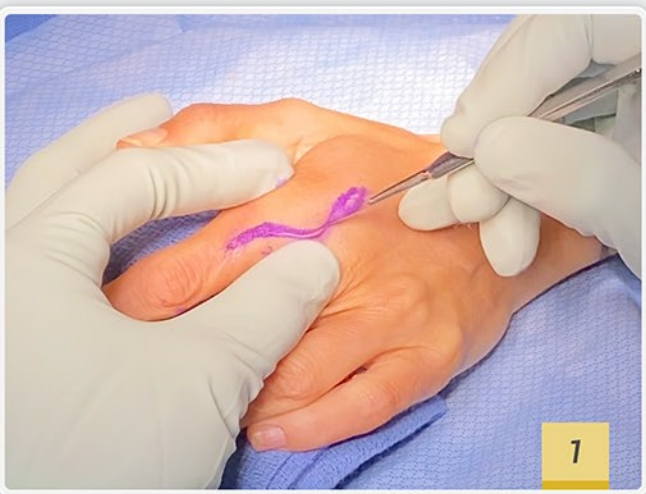
Positioning:

Supine position with a hand table. Upper arm tourniquet (unless WALANT).

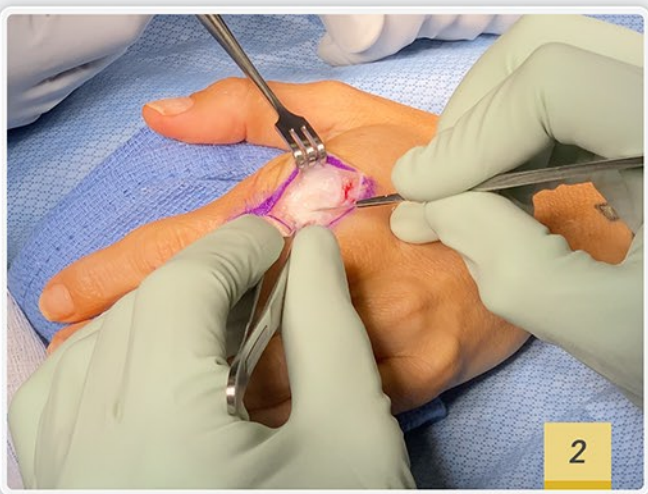
Joint Exposure and Preparation:

After prep, draping, and time-out, 10ml, 0.25% Bupivacaine is injected.

A dorsal, longitudinal, curvilinear incision is made about the MCP joint. (Pic 1) Full-thickness skin flaps are elevated and dissected down to the extensor mechanism. (Pic 2) The sagittal band is longitudinally incised, which can be tagged with sutures to facilitate repair. Ensure that there is a sufficient cuff of good tissue for the repair.

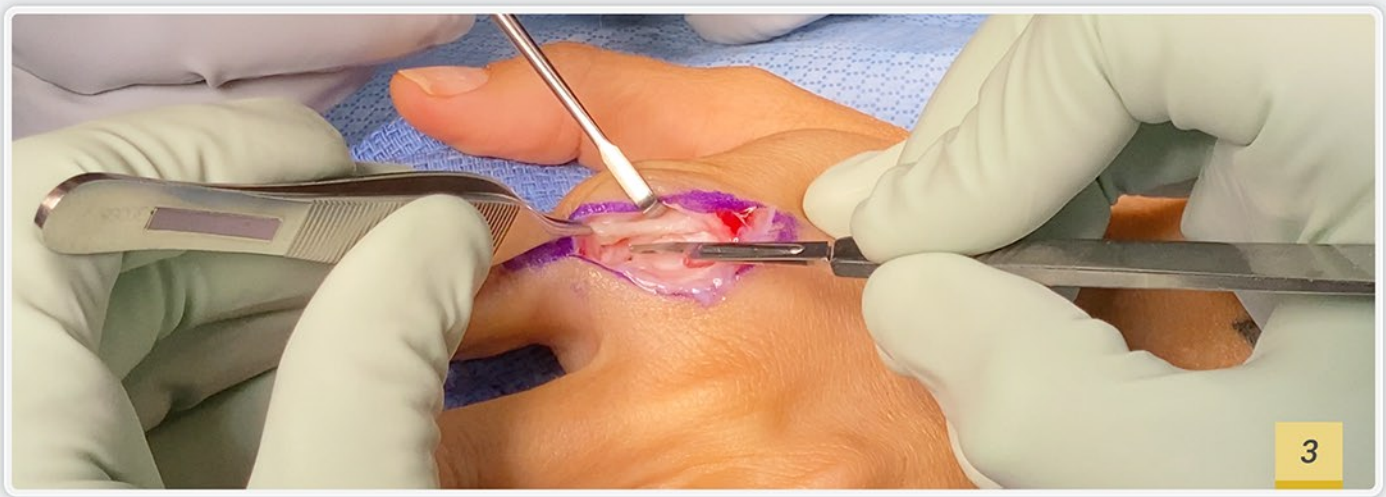


(1) A dorsal, longitudinal, curvilinear incision is made about the MCP joint.



(2) Full-thickness skin flaps are elevated and dissected down to the extensor mechanism.

With the sagittal band incised, mobilize the extensor tendon and separate it from the joint capsule. A capsulectomy in the dorsal MCP joint is made and the joint capsule elevated. (Pic 3) The collateral ligaments can be recessed to improve exposure if necessary, however, care should be taken to avoid disrupting the collaterals.

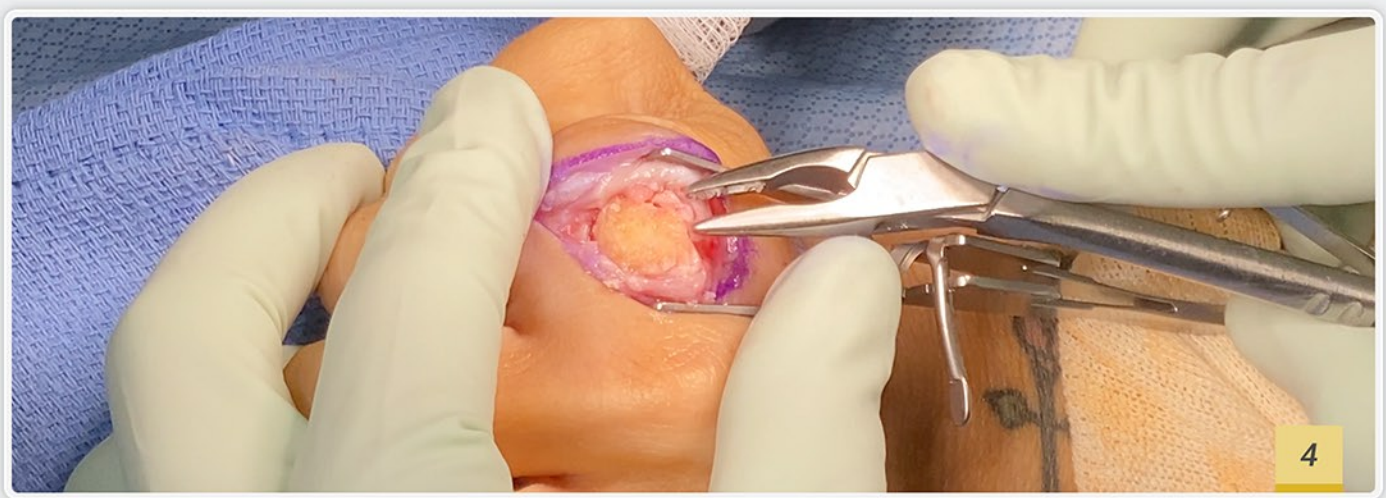


(3) A capsulectomy in the dorsal MCP joint is made and the joint capsule elevated.

A rongeur is used to perform a synovectomy of the joint.

At this stage, there should be excellent visualization of the metacarpal head with the MCP joint flexed.

A rongeur is used to remove osteophytes, remaining articular cartilage, and subchondral bone to expose cancellous bone. (Pic 4) It is important to maintain the general shape and curvature of the metacarpal head.



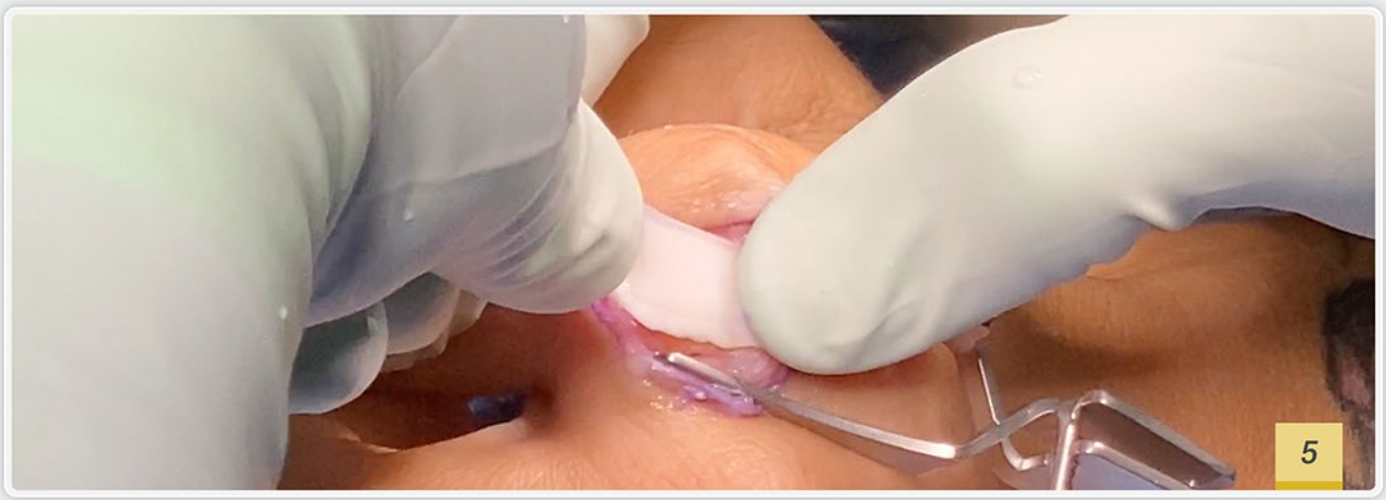
(4) A rongeur is used to remove osteophytes, remaining articular cartilage, and subchondral bone to expose cancellous bone.

- **ALLIO Graft Preparation and Sizing:**

Remove the frozen ALLIO graft from its sterile packaging and thaw it via saline bath for approximately 5 minutes.

In sizing, it is helpful to initially oversize the graft, which can be trimmed if needed. Make sure the width of the graft is slightly larger than the radial to ulnar width of the prepared surface.

Ensure the length of the graft will wrap from the dorsal margin of the prepared surface around to cover the entire volar articular surface. (Pic 5)



(5) Ensure the length of the graft will wrap from the dorsal margin of the prepared surface around to cover the entire volar articular surface.

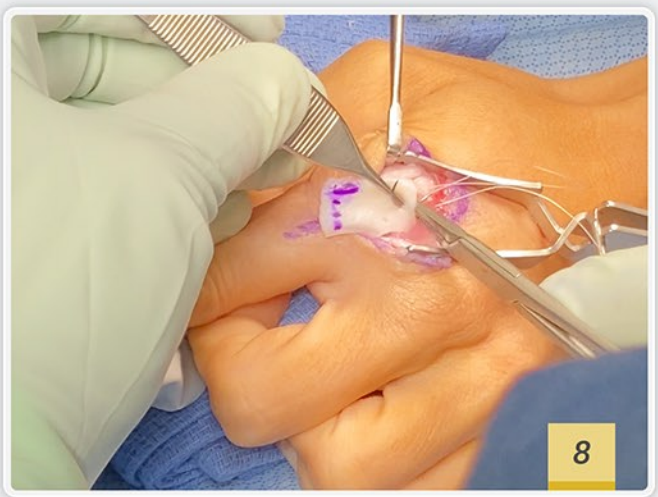
(6) A marking pen is used to mark the area of the graft sizing cut.

A marking pen is used to mark the area of the graft sizing cut. (Pic 6) Initial cuts are made and the graft is held in position to confirm the appropriate width and length. This can be adjusted by trimming the graft as needed.

Securing the ALLIO Graft:

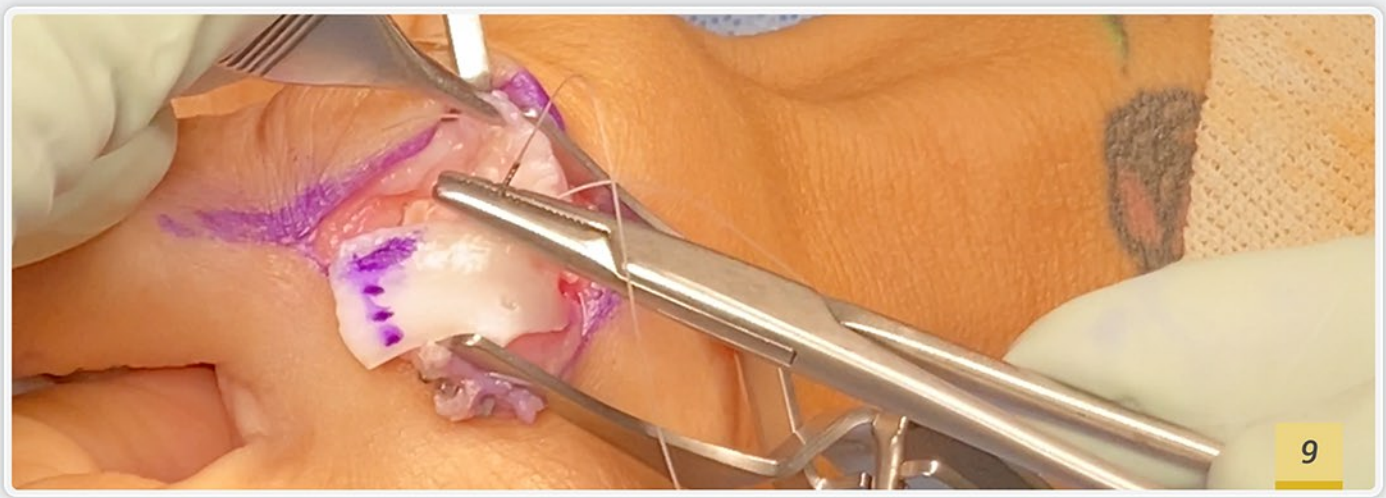
4-0 white Ethibond suture is used to secure the graft, however other non absorbable sutures (4-0 white Mersiline) may be used. The graft is initially secured with a single dorsal suture through a single bone tunnel. Ensure that the smooth side of the ALLIO graft is joint facing prior to initial suturing.

Depending on the bone quality, if difficulty is encountered in creating a bone tunnel using the suture needle, a 21 gauge needle or a small k-wire on power can be used to create a tunnel to facilitate passing of the suture needle.

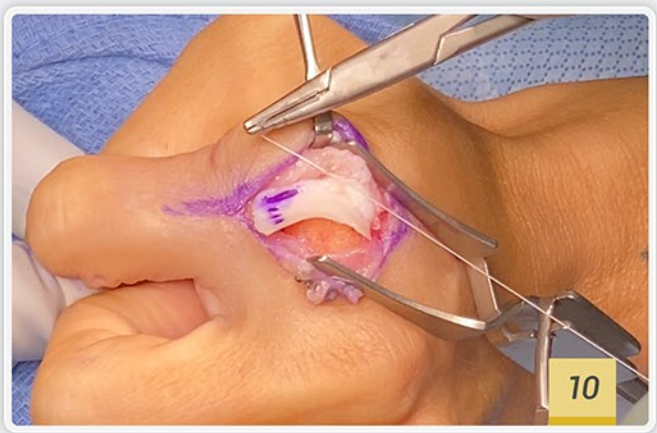


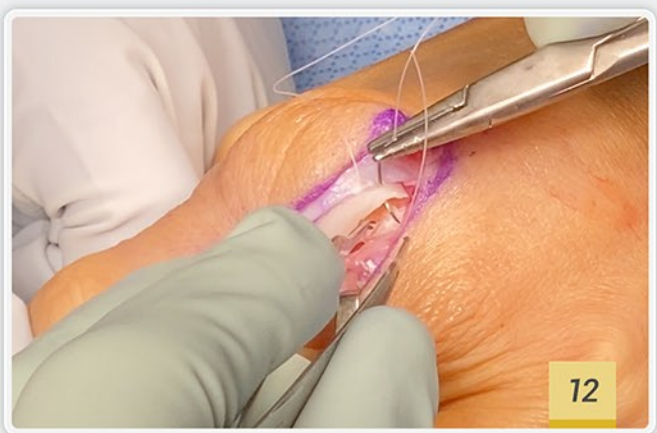
(7 & 8) The graft is initially secured with a single dorsal suture through a single bone tunnel.

Once the graft is secured dorsally, the appropriate radial to ulnar width is confirmed and graft trimmed as needed. The graft is sutured into the origin of the radial and ulnar collateral ligaments with horizontal mattress sutures. (Pics 9) If the tissue is insufficient, radial and ulnar sided bone tunnels can be used.



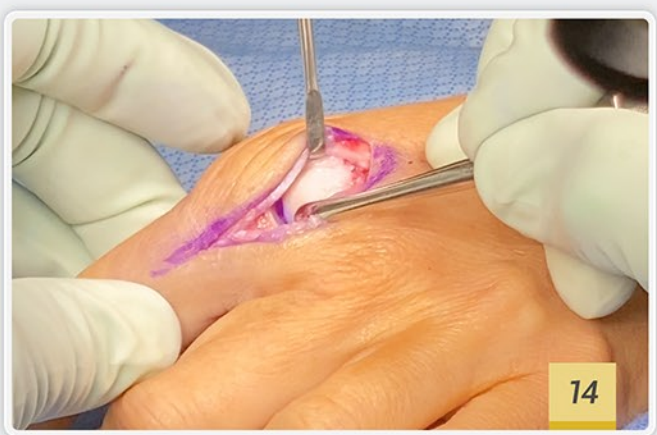
(9) The graft is sutured into the origin of the radial and ulnar collateral ligaments with horizontal mattress sutures.



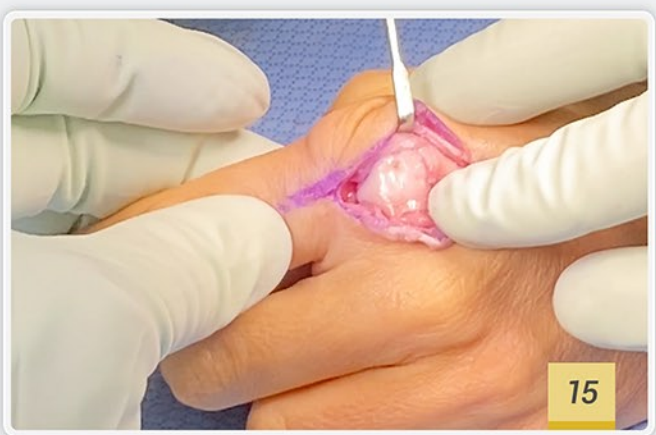


(10,11,12,13) The graft is sutured into the origin of the radial and ulnar collateral ligaments with horizontal mattress sutures.

The graft can then be reduced and pushed into the joint with a freer. (Pic 14) The MCP joint is taken through full motion. (Pic 15) If the graft is too long, it can be easily trimmed to length. If there is any binding of the graft or bunching of the graft when going from maximal flexion to extension, additional volar corner sutures can be placed through bone tunnels.



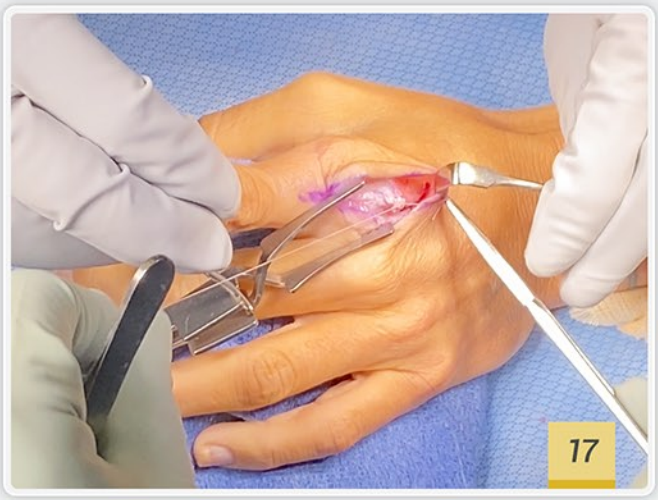
(14) The graft can then be reduced and pushed into the joint with a freer.

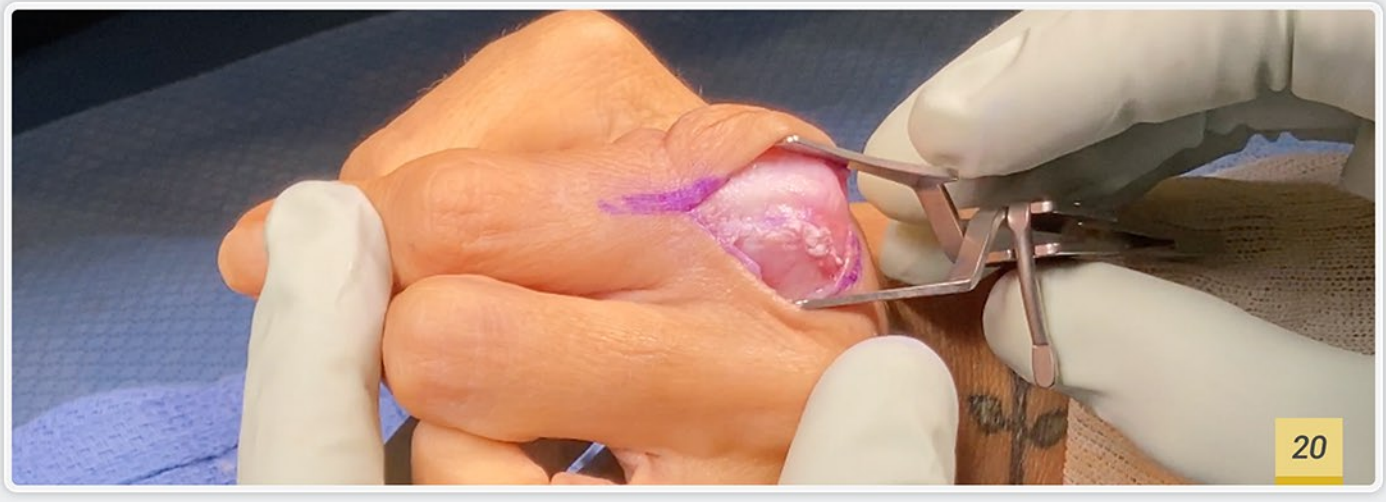


(15) The MCP joint is taken through full motion.

Closure and Post Operative Care:

The joint is irrigated and collateral ligament stability reconfirmed. If the collaterals are incompetent, they can be repaired or reconstructed as needed. The joint capsule is repaired, the extensor tendon recentralized and the saggital band repaired with 4-0 white Ethibond figure of eight sutures.
(Pics 16, 17, 18, 19, 20)





Closure and Post Operative Care: (continued)

The wound is irrigated and closed with 4-0 nylon mattress sutures. (Pic 21) The wound is dressed with a bulky soft dressing, leaving the PIP joints free, to provide some immobilization to the MCP joint. The patient is seen at about 1 week, immobilized at the MCP joint for 3 weeks and then transitioned to buddy taping and therapy working on gentle range of motion. The patient begins strengthening activities at 6 weeks and can resume activities as tolerated.

(21) The wound is irrigated and closed with 4-0 nylon mattress sutures.

Reference:

1. Functional Ouctomes for Meniscal Allograft Interposition Arthroplasty of the Hand. Plast Reconstr Surg Glob Open. 2021

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ORDERING INFORMATION:

Available through **A.M Surgical, Inc.**
Item #1500 **ALLIO Meniscal Allograft**
Processed by **MTF BIOLOGICS**

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