

Metacarpophalangeal Joint Implant Arthroplasty

REHABILITATION PROTOCOL

Patient Name: _____ Date: _____

Diagnosis: _____

Surgery: _____ Surgery Date: _____

Surgical Procedure

- Dorsal, longitudinal incisions are made in the 2nd and 4th web spaces. When the extensor tendon is not subluxed the extensor mechanism is divided longitudinally where the sagittal band meets the central portion of the extensor mechanism. If the ulnar sagittal band is contracted, it is released. The ulnar intrinsics are released to prevent ulnar drift. The neck of the MP joint is exposed and resected. The base of the proximal phalanx is resected. The medullary canals of the metacarpal and proximal phalanx are reamed. The implant is sized and implanted. The RCL of the index finger is reconstructed and secured in position. The extensor hood is imbricated to centralize the central extensor mechanism over the joint.
- It is common for additional procedures to be performed simultaneously such as: joint fusions, swan neck and boutonniere reconstructions, and/or a Darrach procedure.
- The goals of the surgery include: correct deformity, reduce pain and enhance functional performance.

Postoperative Rehabilitation

3-5 Days Postop

- The bulky dressing is removed and a light compressive dressing is applied. Digital level edema control is initiated. Note: Great care should be taken to inspect the wound and ensure the dressing does not adhere to the skin.

Rheumatoid skin is typically thin and fragile. In addition, it is important to utilize excellent sterile technique to minimize the risk of a postop infection.

- A RA splint (modified long dorsal outrigger) is fabricated for continual wear throughout the day. The splint positions the wrist in 15° of extension, the MP joints between 0 and 10° of flexion with the alignment of the rubber band traction at a 60° angle from the outrigger to the proximal phalanx (to offset the tendency to ulnarly deviate), and light tension. Number 18 rubber bands are utilized. It is important to ensure the MP joints do not hyperextend, particularly the small finger. It has the greatest propensity to hyperextend.
- A “supinator” attachment is worn on the index finger between exercise sessions to protect the radial collateral ligament reconstruction and ensure pulp-to-pulp contact between the thumb and index finger. The supinator bar is extended radially from the splint parallel to the index finger. The supinator tab (hook Velcro) is glued onto the index fingernail. A piece of loop Velcro is attached to the outrigger with a number 18 rubber band. The tab is routed under the distal phalanx to the opposite side of the nail and secured to the hook Velcro. This allows for positioning of the digit in slight supination. If there is a tendency for other digits to migrate ulnarly, additional tabs can be added to position the digits in a neutral alignment.

A resting pan splint is fabricated to wear at night. The hand should be positioned as follows:

Wrist: 0° - 15° extension.

Digits: Full extension (not hyperextension).

MP joints: neutral to slight radial deviation.

A supinator strap may be added for the index if there is a tendency to pronate. Dividers should be added between the digits to maintain the neutral alignment.

- Any joint fusions are supported with individual gutter splints fabricated from thin, 1/16” splinting material.
- AROM exercises are initiated for 10 minutes sessions each hour within the RA splint. Emphasis is placed on flexion of the MP joints followed by IP

joint flexion into a fist, ending with full digital extension. The supinator tab is removed for the exercises.

- PROM exercises are initiated 2 times a day. 15 repetitions to each digit. PROM exercises begin with the small finger as it is most likely to have limitation in A/P flexion.
- Patients demonstrating limited passive flexion ($<50^\circ$) may increase PROM to 4-6 times a day as long as significant extensor lag ($<30^\circ$) is not present or does not develop. Note: If the patient EASILY obtains 80° - 90° of active flexion, PROM should not be performed.

10-14 Days Postop

- Scar massage may be initiated once the incisions are well healed. The skin of a rheumatoid patient is typically quite fragile secondary to the cortisone medications the patient has taken through the years. Therefore, all scar management techniques should be performed gently.

3-4 Weeks Postop

- Within 3-4 weeks post op the light compressive dressing can be reduced to an elastic bandage.
- After 1-2 weeks it may become necessary to add dynamic flexion splinting and increase the frequency of PROM exercises, particularly if the passive flexion is less than 50° . Dynamic flexion may be initiated to the MP joints alone or compositely, in cases of extrinsic extensor tightness.
- If the patient is struggling to achieve active MP extension, consider adjusting the RA splint by positioning the wrist in neutral to 15° of palmar flexion. This will provide a better mechanical advantage to facilitate active MP extension. Subsequent to improving MP extension, the wrist can be repositioned into extension.

6 Weeks Postop

- Light prehensile activities are permitted outside of the RA splint – 3-4 times a day for 30 minute sessions. This consists of normal activities of daily living that do not require a tight, sustained pinch or grip. NOTE: If the digits

have a tendency to ulnarly deviate, wearing an anti-ulnar deviation soft splint during activities is recommended.

- Exercises that emphasize radial deviation are encouraged when out of the splint. With the hand resting on a tabletop, the patient actively moves the digits from their resting position to a more radial position.
- The supinator tab is discontinued.

10-12 Weeks Postop

- The RA splint is discontinued at the discretion of the surgeon. The extension resting pan is continued at night for one year.
- Dynamic flexion splinting is discontinued once the desired passive flexion (to accomplish the functional goals) has been achieved for a period of one month.
- If strength is limiting function, adding strengthening such as squeezing a piece of cylindrical foam or putty. If ulnar deviation has been present through the course of therapy, strengthening is not encouraged as strengthening may enhance the ulnar deviation.
- The functional status should be re-evaluated at this time. It is important for the patient's initial goals to be met. Should there be residual limitations, determine if ADL type equipment or assistive devices would be of value to the patient. In addition, discuss joint protection principles with the patient.

Precautions

- Monitoring the postop wound and inspecting the skin for pressure areas each visit is important due to the thin skin.
- Caution must be taken to avoid any lateral stress to the implant during the initial 10-12 weeks following surgery. This will allow for optimal stability and alignment of the joint as the pseudo-capsule forms.
- Do not attempt to gain passive flexion beyond 85°. This may risk fracturing the prosthesis through time.
- The most stable joints are those achieving approximately 60°-70° of motion. Motion beyond this results in less stability and offers little to no functional advantage.

