ORTHOPEDICS & SPORTS MEDICINE
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Dr. Klika & Kirkpatrick
Flexor Tendon Repair Zones 4-5

Phase 1 – Maximum Protection with Controlled Motion 3 days - 3 weeks

Goals for phase 1
- Immobilize and protect repair
- Initiate distal ROM while protecting repair
- Minimize risk of scar adhesions
- Pain and edema control

Other considerations
Dressings to be removed for ROM exercises to ensure tight composite passive flexion to maximize tendon excursion

Splint
Dorsal blocking splint is fitted for continual wear in the following position:
- Wrist: 20° extension, MP's: 45-60° flexion, IP's: full extension
- apply gutter splints as needed to maintain full extension unless there is a concomitant nerve repair
- If there is a concomitant median or ulnar nerve repair, position the wrist in 30° of flexion or per nerve repair protocol

PROM
- Composite digit PROM exercises to be performed 4-5x/day, 25 repetitions, within the constraints of the splint

Edema Management
- Light compression with coban or compression sleeves to digits, hand and forearm
- Elevation
- Manual Edema Mobilization (MEM)

Wound Care
- Educate patient in dressing changes

Scar Management
- Begin scar massage no sooner than 2 days after suture removal and after scar is fully closed with no scabbing present. Begin with light massage using lotion.
- Educate patient in scar management
- Apply scar remodeling products as needed

Phase 2 –Protect Repair with Controlled ROM 3 - 6 weeks

Goals for phase 2

- Continue to protect healing repair while achieving adequate tendon excursion to prevent scar adhesions
- Continue scar and edema control

Other Considerations

If there is a concomitant wrist level nerve repair it is important to continue ROM within the restraints of the splint until 5 weeks for median nerve repairs and 6 weeks for ulnar nerve repairs

Splint

- Continue dorsal blocking splint at all times
- For nerve repairs that were initially splinted in 30 degrees of wrist flexion: Week 4 modify splint to 20 degrees of wrist flexion, Week 5 modify splint to 10 degrees of wrist flexion
- A wrist and MP block splint may be fitted on the volar side of the DBS to isolate the IP joints with active flexion

ROM

- Continue Phase 1 digit exercises
- 3 weeks – initiate AROM within the restraints of the DBS (Tendon gliding, intrinsic plus, abduction/adduction), initiate gentle pain-free tenodesis exercises outside of the splint (wrist flexion allowing slight digit extension, wrist extension with digits flexed)
- 4 weeks – gentle PIP and DIP blocking exercises may be initiated
- 4 ½ weeks – allow full active extension outside of the splint, emphasize differential tendon gliding and blocked PIP and DIP motion for maximum FDS and FDP tendon excursion

Scar Management

- Aggressive scar mobilizations may be necessary to stretch adhesions and promote tendon excursion

Phase 3 – Restore Full ROM and Progress to Strengthening 6 – 12+ weeks

Goals for phase

- Restore full active and passive range of motion while protecting the healing repair
- Initiate strengthening
- Return to functional activity

Other considerations

Educate patient that a tight sustained grip with or without resistance greatly increases risk of tendon rupture. The patient should be using the hand for light activity only at home until 8-10 weeks

Splint

- Discontinue dorsal blocking splint
- For flexor tightness, a full extension resting splint may be added at night or dynamic extension splint during the day
- For median nerve repairs it may be necessary to fabricate a c-bar web spacer splint for night wear to prevent webspace contracture
- For ulnar nerve repairs it may be necessary to fabricate a RF/SF dorsal block splint to prevent clawing
- For both median and ulnar nerve repairs a dorsal MP block splint will be necessary to prevent clawing of all digits

ROM

- Initiate composite PROM to wrist and digits
- Continue phase 2 active exercises with emphasis on differential tendon gliding

Strengthening

- Week 7 – begin progressive strengthening

Functional Activity

- Patient educated in resuming functional activities at home beginning with light use and over several weeks working up to heavier tasks

Work Conditioning

- After 12+ weeks and with MD consent a comprehensive work conditioning program for patients with high demand / heavy manual labor occupations may be appropriate

References

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Starr, H. M., Snoddy, M., Hammond, K. E., & Seiler, J. G. (2013). Flexor Tendon Repair Rehabilitation Protocols: A Systematic Review. *The Journal of Hand Surgery, 38*(9).

Suggested Reading:

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This protocol was reviewed and updated by Brian Klika, MD, Lacey Jandrin, PA, Andrew Kirkpatrick, MD, Tiffany Terp, PA and the Hand Therapy Committee 8/9/2021.