Postoperative Treatment of Zone 1 Flexor Tendon Repair--Dr. Trueblood

Indications: Zone 1 flexor tendon injuries may be either avulsions from the anatomic insertion of the FDP at the base of the distal phalanx or lacerations distal to the insertion of the FDS. These injuries, if identified within a reasonable window of time, are generally repaired surgically. **Patients with suspicion of such an injury will need to be seen by Dr. Trueblood within one week.**

Technique: The injured digit is exposed with a longitudinal, Brunner-type incision and the neurovascular bundles are clearly visualized on the radial and ulnar side of the digit. The A1 pulley is released and the A3 pulley is windowed to expose the FDP. A no touch technique is used to deliver the FDP into the wound and a 2-O prolene is then placed with a Becker-style stitch through the distal 1-2 centimeters of the tendon. The tendon is then shuttled beneath the A2 and A4 pulleys using the pull-through stitch. The insertion of the FDP is debrided back to healthy, bleeding bone with a rongeur and a Keith needle is used to pass the Becker stitch around the base of P3, exiting at the margin of the nail plate. The flexor tendon is reduced to its footprint and the Prolene is tensioned and tied, using the nail plate instead of a sterile button as a bolster.

Additional periosteal sutures are placed to further stabilize the FDP and the wounds are irrigated and then closed with absorbable sutures. A low profile, alumifoam splint is applied to the operative finger in 45 degrees of DIP flexion and a dorsal, blocking splint is applied over the top in 30 degrees of wrist flexion, 30 degrees of MCP flexion, and full IP extension. Isolated injuries are managed as outpatients.
Postoperative Precautions:
- No active range of motion of fingers.
- No active wrist flexion.
- No lifting, pushing, or pulling.

_Therapy Starts on 3rd-5th day after surgery--_  
Therapy 1-2x/ week x 6 weeks
- **Splinting:** 2 splints.  
  - Forearm based dorsal block splint with wrist at 30 degrees of flexion, MP’s at 30 degrees of flexion and IP’s fully extended.  
  - Separate finger splint of repaired digits holding DIP in 45 degrees of flexion (Coban onto finger proximal to DIP crease).
- **Supervised therapeutic exercise:**  
  - Passive wrist extension with fingers flexed (splint removed)  
  - Passive wrist flexion with passive hook fisting to prevent intrinsic tightness
- **Home Program Teaching/ Recital:**  
  - Passive DIP flexion to 75 degrees  
  - Passive composite digit flexion  
  - Passive modified hook fist (MP’s extended only to 30 degrees).  
  - Block MP in full flexion and actively extend PIP, keeping repaired digit in DIP splint.  
  - Use distal strap to hold unaffected digits in extension against splint. Place/hold repaired finger in PIP flexion (glide FDS only).  
  - Passive (or gravity assisted) wrist flexion, followed by active wrist extension to limits of splint.
- **Edema control.**
- **Modalities prn**
- **HEP (Exercises 3 times/ day, 10 repetitions per exercise)**

_1st postoperative visit at 2 weeks after surgery--_
- Assess wound. Edema control education.  
- Range of motion assessment. Confirm that patient is participating in Hand Therapy. Review postoperative restrictions.  
- If patient has felt a pop and has absent tenodesis/ flexion deficit, then Dr. Trueblood must see that patient in his office within next 2-3 days. If Dr. Trueblood is out of town/ incapacitated for more than 5 days, the patient should see Dr. Lents in the same interval.  
- Pain assessment. Refill meds as needed.  
- Renew hand therapy prescription.
Schedule follow up at 6 weeks after surgery.

Return to work:
- Cognitive/ Sedentary: 3-4 days
- Light Labor: 8 weeks
- Heavy Labor: 12 weeks

Week 3 Therapy:
- Splinting:
  - D/C DIP splint
  - Extend dorsal block splint to 0 degrees wrist flexion. Continue with full time use in this position.
- Therapeutic Exercise
  - Start place and holds in all three fist positions. Monitor for minimal resistance.
  - Patient to perform all exercises at home at least 3 times a day.
- edema control
- modalities prn
- HEP

Week 4 Therapy:
- Splinting
  - Cut dorsal blocking splint down to hand based.
- Therapeutic exercise
  - Start gliding exercises in all three fist positions
  - Start DIP blocking exercise.
  - Continue with all previous exercises.
- edema control
- modalities prn
- HEP

Week 5 therapy:
- Splinting: discontinue dorsal blocking splint.

Office visit at 6 weeks after surgery--
- Assess tenodesis effect and ROM.
- Remove pull-out stitch.
- Pain assessment. Refill meds as needed.
- Therapy referral.
- Work Note: Patient may start light, prehensile use of hand at home. Light duty (10# weight lifting maximum. No pushing/pulling)
Expected return to work:
- Sedentary/ Cognitive: 3-5 days
- Light Labor: 8 weeks
- Heavy Labor: 12 weeks
- Schedule Follow-up at 12 weeks.

Week 6 Therapy:
- AROM/ PROM of digit. May do gentle passive ROM for DIP extension as needed.
  - Add static progressive splinting for digital flexion if >3cm tip-to-palm distance at 6 weeks.
- If patient has an active-passive discrepancy, add NMES for pull-through.

Week 8 Therapy
- AROM/ PROM
  - Add static progressive splinting for DIP extension if >20 degrees flexion contracture at 8 weeks
- Strengthening. May advance as patient’s capacity allows.
  - Patients with unusually high work demands for grip and carrying may benefit from work conditioning when grip = 80% of contralateral. Please contact Leslie Hedge or Amy Calice at 573-388-3026 for a referral if this is felt to be appropriate.

Follow-up at 12 weeks after surgery--
- Quick DASH
- Therapy referral if needed. If active-passive discrepancy persists, patient will continue therapy for ROM and pull-through modalities (NMES). They will need to be seen in Dr. Trueblood’s office at next follow-up, 4 weeks later.
- Work Note: Return to work without limitations.

Maximum Medical Improvement (MMI) at 1 year from surgery.

Sources:
Brigham and Women’s Hospital, Department of Rehabilitations Protocol (2007)
Diagnosis and Treatment Manual for Physicians and Therapists, The Hand Rehabilitation Center of Indiana (2001)