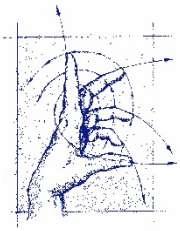

HAND & UPPER LIMB CLINIC

CARPAL TUNNEL RELEASE POST-OPERATIVE PROTOCOL

Indications:

1. Pins and needles, tingling, and numbness along the median nerve distribution in the hand, including the thumb, index and middle fingers.
2. Moderate to severe median nerve compression on EMG studies.
3. Cervical spine involvement and double crush injuries should be ruled out.
4. Conservative management, such as splinting and nerve-gliding exercises have not resolved the symptoms.

Considerations:

1. The gold standard technique is open release of the transverse carpal ligament at the wrist.
2. Between 70-90% of patients have good to excellent results, the remainder have poor outcomes classified by persistent, recurrent or new symptoms.
3. Those with a shorter duration of symptoms prior to surgical release tend to recover faster than those with a longer duration of symptoms.
4. Atrophy of abductor pollicis brevis prior to surgery, may be an indicator of poor surgical prognosis.
5. Co-morbid conditions such as diabetes, thoracic outlet syndrome, double crush injuries, and alcohol and smoking tend to have poorer prognoses.

Complications:

1. Risk of reflex sympathetic dystrophy/complex regional pain syndrome post-surgery.
2. Scar hypersensitivity may be a problem post-surgery. Scar tenderness and swelling can be expected up to 8 weeks post-op, but prolonged hypersensitivity should be treated with a desensitization program.
3. Pillar pain - achiness in the hand due to the release of a “pulley”. This can affect both the thenar and hypothenar areas of the hand.

General Precautions:

1. Keep wound dry and clean to prevent infection.
2. A volar wrist splint, which keeps the wrist in a neutral position, should be worn for the first week post-op. Early wrist movement may result in prolonged hypersensitivity.

General Post-Operative Goals Weeks 1-6:

1. Appropriate wound care to promote healing and prevent infection.
2. Splint fabrication (or client may have over-the-counter product) and wear full-time for one week, and for activity and night up to 5 weeks post-op depending on symptoms.
3. Restoration of full PROM and AROM in the digits and wrist.
4. Edema control.

Post-Operative Protocol:

Weeks 1-3 Post-Op:

- Fabricate a neutral volar wrist splint, or client may have a good over-the-counter product, which should be worn full-time for the first week, and then with activity and at night, up to 5 weeks post-op.
- Wound management - education on keeping clean and dry, chlorazine whirlpool baths and debridement as necessary.
- Begin edema control - elevation, retrograde massage, whirlpool, overhead hand fisting, 10x/hour to prevent excessive swelling.
- At 2 weeks - Begin tendon gliding program, thumb flexion, extension, and opposition AROM exercises, gentle wrist flexion and extension AROM, as well as elbow and shoulder AROM exercises. 10 reps, 3-5x/day.
- Median nerve gliding exercises -15 reps, 3-5x/day.
- Once scar has closed, may use silicone gel pads for scar flattening/softening, ultrasound, gentle cross-friction massage and scar pump on scar as needed.

Weeks 4-6 Post-Op:

- Continue with the above program as necessary.
- If prolonged paraesthesia or hypersensitivity is a problem, add desensitization program using different textures, pulsed ultrasound, topical creams (ex. biofreeze).
- If excessive edema persists, may try an isotoner glove, or coban compression wrapping with the jobst pump.
- Add gentle composite hand/wrist extension, and introduce light exercises against resistance (if full AROM and limited pain): squeezing ball/foam, three-point and lateral pinch with theraputty, power web, and hand gripping exercises.
- Begin gentle activities of daily living.

General Post-Operative Goals Weeks 6-12:

1. Restore full AROM in wrist/hand.
2. Progress strength until plateau is reached.
3. Prepare for return to work at 8 weeks for sedentary jobs, 10-12 for heavier jobs, or return on modified duties at surgeon's discretion.

Weeks 6-8 Post-Op:

1. Continue with edema control and scar management as needed.
2. Continue with ROM exercises until full motion achieved.
3. Progress strength exercises as tolerated.
4. Add wrist curls with graded weight, for flexion, extension, supination, pronation and radial and ulnar deviation. Bicep curls and shoulder strengthening exercises may also be provided if weak or irritable from over-compensation.
5. Light tasks with house cleaning, and work tasks are permitted.

Weeks 8-12 Post-Op:

1. Continue with above program as needed.
2. Return to work.
3. Plan for discharge as ROM and strength plateau and return to work is achieved.
4. Those cases with poor outcomes where symptoms persist or recur, or those that develop persistent hypersensitivity or Complex Regional Pain Syndrome, may require longer rehabilitation periods, and at a slower progression than the above protocol (consult surgeon if necessary). ©

References from the Literature:

1. Turner, Alexandra; Kimble, Frank; Gulyas Karoly; Ball, Jennifer. **Can the outcome of open carpal tunnel release be predicted?: a review of the literature.** *ANZ J Surg.* 80(2010) 50-54.
2. Baysal et al. **Comparison of three conservative treatment protocols in carpal tunnel syndrome.** *Int J Clin Pract.* July 2006, 60, 7, 820-828.