

ACUTE HAND INJURY PROTOCOLS

I. FRACTURES OF THE HAND AND DIGITS

Most fractures are due to local trauma caused by an applied force. The energy of applied force determined the severity of the fracture. Pain, swelling, and discomfort to the injured digit, thumb, or hand, Swelling and tenderness of the affected. Uncomplicated digital fractures are expected to obtain union within four to six weeks. OT/PT often can begin at 3 weeks to attempt to avoid stiffness. Digital finger splints, Intrinsic plus splints, Buddy taping, Intrinsic plus casting. After initial healing (confirmed by exam/x-ray), active and passive range of motion exercises of the digits, hand and wrist b. Grip strengthening exercises, when indicated c. Activity modification may be necessary. Treatment generally extends over 6-12 weeks, duration depends on severity of wound, complications, and complexity of care required for healing and optimization of functional restoration.

II. DIGIT AND HAND DISLOCATIONS

All injuries of this sort must be reduced to allow for adequate postinjury function. Unduly lengthy immobilization following these injuries can lead to stiffness in the affected part. Usually involves a hyperextension type injury, Metacarpal dislocations often involve a direct blow to the “knuckles” usually presents with severe pain, swelling, and deformity of the hand or digit with Swelling, Pain and Limited motion. Non surgical management can include closed reduction of digital joints under local anesthesia, immobilization after reduction, including digital splints, intrinsicplus splints of the hand or wrist, and casting .Rehabilitation include active/passive range of motion exercises, beginning 26 weeks after injury b. Grip strength exercises, when indicated, Activities of daily living modification , Activity modification.

III. WRIST FRACTURES AND DISLOCATIONS

Direct blow to wrist or hand /Fall onto wrist or hand /Hypertension or hyperflexion injury, tenderness to the anatomic snuff box, consistent with scaphoid fracture, swelling, with restricted range of motion, suggestive of serious ligamentous disruption.

Triquetral fractures: 4-6 weeks ,Scaphoid fractures: 3-6 months. Treatment Options a. Neutral position wrist splint b. Thumb spica splint/short arm cast c. Thumb spica long arm cast d. Wrist neutral cast. Nonsurgical Rehabilitation 1. Begins after fracture/injury healed 2. Digital, hand and wrist exercises 3. Active and passive range of motion exercises 4. Grip strengthening exercises, as indicated 5. Activity modifications.

IV. TENDON INJURIES

Open Tendon Injuries a. Most are secondary to sharp objects that cause wounds to skin and soft tissue(s) b. Hand position at time of injury determines location of tendon injury c. Usually, patients cannot fully bend or extend the affected finger or hand, as well as noted alteration in function d. Pain in affected digit e. Numbness/dysesthesias suggestive of accompanying nerve injury 2. Closed Tendon Injuries a. Complete extensor/flexor tendon rupture can occur without a visible wound b. Spontaneous ruptures can occur secondary to other medical conditions. Active motion tests indicate lack of motion in affected digit. Partial lacerations can be present with pain with resisted motion. Sensibility should be assessed via light touch, two-point discrimination.

Closed Extensor Tendon Injuries Neutral position using intrinsic plus splint /Digital splint/. Buddy taping. Active and passive range of motion of digits, hand, and wrist, Grip strengthening exercises as appropriate. Nonoperative treatment: 8-12 weeks after injury 2. Operative treatment: 3-6 months after injury.

V. DIGITAL NERVE INJURIES

Splint three weeks to avoid tension on the nerve repair, with elevation to minimize swelling 2. Range of motion exercise after 3 weeks, avoiding stretching or trauma to the nerve repair for additional 3 weeks. Activities not requiring stretch or trauma to nerve repair, or sensibility to affected nerve distribution: 6-12 weeks. Activity requiring sensibility in the affected nerve distribution: • Gross sensibility (1mm. / day, or 1 inch/month) • Nerve regeneration beyond injury level as indicated by advancing Tinel's sign and return of sensibility • Maximum sensibility return occurs at an approximate rate of time equal to twice that required for gross sensibility to return o Never returns to 100%. Range is zero to near 100% return. Maximal medical improvement at 6 months to 1-2 years o If function is unsatisfactory, neuroma resection and nerve grafting may be appropriate.

VI. ULNAR COLLATERAL LIGAMENT INJURY (THUMB): SPRAIN/TEAR

Pain, swelling, and weakness are frequent complaints, History of a blow or fall involving the thumb (MCP joint), Palpable lump at site of avulsed ligament, Ulnar stress instability should be documented

Nonoperative treatment options • Immobilization for 4-6 weeks • Elevation and range of motion of all uninvolved joints. Rehabilitation • Active range of motion after cast/splint removal • Begin rehabilitation after exam documents healing.

VII. DIGITAL STENOSING TENOSYNOVITIS (TRIGGER THUMB AND TRIGGER FINGER)

Most often caused by repetitive and/or forceful gripping, or use of vibrational tools. Gradual onset of pain and limitation of full digital flexion, with "triggering" or clicking of the digit. Can follow a single episode of pain accompanying forceful gripping or digit hyperextension. Exam shows point-specific pain/tenderness at the A-1 pulley (distal palmar crease) with/without crepitation with active motion. Passive arc of motion exceeds active arc. Palpable, sometimes audible click with flexion/extension. Finger swelling; morning stiffness/triggering, often diminishing during the day. Retinacular (ganglion) cysts may be present. Treatment Options • Nonsteroidal anti-inflammatory medications (NSAIDS) • Intermittent splinting • Tendon sheath steroid injections • Activity modification.

VIII. BURN HAND

All the burnt hands should be splinted in a functional position and should be mobilised every hour for 8-10 repetitions at all the involved joints.