Considerations:

1. This fracture at the neck of the fifth metacarpal accounts for approximately 20% of all hand fractures.
2. Known as a “boxer’s fracture”, it usually results from a direct impact/blow to the MCP’s with the hand in a fist, or flexed position.
3. Non-surgical care is generally all that is required, if the fracture is angulated less than 30 degrees and non-displaced. Surgery for reduction and stabilization with pinning may be required for spiral or oblique fractures, those that are rotated, comminuted, or open.
4. Metacarpal fractures are generally quick healing (3-5 weeks for consolidation) due to a good blood supply.
5. The collateral ligaments at the MCP joint adaptively shorten with MCP’s immobilized in extension, therefore the plaster cast/splint needs to hold the MCP’s in flexion (70-90 degrees).
6. Rotational malalignment and shortening of the metacarpal need to be prevented in order to avoid an imbalance between the intrinsic and extrinsic and scissoring of the fingers.

General Goals for Therapy:

1. Encourage fracture healing in optimal alignment through appropriate splinting.
2. Restoration of full flexion and extension ROM in MCP joint.
3. Manage edema.
4. Provide splint immobilization as per surgeon’s request.
5. Restore strength for return to regular work and activities.

Post Fracture Protocol:

Weeks 1-3 Post-Fracture/Post-Op:

- Fabricate a dorsal blocking splint, or ulnar gutter splint with the involved digit and adjacent digit included. The MCP joints are positioned at 70-90 degrees of flexion with the PIP and DIP joints in extension. The splint may be hand based or cross the wrist depending on the location and stability of the fracture. The splint should be worn from 1-3 weeks continuously, except for exercises and bathing.
• Gentle AROM exercises to tolerance (no overt pain), can begin immediately after the plaster cast is removed. MCP, PIP, and DIP AROM exercises should be performed 3-5x/day, 10-15 repetitions each.
• Bone stimulation may be applied in clinic if available.
• Edema control with elevation, contrast baths and retrograde massage as needed.
• Pin Care - if surgery was performed, the client should be educated on proper pin care. Pins may be kept cleaned with alcohol/hydrogen peroxide once a day with a Q-Tip. Ointments should not be applied, and the pins sites must be kept dry, and free of dust/dirt. Pin sites should be checked for redness and swelling, which may occur due to infection or over use of the hand. **It is okay for the pins to move...they may spin from time to time**
• AROM exercises should be initiated even with pins in...the range will be less, but it will help prevent scar adhesions around the tendons.

Weeks 4-6 Post Fracture/Post-Op:

• Wean from splint wear if pain and edema have subsided. Check for point tenderness at fracture site, if none, can discharge splint.
• Continue with AROM exercises. Add Passive ROM exercises and tendon gliding exercises, stretch board flexion/extension as necessary to treat any lags (for non-surgical cases).
• Continue with pin care and edema control as needed.
• May use EMS for muscle re-education or tendon gliding if necessary (for non-surgical cases).

Weeks 6-12 Post-Fracture/Post-Op:

• Pins usually removed by 6 weeks post-op - begin PROM, stretch board, and EMS as required.
• For non-surgical clients - discharge splint if haven’t done so already. Begin strengthening program: theraputty exercises, power web, hand grippers, etc.
• Begin strengthening when tolerable and when ROM is at approximately 80% for the surgical/pinned clients.
• Return to work/regular hobbies generally occurs between 6-8 weeks post-fracture for non-surgical cases.
• coban wraps with paraffin wax, therapist mobilizations and stretching, and stretch board with ultrasound may be required to correct any flexion lags, and night gutter splints or dynamic extension splints might be required to correct any extension lags. ©

References from the Literature:


© Copyright 2010 Hand and Upper Limb Clinic protocols prepared by Melanie Ailey, MSCPT