Trigger Digits, Mallet Finger & Metacarpal Injuries

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Overview

• Trigger Digits: diagnosis and treatment
  – Bonus: approach in children
• Mallet Finger: Soft tissue and bony
• Metacarpal injuries
  – Metacarpophalangeal (MCP) dislocations
  – Metacarpal fractures
  – Carpometacarpal (CMC) injuries
Trigger Digits

• Stenosing tenosynovitis
• Causes painful catching or popping of the involved flexor tendon
• Finger flexion can cause high angular loads at the distal portion of the first annular pulley (A1)
• 2-6x more likely in women
• Thumb is most common, followed by RF, LoF, LiF and then IF
  – Multiple digit involvement is common
A1 Pulley Locations
Trigger Digits

- Grade I (pretriggering): pain, tenderness over A1 pulley
- Grade II (active): demonstrable catching
- Grade III (passive): catching, but requires passive extension
- Grade IV (contracture): catching with a fixed PIP contracture
Trigger Digits

• Non-operative approaches: steroid injection
• 75-90% excellent results
• Typically a 1-3cc volume of lidocaine/bupivacaine/triamcinolone mixture
  – Either near the A1 pulley or simply into the sheath
  – Studies have shown errant injections to still remain effective in many cases
  – Duration of symptoms >6mos and multiple digit involvement associated with poorer prognosis
Trigger Digits
Trigger Digits in Children

• Thumb: usually congenital and unable to fully extend at DIP
• Responds well to A1 pulley release
• Children’s trigger digits (non-thumb) are usually associated with either accessory slips or hypertrophied intratendinous connections
  – May require extensile exposures
  – Consider slip releases or resections
Trigger Digits in Children
Mallet Finger

• Also known as “drop” or “baseball” finger
• Defined as loss of continuity of the extensor tendon over the DIP joint
• Caused by a variety of sports or occupational injuries
• Can be either open or closed injuries
• Sometimes seen as bony injuries with phalanx fractures
• Some present late (>4 weeks)
Mallet Finger Splinting

• The primary goal of all methods of treatment is to restore the continuity of the extensor tendon

• Plaster casts, aluminum splints, commercially available Stack splints

• Full time splinting is needed for 6 weeks minimum
Mallet Finger Splinting

- Removal of the splint is only for cleansing
- Physician supervised splint changes, or the patient is cautioned to maintain the distal joint in extension
Mallet Finger Surgery

- Indicated for fractures with volar subluxation of the distal joint or for non-compliance
Metacarpal Injuries

- Metacarpophalangeal (MCP) dislocations
- Metacarpal fractures
- Carpometacarpal (CMC) injuries
MCP Dislocations

• Dorsal dislocations are more common and can sometimes be reduced closed.

• Irreducible dislocations:
  – Volar plate interposition and buttonholing of the MC head between the flexor tendons and the radial lumbrical.

• Upon noting a radial or ulnar collateral injury:
  – Immobilize.
  – Asymmetric laxity is unreliable.
  – Surgical repairs either chronic or acute yield similar results.
Metacarpal Fractures

• Neck fractures are well tolerated injuries
  – 40-50° in LiF is acceptable
  – 30° in RF, 20° in MF, and 10° in IF

• Transverse shaft fractures are easily reducible
  – 30° in LiF, 20° in RF

• Oblique shaft fractures must be assessed for excessive shortening or malrotation
  – 5° of malrotation can produce 1.5cm of digital overlap
CMC Injuries

- These are relatively uncommon
- Metacarpals are congruously seated on the distal carpal row, with stout ligaments
- Displaced injuries are reduced & sometimes pinned
- Thumb CMC:
  - Joint congruity does not necessarily correlate with functional outcome
  - Bennett fracture
  - Rolando fracture (pilon equivalent)
Conclusion

• Trigger digits
  – Are common and easily treated
  – Poorer prognosis for symptoms >6mos and multiple digit involvement

• Mallet Finger
  – Splinting is effective, even in chronic cases
  – Be careful to maintain extension at all times for 6 weeks minimum
Conclusion

- Metacarpal injuries
  - MCP dislocations are tricky to reduce
  - Metacarpal neck and shaft fractures are relatively easily reduced, with varying acceptable angulations
  - Oblique fractures can have rotational problems
  - CMC injuries
    - Uncommon in digits
    - In thumb injuries, reduce and cast/pin
Thank You