HAND SPORT INJURIES
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Overview

• Extensor Tendon Injuries
  • Mallet Finger
  • Central slip
• PIP Dislocations
• Thumb UCL
• Scaphoid Fractures
• Scapholunate Ligament Tears
Thoughts on hand injuries in athletes

• 20-25 % of all injuries in athletes

• Elite or college athletes:
  • Lots of these injuries can be treated without surgery
  • Can be treated in off season (not ideal but…)

• Considerations in Treatment:
  • Age, Hand dominance (Glove hand), Performance level (C squad high school vs NBA), Position (WR vs LB), In season vs out of season

• Treatment goals:
  • Complete recovery versus tolerating a deformity and continuing to play
Extensor injuries
Mallet finger

• Most common closed tendon injury in an athlete
• Forced DIP flexion active DIPJ extension
• Terminal tendon is torn or fractured

• Exam:
  • Extensor lag
  • TTP dorsal at digital crease

• Imaging:
  • Plain radiographs (really want a perfect lateral of the DIP joint)
  • Order a finger xray and not a hand
  • Live fluoroscopy

Baseball or Softball = Mallet
Basketball or Volleyball = Central slip
Mallet finger - Treatment

• Expectations
  • Going to lose ROM, residual extensor lag (10 deg) and/or limited flexion

• Nonoperative
  • Most
  • Extension splint
    • X-ray in splint
    • 6 weeks (return to play), night splint 6 weeks
  • No treatment, tape while playing, splint off field
    • Chronic mallet -> Swan neck

• Operative
  • Indication = volar subluxation of joint (40% of joint involved)
  • Play in cast if can get screws into fracture
  • Can’t return to play with trans articular K wire
Central Slip

• Presentation
  • Beware of the swollen PIP joint
  • Jammed finger
  • Big ball sports
  • Forced flexion against active extension

• Exam
  • Dorsal swelling
  • Elson test / Stark test
  • Pseudo-boutonniere
    • PIP flexion contracture and normal DIP

• Imaging
  • X rays / MRI
Central Slip – H&P

• Presentation
  • Jammed finger
  • Big ball sports
  • Forced flexion against active extension

• Exam
  • Dorsal swelling
  • Elson test
  • Stark test
  • Pseudo-boutonniere = PIP flexion contracture and normal DIP

• Imaging
  • X rays
Central Slip – H&P

• Presentation
  • Jammed finger
  • Big ball sports
  • Forced flexion against active extension

• Exam
  • Dorsal swelling
  • Elson test
  • Stark test
  • Pseudo-boutonniere = PIP flexion contracture and normal DIP

• Imaging
  • X rays
Central slip – Treatment

• Nonoperative
  • Majority if not a fixed contracture
    • Difficult to play with a PIP extension splint (position/sport allow = club cast)
  • Extension splint x 6 weeks, DIP flexion exercises. Night time x 6 weeks.

• Operative
  • Indications for surgery
    • Bone avulsion
    • Inability to maintain extended finger
      • Lateral bands subluxated
    • Fixed boutonniere
  • Chronic boutonniere – difficult problem
PIP Dislocation – H&P

• Presentation
  • 4 types: dorsal (most common), lateral, rotatory (irreducible), volar (least common)
  • Obvious dislocation
    • Usually reduced by trainer or coach

• Exam
  • Determine direction of dislocation:
    • Look for extensor lag – Likely a volar dislocation with central slip injury
    • Fluoroscopy - Determine degree of stability – stable through full ROM?

• Imaging
  • Perfect AP & lateral radiographs of the FINGER: dorsal V sign, joint impaction, rotatory malalignment of P2, volar plate avulsions
  • CT scan
PIP Dislocation – Treatment

- Lateral and Dorsal dislocations – nonoperative Tx
  - Dorsal blocking splint, figure of 8 splint – well tolerated, allows flexion.
    - if stable = few days.
    - If unstable = 30 deg flexion - extend 10 deg/week
  - Buddy tape (on side of collateral injury) – start early, prevents hyperextension, allows for early active flexion
  - Outcomes:
    - (Paschos et al JHS 2014) At 2 weeks, 89% of patients buddy taped had full motion in contrast to 68% of the patients splinted (1 week dorsal block)

- Fracture dislocation or unstable > 30 deg flexion = referral to hand surgeon
  - Should be treated acutely

- Outcome:
  - Recurrent dislocation = swan neck
    - Rx – volar plate reconstruction
  - Typically slight flexion contracture
Thumb UCL

Proximal phalynx

Adductor aponeurosis & Adductor pollicis muscle

Metacarpal

Stener lesion

Carlson, et al JHS 2012
Thumb UCL – H&P

• Presentation

• Exam
  • TTP, Stener lesion
  • 30 deg instability or 15 side-to-side (hard)
    • Full extension and 30 deg flexion
  • Fluoroscopy (key)

• Imaging
  • AP and lateral of THUMB
  • MRI - in plane of thumb
    • Collaterals are out of plane of imaging
Thumb UCL

- **Presentation**
- **Exam**
  - TTP, Stener lesion
  - 30 deg instability or 15 side-to-side (hard)
    - Full extension and 30 deg flexion
  - Fluoroscopy (key)
- **Imaging**
  - AP and lateral of THUMB
  - MRI - in plane of thumb
    - Collaterals are out of plane of imaging
Thumb UCL – Treatment

• Nonoperative
  • Partial (intact accessory collateral)
  • Thumb splint

• Operative
  • Indications for surgery (ok to delay)
    • Complete injury
    • Stener
    • Adolescent = bone avulsion (SHIV)

• Return to play
  • 4 - 6 weeks in cone splint (internal brace) vs 9 - 12 weeks.

• Complications
  • Chronic symptomatic instability = MP Arthritis necessitates a fusion
Scaphoid

Displacement

Location of the fracture is critical:

Distal / Tubercle – heal nonop

Waist Fracture – 60 – 80 percent chance to heal nonop

Proximal Fracture – 60 to 80 percent chance of AVN
Clinical Suspicion
Scaphoid view
Scaphoid Treatment

• Nonoperative
  • Can attempt casting depending on location

• Operative
  • Indications for surgery
    • Displacement > 1mm
    • Early return to play

• Return to play
  • Case reports on return to play in 2-3 weeks in hand based splint with fixation
  • Majority probably more like 6-8 weeks, based on CT scan showing bone bridging > 40%
Scapholunate ligament Tear
Scapholunate ligament – H&P

- Presentation
  - Fall on extended wrist

- Exam
  - TTP dorsal wrist
  - Scaphoid shift

- Imaging
  - Wrist x-rays (always bilateral)
  - Stress x-ray (always bilateral)
  - MRI
  - Partial vs complete
Scapholunate ligament - Treatment

• Controversial, even in nonathletes...

• Nonoperative
  • Partial and/or chronic
  • Always an option if not symptomatic

• Operative
  • Indications for surgery
    • Acute (< 4 weeks) and Complete tears
    • Easier to repair acutely, otherwise needs a ligament reconstruction
    • Non-athlete literature: Higher failure rate in “high demand” – progression of SLAC wrist.

• Return to play
  • 80% return to sport at 4 months after SL reconstruction (rugby), 64% at preinjury level
  • Melone et al Hand clinics 2012 – 25 NBA players treated acutely, 100% return to sport.
Summary

• Good x-rays
  • Dedicated thumb and finger AP and lateral (hand series not good for finger injuries)
  • Fluoroscopy is your friend

• Treatment is highly dependent on position and goals

• Lots of hand/finger injuries can be ignored, delayed, or treated unconventionally in elite athletes
  • Expect noncompliance and deformity

• Most hand injuries require prolonged immobilization and rehab for best outcomes
  • Not always acceptable to an athlete who can cope with a finger injury