Finger Injuries

CU SOM Rural Track
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Goals

• A little bit of ortho review
• Diagnosis and management of common finger injuries
• Skills: exam, splinting
• When to seek consultation

Terminology Review

• Ligament – connects bone to bone
• Tendon – connects muscle to bone
• Strain – injury to a muscle or tendon
• Sprain – injury to a ligament
• Fracture – broken bone
• Epiphysis – growth plate

Fracture terminology

• Avulsion - tendon or ligament pulls off a piece of bone
• Transverse, longitudinal, spiral, greenstick, comminuted
• Closed or open
• Stable or unstable
• Intra-articular
• Epiphyseal – “Salter” I, II, III

Salter-Harris Classification

• Type I – fracture through the physis (widened physis)
• Type II – fracture partway through the physis extending up into metaphysis
• Type III – fracture partway through the physis extending down into the epiphysis
• Type IV – fracture through the metaphysis, physis, and epiphysis — can lead to angulation deformities when healing
• Type V – crush injury to the physis

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Examination

- First step may be to calm the patient
- Neuro may be complicated by bruising
- 2-point discrimination
- Tendon function
- Joint stability
- Rotation deformity

References

- Jackson EA. The V-Y Plasty in the Treatment of Fingertip Amputations Am Fam Physician 2001;64:455-8

Lacerations

- Repair usually simple, single-layer, nylon
- Digital block very useful but avoid epinephrine
- Go easy on tourniquet use (consider gauze instead of rubber band)
- “Tubegauze” is a great dressing
- Consider splinting
- Consider antibiotic prophylaxis
- Check diphtheria/tetanus immunization need

Bite Wounds

- Infection is a major concern
  - Human bites
  - Cats, dogs
  - Wild animals: rabies
- Closed-fist “bites” can be associated with tendon injury proximal to wound

Nail Anatomy

Subungual Hematoma

- Drain with drill or hot wire
- Anesthesia usually NOT needed
- Consider X-ray depending on mechanism
- Consider splinting

Nail Bed Laceration

- Remove nail to access laceration of bed
- Repair laceration
- May need to fix distal phalanx with pin or needle
- Splint nail bed with removed nail or synthetic splint

Finger Fractures

- Treatment depends on displacement and joint involvement
- Minimally displaced: splint
- Intra-articular > 1/3 may require fixation
- Unstable shaft fractures: consult for fixation

Fixation of Unstable Shaft Fractures

Fingertip DIP Dorsal Dislocation

- Reduce with dorsal hyperextension and then traction
- Splint in slight flexion for 2-4 weeks
  - Aluminum-foam splint
  - Buddy taping
- Check for stability
**PIP Joint Dislocation**

- Reduce with traction and volar pressure while stabilizing proximal phalanx
- X-ray to check stability
- Splint at 30° for 2-4 weeks and monitor stability

**DIP Dislocation Reduction**

- [Image of DIP dislocation reduction procedure]

**Finger Amputations**

- Direct pressure (not tourniquet) to control bleeding
- Wrap amputated digit in saline gauze and baggie
- Place baggie in iced water
- Consult/transport

**Fingertip Amputation**

- [Image of fingertip amputation]

**Treatment by Zone and Plane**

- I (no bone involvement): allow secondary healing
- II (dorsal or transverse): VY plasty
- III – (entire nail bed): debridment and closure

**Mallet Finger**

- Mechanism: forced flexion
- “Baseball finger” or “drop finger”
- Patient can’t extend DIP joint
- May be tendon-only injury, or involve an avulsion fracture
- Closed reduction possible
- CONTINUOUS splinting for 6-8 weeks
- “Stack” splint
- Consult for >1/3 articular involvement or for volar displacement
Mallet Finger

Jersey Finger
- Flexor digitorum profundus (FDP) avulsion
- Mechanism: forced extension of flexed fingertip
- Examination: must extend IP joint to isolate FDP function
- FDP tendon may be retracted into palm
- Splint and consult

Central Slip Injury
- Mechanism: forcible flexion while actively extended
- PIP joint cannot be extended out of 15° to 30° of flexion
- Splint in full extension for 6 weeks
- Missed Dx results in boutonniere deformity
Volar Plate Injury

- Hyperextension injury
- Treat with progressive splinting
- Consult if large avulsion fracture present

Collateral Ligament Tears

- Examine with MP joint at 90°
- Treat with splint (buddy taping)
- Beware of kids because of growth plate injuries

Skiier’s Thumb

(Gamekeeper’s thumb)

- Examination: fully flex MP joint to test ulnar collateral ligament
- Compare to non-injured side
- If no displaced fracture: thumb spica cast for 6 weeks followed by protection during sports

Skier’s Thumb (UCL injury)

- Figure 7: UCL injury (skiier’s thumb): Evaluate the stability of the ligament by applying abducting pressure to one side of the UCL while applying counterpressure to the other side. Compare the test to the uninjured hand. (UCL = ulnar collateral ligament; MP = metacarpophalangeal.)

Tubegauze Finger Dressing

- Exam: 2-point discrimination, cap refill, tendon function, joint motion and stability
- “Tubegauze” application
- Subungual hematoma decompression
- “Stack” finger splinting
- “Alumifoam” splinting
- Rongeur use

Workshop stations

- Figure 9: Progressive extension using a dorsal aluminum splint to improve range of motion.