ABC OF PRIMARY CARE MEDICINE
FRACTURE MANAGEMENT

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Goals
- Discuss common fractures and initial management, treatment guidelines
  - Let your patients know what to expect

Initial management skeletal trauma
- History
  - Acute trauma vs. repetitive trauma vs. no trauma
- Mechanism
  - Direct blow?
  - Twisting?
  - Energy of injury?
- PMHx
  - Previous injuries/fractures, osteopenia, RA, steroid use

Physical Exam
- Deformity
- Open Wound
  - Active marrow bleeding for even a pinprick wound
- Neurovascular examination
**Radiology**
- More is better than less
  - Minimum of joint above and joint below
  - No less than 2 views (AP, lateral)
  - Comparative views if not sure

**Initial treatment**
- Immobilization in sling or splint
- Rest (NWB)
- Cold (ice packs)
  - Limits hemorrhage and edema
    - 15-20 mins every 2-4 hours
- Elevation to control swelling
- Pain control

**Splinting/Bracing**
- Immobilization of fracture, sprain, soft tissue injury
  - Prevent further soft tissue injury
  - Pain control
  - Reduce edema/swelling
  - Maintain alignment

**Splinting/Bracing**
- Plaster/Fiberglass
  - Splinting is preferred for control of swelling/decreases risk of compartment syndrome
Splinting

- Remove all clothing and constrictive devices (remove all rings!)
- Align severely angulated fracture
  - Alleviates pain, relieves blood vessel and nerve tension, may restore circulation to a pulseless extremity
- Apply padding (webril—more is better than less)
- Assess and document neurvascular status after splinting

Emergency/Urgency

- Unreducible dislocation
- Neurovascular deficit
- Open/impending open fracture

Clavicle Fractures

- “Key” (my personal favorite bone)

Clavicle Fractures

- Fall onto extended arm, or mountain biking
- Pain, deformity on clavicle
Clavicle Fractures

- Initial Treatment:
  - Sling, ice, rest
- Healing takes 6 weeks to occur:
  - Sling x 6 weeks
- Return to activities:
  - Sling for 6 weeks, until healing evident on XR
  - PT for range of motion, strengthening
  - Usually 8-10 weeks until back to activities

Clavicle Fractures

- Surgical Indications:
  - Distal 1/3rd clavicle fractures
  - Greater than 2 cm displacement, 2cm shortening
  - Non-union
  - Risk factors for non-union:
    - Prednisone, other steroid use
    - ?smoking history

Clavicle Fracture

15 year old rugby player (i.e. non compliant)
10 weeks (and 3 rugby matches later)—no pain

Clavicle Fracture

39 year old orthopaedic surgeon i.e. non compliant
At 10 weeks—still No healing
Following fracture Fixation. Still non-compliant
Proximal humerus fracture

- Very common fracture in elderly patients
- Described as the 4 parts of the proximal humerus
  - Greater tuberosity
  - Lesser tuberosity
  - Head
  - Shaft

Proximal humerus fracture

- Initial treatment
  - Sling, pain control

- Surgical indications
  - Displacement >1 cm or 45 degrees

- Healing
  - 6-10 weeks
  - PT early for ROM
Shoulder Dislocations

- "I popped my shoulder out"
- Differentiate AC separation and true shoulder dislocation

Key questions:
- Self reduced or reduced in ER
- How many times has this happened?
- Is this voluntary?

Shoulder Dislocations

- Radiologic evaluation
  - AP, AXILLARY Views
  - Not possible to gauge reduction without axillary views!

Shoulder Dislocations

- Reduction (Many, many techniques)
  - Intraarticular injection 20 cc lidocaine vs. Conc. Sedation
  - Check films afterwards

- Young patients → sling, follow-up with ortho
- Older patients → consider MRI for evaluation for rotator cuff tear

Humeral Shaft Fracture

- Relatively rare isolated injury
- 10-15% rate of radial nerve palsy

- Initial treatment
  - Posterior splint, coaptation spl
  - Hanging arm cast
  - Referral to ortho
Humeral Shaft Fracture

49 year old woman, 3 years of arm pain
3 months after surgery

Distal Radius Fractures

- Most common upper extremity fracture
  - Affects children to senior citizens

  Buckle fracture in 5 year old

Comminuted fracture

Evaluation

- Open injuries
- Median nerve compression

Initial treatment

- Splint, follow-up 1-2 days with ortho unless severe comminution
- Non-displaced fractures (buckle fractures) within 1 week

Scaphoid fractures

- Most common wrist fracture
  - Often missed on initial evaluation
  - Fall on outstretched hand

Evaluation

- Pain with wrist range of motion
- TTP in anatomic snuff box
- TTP at base of scaphoid
Scaphoid fractures

- **Initial Treatment**
  - If any doubt, place in thumb spica splint
  - MRI, CT, repeat XR in 1 week

Any displacement an indication for surgery
- High risk of non-union
- Proximal pole fractures

Finger fractures

- 24 bones in the hand (at least)
- All can get fractured
- Look for mal rotation (Scissoring)
- Splint in ‘beer can’ position to avoid excessive tightening of the tendons in the hand.

Lower Extremity Fractures

- Increased risk of compartment syndrome
  - When in doubt, admit overnight for observation
- Swelling causes a majority of pain
  - Elevation, ice, pain control
Syndesmosis injuries

- "high ankle" sprain
- Twisting injury to the ankle
- No pain at ‘ankle sprain’ area
- Pain with squeeze test, single leg hop
- XR: widened space between tib/fib
- Treatment:
  - 6 weeks NWB cast vs.
  - Syndesmosis fixation

Ankle Fractures

- Fracture patterns based on mechanism of injury
  - Medial, lateral, posterior injury
  - Other injuries often missed
  - Most ankle fractures require surgery
    - 6 weeks in cast
    - Progressive weight bearing
    - Swelling for 6-10 months after surgery

Foot Fractures

- Lis Franc Fractures
  - Fall or twist of plantar-flexed foot
  - Displacement between 1st and 2nd
  - If in doubt, get weightbearing films
  - If in doubt, get weightbearing films

- Treatment
  - Splint, bulky dressing
  - F/U ortho as most are surgical

Toe Fractures

- Phalangeal fractures
  - Tape to adjacent toe
  - Hard sole shoe

- Metatarsal fractures
  - Short leg splint
  - Bledsoe walking boot
THANK YOU

You are never too young to learn a good orthopaedic exam

Questions?
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