

## REVIEW OF COMMON MUSCULOSKELETAL INJURIES: JEOPARDY STYLE!

Sarah Bolander, DMSc, PA-C, DFAAPA  
Midwestern University  
Cactus Pediatric Orthopaedics  
[sbolan@midwestern.edu](mailto:sbolan@midwestern.edu)

*Below is a summary of topics discussed during this session at the 2022 AAPA Conference:*

### Jeopardy Categories

#### MSK BASICS

- Sensory nerves in the hand
  - Median: Palmar tip of index finger
  - Ulnar: Palmar tip of small finger
  - Radial: Dorsum 1<sup>st</sup> webspace (concerns for damage with humeral shaft fx)
- Fracture patterns
  - Complete fractures: transvers, oblique, and spiral
  - Incomplete fractures: bowing, torus/buckle, greenstick
- Rotator cuff: Supraspinatus, infraspinatus, teres minor, subscapularis (SITS)
  - Chronic tears typically occur in order of S.I.T.S with supraspinatus being the most common
- Compartment syndrome
  - Increasing pressure within a muscle bundle
  - First sign is PAIN
- Primary cancer sites that metastasize to the bone
  - PB KTL (Lead Kettle): **Prostate, Breast, Kidney, Thyroid, and Lung**

#### CLINICAL PRESENTATION

- Pain to snuffbox
  - Concerns for scaphoid fx
- Most common cause of a pediatric limp
  - Trauma
- Sever's Disease
  - Calcaneal apophysitis
- Hand nodes
  - Heberden nodes: osteoarthritis (OA)
    - NOT characteristic of rheumatoid arthritis
    - **dorsolateral aspects of DIP joints**
  - Bouchard nodes: OA >> RA
    - less common than Heberden nodes in OA
    - **PIP joints**

- Toddler fractures
  - MOI: riding on lap of caregiver or older sibling
  - May initially be occult

### **SPECIALIZED EXAM**

- Tinel
  - Wrist: median n.
  - Elbow: Ulnar n.
- Lachman
  - ACL
- De Quervain tenosynovitis
  - Finkelstein test
- Allen test
  - Assesses patency of the arterial blood supply in the hand
- Hip dysplasia
  - Barlow: provocative maneuver (Push Back)
  - Ortolani: reductive maneuver (“O”)

### **IMAGING**

- Imaging of choice for most orthopaedic injuries
  - Plain radiographs
- Fracture type severity
  - Simple: 2 parts
  - Comminuted:  $\geq 3$  parts
- Describe displacement of a fracture
  - Based on position of the distal fragment
- Salter Harris Classification
  - I: Separate (physis only)
  - II: Above (metaphysis and physis)
  - III: Lower (physis and epiphysis)
  - IV: Through (metaphysis, physis, and epiphysis)
  - V: Reduced (physis only: crushing injury)
- Avulsion fractures
  - Avulsion at attachment site of tendon or ligament

### **DX AND TX**

- Open fracture
  - Any break in the skin with an underlying fracture is an open fracture until proven otherwise
  - Tx: Irrigation and debridement & prophylactic antibiotics
- Legg-Calve-Perthes
  - Juvenile avascular necrosis of the femoral head

- Trephination
  - Releases pressure from a subungual hematoma
    - If underlying fracture, consider prophylactic antibiotics for an open fracture
- Tendon Injury at the DIP
  - Mallet: unable to extend
    - Extensor tendon rupture
  - Jersey: unable to flex
    - Flexor tendon rupture
- Septic arthritis
  - Most common pathogen: *Staphylococcus aureus*

#### EPONYMS: PICTURE THIS

- Wrist fractures:
  - **Colles:** extra-articular distal radius fracture with impaction and dorsal angulation/displacement
  - **Smith:** transverse distal radius fracture with volar angulation/displacement
    - More severe types may have articular extension
  - **Barton:** oblique fracture of the distal radius with articular extension dorsally
    - Dorsal-type: Colles with articular extension
    - Volar-type (reverse Barton fracture): Smith with articular extension
- Base of the 5<sup>th</sup> metatarsal:
  - **Jones:** transverse fracture at the metadiaphyseal junction without articular or distal extension of the fracture
  - **Pseudo-Jones (Dancer Fracture):** avulsion fracture of the fifth metatarsal base
- Forearm fractures:
  - **Galeazzi fracture-dislocation:** radial shaft fracture (middle/distal third) with associated dislocation of the distal radioulnar joint (DRUJ)
  - **Monteggia fracture-dislocation:** ulna shaft (proximal third) fx with dislocation of radial head
- Associated injuries following anterior shoulder dislocations:
  - **Hills-Sachs:** compression fracture of the posterolateral humeral head
  - **Bankart:** Soft tissue injury of the anteroinferior glenoid labrum (detachment/tear)
    - Bony Bankart is a fracture of the anteroinferior glenoid
- Base of the 1<sup>st</sup> metacarpal fractures:
  - **Bennett:** intra-articular oblique fracture at the base of the first metacarpal
    - 2 parts
  - **Rolando:** comminuted intra-articular first metacarpal base fracture
    - $\geq 3$  parts