48 year old female s/p fall with 5 weeks of persistent radial-sided wrist pain despite negative radiographs
Trapezial Fractures

• Rare fracture of the wrist
  – Only 4% of carpal fractures
Trapezial Fractures

• Important to detect because the trapezium is key in grip and pinch

• Two main types:
  – Body fractures (more common)
  – Volar ridge
    • Avulsion fractures
    • Direct blow
Pertinent Anatomy

• Three articulations
  – Biconcave with 1st metacarpal
    • “Double saddle”
    • Allow flexion/extension and abduction/adduction
  – Slightly concave with scaphoid
  – Flat facet with the trapezoid

• Volar ridge
  – Attachment site of the transverse carpal ligament (flexor retinaculum)
Pertinent Anatomy

• Vascular supply
  – Via the distal branches of the radial artery, greater dorsally
  – Rich intraosseous anastomosis
    • Osteonecrosis uncommon
  – Radial artery courses immediately dorsal
Body Fractures

- Mechanism: Axially loading or shearing mechanisms across the first CMC joint
- Walker classified 5 types
- Most common: IV

Papp, S. Orthopedic Clinics of North America.
Volar Ridge Fractures

- Mechanism: FOOSH vs. less likely direct blow
- Usually avulsion of the transverse carpal ligament
- Two types:
  - Type I: base
  - Type II: tip
- Presents with pain in the thenar area
  - Can mimic a scaphoid fracture
  - If missed can lead to non-union (pain, median nerve irritation)
Evaluation

• Radiographs
  – Projections:
    • Standard
    • Bett’s view
      – Outlines the trapezium and base of the 1st metacarpal
    • Carpal tunnel view
  – Not accurate
    • Sensitivity: 18% (Balci; 137 total carpal fractures); 67% (Welling; 38 total carpal fractures)
Treatment

• Surgical:
  – Complicated fractures (open, comminuted, neurologic/vascular deficit, injury to other carpal bones or 1st CMC subluxation)
  – Displaced body (>2mm)
  – Distal volar ridge fracture (Type II)

• Conservative:
  – Isolated and uncomplicated fractures
  – Non-displaced body or non-displaced trapezial ridge base (Type I) fractures
  – 4-6 weeks of cast immobilization
Key Points

• If a patient continues to complain of radial wrist pain, but x-rays are negative → MRI

• Fracture at the tip of trapezial ridge bad. Fracture at base good. Er. Not as bad.
2. Balci, A. Wrist fractures: sensitivity of radiography, prevalence, and patterns in MDCT.