
ED Musculoskeletal Radiology (MSK)

Outline

- Types of MSK problems encountered in the ED
- Modalities used
- Ordering and reading MSK plain films
- Cases



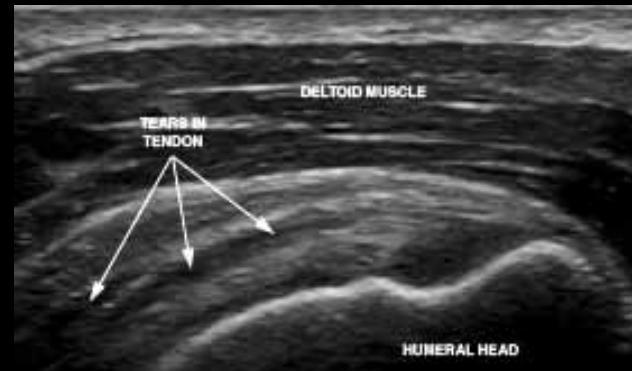
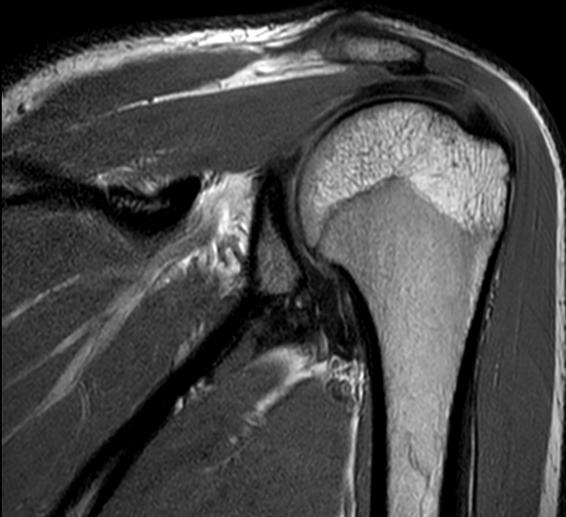
MSK Problems Seen in the ED

- TRAUMA
 - Fractures
 - Dislocations
 - Sprains/Strains
- Pain
 - Acute (Trauma)
 - Chronic (arthritis, etc.)
- Infection
 - Septic arthritis
 - Cellulitis/abscesses



Modalities used in the ED

- Plain films (x-rays)
- Computed tomography (CT)
- Magnetic resonance imaging (MRI)
- Ultrasound



Ordering MSK Plain Films

- “One view is no view”
- Fracture or dislocation seen on only one view is REAL, but not seeing it on only one view doesn’t rule it out
- Learn the views for major joints/bones
 - Long bones: 2-views (AP and lateral)
 - Joints: 3-views
 - Shoulder: IR, ER, and Axillary
 - Knee: AP, lateral, and tunnel or sunrise depending on suspected pathology
 - Ankle: AP, lateral, mortise

Ordering MSK Plain Films



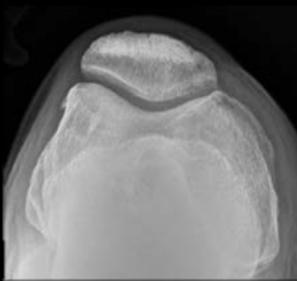
AP



Mortise



Lateral



eORIF

 Wake Forest
Baptist Health

Reading MSK Plain Films

- Long bones
 - Follow the cortex all the way around on every bone
 - Look for step-offs and abrupt contour changes
 - Pay attention to the trabecular patterns
 - Look for disruptions or density changes due to impaction



Reading MSK Plain Films

- Long bones
 - Follow the cortex all the way around on every bone
 - Look for step-offs and abrupt contour changes
 - Pay attention to the trabecular patterns
 - Look for disruptions or density changes due to impaction
- Intra-articular
 - Look for an effusion
 - “Fluid-fluid” line is a lipohemarthrosis and is pathognomonic for an intraarticular fracture



Ordering and Reading MSK Plain Films

- Know fracture patterns to guide your eye
 - Don Juan fracture
 - Calcaneus fracture + spine fracture (burst)
 - Dashboard injury
 - Patella fracture + posterior hip dislocation + posterior wall tab fx
 - Maisonneuve fracture
 - Ankle syndesmosis injury + proximal 1/3 spiral fibula fracture
- If you aren't sure:
 - Image the joint above and below a fracture
 - Where's there is one, there is usually more



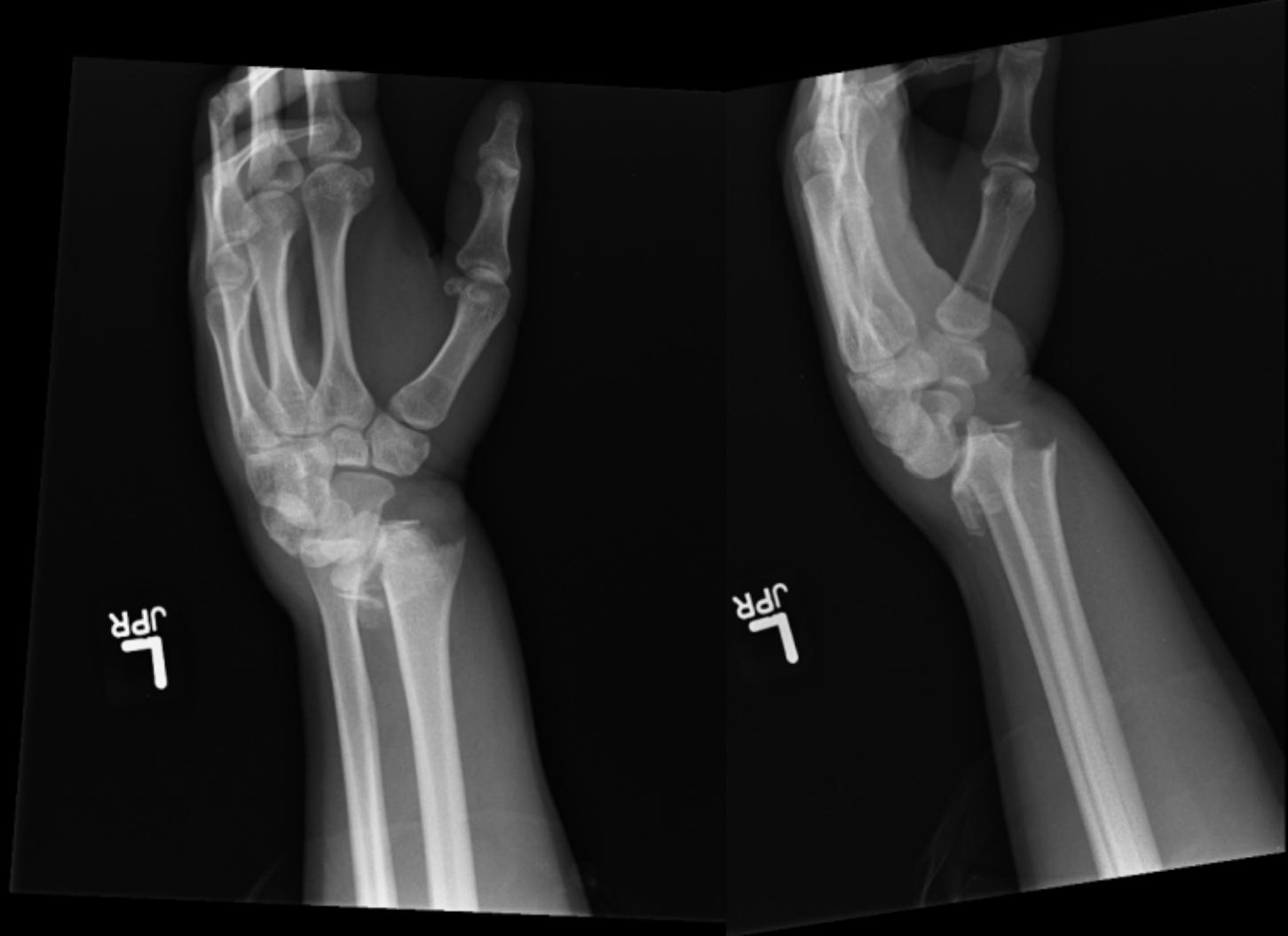
Ordering and Reading MSK Plain Films

- When all else fails...
 - Remember that most people have a matched pair
 - Image the contralateral side and look for differences

Case 1



Case 2



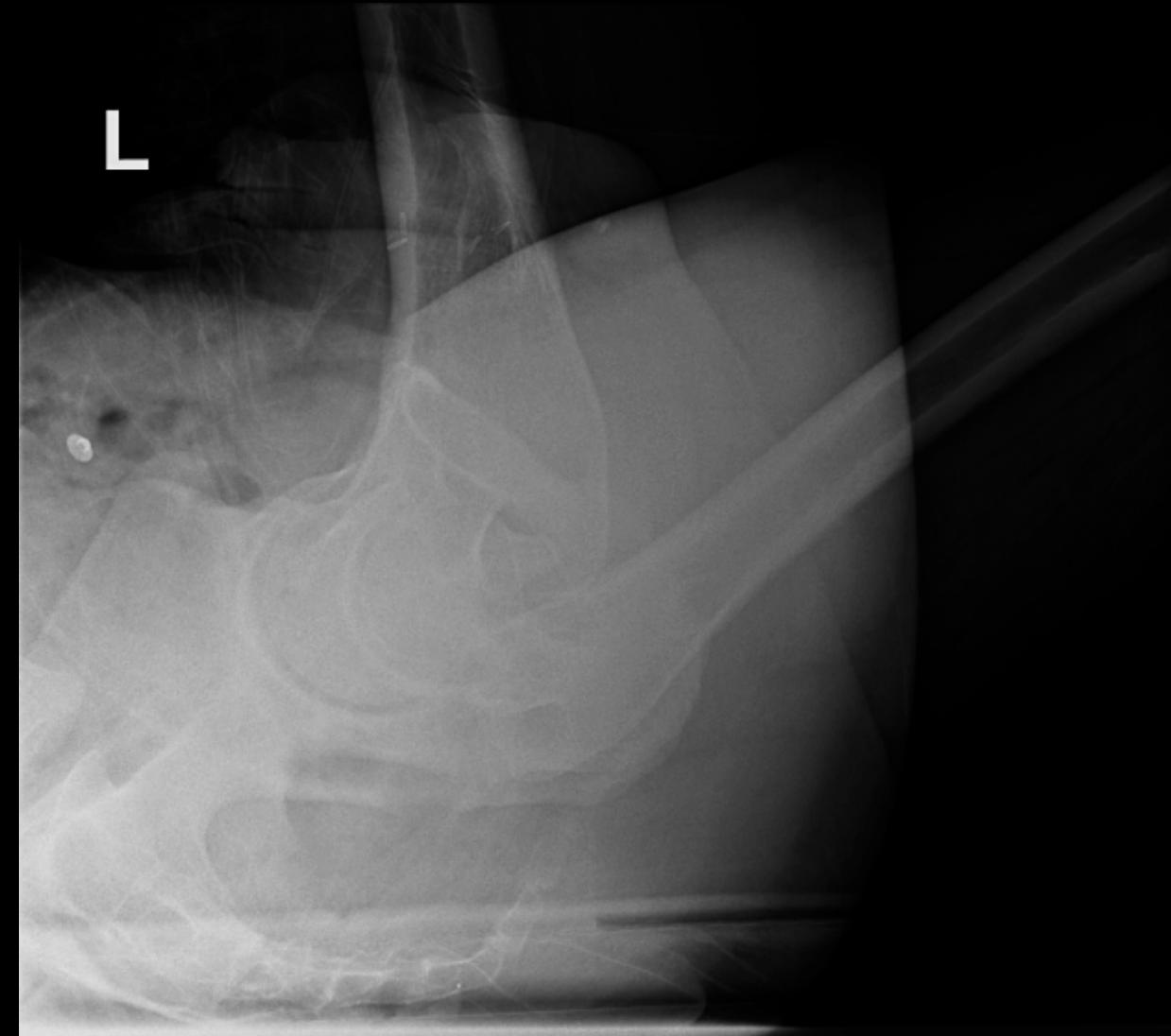
Case 3



Case 4



Case 5



Case 6



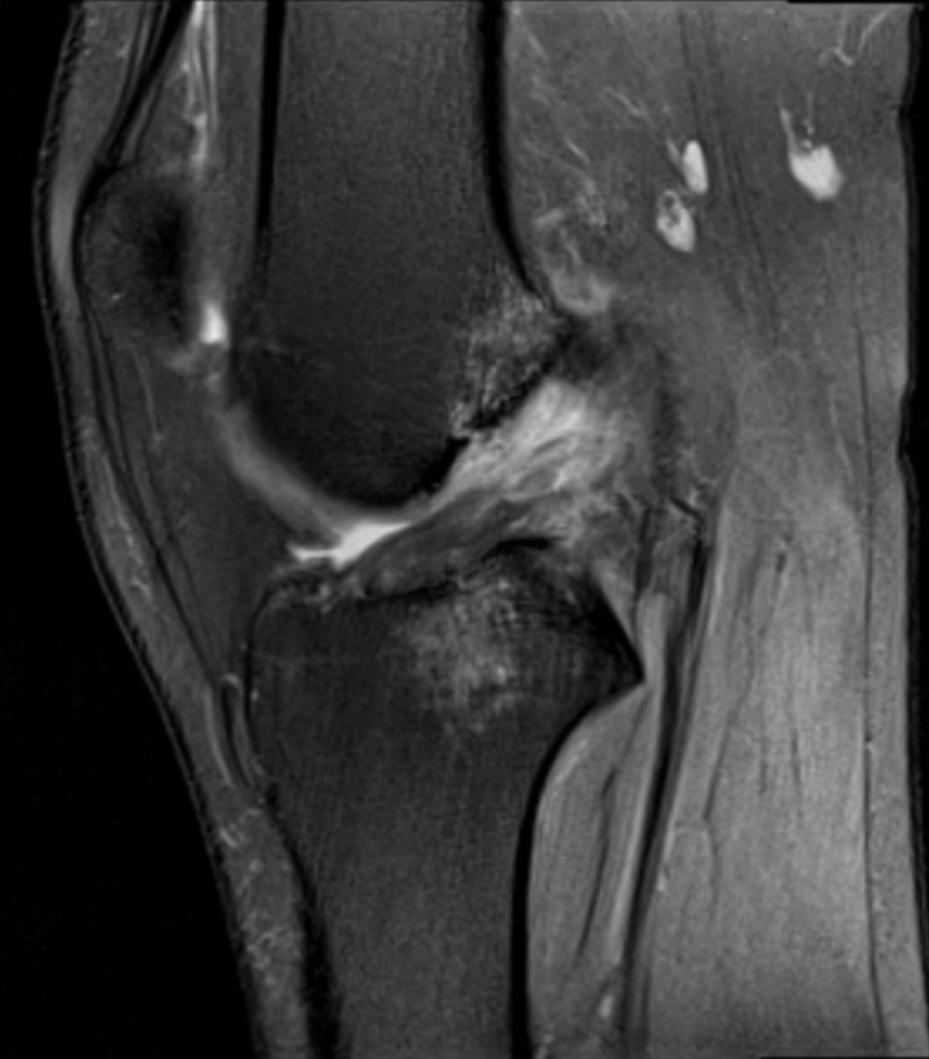
Case 7



Case 8



Case 9



Case 10



Pet Peeves

- “Hip fracture”
 - The “hip” is a joint. You don’t fracture a joint, you fracture a bone.
 - Say proximal femur fracture, femoral head fracture, etc.
- “1st finger”
 - It is confusing to patients and other providers to number the digits. The accepted terminology is Thumb, Index, Long, Ring, and Small fingers.

Cases

- Anterior shoulder dislocation (1)
- Distal radius fracture (6)
- Boxer's fracture (10)
- Posterior hip dislocation (14)
- Femoral neck fracture (15)
- Tibial plateau fracture (18)
- Bimalleolar ankle fracture (19)
- Calcaneus fracture (20)
- ACL tear (23)
- Achilles tendon rupture (26)