

Orthopedic Radiology Pitfalls: What Am I Missing?

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Avulsion fracture: Middle phalanx

Proximal, dorsal avulsion fractures of a finger's middle phalanx is worrisome for a **central slip extensor tendon** injury, which can lead to a chronic Boutonniere deformity.

Lesson: Perform the Elson's test for such fractures or any PIP joint injury. Splint with PIP in extension.



2

Avulsion fracture: Distal phalanx

Proximal, dorsal avulsion fractures of a finger's distal phalanx is worrisome for **extensor tendon disruption**, which can lead to a chronic mallet finger or swan-neck deformity.

Lesson: Evaluate the extensor tendon function. Splint with DIP in extension.



3

Avulsion fracture: Lateral knee

A seemingly innocuous avulsion fracture of the lateral tibial plateau, a **Second fracture**, is highly associated with an ACL and other ligamentous injuries.

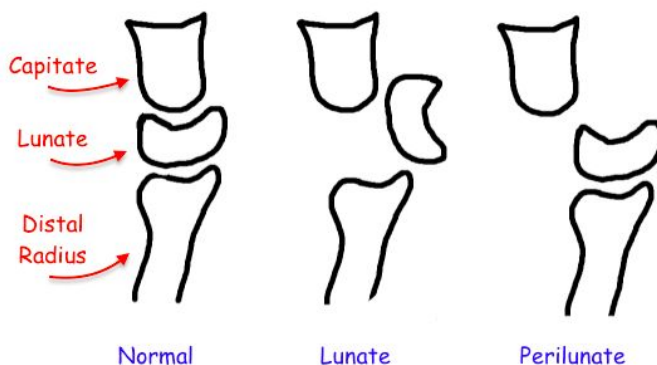
Lesson: Apply a knee immobilizer and ensure close orthopedic follow-up



4

Dislocations: Lunate & perilunate

Get comfortable with reading a lateral view of the wrist. **Lunate and perilunate dislocations** usually will need open reduction and fixation.



5

Occult fracture: Supracondylar

Identify the **anterior humeral line**, **radiocapitellate line**, and evidence of **abnormal fat pads**.

Posterior pads = **P**athologic



6

Occult fracture: Radial head



7

Occult fracture: Tibial plateau

X-rays can miss tibial plateau fractures (sens 80%, spec 96%).

Lesson: Obtain CT imaging for high-suspicion cases.



8

Occult fracture: Proximal femur (hip)

Beware of trusting x-rays to safely rule-out a hip fracture, especially in older patients.

In a 2020 meta-analysis with >2,900 patients, surgical hip fractures were occult (x-ray negative) in 39% of older patients.

Lesson: Although CT imaging is better (sensitivity 69-87%), **MR is the gold standard** (sensitivity 99-100%). PMID 32633673

