Elbow & Forearm Trauma

Elbow CT: Positioning - WRONG WAY

Anatomy
- Technical
- FOPH
  - BBFF
  - Monteggia
  - Galeazzi
  - Essex-Lop.
- Fat Pads
- Peds Elbow
  - Supracond.
  - Lat. condyle
  - Med. epicon.

CT Scout

NEVER scan patients with their elbow laying on their abdomen

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We don’t scan patients with their elbow down at their side

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- Excess radiation across torso
- X-ray scatter decreases res.



- Elbow moves with patient breathing
- Makes it impossible to get good reformats
- Instead get terrible images like this → →
Elbow & Forearm Trauma

Elbow CT: Positioning - RIGHT WAY

Elbow over head!
- Avoids torso radiation
- Avoids scatter from torso

Optimal Position
- Elbow straight
- Head bent out of field

Anatomy
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Supine = OK
Prone/Decubitus = OK

However the patient is most comfortable
Elbow CT: Positioning - BEST WAY

Straight arm & elbow **Perpendicular** to CT scanning plane

- Easier reformatting
- Yields highest resolution reformats

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Coronoid Fracture

Sagittal Reformat

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Elbow CT: Positioning - With a cast…

This is the position to avoid!
with arm **parallel** to CT scanning plane

Streak artifacts from scanning length of forearm limits resolution

Sagittal Reformat

CT Scout

T,B 65yoF
Elbow CT: Positioning - With a cast...

This is a better position with arm oblique to CT scanning plane

Minimizes forearm streak artifacts
Minimizes radiation to patient’s head

Coronoid Fracture

Sagittal Reformat

CT Scout

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Reformat in 6 planes

3 planes relative to distal humerus
3 planes relative to proximal forearm

- Off Sagittal reference image:
  1) Axial to Humerus
  2) Axial to Forearm
  3) Coronal to Radius
  4) Coronal to Ulna

- Off Axial Humerus reference:
  5) Parallel to Inter-Epicondyle Line
  6) Perpendicular to Epicondyle Line

If elbow is straight, only need 3!