An Interactive Learning Experience: Emerging Skills for AT Professionals & AT Educators

Plain Film Diagnostics: Views for Common U/E Orthopedic Injuries

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Disclosure Slide

- No conflicts of interest
- No relevant financial relationships

Learning Objectives

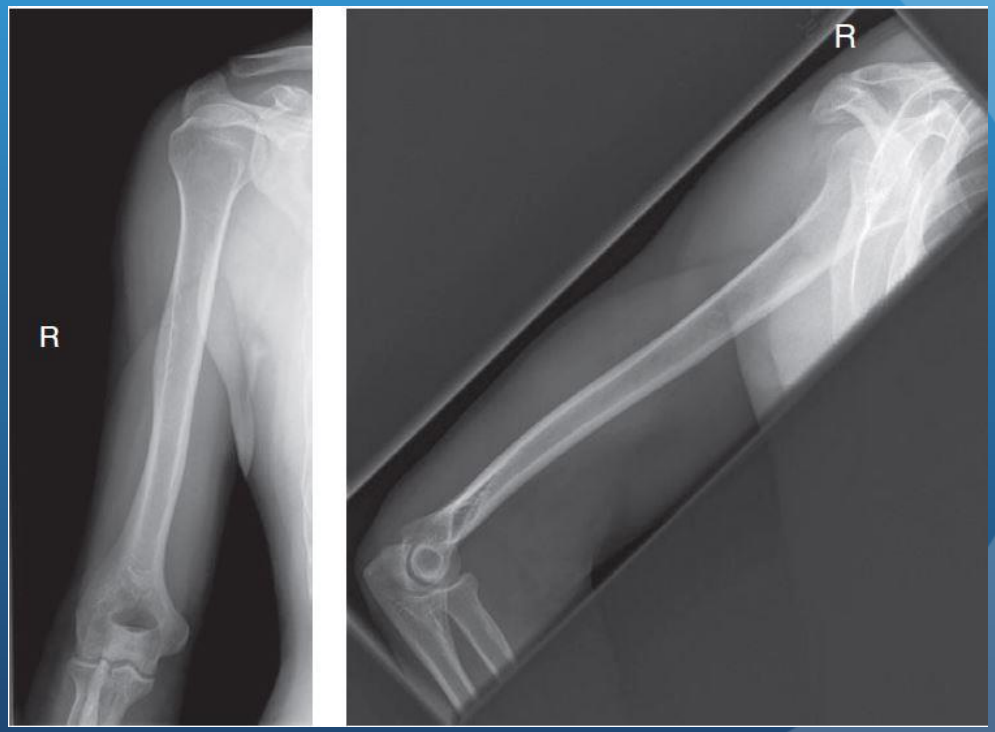
- Recognize basic terminology used by health professionals when discussing plain film radiology imaging.
- Discuss common x-ray views for identifying specific orthopedic pathology.
- Demonstrate diagnostic accuracy by correctly interpreting common x-ray images in the upper extremity.

Reading a “plain film” x-ray: The basics

- Verify name
- Verify DOB
- Verify date of study
- Identify type of study & specific views
- Is quality of x-ray adequate?

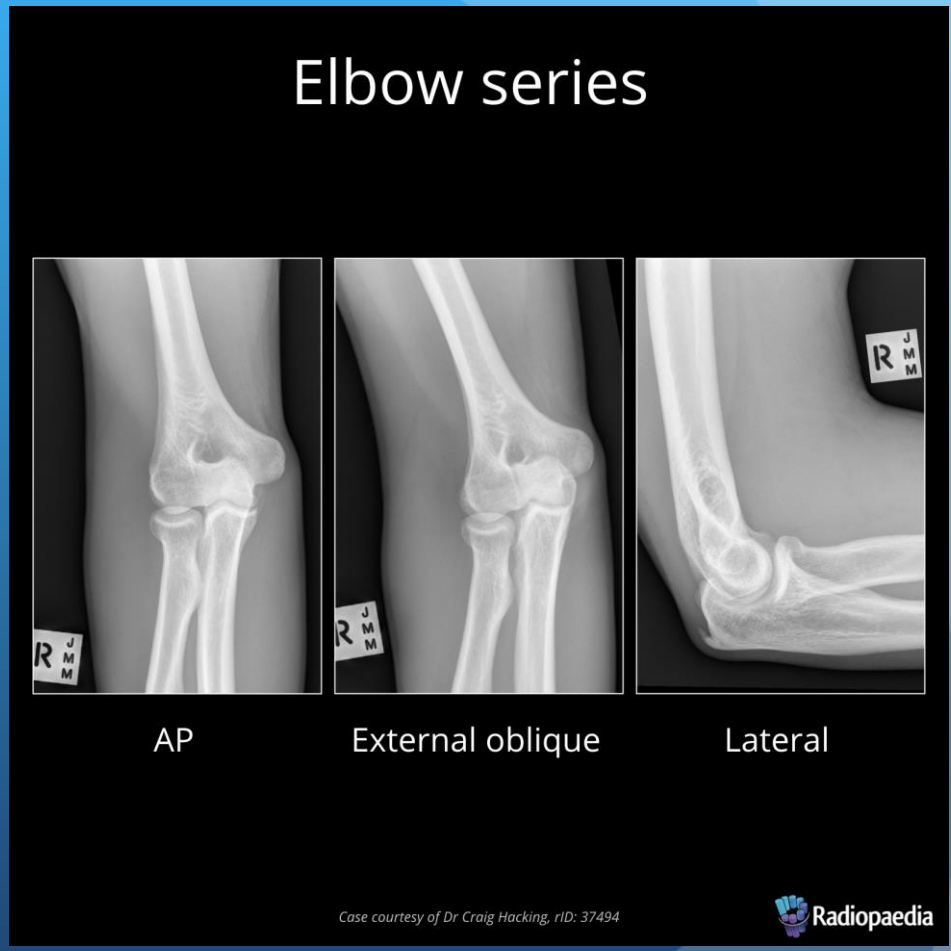
Reading a “plain film” x-ray: The basics

- Identify Specific Views
- Humerus
  - AP
  - Lateral



Reading a “plain film” x-ray: The basics

- Identify Specific Views
- Elbow
  - AP
  - Lateral
  - External oblique



Reading a “plain film” x-ray: The basics

- Identify Specific Views
- Wrist
  - AP
  - Lateral
  - Oblique
  - Scaphoid

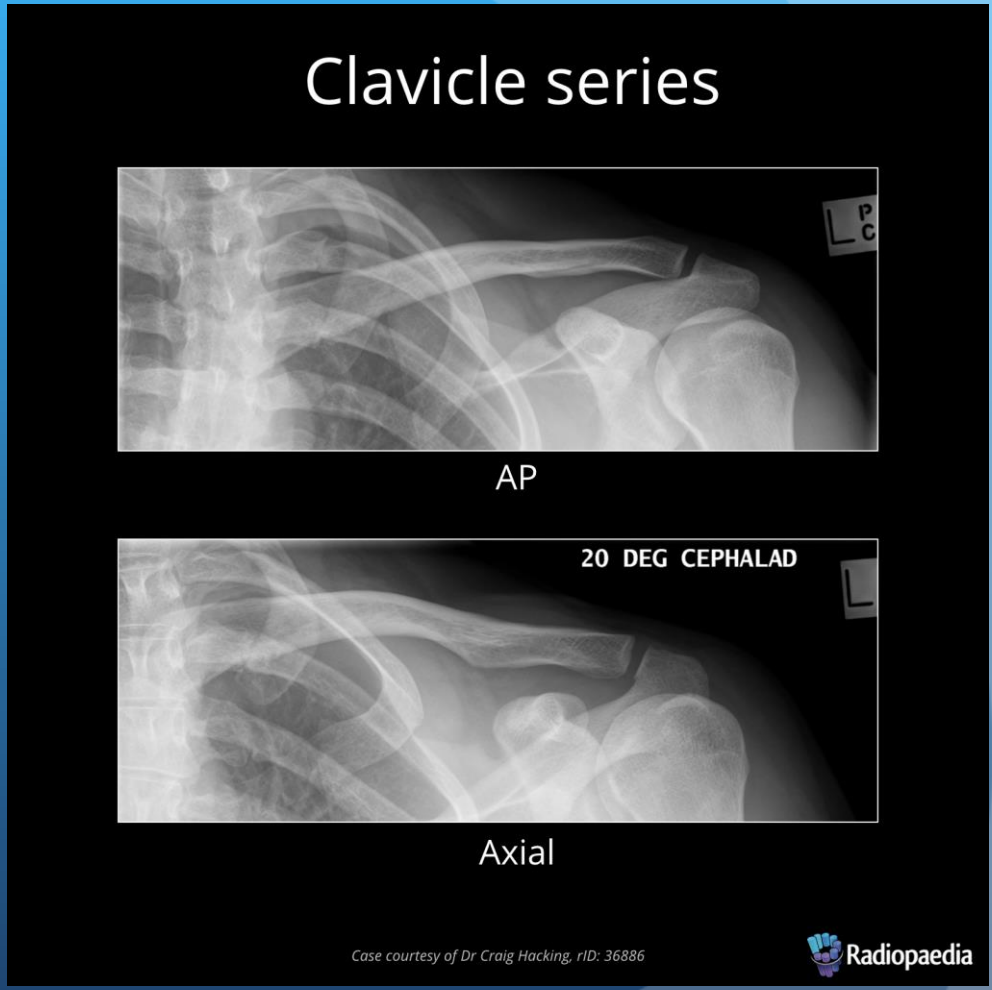
Scaphoid view

Reading a “plain film” x-ray: The basics

- Identify Specific Views
- Hand
  - AP
  - Lateral
  - Oblique

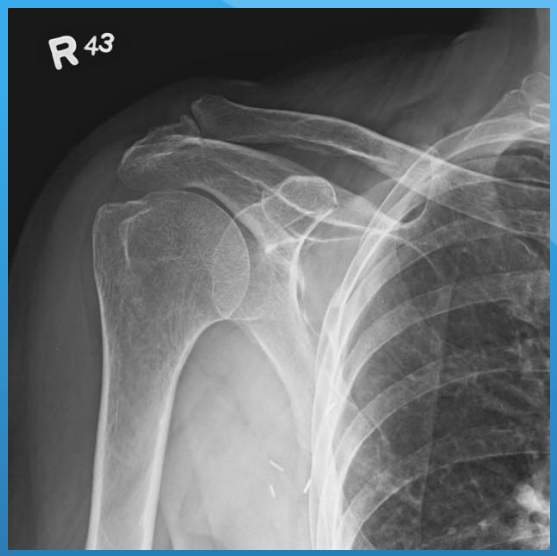
Reading a “plain film” x-ray: The basics

- Identify Specific Views
- Clavicle
  - AP
  - AP cephalad 20 deg

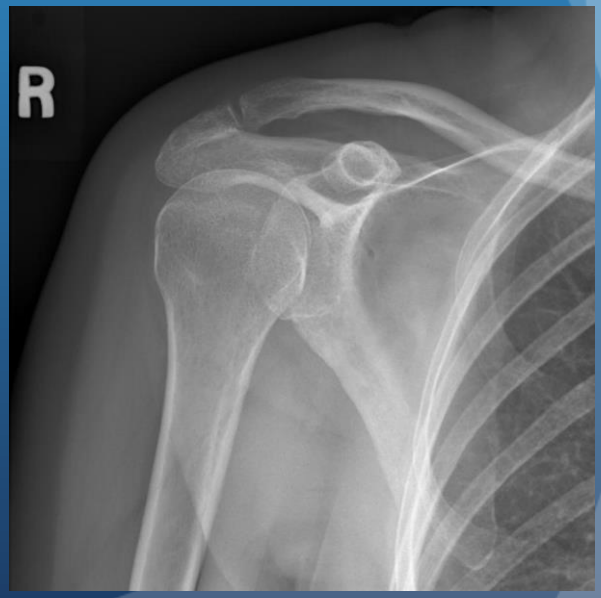


Reading a “plain film” x-ray: The basics

- Identify Specific Views
- Shoulder
  - AP (ER and IR)
  - AP Grashey – GH joint
  - Scapular outlet view (SOV)
  - Axillary
  - Zanca
    - AP 10-15 deg angulated



AP ER



AP IR

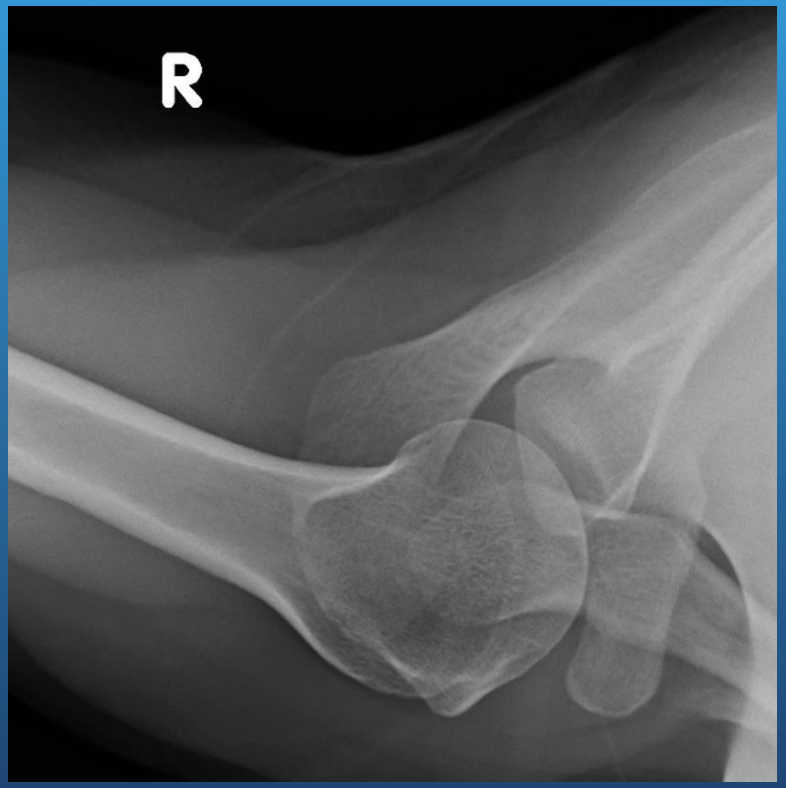
Reading a “plain film” x-ray: The basics – Shoulder x-rays

AP Grashey or Glenoid view – GH joint

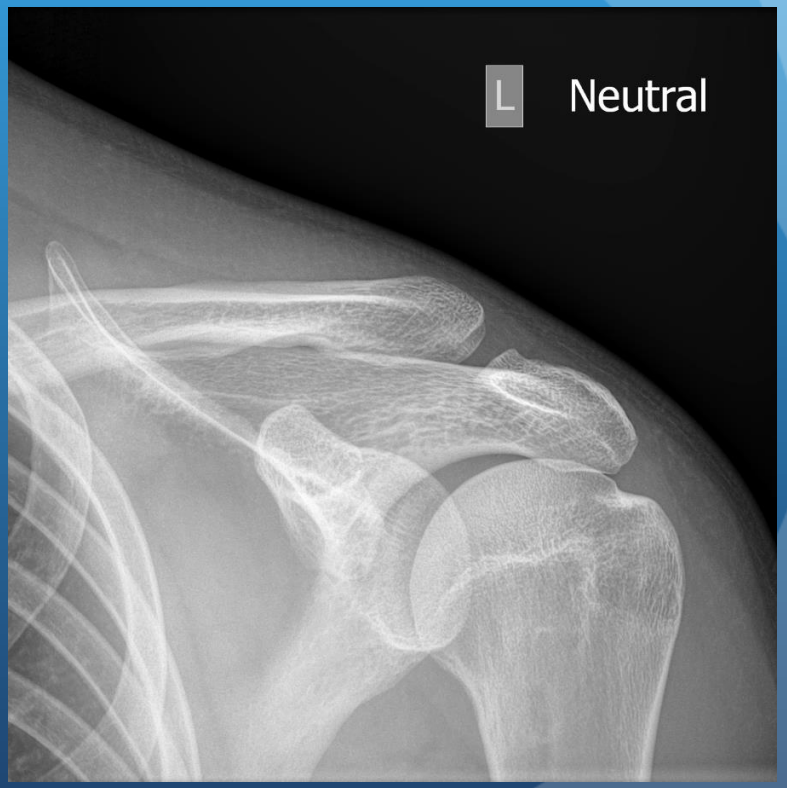
Scapular outlet view (SOV)

Reading a “plain film” x-ray: The basics – Shoulder x-rays

Axillary view – articular surfaces glenoid & humerus



Zanca view – 10-15 deg cephalad – AC joint



Reading a “plain film” x-ray: The basics

- Is quality of x-ray adequate?
  - Correct views?
  - Are Structures in view?
  - X-ray penetration/brightness OK?
  - Artifact obstructing?

Reading a “plain film” x-ray: The basics – to this point

- Verified patient’s name, DOB, Date of study
- Identified the specific views of study
- Assessed the quality of the images
- → we are ready to interpret the images

Reading a “plain film” x-ray: The basics

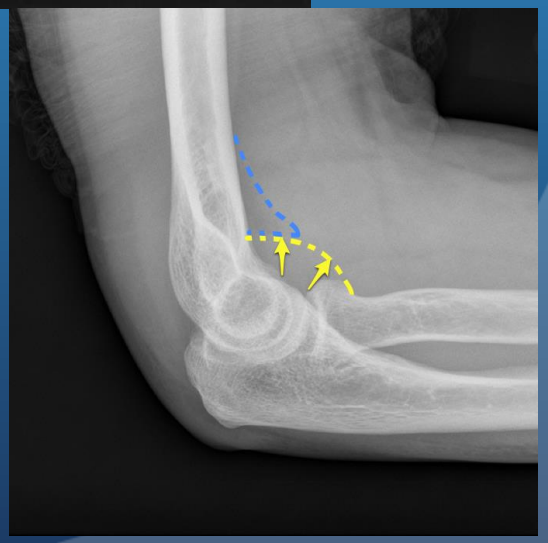
- Assess the bones
  - Alignment
  - Bone density
  - Cortical outline
    - Fracture
    - Bony lesions
    - Foreign bodies

Reading a “plain film” x-ray: The basics

- Assess the joint spaces
  - Widened?
    - Ligament injury
    - Dislocation
    - Distracted fracture
  - Narrowed?
    - Degenerative process
    - Ulnar positive variance
  - Growth plates
    - Compare other side

Reading a “plain film” x-ray: The basics

- Assess the soft tissue
  - Swelling
  - Joint effusion
  - Bursitis
  - Sail/fat pad sign – elbow
    - Elevation of anterior fat pad from joint effusion
    - Intra-articular injury
  - Foreign body



Reading a “plain film” x-ray: The basics

- Assess the surrounding organs/structures
  - Shoulder x-rays
    - Lungs
    - Heart
  - Identify abnormalities

Reading a “plain film” x-ray: The basics

- Come up with an Interpretation:
  - 3 view x-ray series of the right elbow from 3/7/2023 demonstrates an anterior fat pad sign, consistent with the visible non-displaced radial head fracture.
  - 4 view x-ray series of the left wrist from 3/7/2023 demonstrates a non-displaced, scaphoid waist/middle third fracture.

A Case example

- 18 y.o. football player
- Tackled, landed top of shoulder, adducted pos
- Inspection – clavicle deviated superiorly
- Palpation – Tender over AC joint
- Team physician orders shoulder x-rays

18 yo Football player w/Rt. Shoulder Injury

- Comes to the TR in a sling
- CD-ROM w/x-rays – from urgent care
- Verify
  - Patient's name
  - DOB
  - Study date

- Identify the specific views of study – AP IR
- Assess the quality of the images

- Identify the specific views of study – ?Axial
- Assess the quality of the images

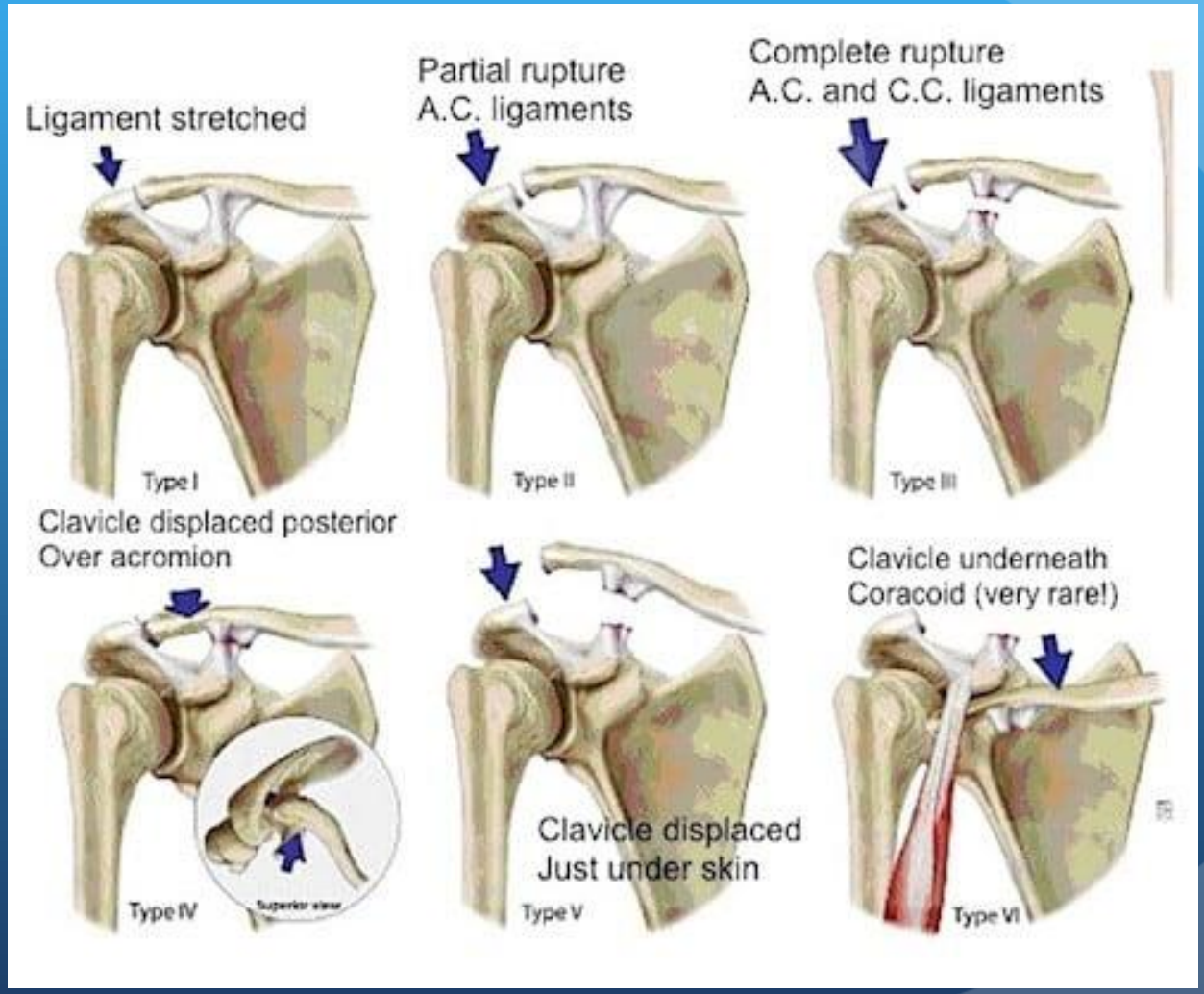
-Assess the bones

-Assess the joint spaces

- Assess the soft tissue

- Assess surrounding organs & structures

Types of ACJ Separation



-Come up with an Interpretation:

2-view x-ray series of the right shoulder from 3/7/2023 demonstrates a Type 3 ACJ separation and no fracture.

Off to the small groups…

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