

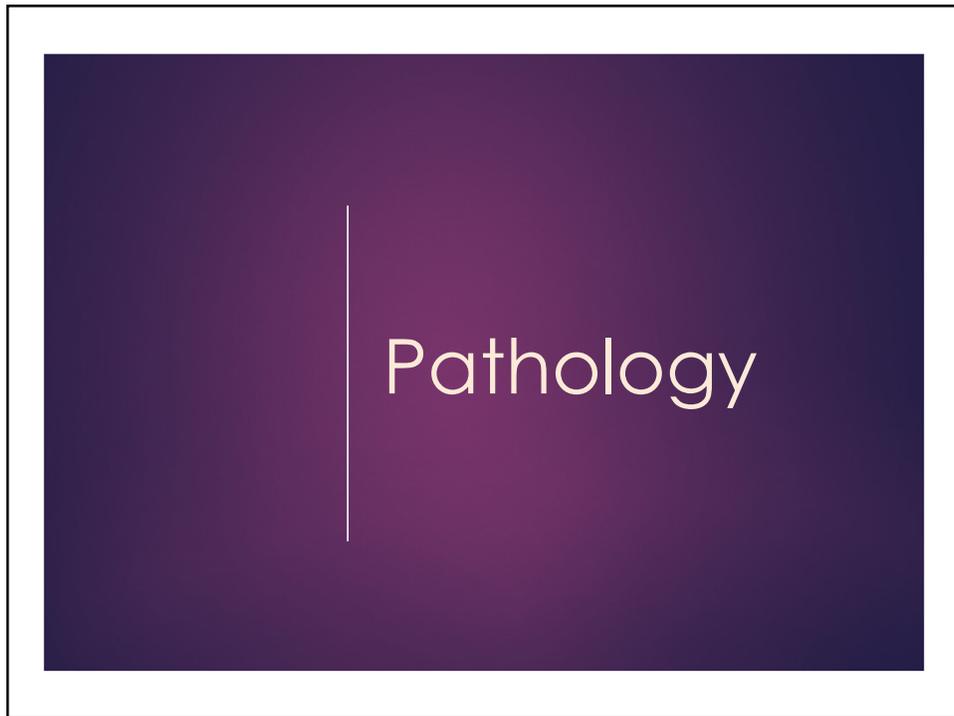


Reading Hospital School of Health Sciences
Medical Imaging Program

MI 238: Clinical Seminar III
Clavicle, Scapula, Acromioclavicular and
Sternoclavicular joints

Image Critique and Pathology
2022

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Pathology

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Clavicle separates from the scapula (acromion)

Acromioclavicular Dislocation

Cause: Traumatic

Complications: Persistent instability of the shoulder girdle or residual pain with activity

Radiographic Appearance: Widening of Acromioclavicular joint

Technical: No manual exposure factor change

Prognosis: Good, severe cases may need surgery

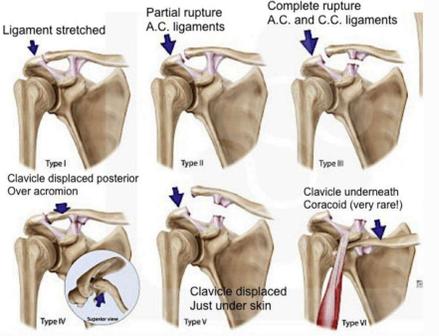
- ▶ Ice, rest, rehab, anti-inflammatories

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Notice the bump on the shoulder



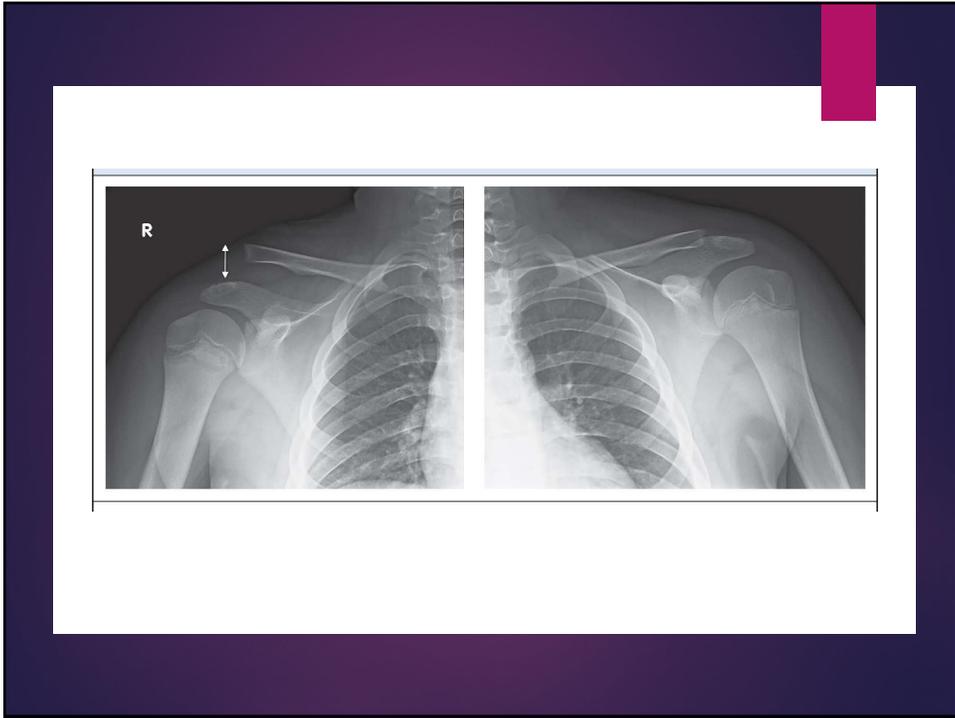
Injury Classification System



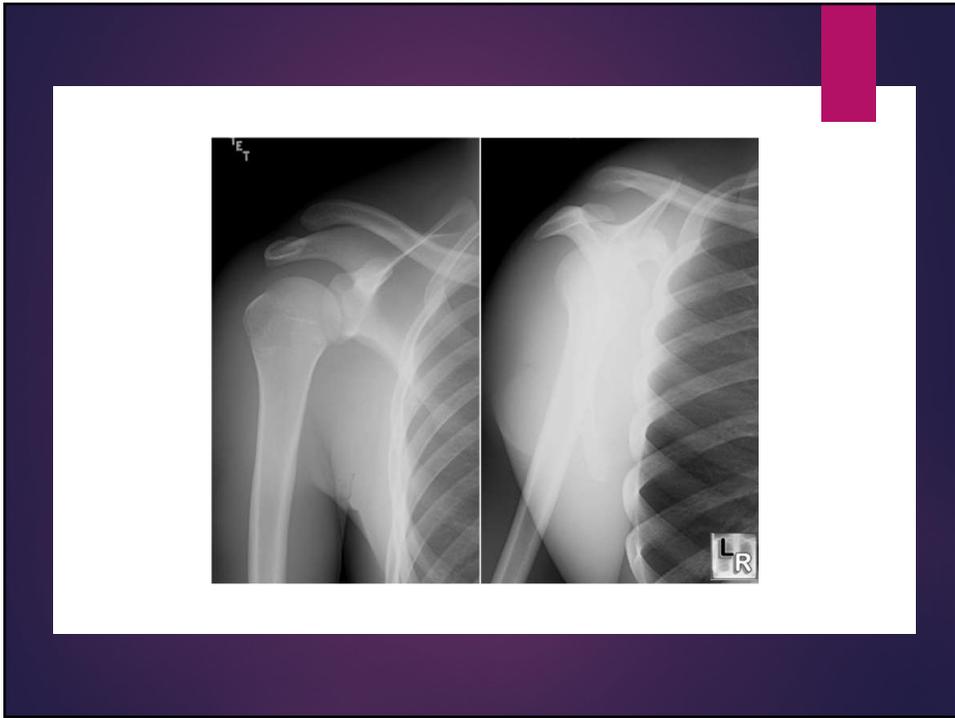
Rockwood Classification System

There 6 grades of AC separation. The more severe the injury the higher the grade.

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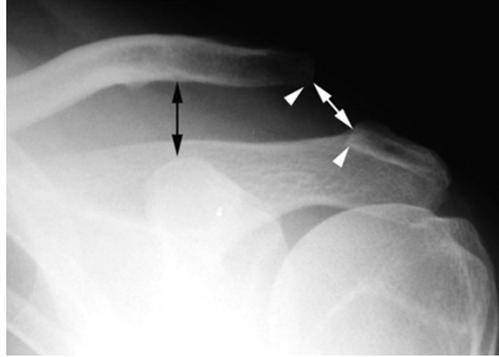


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▶ Grade 3 injury in a 25-year-old man. AP radiograph of the left shoulder shows widening of the acromioclavicular distance to 10 mm (white arrows) and an increase in coracoclavicular distance to 20 mm (a 50% increase) (black arrows). There is superior subluxation of the clavicle relative to the acromion of 100% (arrowheads).



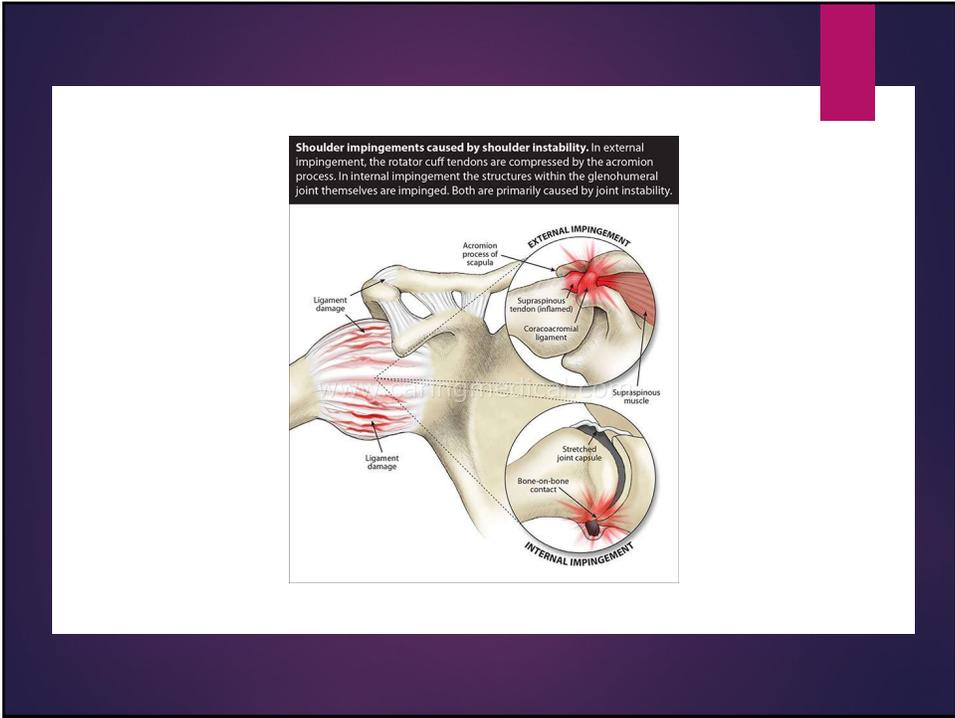
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Impingement Syndrome

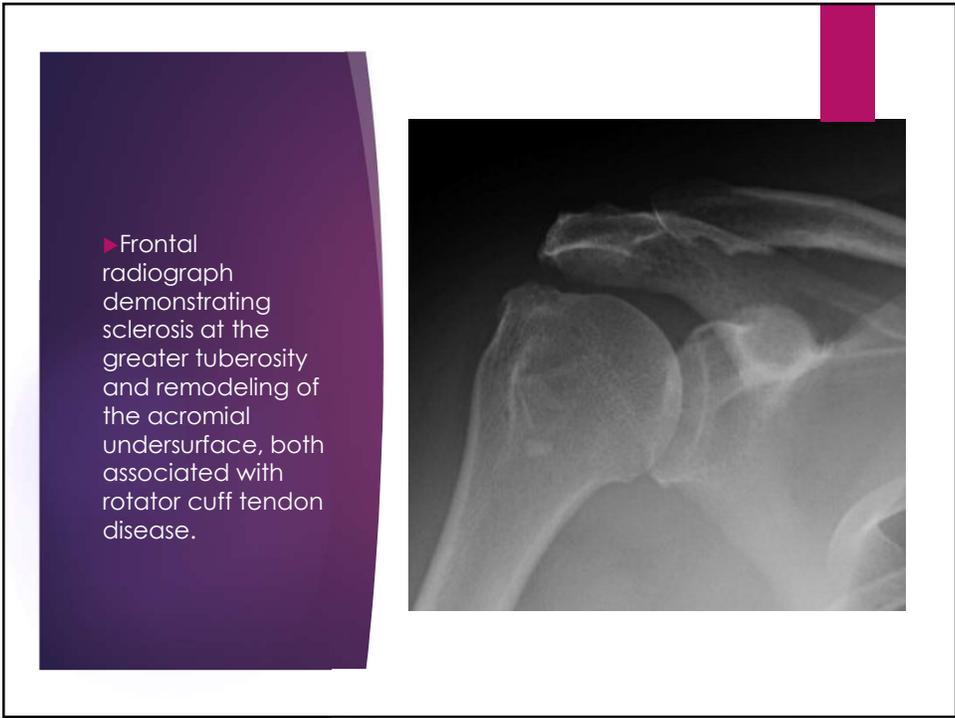
Impingement of the greater tuberosity and soft tissues on the coracoacromial ligamentous and osseous arch, generally during abduction. (Bontrager)

- ▶ **Causes:** Trauma, Idiopathic
- ▶ **Complications:** Rotator cuff tear, pain, weakness
- ▶ **Radiographic Appearance:** The presence of bony excrescences arising from the anteroinferior aspect of the acromion and of flattening and sclerosis of the greater tuberosity of the humerus (RSNA) or Os acromiale
- ▶ **Technical:** No manual exposure factor change
- ▶ **Prognosis:** In general, prognosis for prompt and correct diagnosis and treatment of shoulder impingement syndrome is good and 60-90% of patients improve and are symptom-free with conservative treatment. Surgical outcomes are promising in patients who fail conservative therapy

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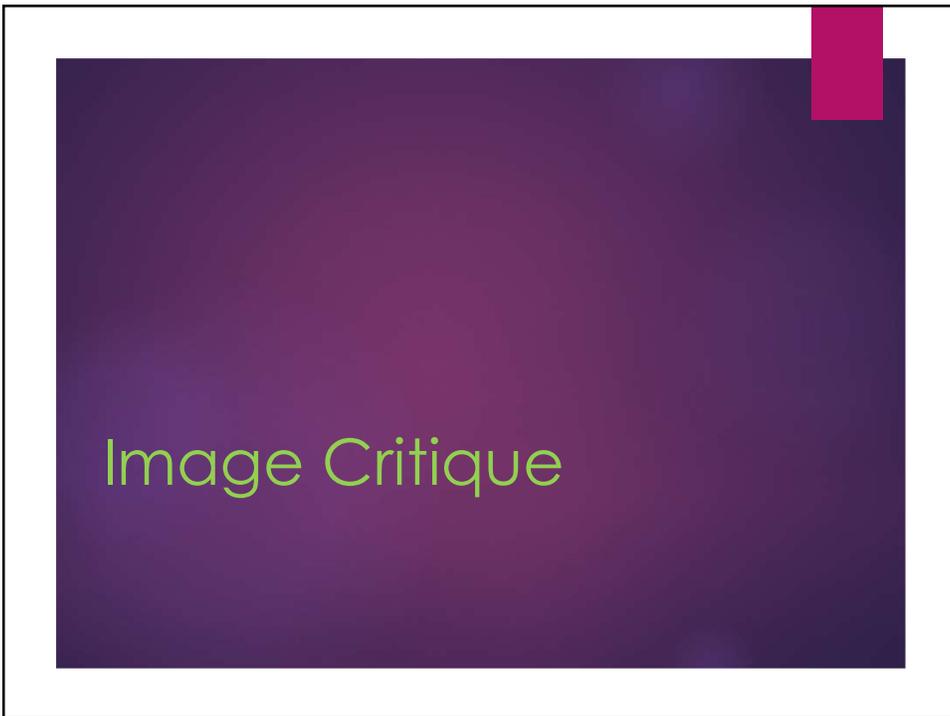
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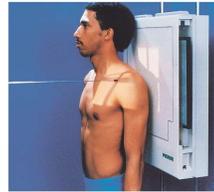
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AP Clavicle Expiration

- ▶ Evidence of proper collimation and the presence of a side marker placed clear of the anatomy of interest
- ▶ Entire clavicle centered on image
- ▶ Lateral half of clavicle above the scapula, with the medial half superimposing the thorax
- ▶ Bony trabecular detail and surrounding soft tissues

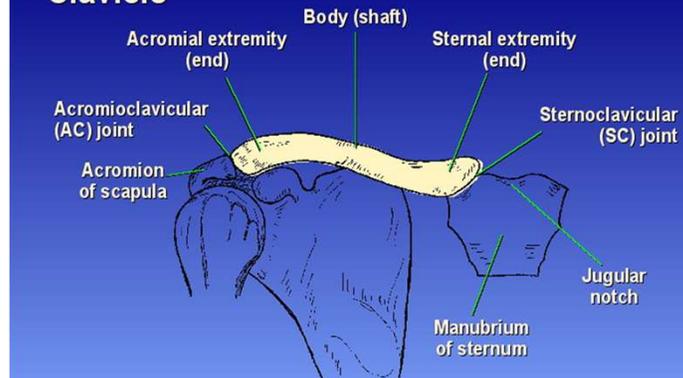


Merrill's Recommendations:

- 12 x 8 collimation

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Clavicle



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1. AP Clavicle



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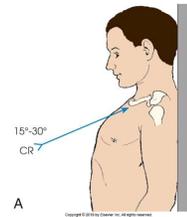
2. AP Clavicle



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AP Axial Clavicle Inspiration

- ▶ Evidence of proper collimation and the presence of a side marker placed clear of the anatomy of interest
- ▶ Entire clavicle along with the AC and SC joints
- ▶ Lateral two-thirds of the clavicle projected above the ribs and scapula with the medial end superimposing the thorax
- ▶ Clavicle in horizontal orientation as compared with the AP projection
- ▶ Bony trabecular detail and surrounding soft tissues



Merrill's Recommendations:

- 0- 15 degrees for standing lordotic position
- 15-30 degrees for supine position

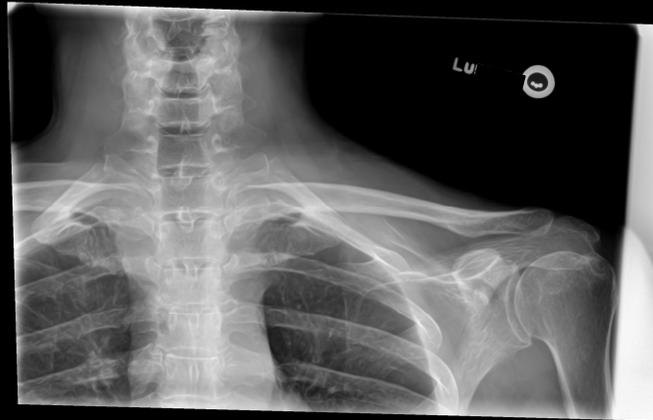
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3. AP Axial Clavicle



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4. AP Axial Clavicle



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ELECTIVE

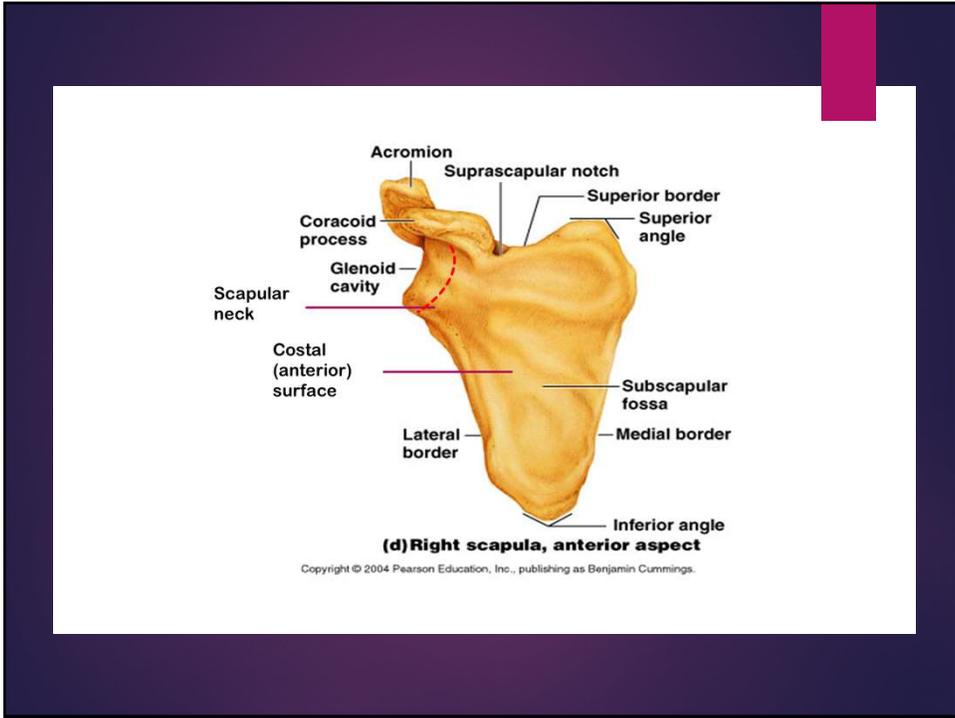
AP Scapula

- ▶ Evidence of proper collimation and the presence of a side marker placed clear of the anatomy of interest
- ▶ Lateral portion of the scapula free of superimposition from the ribs
- ▶ Scapula horizontal and not slanted
- ▶ Scapular detail through the superimposed lung and ribs (shallow breathing should help obliterate lung detail)
- ▶ Acromion and inferior angle
- ▶ Bony trabecular detail and surrounding soft tissues

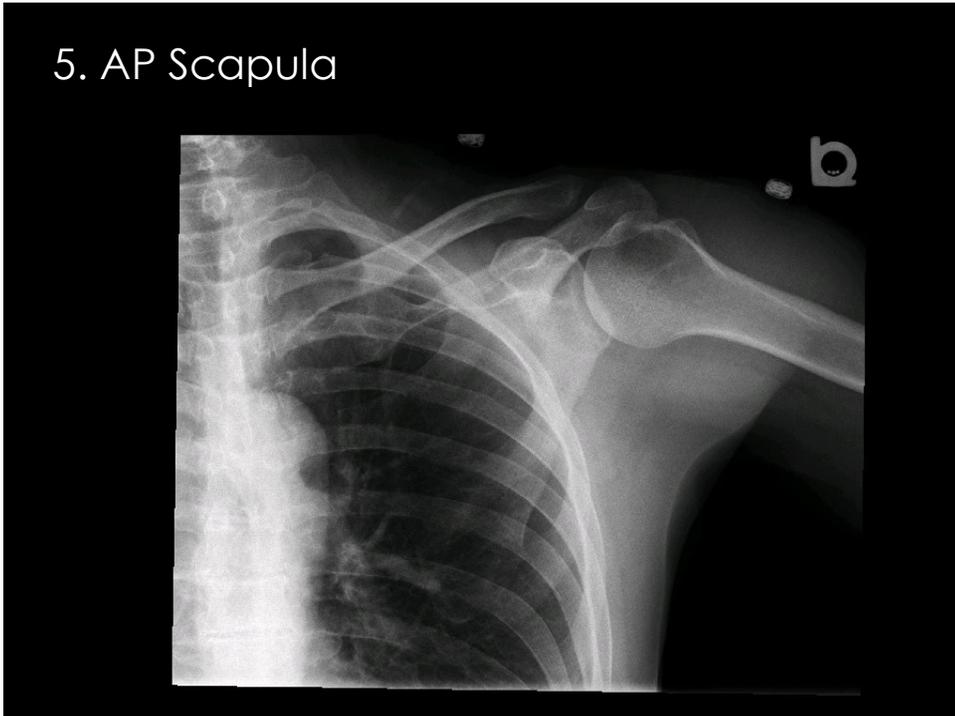



The slide contains two images. The top image is an AP radiograph of the scapula, showing the scapula in a horizontal position with a circular marker on the right. The bottom image shows a patient lying on their back with their right arm raised and bent at the elbow, demonstrating the positioning for an AP scapula radiograph.

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6. AP Scapula



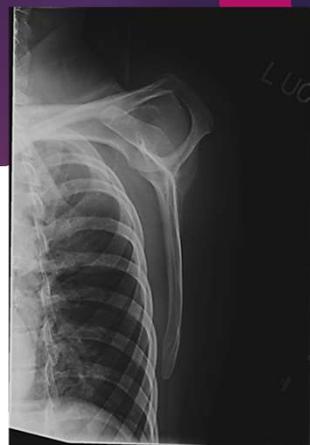
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ELECTIVE

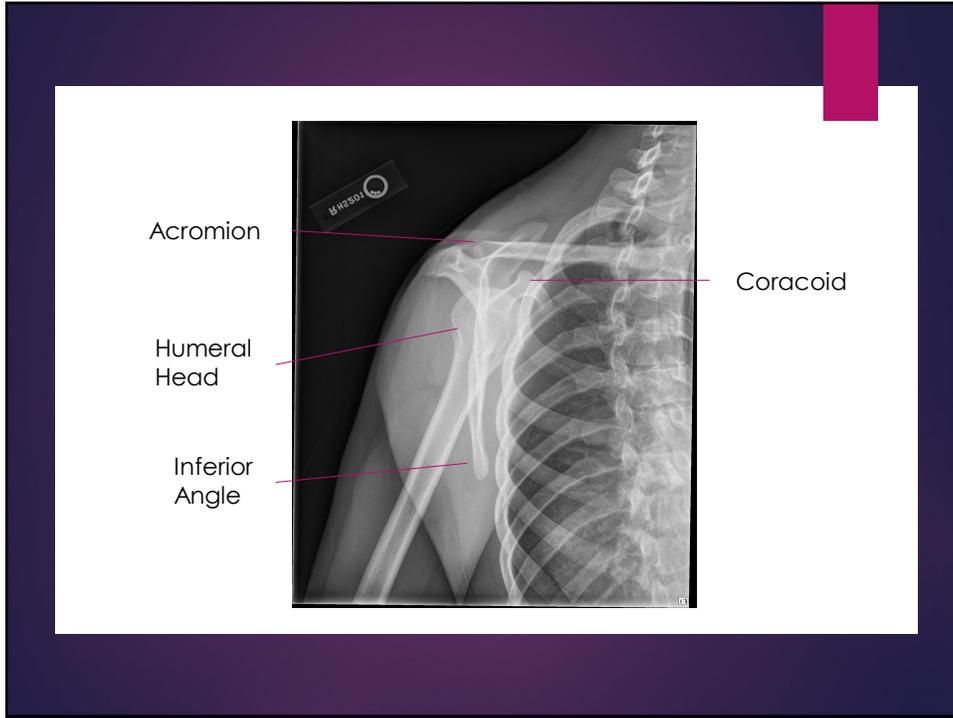
Lateral Scapula (Posterior Oblique, AP Projection)

- Evidence of proper collimation and the presence of a side marker placed clear of the anatomy of interest
- Lateral and medial scapular borders superimposed
- No superimposition of the scapular body on the ribs
- No superimposition of the humerus on the area of interest
- Inclusion of the acromion and inferior angle
- Bony trabecular detail and surrounding soft tissues

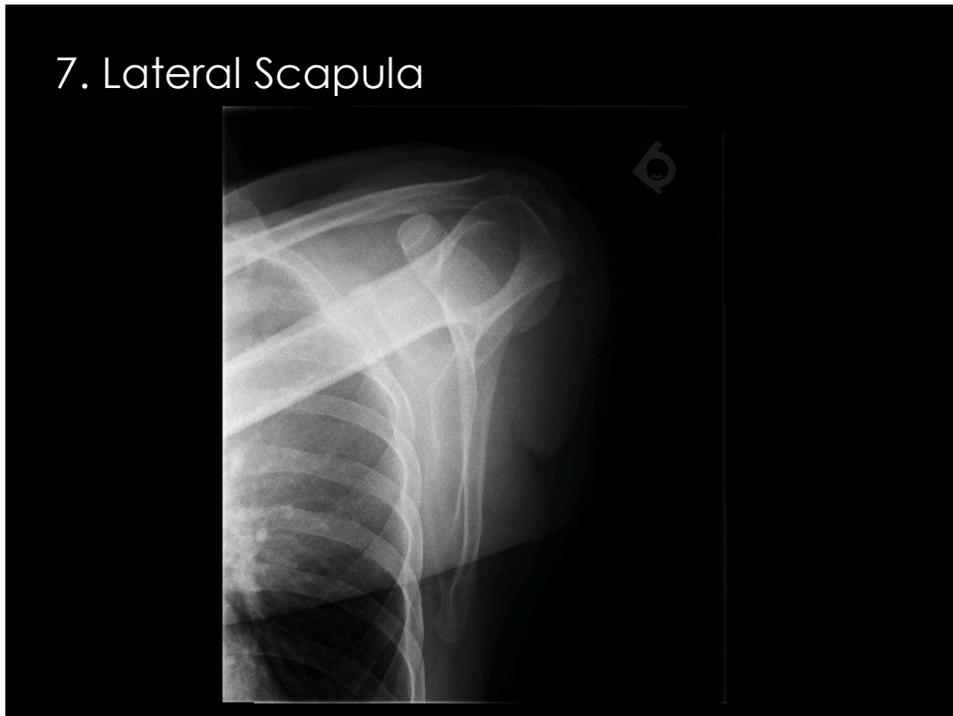
- ▶ This view can also be obtained as an Anterior Oblique (LAO, or RAO) with affected side against the board



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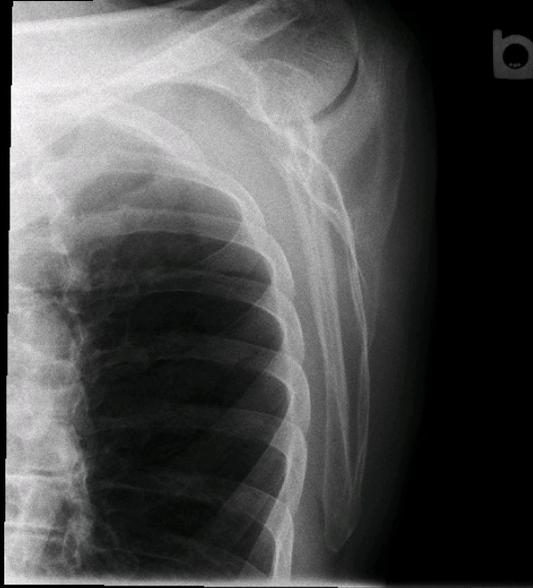


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8. Lateral Scapula



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9. Lateral Scapula



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ELECTIVE

Acromionavicular (AC) Joints AP Neutral /AP Neutral Weight Bearing

- Evidence of proper collimation and the presence of a side marker placed clear of the anatomy of interest
- Acromioclavicular joint visualized
- No rotation or leaning by the patient
- Right or left marker and weight bearing marker
- AC joint separation, if present, clearly seen on the images with weights
- Bony trabecular detail and surrounding soft tissues

AP Neutral

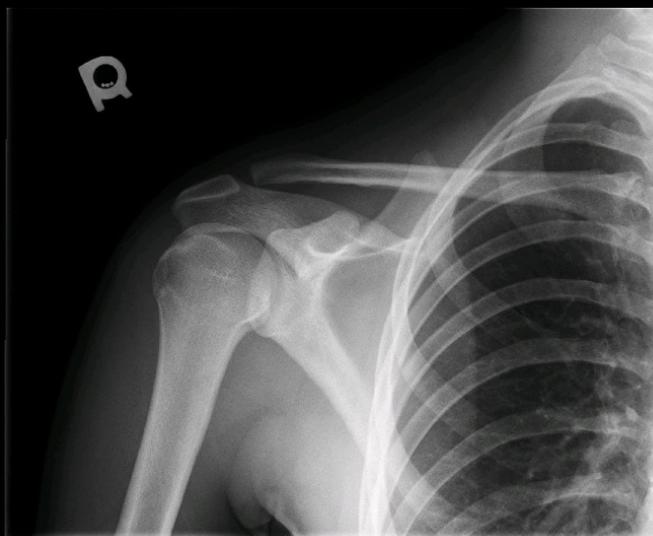


AP Neutral Weight Bearing



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10. Acromioclavicular Joints



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11. Acromioclavicular Joints (Weight bearing)



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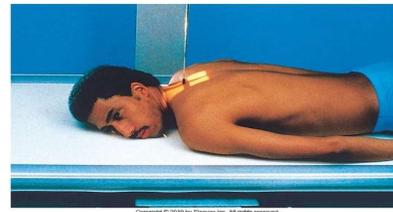
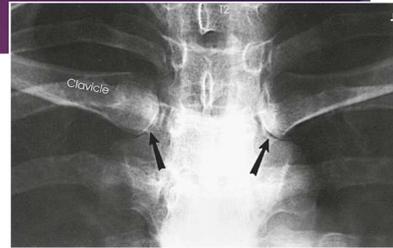
12. Acromioclavicular Joints (Weight bearing)



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Sternoclavicular (SC) Joints PA

- Evidence of proper collimation and the presence of a side marker placed clear of the anatomy of interest
- Both sternoclavicular joints and the medial ends of the clavicles
- No rotation present on a bilateral examination; slight rotation present on a unilateral examination
- Bony trabecular detail and surrounding soft tissues



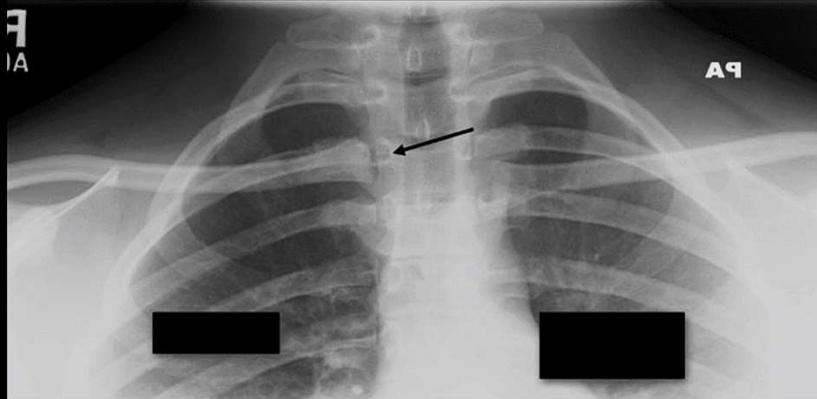
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13. PA Sternoclavicular joints



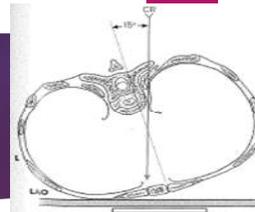
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14. PA Sternoclavicular joints



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Sternoclavicular (SC) Joints PA Oblique (RAO or LAO)



- Evidence of proper collimation and the presence of a side marker placed clear of the anatomy of interest
- Sternoclavicular joint of interest in the center of the radiograph, with the manubrium and the medial end of the clavicles included

Helpful Hint:

- LAO= Left side affected
- RAO= Right side affected
- Open sternoclavicular joint space
- Sternoclavicular joint of interest immediately adjacent to the vertebral column with minimal obliquity
- Bony trabecular detail and surrounding soft tissues

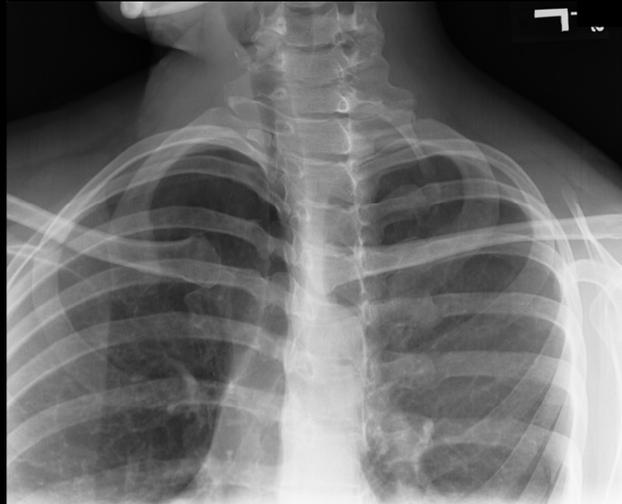


Looking at Left side
LAO image



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15. Sternoclavicular joints- LAO



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16. Sternoclavicular joints RAO



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