



Imaging the Musculoskeletal System

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King Khalid University Hospital
PART 1 - 2013**



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OBJECTIVES

The main focus and objective of this lecture is to help student to be competent in looking at MSK images and interpreting findings, by learning:

- Normal radiological anatomic landmarks
- System of analyzing findings
 - “Where to look & What to look for”
- Recognize features of certain disease entity

IMPORTA
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“Where to look & What to look for”

- Recognize features of certain disease entities,

BONE DENSITY
BONE TEXTURE
DISTORTION /
DISPLACEMENT
OF NORMAL
STRUCTURES





IMAGING OF MUSCULOSKELETAL SYSTEM

PLAIN FILM

Corner Stone

COMPUTED TOMOGRAPHY

MAGNETIC RESONANCE IMAGING

ULTRASOUND

ANGIOGRAPHY

NUCLEAR MEDICINE

- Tendons/ligaments/muscles.
- Detect fluid collections around joints or within muscles.
- Soft tissue masses and cysts.

Useful in complex skeletal trauma



IMAGING OF MUSCULOSKELETAL SYSTEM

PLAIN FILM

COMPUTED TOMOGRAPHY

MAGNETIC RESONANCE IMAGING

ULTRASOUND

ANGIOGRAPHY

NUCLEAR MEDICINE

Useful in bone,
joint, soft tissue

bone scan is very sensitive
but is relatively non-specific

Vascularity
Mapping
Embolization

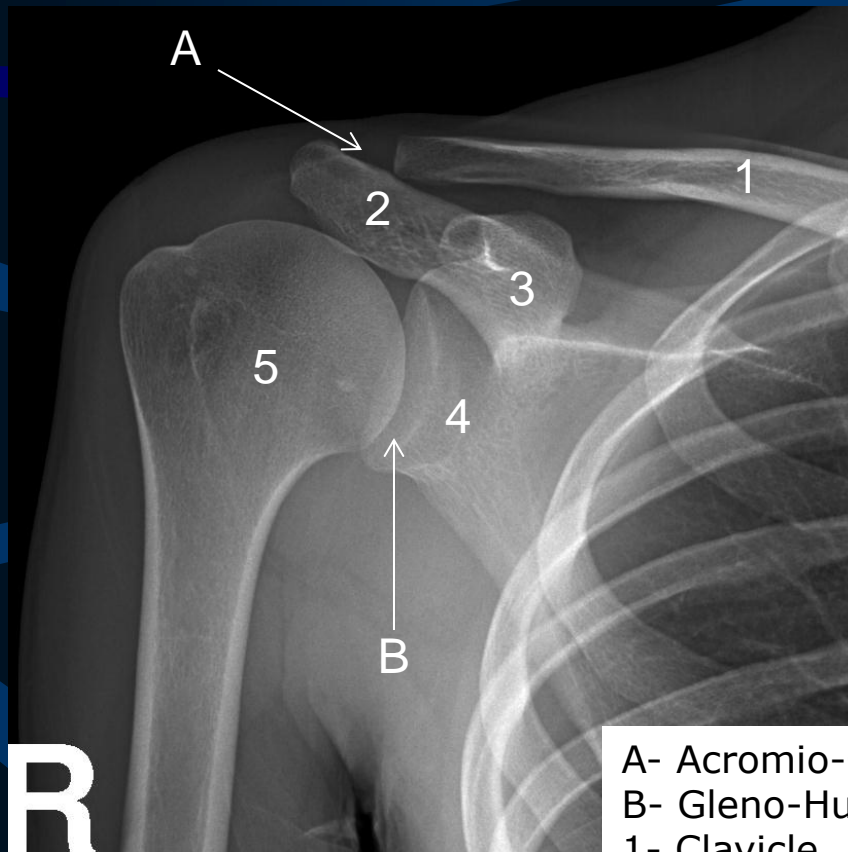




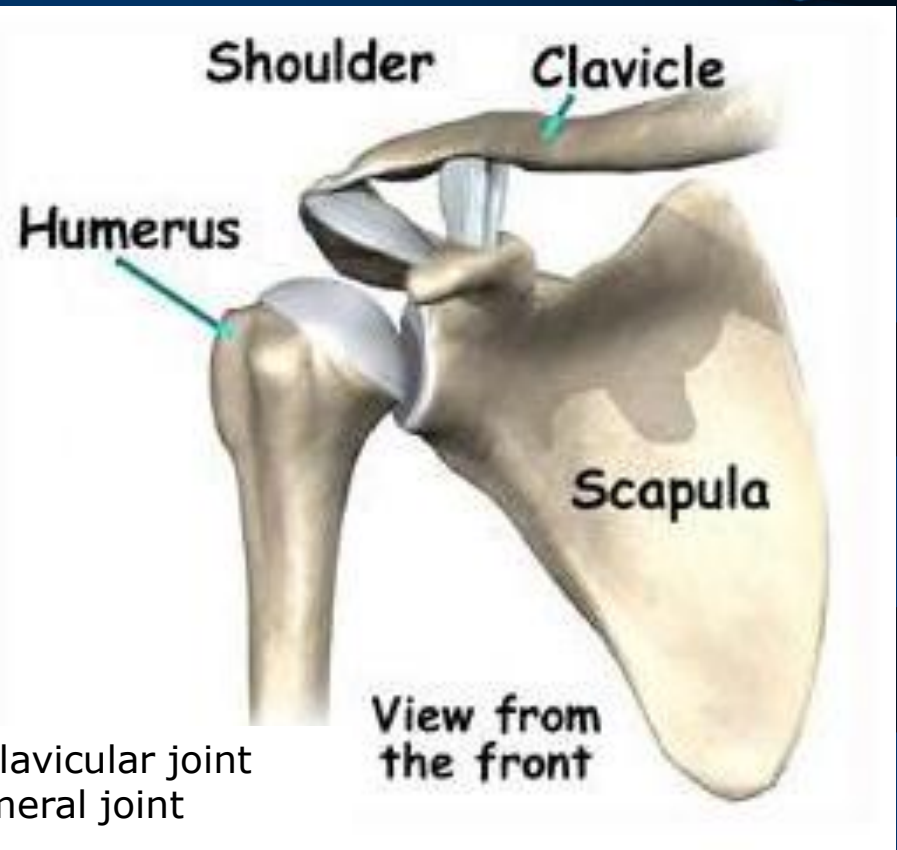
MUSCULOSKELETAL RADIOLOGICAL ANATOMY



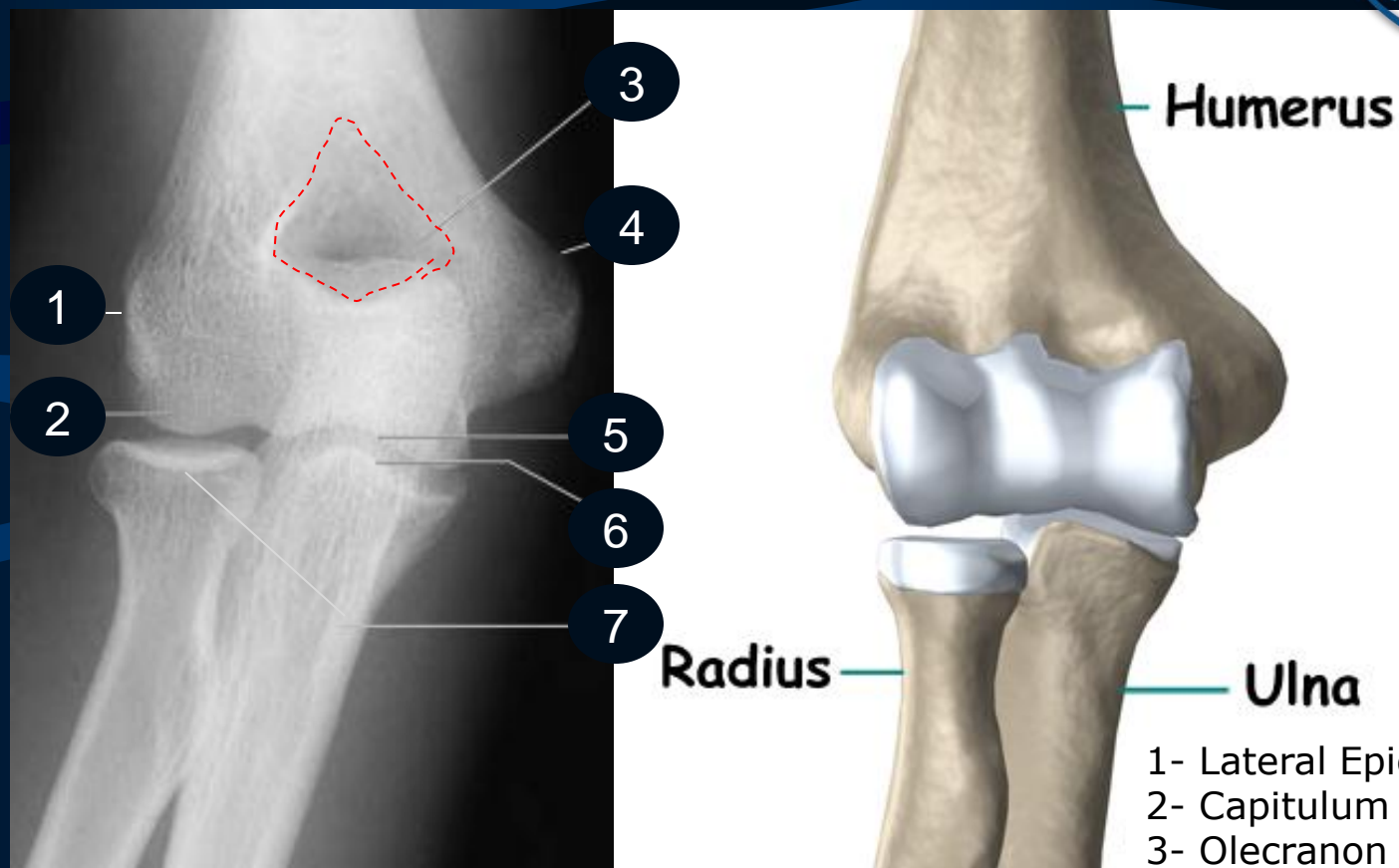
Musculoskeletal Radiological Anatomy



- A- Acromio-Clavicular joint
B- Gleno-Humeral joint
1- Clavicle
2- Acromioclavicular process
3- Coracoclavicular process
4- Glenoid process
5- Humerus



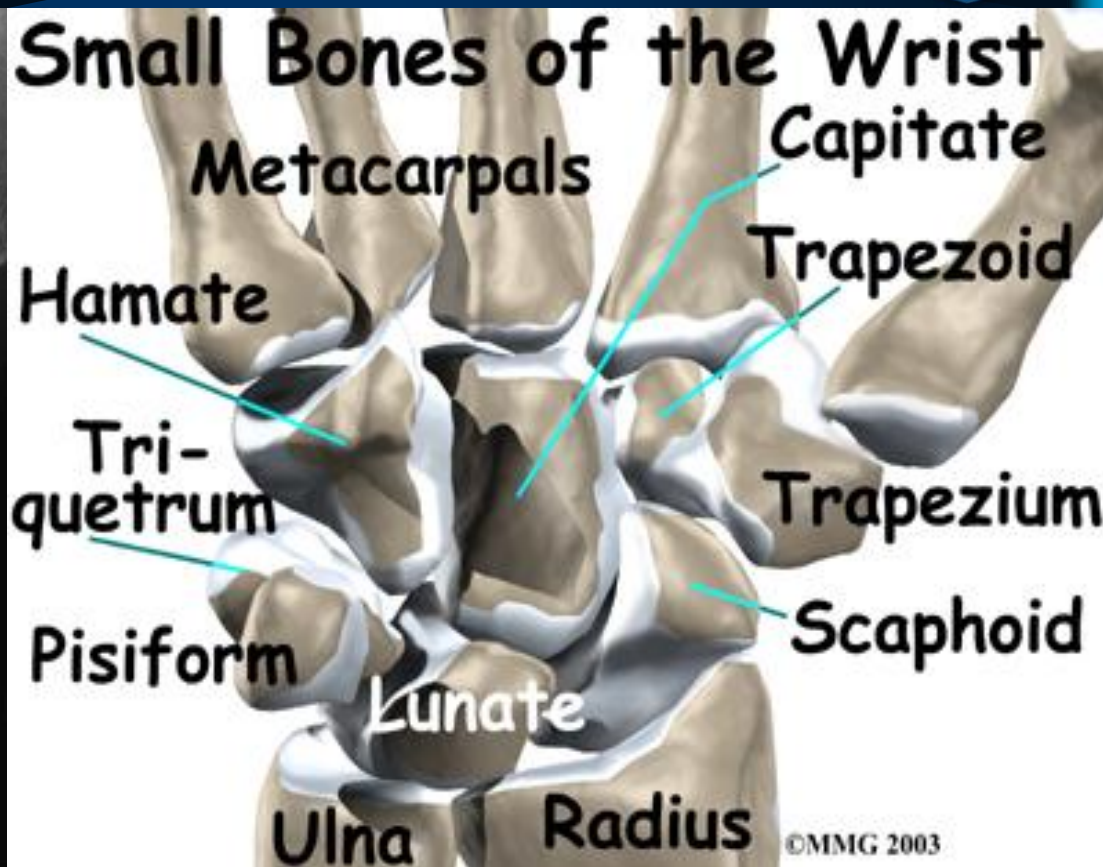
Musculoskeletal Radiological Anatomy



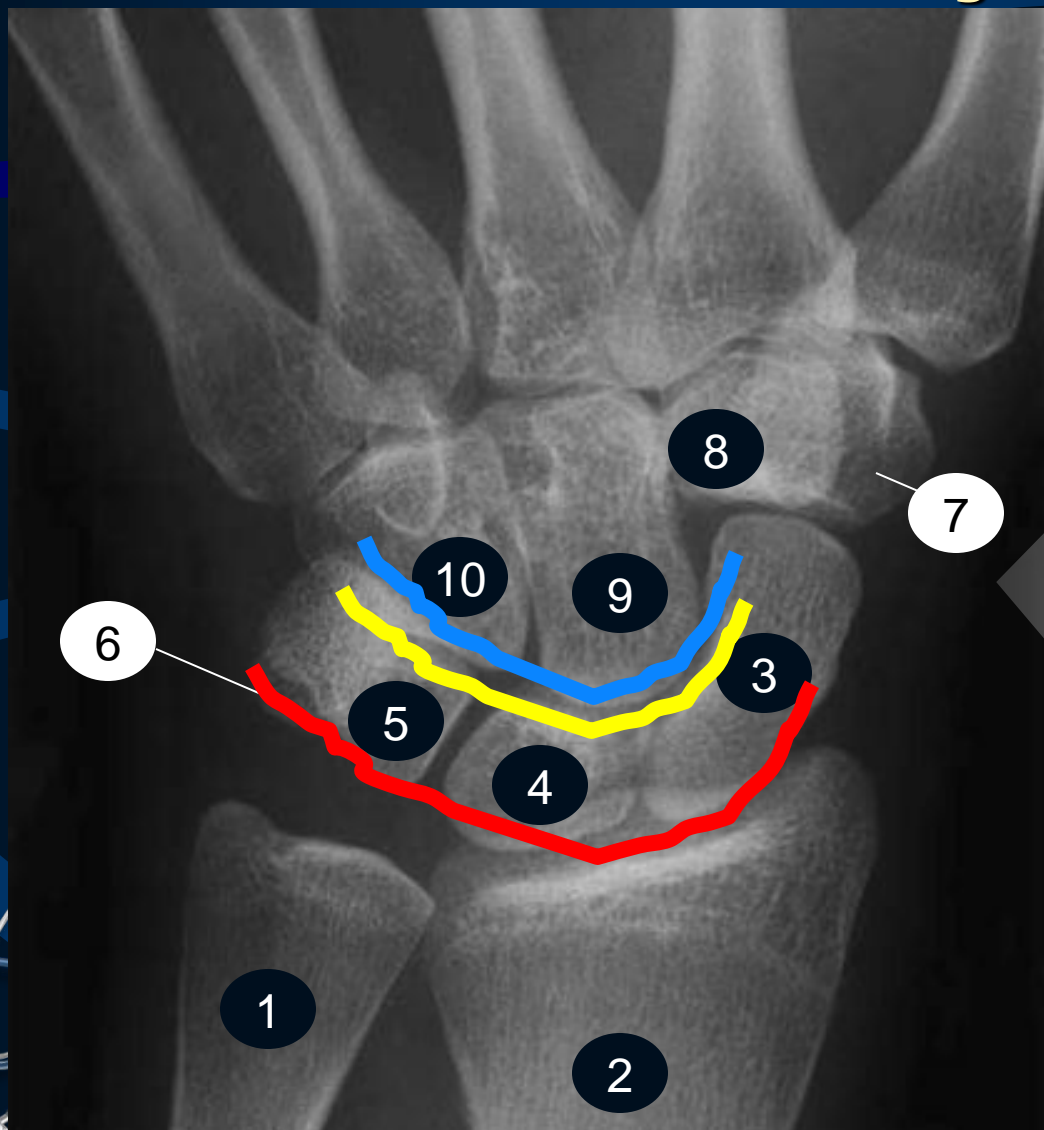
Musculoskeletal Radiological Anatomy



Musculoskeletal Radiological Anatomy

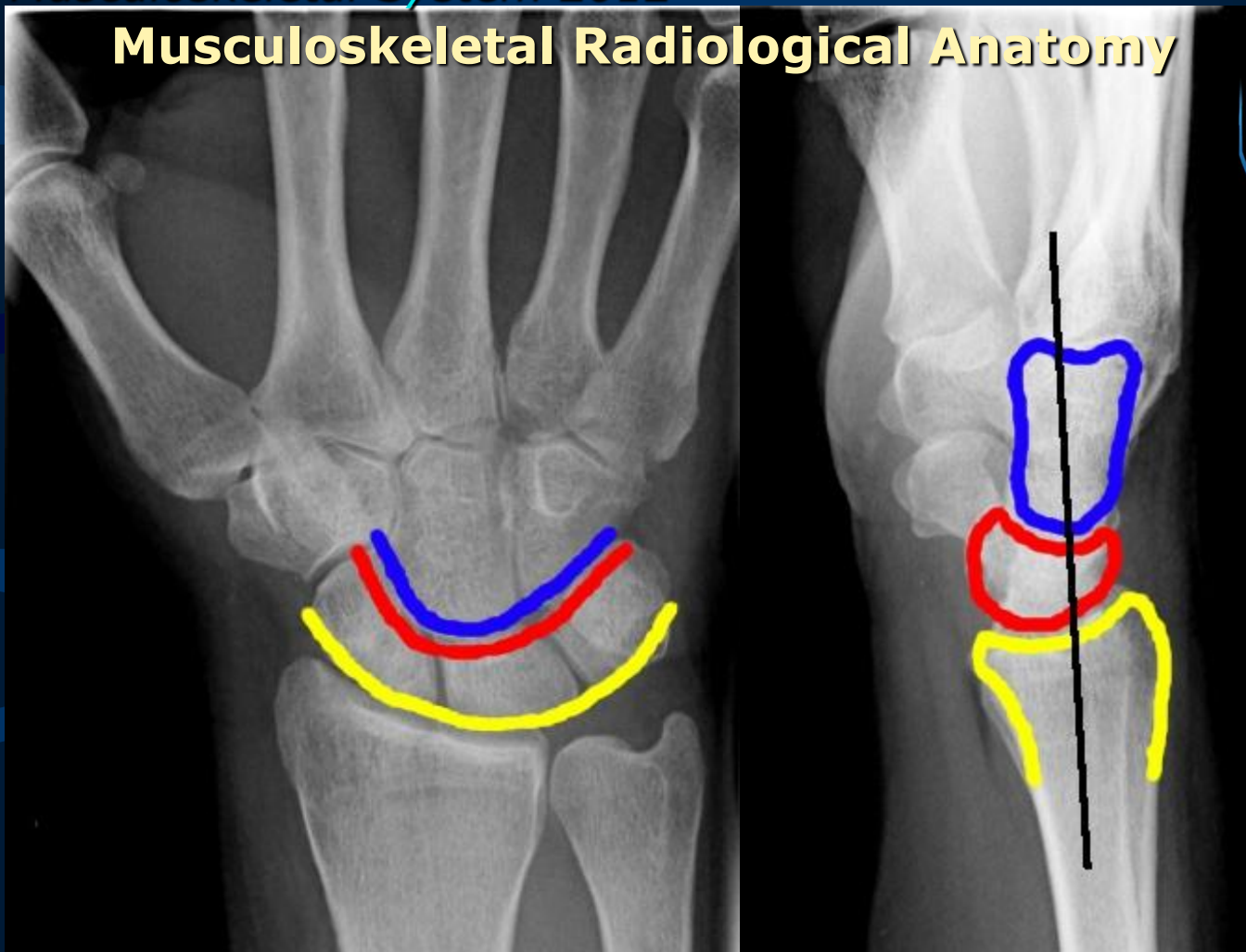


Musculoskeletal Radiological Anatomy



- 1- Ulna
- 2- Radius
- 3- Scaphoid
- 4- Lunate
- 5- Triquetrum
- 6- Pisiform
- 7- Trapezium
- 8- Trapezoid
- 9- Capitate
- 10- Hamate

Musculoskeletal Radiological Anatomy



Three carpal arcs should be traced:

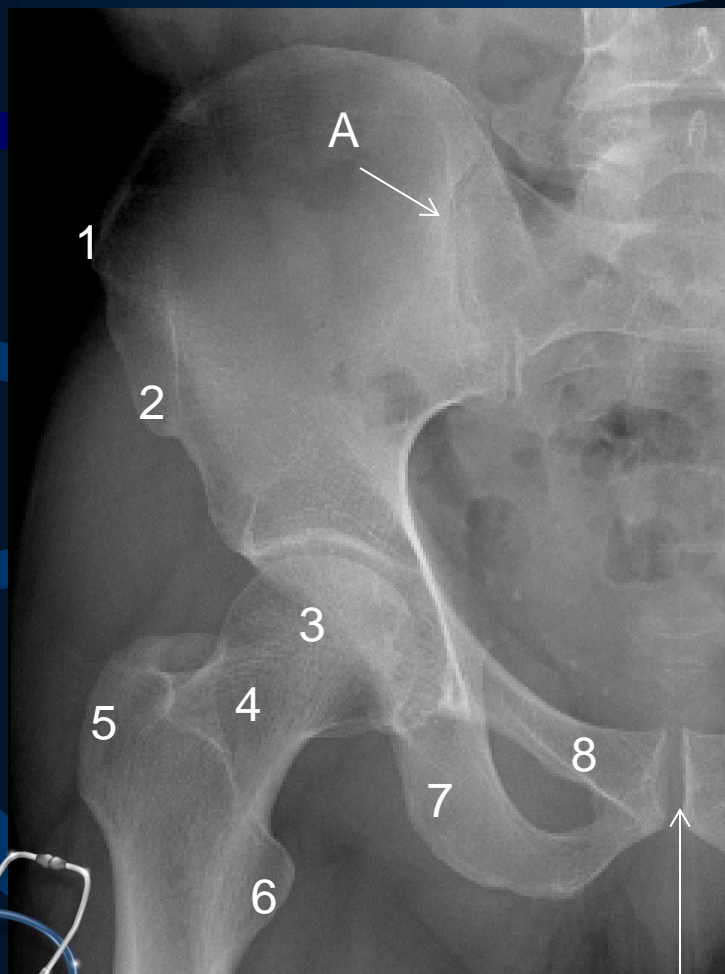
- along the proximal row of carpal bones; proximal aspect.
- along the proximal row of carpal bones; distal aspect.
- along the capitate and hamate proximally.

These three lines should remain unbroken

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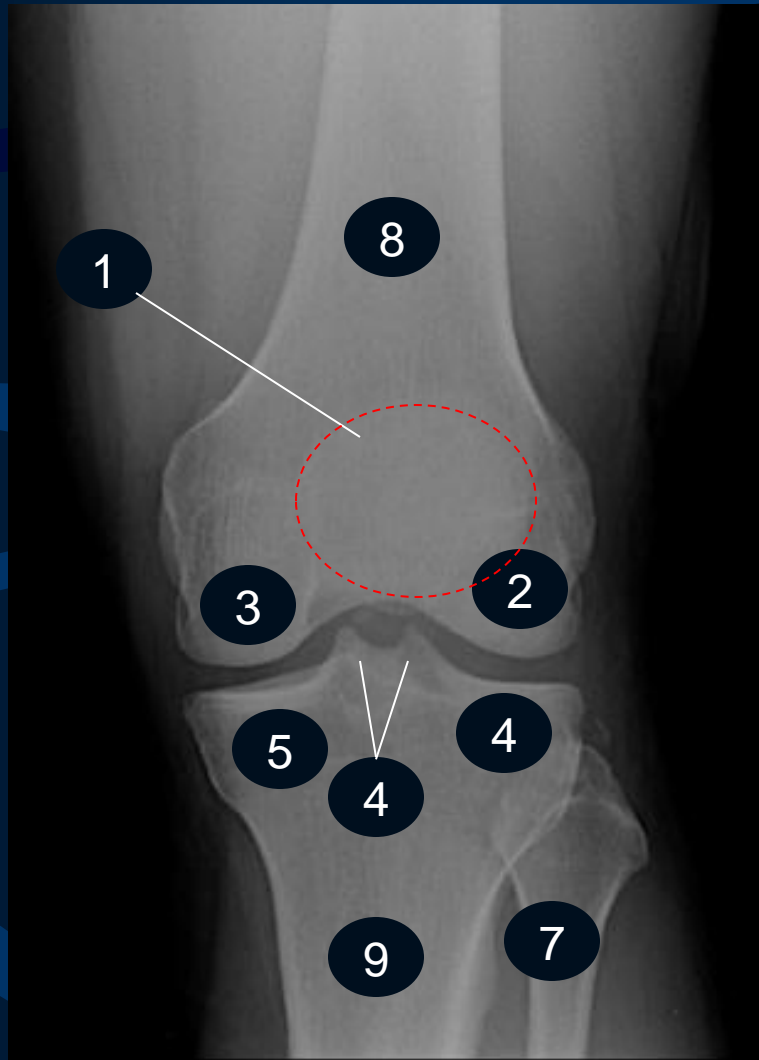
Musculoskeletal Radiological Anatomy



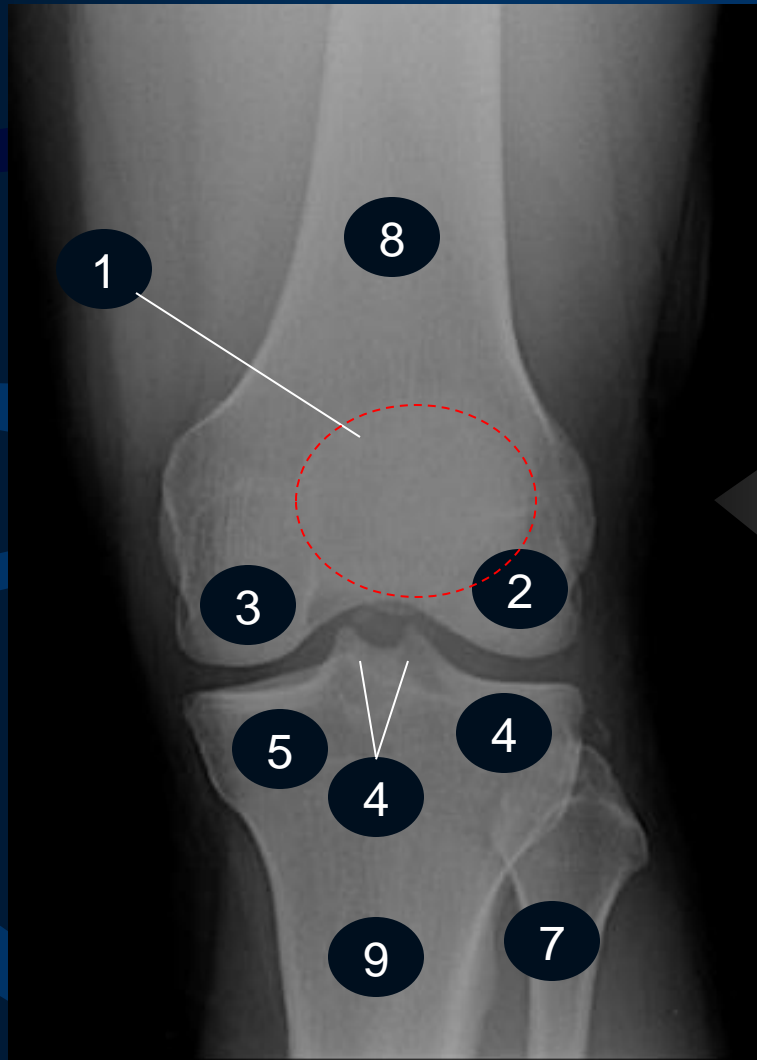
- A-Sacro-iliac Joint
- B-Symphysis Pubis
- 1- Superior Anterior Iliac Spine
- 2- Inferior Anterior Iliac Spine
- 3- Femur Head
- 4- Femur Neck
- 5- Greater Trochantara
- 6- Lesser Trochantara
- 8- Ischium
- 9- Superior Pubic Ramus

B

Musculoskeletal Radiological Anatomy



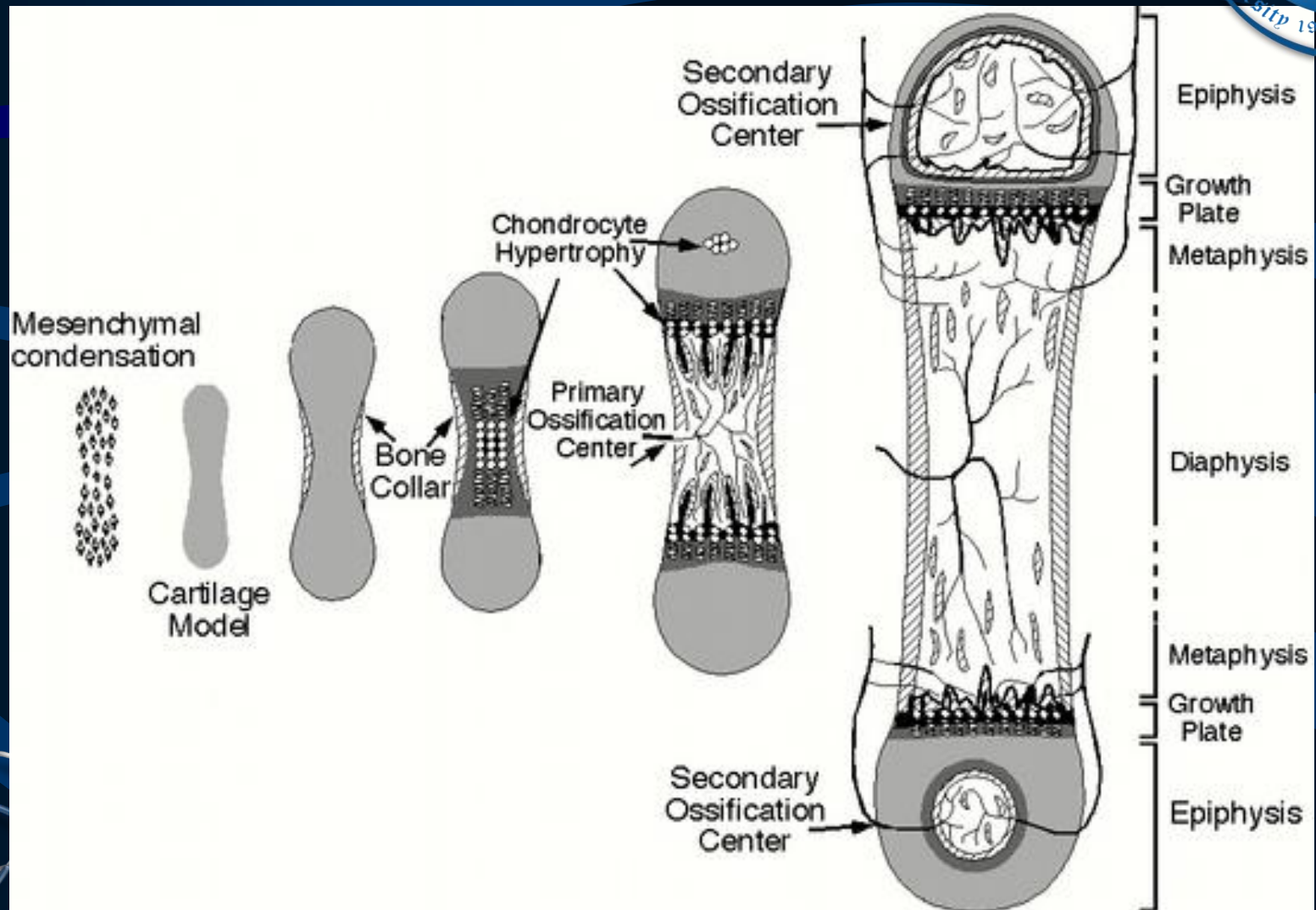
Musculoskeletal Radiological Anatomy



- 1- Patella
- 2- Lateral condyle
- 3- Medial condyle
- 4- Lateral tibial plateau
- 5- Medial tibial plateau
- 6- Tibial eminence
- 7- Fibula
- 8- Femur
- 9- Tibia



Musculoskeletal Radiological Anatomy



Musculoskeletal Radiological Anatomy



OBJECTIVES INTERPRETATION



"Where to look & What to look for"

- IMPORTANT SITES
- BONE DENSITY
- BONE TEXTURE
- DISTORTION / DISPLACEMENT OF NORMAL STRUCTURES



OBJECTIVES INTERPRETATION



Normal
Diaphysis

Metaphysis

Epiphysis

Growth Plate



Rickets

Cupping

Fraying

Widening of
Growth Plate

Cupping

OBJECTIVES INTERPRETATION

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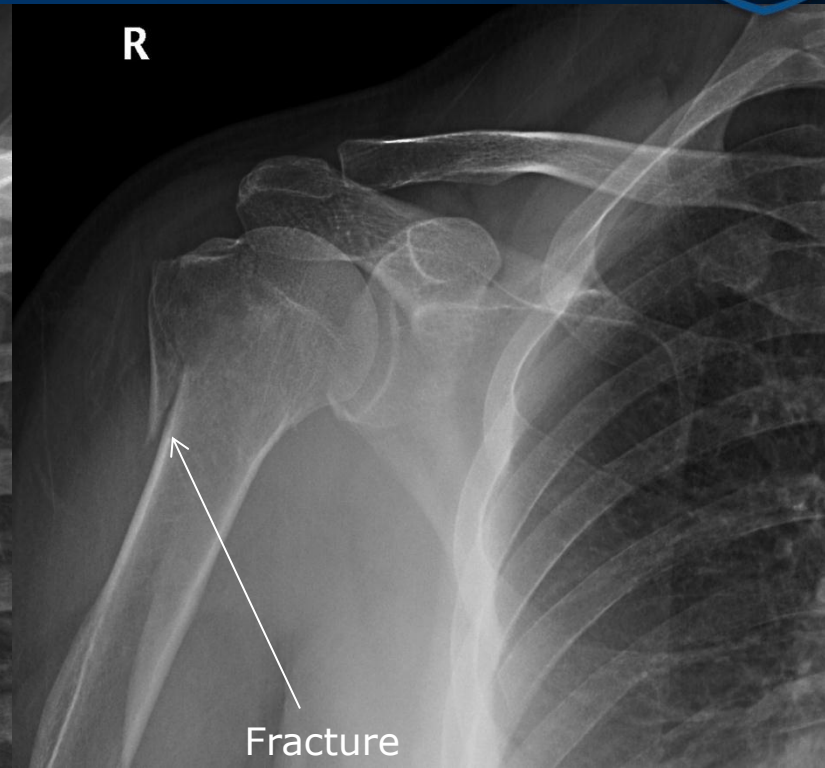


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"Where to look & What to look for" A A Al-BOUKAI-14

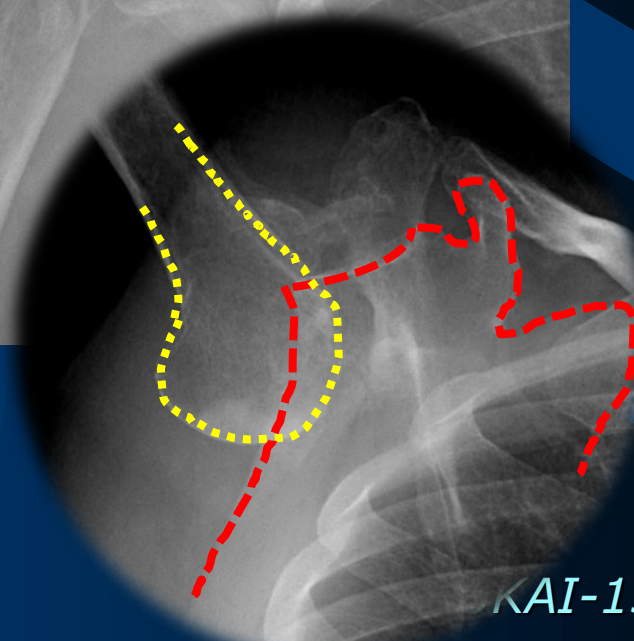
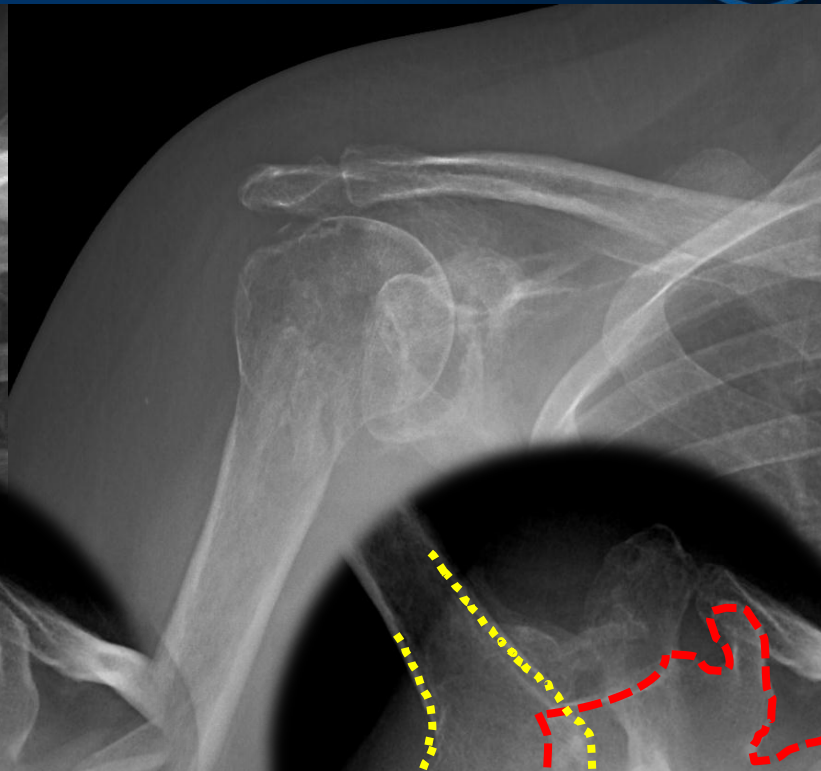
OBJECTIVES INTERPRETATION



OBJECTIVES INTERPRETATION

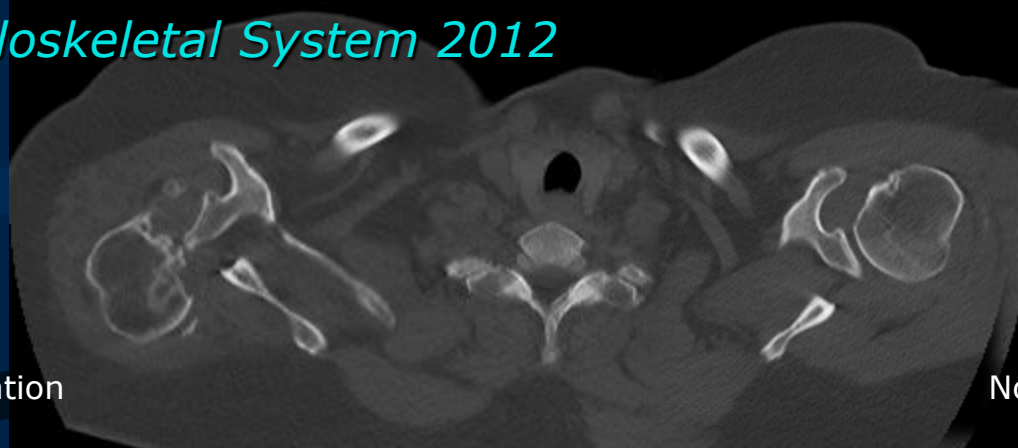


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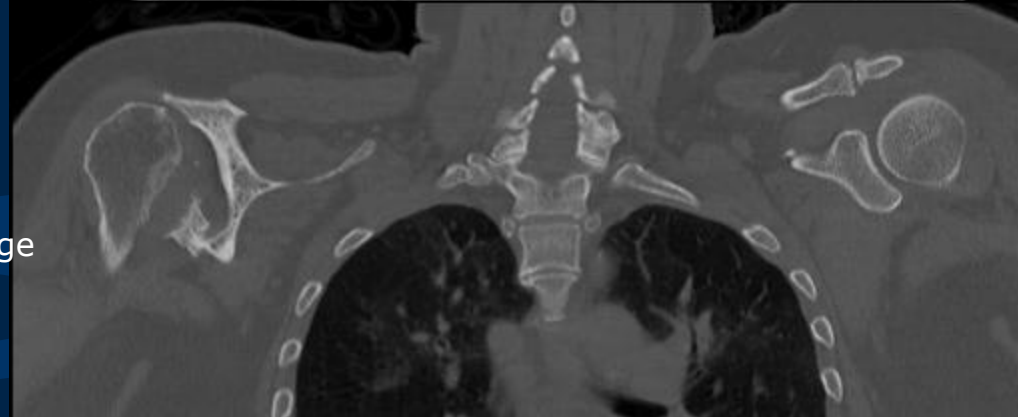
Axial cut



Dislocated articulation

Normal articulation

Coronal reformed image



Coronal reformed image





MUSCULOSKELETAL PATHOLOGY

Congenital

Arthritis

Metabolic

Trauma

Infectious

Hematological

Neoplastic

