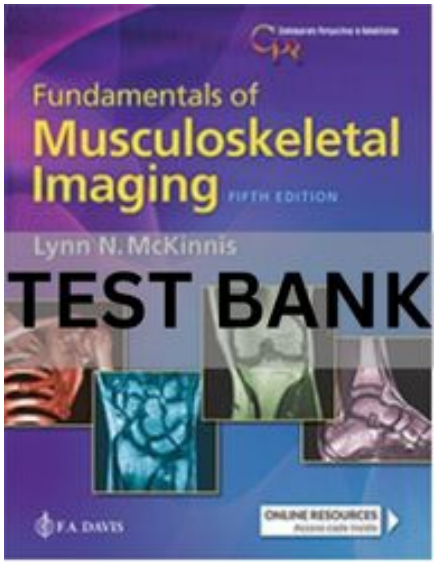
Fundamentals of Musculoskeletal Imaging 5th Edition Test Bank

Chapter 1 General Principles of Musculoskeletal Imaging



1. A conventional radiograph is the best modality for screening for:

A. Metastatic tumors

B. Subtle fractures

C. Bone or joint abnormality

D. Soft tissue lesions

2. “Routine series” of radiographs are ordered to:

A. Complete the physical examination

B. Provide the most visualization of the anatomy with the least number of radiographs

C. Provide a baseline of a pathological condition prior to starting treatment

D. Standardize data for future research

3. The following densities are correctly arranged in order of increasing radiodensity:

A. Air, fat, water, bone

B. Fat, air, water, bone.

C. Air, water, fat, bone

D. Bone, water, fat, air

4. Why are two radiographs, made at right angles to each other, a standard of clinical practice?

A. To account for any distortion on one radiograph

B. To visualize three dimensions of the anatomy

C. To scout for what advanced modality to order next

D. To screen for additional pathological conditions

5. What does the philosophy ALARA mean?

A. As low as reasonably achievable

B. As lucky as a radiologist can accomplish

C. As low an amount of radioactivity absorbed

D. A philosophy replaced by MPD (maximal permissible dose)

6. Contrast media is used in radiography to:

A. Outline the position of metallic hardware

B. Provide protection from radiation to sensitive tissues

C. Determine if a pathological condition is acute or chronic

D. Allow visualization of soft tissues not evident on conventional radiographs

7. The most common projections in routine radiographic examination of the appendicular skeleton and spine are the:

A. Superior and inferior

B. Coronal, sagittal, and axial

C. Cephalad and caudal

D. Anteroposterior, lateral, and oblique

8. Accepted convention for viewing radiographs is to look at the image as if the patient were facing the viewer.

A. True

B. False

9. Radiographic distortion is the difference between the actual object and its recorded image. Every radiograph will have a degree of size or shape distortion.

A. True

B. False

10. A major advantage of the bone scan is how sensitive it is to increased bone metabolism. A major disadvantage of the bone scan is:

A. Lack of specificity to the pathological condition

B. It can only show cortical bone, not cancellous bone

C. It is unable to visualize the entire skeleton in one exam

D. It can show only structural, not physiological, changes

Chapter 2 Radiologic Evaluation, Search Patterns, and Diagnosis

1. A search pattern for viewing radiographs is the ABCs, which stands for:

A. Alignment, bone density, cartilage spaces, soft tissues

B. Anatomy, body mass, connective tissues

C. Alignment, breaks in continuity, cortical margins, soft tissues

D. None of the above

2. Predictor variables help narrow the diagnostic possibilities. If a lesion is wider than it is long and has poorly defined margins, these characteristics are predictive of what kind of lesion?

A. Malignant

B. Metastatic

C. Benign

D. Infectious

3. Sclerosis is seen on radiograph as _____ and is a sign of _____.

A. radiolucent; repair.

B. radiolucent; inflammatory process

C. radiodense; repair

D. radiopaque; repair

4. Radiologic hallmarks of *degenerative joint disease* include:

A. Concentric joint space narrowing, sclerotic subchondral bone, and periarticular rarefaction

B. Asymmetrical joint space narrowing, sclerotic subchondral bone, and pseudocysts

C. Osteophyte formation and osteoporosis

D. Asymmetrical joint space narrowing and articular erosions

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5. Radiologic hallmarks of *rheumatoid arthritis* include:

A. Concentric joint space narrowing, erosions of subchondral bone, and periarticular rarefaction

B. Asymmetrical joint space narrowing, sclerotic subchondral bone, and pseudocysts

C. Osteophyte formation and osteoporosis

D. Asymmetrical joint space narrowing and articular erosions

6. Joint capsules become visible on radiograph when they become distended by effusion seen in the instance(s) of:

A. Acute infection

B. Hemophilic bleed

C. Joint trauma

D. All of the above

7. If an abnormality discovered on radiograph has characteristics of a malignant lesion, the next step is diagnostic evaluation is:

A. Advanced imaging

B. Surgery

C. Chemotherapy

D. Radiation

8. Osteoporosis is a metabolic disease that results in decreased total bone mass. What percent of reduction in bone mass must occur before osteoporosis becomes evident on radiographs?

A. 20%

B. 30%

C. 40%

D. 50%

9. Tumors are generally divided into two categories, based on the amount of bony destruction they incur:

A, Benign and malignant

B. Benign and metastatic

C. Primary and secondary

D. Aggressive and benign

10. What procedure is necessary to accurately define the infectious organism in an infected joint?

A. MRI with contrast

B. Nuclear imaging with a glucose analog

C. Aspiration biopsy

D. Bone scan

Chapter 3 Radiologic Evaluation of Fracture

1. A *trauma survey* of radiographs assesses life-threatening injuries in priority order. Usually the first radiographic examination performed is the:

A. Lateral thoracolumbar

B. Anteroposterior abdominal

C. Cross-table lateral of the cervical spine

D. Anteroposterior skull

2. **Refer to the figure.** Radiographic assessment of a fractured bone must include:

A. Two views at right angles to each other

B. The routine radiographic exam for the most proximal joint

C. An AP view of the contralateral limb to assess normal values

D. The routine radiographic exam for the most distal joint

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3. Eponyms are standardized, and the definitive glossary is included in the text for correct use of eponyms in documentation.

A. True

B. False

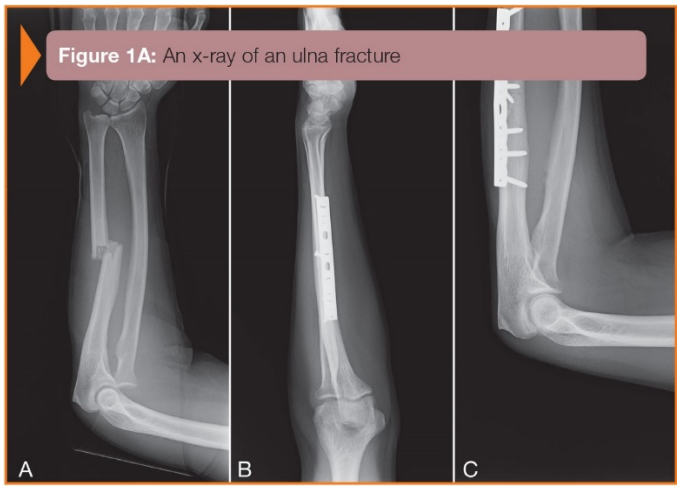
4. **Refer to the figure.** Name the bone and characteristic of the fractures:

A. Midshaft of the ulna, incomplete, displaced

B. Midshaft of the radius, incomplete, displaced

C. Midshaft of the ulna, complete, displaced

D. Midshaft of the radius, complete, displaced



5. **Refer to the figure.** The _____is fractured in the most common epiphyseal injury pattern, a Salter–Harris _____:

A. femur; type 1

B. femur; type 2

C. tibia; type 1

D. tibia; type 2

6. Guiding bone fragments toward normal anatomic position via manipulation or traction and followed by stabilization with an external device is known as:

A. Closed reduction

B. Open reduction

7. “Missed” fractures occur with some frequency because of:

A. Failure to order radiography

B. Failure to recognize fractures on radiographs

C. Subtle fractures that are difficult to see on radiographs

D. All of the above

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8. A basic principle of fracture management if there is clinical suspicion of fracture but negative radiographs is to:

A. Instruct the patient to use the limb to pain tolerance

B. Immobilize the limb and repeat radiographs in 7 to 10 days

C. Immobilize the limb for the average 4- to 6-week healing phase

D. Initiate physical therapy for sprain management

9. When all the processes of healing have ceased at an ununited fracture site, the condition is called:

A. Nonunion

B. Malunion

C. Delayed union

D. Avascular necrosis

10. **Refer to the figure.** The deformity of the radius is known as:

A. Plastic bowing
B. Greenstick fracture

C. Torus fracture
D. Complete midshaft fracture

Chapter 4 Computed Tomography

1. When viewing an axial CT image of the spine:
A. The spinous process points down and the patient's left side is to the left on the image
B. The spinous process points down and the patient's right side is to the left on the image
C. The spinous process points up and the patient's left side is to the left on the image
D. There are no fixed conventions for viewing these images

2. **Refer to the figure.** What imaging method is displayed in this axial scan of the lower thoracic spine?
A. CT, soft tissue window
B. CT myelogram
C. CT, bone window
D. 3D CT

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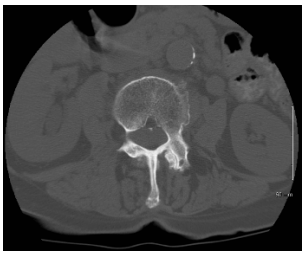

3. In CT scans, which improves spatial resolution (visible details in the image)?
A. Small matrix size
B. Thick slices
C. Small field of view
D. Low bone density

4. In CT images:
A. Cortical bone appears dark
B. Fat appears light gray
C. Dense structures appear white
D. Muscles have a lighter shade than do tendons

5. Windowing (typically expressed in terms of Hounsfield units) refers to the:
A. Size of the field of view in the images
B. Pixel density displayed in the images
C. Range of radiodensities displayed in an image
D. Collimation used when producing the images

6. Cone beam CT has which characteristic?
A. It constructs images from a large number of slices
B. It has longer scanning times but greater image detail
C. It is associated with less radiation exposure
D. It has less spatial resolution than conventional scanners

7. What is true of resolution in CT images?
A. Contrast resolution distinguishes between tissues that have very different radiodensities
B. Spatial resolution improves with larger matrix size
C. Higher contrast resolution always improves the image quality
D. Spatial resolution improves the larger the field of view

8. Musculoskeletal CT scanning is typically done with:
A. A slice thickness of 0.5 mm or less
B. Contrast-enhanced CT
C. Slices of less than 3 mm
D. Comparison with MRI

9. The main advantages of CT lie in:
A. Displaying fine detail of cortical bone
B. Its ability to differentiate between malignant and benign tumors

C. Showing the histological makeup of tissues
D. Low radiation

10. **Refer to the figure.** In this image, the arrow points to:
A. Muscle
B. Tendon
C. Entrapped air
D. Intermuscular fat plane

Chapter 5 Magnetic Resonance Imaging

1. On T1 MRI:
A. Fat appears dark gray
B. Inflammation is bright
C. Tendons appear light gray
D. Healthy tendons appear black

2. What type of imaging is displayed in this image?
A. T1 MRI
B. T2 MRI
C. STIR
D. MRI myelography