

Radiology Indications – Jeopardy answers
ACR Appropriateness Criteria
<https://www.acr.org/Quality-Safety/Appropriateness-Criteria>

Chest

1. 2 cm lung nodule on Chest XR.

Next step?

- a. Look for old studies
- b. Request US
- c. Request CT chest
- d. Request biopsy

Answer

- a. Look for old studies

To confirm stability >2y ago

2. For evaluation of chest pain, first exam is CXR even when suspecting Pulmonary Embolus or Myocardial Infarction.

Why?

Answer

To rule out other causes of chest pain

3. What is the *main* difference between CT chest scans?

- a. Timing of scan after IV contrast
- b. The area imaged

Answer

Timing of scan after IV contrast

4. What imaging evaluates for dysphagia?

Answer

Barium Swallow/Esophagram

Fluoroscopy: Real-time best for esophageal dysmotility

5. A high resolution CT of the Chest (e.g., to look for occupational lung disease) is done with IV contrast.

- a. True
- b. False

Answer 500 Points

False

MSK/Trauma

1. An XR should be always be requested before or in conjunction with an musculoskeletal (MSK) MRI.
 - a. True
 - b. False

Answer

- a. True

XR is more specific for some entities and can show “do not touch” lesions.

2. 28 y M
 - Fall on outstretched hand (FOOSH)
 - Snuff box tenderness → suspicion for scaphoid fracture
 - Normal XRs

To evaluate further, what is done most often?

- a. Cast and repeat XR wrist in 7-10 days
- b. CT wrist without contrast
- c. MRI wrist without contrast
- d. Nuclear medicine bone scan

Answer

- a. Cast and repeat in 7-10 days

Bonus:

Why?

When might you do advanced imaging?

3. 50 y M s/p motor vehicle collision just got a CT Chest/abdomen/pelvis, pending reading. Now concern for thoracic (T) spine fracture; what should you request?

- a. T spine XR
- b. CT T spine
- c. MR T spine
- d. None of the above

Answer

- d. None of the above

CT T Spine can be reconstructed from CT chest

4. Which modality excludes necrotizing fasciitis?
 - a. XR
 - b. US
 - c. CT with contrast
 - d. MRI with contrast
 - e. None of the above

Answer

- e. None of the above

Clinical diagnosis –

although suggested on XR or CT or MR

CT: to look for extent for surgical planning

5. 57 y M
 - s/p ORIF (surgery w/hardware) for ankle fracture
 - Symptoms concerning for osteomyelitis

After XR ankle, what should you request?

- a. US ankle
- b. CT ankle
- c. MRI ankle
- d. Tagged-WBC exam

Answer 500 points

Tagged-WBC exam

GI/GU

1. Which is least likely to exclude free air?
 - a. Supine abdominal XR (AXR or KUB)
 - b. Abdominal series (Supine & upright AXR, upright CXR)
 - c. Upright CXR
 - d. CT Abdomen/Pelvis

Answer

- a. Supine abdominal XR (AXR/KUB)

2. 24 y F

- No PMH
- Id of symptoms:

R flank pain, dysuria, fever, foul-smelling urine, leukocytosis

→concern for pyelonephritis

What study should be performed to evaluate?

- a. Renal US
- b. CT Stone (CT AP without IV contrast)
- c. CT AP with IV contrast
- d. None of the above

Answer

- d. None of the above

Consider CT symptoms don't resolve after treatment, especially if immunosuppressed

3. 62 y M

- Painless hematuria

What is the best imaging study?

- a. XR Abdomen
- b. Renal US
- c. CT AP w/o IV contrast
- d. CT Urogram

Answer

CT Urogram

(CT AP pre and post contrast)

Note:

- If hematuria w/ proteinuria, consider US
- If pain, doesn't rule out malignancy

4. 40 y M

- N/V and diffuse abdominal pain

→high concern for small bowel obstruction

Which study is the best first study:

- a. XR Abdominal series (Supine & upright AXR, upright CXR)
- b. CT AP with IV contrast only
- c. CT AP with IV and PO contrast
- d. All of these are legitimate imaging options

Answer

CT AP with IV contrast only

5. 26 y M

- Acutely ill in ED:

Bloody diarrhea, vomiting, abdominal pain, fever, leukocytosis

→concern for inflammatory bowel disease

- No contraindication to IV contrast

What study should be requested?

- a. CT Enterography (oral and IV contrast)
- b. CT AP with IV contrast only
- c. CT AP with oral contrast only
- d. a or b
- e. a, b or c

Answer

- b. CT AP with IV contrast only

Depending on circumstances: If not acute flare, CT enterography. If contraindication to IV contrast, no IV

Neuro

1. 65 y M

- HTN
- sudden-onset of worst headache of life → Concern for subarachnoid hemorrhage

What imaging?

- No imaging is needed
- CT head, non-contrast
- CTA head and neck
- MRI brain

Answer

- CT head, non-contrast

2. 57 y M

- 2 hrs new onset right sided weakness
→ suspicion of stroke
- CT head is normal

What is time window from onset of stroke symptoms to give intravenous TPA (Tissue plasminogen activator)?

- <1 hr
- <3-4.5 hr
- <1 d
- <3-4.5 d

Answer

- <3 - 4.5 hours

3. 75 y F

- High-speed MVC
- Midline neck tenderness

What imaging?

- No imaging is needed
- XR C spine
- CT C spine
- MRI C spine

Answer

c. CT C spine

Nexus criteria, Canadian C spine rule

4. 58 y M

- severe back pain
- "saddle anesthesia" and decreased rectal tone

→ concern for cauda equina syndrome

Which imaging?

- XR L spine
- CT L spine
- MRI L spine
- None of the above

Answer

- MRI L spine without contrast - To look at cord compression
CT myelogram if can't do MR

5. 22 y F

- acute low back pain
- radiates to left lower extremity
- no neurologic deficits

What imaging?

- L spine XR series
- CT L spine
- MRI L spine
- None of the above

Answer

d. None of the above - Will not change management

Imaging Management

1. If patient refuses a procedure, family can give consent:
 - a. If team feels strongly that procedure is necessary
 - b. If family feels strongly that procedure is necessary
 - c. Only if patient is incompetent – a competent patient has the right to refuse a procedure

Answer

- c. Only if the patient is incompetent – a competent patient has the right to refuse a procedure

2. A patient can get an MRI brain with IV gadolinium if:

- a. Pregnant
- b. Has renal failure
- c. Has orbital ferromagnetic metal
- d. Brain aneurysm clips recently

Answer

- d. Brain aneurysm clips recently

3. How long should Metformin be stopped after CT with IV contrast?

- a. 1 d
- b. 2 d
- c. 3 d
- d. 4 d

Answer

- 2 days after CT with IV contrast

4. A patient with a glomerular filtration rate GFR <30 will tolerate:

- a. CT w/ IV contrast if hydrated before/after
- b. CT w/ IV contrast if dialysis < 24 hrs
- c. MRI w/ IV contrast if hydrated before/after
- d. MRI w/ IV contrast if dialysis < 24 hrs

Answer

- b. CT with IV contrast if he will be getting dialysis within 24 hours

MR IV gadolinium if GFR<30:

Nephrogenic Systemic Fibrosis

5. On same day, patient for cancer staging is scheduled for
 - MRI brain with IV contrast (gadolinium)
 - CT Chest/Abdomen/Pelvis with IV contrast (iodine-based)

Last time he received CT IV contrast, he developed a rash.

The patient needs premedication protocol beginning:

- a. 13 hrs prior to CT
- b. 1 hr prior to CT
- c. 13 hrs before the first study - whether it's the CT or MRI
- d. 1 hr before the first study - whether it's the CT or MRI
- e. Never... i.e., rash is not a true reaction

Answer

- a. Premedication protocol beginning 13 hr prior to CT scan