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
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
   • 1d 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
1. 65 y M
   • HTN
   • sudden-onset of worst headache of life ➔ Concern for subarachnoid hemorrhage
What imaging?
   a. No imaging is needed
   b. CT head, non-contrast
   c. CTA head and neck
   d. MRI brain
Answer
   b. 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)?
   a. <1 hr
   b. <3-4.5 hr
   c. <1 d
   d. <3-4.5 d
Answer
   a. <3 - 4.5 hours

3. 75 y F
   • High-speed MVC
   • Midline neck tenderness
What imaging?
   a. No imaging is needed
   b. XR C spine
   c. CT C spine
   d. 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?
   a. XR L spine
   b. CT L spine
   c. MRI L spine
   d. None of the above
Answer
   b. 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?
   a. L spine XR series
   b. CT L spine
   c. MRI L spine
   d. 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