

Supplementary Material 1.

Questions

Neuroradiology (15 questions)

1. Describe the imaging characteristics of a meningioma on magnetic resonance imaging (MRI) and computed tomography (CT). How would you differentiate it from other extraaxial lesions?
2. What is the role of diffusion-weighted imaging in diagnosing acute stroke? Explain the typical findings.
3. Discuss the radiological features of multiple sclerosis on MRI.
4. Explain the significance of black hole sign on MRI and its differential diagnoses.
5. What are the imaging findings of a subarachnoid hemorrhage on non-contrast CT?
6. Describe the imaging appearance and differential diagnosis of a cavernous malformation.
7. Discuss the radiological evaluation of trigeminal neuralgia.
8. What are the key MRI findings in patients with Alzheimer’s disease?
9. How do you differentiate between intra-axial and extra-axial tumors on imaging?
10. Describe the imaging features of a Chiari I malformation and its associated complications.
11. What is the importance of MR spectroscopy in neuro-oncology? Provide an example.
12. Explain the imaging features of a craniopharyngioma in pediatric patients.
13. Describe the findings of a diffuse axonal injury on MRI.
14. What are the radiological hallmarks of a pituitary adenoma?
15. How is hydrocephalus differentiated from brain atrophy on imaging?

Abdominal radiology (15 questions)

1. What are the typical ultrasound findings in acute cholecystitis?
2. Describe the imaging features of hepatocellular carcinoma on multiphasic CT.
4. Explain the CT findings of acute appendicitis and its complications.
5. What are the MRI characteristics of a simple hepatic cyst versus a hydatid cyst?
6. Discuss the imaging appearance of liver cirrhosis and portal hypertension.
7. Describe the radiologic findings of pancreatic adenocarcinoma on CT.
8. How is small bowel obstruction diagnosed and differentiated from ileus on abdominal radiographs and CT?
9. What are the key imaging features of Crohn’s disease on CT enterography?
10. Explain the radiological findings in a patient with acute pancreatitis.
11. Describe the ultrasound and CT features of a renal cell carcinoma.
12. How do you differentiate between a pyogenic liver abscess and an amebic liver abscess on imaging?
13. Discuss the imaging findings of mesenteric ischemia on contrast-enhanced CT.
14. Explain the role of MRI in evaluating adrenal adenomas versus adrenal carcinomas.
15. What are the key imaging findings of intussusception on ultrasound and CT?
16. Describe the typical imaging findings of a gastrointestinal stromal tumor on CT.

Musculoskeletal radiology (15 questions)

1. Describe the key MRI findings of an anterior cruciate ligament tear.
2. What are the typical imaging features of osteomyelitis on MRI?
3. Discuss the radiological findings in a case of osteoarthritis in the knee joint.
4. How do you differentiate between osteoid osteoma and osteoblastoma on imaging?
5. Explain the imaging features of a Hill-Sachs lesion on shoulder radiographs and MRI.
6. What are the CT and MRI characteristics of a meniscal tear?
7. Discuss the typical radiological findings of a scaphoid fracture.
8. What are the imaging features of a soft tissue sarcoma on MRI?
9. Describe the radiologic appearance of ankylosing spondylitis on spinal imaging.
10. How is avascular necrosis of the femoral head diagnosed on MRI?
11. What are the characteristic imaging features of multiple myeloma on radiographs and MRI?
12. Explain the role of bone scintigraphy in detecting skeletal metastases.
13. Discuss the imaging appearance of a rotator cuff tear on MRI.
14. What are the radiological findings of a Colles’ fracture on wrist X-ray?
15. Explain the typical MRI findings of a Baker’s cyst.

Thoracic radiology (15 questions)

1. Describe the typical imaging findings of a pulmonary embolism on CT pulmonary angiography.
2. What are the key features of a primary lung carcinoma on chest CT?
3. How is a pneumothorax identified and assessed on chest radiographs and CT?
4. Discuss the radiological findings of a tension pneumothorax on chest X-ray.
5. What are the characteristic CT features of interstitial lung disease?
6. Describe the typical imaging findings of a pleural effusion on chest X-ray and CT.
7. What are the key CT findings of acute respiratory distress syndrome?
8. Explain the radiologic features of bronchiectasis on high-resolution CT.
9. How do you differentiate between a pulmonary abscess and a cavitary lung carcinoma on imaging?
10. Discuss the CT findings of pulmonary fibrosis.
11. What are the typical imaging findings of a pulmonary sequestration?
12. Explain the role of chest radiographs in the diagnosis of chronic obstructive pulmonary disease.
13. Describe the imaging features of a thymoma on chest CT.
14. What are the radiological findings of a mesothelioma on CT and MRI?
15. Discuss the radiographic appearance of military tuberculosis.

Cardiac radiology (15 questions)

1. Describe the imaging features of an acute myocardial infarction on cardiac MRI.
2. What are the typical findings of pericardial effusion on echocardiography and CT?
3. Explain the role of coronary artery calcium scoring in cardiac CT.
4. How is aortic stenosis assessed using echocardiography?
5. Discuss the CT findings of a thoracic aortic aneurysm.
6. What are the characteristic MRI findings of hypertrophic cardiomyopathy?
7. Explain the role of cardiac MRI in the evaluation of myocarditis.
8. Describe the imaging features of a ventricular septal defect on echocardiography.
9. How is coronary artery disease evaluated using CT coronary angiography?
10. What are the characteristic findings of constrictive pericarditis on cardiac MRI?
11. Discuss the role of MRI in the assessment of cardiac masses.
12. What are the key echocardiographic findings of mitral regurgitation?
13. Explain the typical imaging findings of atrial fibrillation on CT or MRI.
14. What is the role of nuclear cardiology in assessing myocardial ischemia?
15. Describe the CT findings of coronary artery bypass grafts.

Head and neck radiology (15 questions)

1. What are the characteristic imaging findings of a parotid gland pleomorphic adenoma on MRI?
2. Describe the radiologic appearance of a laryngeal squamous cell carcinoma on CT.
3. Explain the imaging features of a glomus jugulare tumor on MRI and CT.
4. What are the typical radiographic findings of sinusitis on CT?
5. Discuss the radiologic appearance of a nasopharyngeal carcinoma on MRI.
6. What are the key imaging features of a thyroglossal duct cyst on ultrasound?
7. Describe the CT findings of an orbital blowout fracture.
8. What are the imaging features of a schwannoma in the internal auditory canal on MRI?
9. Explain the role of MRI in evaluating cholesteatomas.
10. What are the typical imaging findings of a Zenker’s diverticulum on barium swallow?
11. Describe the radiologic findings of temporomandibular joint dysfunction on MRI.
12. Discuss the CT appearance of Ludwig’s angina.
13. What are the key ultrasound findings of a thyroid nodule suggestive of malignancy?
14. Explain the imaging features of a carotid body tumor on CT and MRI.
15. Describe the findings of a peritonsillar abscess on CT.

Pediatric radiology (15 questions)

1. What are the typical ultrasound findings in a case of hypertrophic pyloric stenosis in infants?
2. Describe the imaging features of developmental dysplasia of the hip on ultrasound and X-ray.
3. How do you differentiate between a benign and malignant pediatric brain tumor on MRI?
4. Discuss the typical imaging findings of necrotizing enterocolitis in neonates on abdominal radiographs.
5. What are the characteristic radiologic signs of a volvulus in a neonate with malrotation on upper gastrointestinal series?
6. What Describe the imaging features of a Wilms tumor on abdominal ultrasound and CT.
7. Explain the radiographic findings in a child with bronchiolitis obliterans.
8. How is Legg-Calvé-Perthes disease diagnosed on radiographs and MRI?
9. What are the key imaging features of a pediatric case of intussusception on ultrasound?
10. Discuss the MRI findings in a child with juvenile idiopathic arthritis.
11. How do you differentiate between osteosarcoma and Ewing sarcoma on pediatric bone imaging?
12. What are the characteristic ultrasound features of a congenital diaphragmatic hernia?
13. Describe the typical chest radiograph findings in pediatric patients with cystic fibrosis.
14. What are the common imaging findings in children with non-accidental trauma on skeletal surveys?
15. Explain the radiological features of a neuroblastoma on MRI and CT.

Interventional radiology (15 questions)

1. What are the clinical indications for using percutaneous tumor ablation, and how do imaging modalities guide both patient selection and procedural planning?
2. How do you assess the risks and benefits of renal artery stenting, and what role does post-procedural imaging play in evaluating outcomes?
3. Which imaging modalities are critical for pre-procedural planning in thoracic aortic aneurysm repair, and how do they assist in guiding the placement of endovascular stents?
4. What are the key imaging features that indicate the need for embolization in cases of gastrointestinal bleeding, and how does imaging guide the treatment approach?
5. How is imaging used to identify and treat complex vascular malformations, and what challenges arise during interventional procedures for these cases?
6. What advantages does cone-beam CT (CBCT) provide in interventional radiology, and in which specific procedures does CBCT improve accuracy and patient outcomes?
7. How do interventional radiologists use imaging to diagnose and treat portal vein thrombosis, and what follow-up imaging studies are necessary to monitor treatment effectiveness?
8. What are the key imaging modalities for performing image-guided biopsies in oncologic patients, and how do these techniques ensure accurate targeting of lesions in various organ systems?
9. How have drug-eluting technologies, such as stents and beads, impacted interventional treatments for vascular diseases and cancer, and what role does imaging play in evaluating treatment success?
10. What are the benefits and challenges of transradial access in interventional radiology, and how do imaging studies influence the decision to use this access route over femoral access?
11. How does imaging contribute to the diagnosis and treatment of complications related to dialysis access in interventional radiology, and what techniques are most effective in managing these issues?
12. What role does pre-procedural imaging play in selecting the appropriate revascularization technique for patients with critical limb ischemia, and how does it improve procedural outcomes?
13. How is imaging used to guide endovenous thermal ablation for venous insufficiency and varicose veins, and what are the key procedural steps involved?
14. What imaging techniques are essential when performing a transjugular liver biopsy, and how do they minimize complications during and after the procedure?
15. How does imaging guide the treatment of osteoid osteomas in interventional radiology, and what post-procedural imaging findings confirm a successful outcome?