Open Ended Questions

Abdomen and Pelvic MRI

1. After a prostate biopsy, when is it appropriate to perform a prostate MRI, and why is this timing important?

2. What are the key protocol adjustments and patient preparation steps for an optimal MR urography, particularly in patients with renal function impairment or during pregnancy?

3. What should be the maximum slice thickness for pelvic MRI?

4. What are the key considerations for patient preparation and positioning when performing an abdominal MRI to ensure optimal image quality and minimize motion artifacts?

5. Which specific imaging sequences are essential in a multiparametric prostate MRI, and what role does each sequence play in prostate cancer evaluation?
6. When performing an adrenal MRI for the characterization of adrenal masses, what are the key sequences and protocol adjustments that should be included, and how do they aid in differentiating benign from malignant lesions?

7. What techniques can be employed during T2-weighted imaging to manage patient breathing and reduce respiratory motion artifacts, especially in sequences where long scan times are involved?

8. What specific imaging sequences and contrast phases are recommended for dynamic liver MRI, and how do they contribute to the characterization of liver lesions?

9. What are the key protocol adjustments and patient preparation steps necessary for optimal MR enterography, and how do these contribute to the evaluation of small bowel diseases?

10. How can metal artifacts be minimized in pelvic MRI?

11. Which sequences are preferred for imaging pelvic inflammatory disease (PID)?

12. Which sequence are preferred to differentiate the bladder wall and other structures?

13. What are the key sequences and imaging techniques required in renal MRI for the evaluation of cystic and solid renal masses, and how do these help in differentiating benign from malignant lesions?

14. When performing MR cholangiopancreatography (MRCP), what are the key technical considerations for optimal imaging of the bile and pancreatic ducts, and when is the use of hepatobiliary contrast agents indicated?

15. Which sequences are most appropriate for evaluating endometriosis in pelvic MRI?

Brain MRI

16. What specific preparation and positioning are required for a patient undergoing a brain MRI, and how should the imaging field and slice thickness be adjusted?

17. Which sequence is preferred for evaluating the pituitary gland microadenomas?

18. How is susceptibility artifact minimized in brain MRI?

19. How is multiple sclerosis (MS) evaluated using brain MRI, and what specific sequences and timing considerations are important for detecting active lesions?

20. How is the artifact from dental fillings minimized in brain MRI?

21. What imaging protocol should be used for the evaluation of epilepsy in brain MRI, and why are specific sequences required?

22. What is the optimal patient positioning for brain MRI?

23. What additional MRI sequences should be included in postoperative follow-up for patients who have undergone pituitary surgery, and why are these sequences important?

24. Which MRI sequence is the best for detecting acute ischemic stroke?

25. How is the hippocampus best visualized in brain MRI?

26. What is the purpose of using gradient-echo (GRE) sequences in brain MRI?

27. Which MRI sequences are most useful in the evaluation of neurodegenerative diseases, and how do they contribute to the diagnosis and differentiation between different types of neurodegenerative conditions?

28. Which sequence is optimal for evaluating the cranial nerves?

29. What is the ideal matrix size for brain MRI?

30. How is the acquisition area defined for brain MRI?

Cardiothoracic MRI

31. What is the importance of using cardiac gating in thoracic MRI?

32. How is the artifact from cardiac motion reduced in cardiac MRI?

33. How is late gadolinium enhancement (LGE) imaging performed in cardiac MRI, and what is its diagnostic significance in cardiomyopathies?

34. How can ghosting artifacts be reduced in cardiac MRI?

35. What are the benefits of using STIR and BLADE sequences in thoracic MRI, and in what clinical scenarios are these sequences particularly useful?

36. Which specific MRI sequences are used in cardiac imaging to assess myocardial function, and what are their roles in cardiac evaluation?

37. What are the specific considerations and adaptations needed when performing thoracic MRI in pediatric patients or patients who cannot hold their breath?

38. What is the role of T1 and T2 mapping in cardiac MRI, and how do these techniques aid in myocardial tissue characterization?

39. What are the key technical considerations for phase-contrast flow studies in cardiac MRI, and how are these studies used to quantify blood flow?

40. What are the main clinical indications for performing thoracic MRI, and how does it assist in the diagnosis and management of thoracic conditions?

41. What is the role of SSFP sequences in cardiac MRI?

42. How is delayed enhancement imaging used in cardiac MRI?

43. Which MRI technique is preferred for visualizing pericardial effusion?

44. How is iron overload in the heart assessed using cardiac MRI, and what specific sequences are employed for this evaluation?

45. What role does cardiac MRI play in the evaluation of hypertrophic cardiomyopathy (HCM), and what specific imaging findings are important in this condition?

Spinal MRI

46. Why is T2-weighted imaging important in the assessment of spinal cord lesions?

47. How is aliasing artifact prevented in spinal MRI?

48. In spinal MRI for scoliosis, which imaging plane and sequence is recommended include in addition to routine sagittal and axial planes, and how do these images assist in assessing the curvature?

49. How is flow compensation used in spinal MRI?

50. What are the recommended MRI protocols for spinal trauma, and which additional sequences might be necessary for upper cervical spine injuries?

51. Which sequences are most appropriate for evaluating spinal disc herniation?

52. In the evaluation of spinal infections, which specific MRI sequences should be included, and how do these sequences assist in diagnosis?

53. What is the role of T1-weighted imaging in spinal fracture evaluation?

54. In cases of multiple sclerosis (MS), what specific MRI sequences are critical for evaluating spinal cord lesions, and why is post-contrast imaging important in these patients?

55. Which imaging plane is most useful for evaluating foraminal stenosis in spinal MRI?

56. What techniques are used to reduce motion artifacts in lumbar spine MRI?

57. Why are T1-weighted post-contrast images important for differentiating between scar tissue and recurrent disc herniation in post-surgical spinal patients?

58. Why is it recommended to use T2*-weighted sequences in the cervical spine, and in which conditions is this particularly important?

59. What is the recommended region of interest (ROI) for lumbar spine MRI?

60. How should MRI protocols be adjusted for postoperative patients with suspected recurrent disc herniation, and what is the role of contrast-enhanced imaging in these cases?

Head and Neck MRI

61. In what scenarios is MRI preferred over CT for head and neck imaging, and what specific conditions would warrant the use of MRI as the imaging modality of choice?

62. What specific positioning and immobilization techniques are recommended for optimal patient comfort and image quality in head and neck MRI?

63. What is the role of diffusion-weighted imaging (DWI) in the evaluation of head and neck masses, and how should the b-value be set for optimal imaging?

64. When is it necessary to use dynamic contrast-enhanced MRI in head and neck imaging, and what is the typical dose and timing for administering the contrast agent?

65. What precautions should be taken to minimize motion artifacts caused by swallowing and arterial pulsation during head and neck MRI, and how can these artifacts be mitigated?

66. What are the primary clinical indications for performing an MRI of the temporal bone, and how do these differ from secondary indications?

67. In which cases would diffusion-weighted imaging (DWI) be particularly useful in temporal bone MRI, and what sequence parameters are recommended for this type of evaluation?
Answer: Diffusion-weighted imaging (DWI) is particularly useful in cases of suspected cholesteatoma or infection within the temporal bone. It helps differentiate between cholesteatoma and other soft tissue masses. Non-EPI DWI with thin slices (2 mm) and b-values of 0, 800, and 1000 s/mm² is recommended to achieve optimal visualization and differentiation of these lesions.

68. What is the recommended field of view (FOV) and slice thickness for MRI imaging of the temporal bone to ensure detailed visualization of structures like the cochlea and vestibular system?

69. When evaluating for a potential vascular pathology, such as dural arteriovenous fistula (AVF), why is a dynamic MRI protocol, such as TWIST or MPRAGE, recommended over static post-contrast imaging?

70. What is the preferred imaging plane and FOV for visualizing the infrahyoid region during a head and neck MRI?

71. What is the typical patient position during an MRI of the head and neck?

72. What are the critical factors to ensure optimal image quality in an orbital MRI, and how do parameters like FOV, section thickness, and matrix size influence the result?

73. In what situations is contrast media indicated during orbital MRI, and how does its use enhance diagnostic accuracy?

74. In patients with suspected orbital varices or vascular malformations, Is there an additional acquisition plan, specific technique or patient positioning that may contribute to the diagnosis in addition to the routine protocol during orbital MRI acquisition?

75. Which specific imaging planes are recommended for evaluating the optic nerve and why are sagittal oblique slices particularly useful in orbital MRI?

Musculoskeletal MRI

76. Which MRI sequence is most sensitive for detecting cartilage abnormalities in joints?
Answer: Fat-saturated 3D SPGR (3D gradient echo sequences) are highly sensitive for detecting cartilage abnormalities.

77. What role does the ABER (Abduction External Rotation) position play in shoulder MRI, and which specific pathologies does it help to identify?

78. Which MRI sequence is most useful for identifying meniscal tears?

79. W In elbow MRI, which sequence is best suited for evaluating soft tissue pathologies such as tendon injuries or ligament tears?

80. What are the benefits of using an axial T1-weighted sequence in elbow MRI, and what structures are best visualized in this plane?

81. Which sequence is the best for visualizing bone marrow edema in musculoskeletal MRI?

82. Which sequences are used to evaluate osteomyelitis in musculoskeletal MRI?

83. What is the optimal acquisition plane for sacroiliac joint MRI?

84. What is the clinical significance of using a coronal STIR sequence in wrist MRI, and when should it be included in the protocol?

85. Which imaging plane is optimal for evaluating the acetabular labrum in hip MRI?

86. For suspected triangular fibrocartilage complex (TFCC) tears in the wrist, which MRI sequence provides the best diagnostic accuracy, and why?

87. In post-operative soft tissue imaging, which sequence is critical for distinguishing between recurrent tumor and post-surgical fibrosis, and what are the key imaging differences?

88. Which MRI sequence is most useful for identifying early-stage rheumatoid arthritis in the wrist, and what characteristic findings are typically observed?

89. When assessing plantar fasciitis, which MRI sequence provides the most diagnostic information, and what are the expected imaging findings?

90. For detecting a Morton's neuroma, which MRI sequence is most effective, and what features differentiate it from other foot masses?

BREAST MRI

91. Explain the impact of hormonal factors on breast MRI, particularly in premenopausal women, and how these factors influence the timing of the exam.

92. What is the recommended slice thickness for breast MRI to ensure optimal spatial resolution?

93. In high-risk patients, what genetic mutations are standard indications for breast MRI screening?

94. Why should MRI scans be performed after neoadjuvant chemotherapy in breast cancer patients?

95. How does the use of dynamic contrast-enhanced (DCE) imaging improve the diagnostic accuracy of breast MRI?

96. What are the considerations for patient positioning during a breast MRI, and how can improper positioning affect the quality of the exam?

97. What is the primary benefit of using subtraction images in breast MRI?

98. When should MRI be avoided in breast cancer patients post-surgery or radiation therapy?

99. Which sequence or images is critical differentiate between a recurrent tumor and scar tissue on breast MRI?

100. What are the key imaging planes typically used in breast MRI protocols?

101. When should a breast MRI be performed after a patient has received radiotherapy?

102. Which sequence or images is critical used in breast MRI to enhance the detection of tumors?

103. What is the significance of using fat suppression techniques in breast MRI?

104. What specific artifacts should radiologists be aware of when interpreting breast MRI in patients with implants, and how can these be minimized?

105. What is the primary MRI sequence used to evaluate silicone breast implants for potential rupture, and what is its significance?

Open Ended Questions Dataset

Number of question (OEQs)	ChatGPT 4o with canvas	ChatGPT 4o	ChatGPT o1	Claude 3 Opus	Claude 3.5 Sonnet	Google Gemini 1.5pro	Meta Llama 3.1 405B	Mistral Large 2	Junior radiology resident 1	Junior radiology resident 2	Senior radiology resident 1	Senior radiology resident 2	Junior radiologist 1	Junior radiologist 2	Senior radiologist	Senior radiologist 2
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Abdomen and pelvic MRI technical questio	Likert Scores
Brain MRI technical questions	1: Completely incorrect
Cardiothoracic MRI technical questions	2: Mostly incorrect
Spinal MRI technical questions	3: Mostly correct
Head and neck MRI technical questions	4: Completely correct
Musculoskeletal MRI technical questions	
Breast MRI technical questions	

Case-Based Questions and Dataset

Number of case (CBQs)	Spesific phases/recontruction or sequences for this case	Cases	ChatGPT 4o with canvas	ChatGPT 4o	ChatGPT o1	Claude 3 Opus	Claude 3.5 Sonnet	Google Gemini 1.5pro	Meta Llama 3.1 405B	Mistral Large 2	Junior radiology resident 1	Junior radiology resident 2	Senior radiology resident 1	Senior radiology resident 2	Junior radiologist 1	Junior radiologist 2	Senior radiologist 1	Senior radiologist 2
1	Late phase T1W C+	60 year-old male with abnormal liver function tests, intrahepatic ductal dilatation and a hilar mass (suspected cholangiocarcinoma) seen on ultrasound.	1	1	0	0	1	0	1	0	0	0	1	1	1	0	1	1
2	Fat-Suppressed sequences	39 year-old female patient with suspected angiomyear-oldlipoma on ultrasound to differentiate angiomyear-oldlipoma and renal cell cancer	0	1	0	0	0	0	1	0	1	1	0	1	0	1	1	1
3	Pancreatic phase(40 second) T1W C+	59 year-old male patient suspected pancreatic head adenocarcinoma	0	1	1	0	1	1	0	0	1	1	1	1	1	1	0	1
4	Excreatory(urogram) phase T1W C+ or Thin sliced-T2W	40 year-old male patient car accident with suspected uretherial injury, known severe hyperthyroidism	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1
5	In-out of phase, fat fraction(DIXON)	47 year-old male patient with suspected liver steatosis	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1
6	T1W with and without fat suppressed	38 year-old male patient with suspected pancreatic head lipoma	0	0	0	1	1	0	0	0	1	1	1	1	1	0	1	1
7	Late phase T1W C+	46 year-old female patient with suspected bile leak after cholecystectomy to spot exact site of bile leak	1	1	1	0	1	0	1	0	0	0	1	0	1	1	1	1
8	cquisition relaxation enhancement (RARE) or halfFourier single-shot echo train spine-echo (H	51 year-old female patient with suspected cardiac amyloidosis	1	1	1	1	1	1	1	1	0	1	0	1	1	0	1	1
9	In-out of phase	30 year-old female patient with mass to differentiate adenoma	1	1	1	0	1	0	1	1	1	0	1	0	1	1	1	0
10	T1W with and without fat suppressed	22 year-old female patient with right adnexial mass suspected to dermoid cyst	0	0	0	0	1	0	0	0	0	1	1	1	0	0	1	1
11	Diffusion weighted imaging	76 year-old male patient with high PSA levels and suspected peripheral zone mass	1	1	1	0	1	0	0	1	1	0	1	1	1	1	1	1
12	T2W	76 year-old male patient with high PSA levels and suspected central gland mass	1	1	1	0	1	0	0	1	1	0	0	1	1	1	1	1
13	Diffusion weighted imaging	60 year-old male patient known cholangitis with suspected hepatic abscess on ultrasound	1	1	1	0	1	0	1	1	0	1	1	0	1	1	1	1
14	T1W C+	60 year-old male patient known cholangiocellular carcinoma and suspected right portal vein tumoral thrombus on ultrasound	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1
15	T1W C+	62 year-old male patient with liver cyst to differentiate cystadenoma and cystadenocarcinoma	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1
16	GRE T2* or SWI	38 year-old male patient head trauma suscpected diffuse axonal injury	1	1	1	0	1	1	1	1	0	1	0	0	0	1	1	1
17	T1W C+	20 year-old female patitent known multiple sclerosis with suspected active demyelinating plaque to detect active plaque	1	1	1	1	1	1	0	1	1	0	1	0	1	1	1	1
18	Sagittal FLAIR or 3D FLAIR	22 year-old female patient with suspected multiple sclerosis to detect supratentorial/callosaseptal interface demyellinating plaques	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1
19	GRE T2* or SWI	80 year-old male patient with suspected amyloid angiopathy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
20	GRE T2* or SWI	77 year-old female patient with suspected hypertensive microangiopathy	0	0	0	0	1	0	1	0	1	0	1	0	0	1	1	1
21	GRE T2* or SWI or neuromelanin-sensitive T1W	85 year-old male patient with suspected Parkinson disease	0	1	0	0	1	0	1	1	0	1	0	1	1	1	1	1
22	GRE T2* or SWI	85 year-old male patient known HSV encephalitis to demostrate cortical hemorrhage	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0
23	Diffusion weighted imaging	10 year-old male patient with suspected intracranial absscess	1	1	1	0	1	0	1	1	0	1	1	1	1	0	1	1
24	T2W	2 year-old boy to evaluate myelinization	1	1	0	1	1	0	0	1	1	0	0	0	0	1	1	1
25	Diffusion weighted imaging	Newborn patient with suspected hypoxic ischemic injury	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1
26	T1W	2 month boy to evaluate myelinization	1	1	1	1	1	1	0	1	0	0	0	1	0	1	1	1
27	Diffusion weighted imaging	30 year-old female patient with suspected left cerebellopontine mass to differentiate epidermoid cyst and other differentials	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1
28	T1W	38 year-old female patient with suspected petrous apex mass to differentiate cholesterol granulomat and other differentials	0	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1
29	Stimulated echo acquisition mode (STEAM) or point-resolved spectroscopy (PRESS)	1 year-old male patient with suspected Canavan disease	1	1	1	0	1	1	0	0	0	0	0	1	0	0	0	0
30	FLAIR sequence	50 year-old female patient with glial tumor to differentiate IDH-wild or mutated	0	0	0	1	0	0	0	1	0	0	1	1	0	1	0	1
31	Phase contrast sequence	67 year-old male patient to demostrate blood flow and velocity at the level of aortic valve	1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	0
32	Steady-state free-precession (SSFP)	77 year-old male patient to evaluate left ventricular wall movement and to calculate ejection fraction	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1
33	Late phase T1W C+	47 year-old male patient to evaluate myear-oldcardial viability	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1
34	In-out of phase	43 year-old female patient known anterior mediastinal mass to differentiate thymic hyperplasia and thymoma	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	1
35	HASTE or SSFP or breathe triggered FSE	50 year-old female patient mediastinal malignant mass local staging but unable to breathe hold	0	0	0	1	1	1	1	0	0	1	0	1	1	0	1	1
36	Breathe triggered FSE or single shot SSFPE	30 year-old pregnant patient with suspected pulmoner artery embolism and unable to breathe hold	1	1	0	1	1	0	0	1	0	0	0	1	0	1	1	1
37	Late phase T1W C+	45 year-old female with chest pain suspected with myear-oldcarditis to differentiate it from acute coronary syndrome	0	1	0	1	1	0	0	0	1	0	1	1	1	1	1	1
38	T1W with and without fat suppressed	55 year-old smoker with a lung mass to differentiate lung carcinoma and pulmonary hamartoma.	1	0	1	0	0	0	1	0	0	0	1	1	0	0	1	1
39	T1W C+	40 year-old male with a chronic cough and weight loss with suspected pulmonary nodule	0	1	0	0	0	1	0	0	1	0	1	0	1	1	1	1
40	Steady-state free-precession (SSFP) for cine images	60 year-old female with chest tightness and leg swelling with suspected heart failure with preserved ejection fraction (HFpEF).	0	0	1	0	1	1	0	1	0	1	0	1	0	1	1	1
41	T1W C+ fat-suppressed for MR venography	50 year-old male with chronic cough and hoarseness with suspected superior vena cava syndrome.	1	1	1	0	1	0	0	0	1	1	1	0	1	0	0	1
42	T1W C+	50 year-old male operated for mediastinal mass with suspected recurrence to evaluate granulation tissue and recurrence	1	1	1	1	0	1	0	1	1	0	1	1	1	1	1	0
43	T1W Fat-Suppressed	40 year-old male with anterior mediastinal mass to differentiate thymolipoma and its differentials	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1
44	Modified Look-Locker sequence (MOLLI) for T1 mapping	50 year-old male with chronic kidney dialysis suspected to cardiac amyloidosis	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	1
45	T2*	25 year-old male with hemochromatosis suspected to cardiac iron deposition	1	1	0	0	1	0	0	1	1	0	1	0	1	0	1	1
46	T1W	10 year-old male patient known leukemia with suspected vertebral bone marrow involvement	0	1	1	1	0	0	0	0	1	0	1	1	0	1	1	1
47	Diffusion weighted imaging	40 year-old female patient known discitis and demonstrate to epidural abscess	0	0	0	0	0	0	1	0	0	1	0	1	1	1	1	0
48	Diffusion weighted imaging	65 year-old male patient paraplegia after EVAR procedure and suspected medulla spinalis ischemia	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1
49	T2W	69 year-old male patient with straightening of the cervical lordosis on x ray and to evaluate cervical intervertebral disc herniation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
50	T1W C+	50 year-old female with radicular pain with mass near face joint suspected with complicated synovial cyst to exclude solid masses	0	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1
51	T1W	60 year-old female with sudden back pain with vertebral fracture to differentiate osteoporotic compression fracture and rathologic vertebral fracture	0	0	0	1	1	1	0	0	0	1	0	0	0	1	1	1
52	T1W C+	10 year-old male with sudden paraplegia suspected with Guillain-Barre syndrome	0	0	1	0	1	0	0	0	1	0	1	1	1	0	1	1
53	T1W with and without fat suppressed or GRE (SWI)	35 year-old female with sudden onset of back pain and difficulty walking with suspected spinal epidural hematoma.	1	0	0	1	1	0	1	0	0	1	0	1	1	0	1	0
54	STIR-FSE sequence	30 year-old female with recurrent episodes of numbness in the legs, suspected multiple sclerosis with spinal cord involvement.	0	1	0	0	1	1	1	1	0	0	1	0	0	1	0	1
55	T2W	65 year-old male with bilateral leg pain and numbnes withs suspected lumbar foraminal stenosis.	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
56	Fat-Suppressed T2W or STIR	65 year-old male with back pain and seen Schmorl nodule on lomber CT, suspected acute Schmorl nodule	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1
57	T1W C+ Imaging or GRE (SWI)	40 year-old male with difficulty walking suspected spinal AVM	0	0	1	0	1	0	1	1	1	1	1	1	0	1	0	1
58	T1W C+ Imaging	40 year-old female with intradural-extramedullary mass suspected with menengioma to differentiate from schwannoma	1	1	1	0	0	1	1	1	1	0	0	0	1	0	1	1
59	T1W with and without fat suppressed	8 year-old male suspected mass at filum terminale on ultrasound suspected filum terminal lipoma	0	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1
60	T2W	10 year-old male with known Chiari I malformation to evaluate cervical syringomelia	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
61	Diffusion weighted imaging	60 year-old male patient known tongue base cancer to evaluate radiation therapy response	0	0	0	1	1	0	1	1	0	0	1	1	1	0	1	1
62	Diffusion weighted imaging	55 year-old male patient known otitis media with suspected cholesteatoma	1	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1
63	T2-weighted imaging (T2WI) with driven equilibrium (DRIVE) or constructive interference in	40 year-old male patient with trigeminal neuralgia to evaluate cisternal segment of 5th nerve	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1
64	Fat-Suppressed T1W C+ Imaging	75 year-old male with jaw claudication and scalp tenderness, suspected giant cell arteritis.	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1
65	STIR-FSE sequence	35 year-old woman with upper limb weakness with suspected brachial plexus injury.	0	0	1	1	1	1	1	1	0	1	0	0	0	1	1	0
66	Fat-Suppressed T2W or STIR	40 year-old woman with persistent neck pain post-trauma, suspected cervical ligament injury.	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1
67	T1W or GRE (SWI)	32 year-old woman with recent trauma to the face, suspected orbital floor fracture and orbital hematoma	1	0	0	0	0	0	1	0	0	1	0	1	1	1	1	1
68	T1W C+	50 year-old female with difficulty swallowing and hoarsenes with known thyroid cancer suspected tracheal invasion.	1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1
69	T1W C+	45 year-old female with persistent hoarseness and difficulty swallowing suspected laryngeal cancer.	1	1	1	0	0	0	1	0	1	0	1	0	1	0	0	1
70	Fat-Suppressed T1W C+	50 year-old male with knwon diabetes mellitus, suspected sinonasal mucormycosis	0	0	1	1	1	1	0	0	1	0	1	1	1	1	1	1
71	Non-Echo Planar Diffusion-Weighted Imaging (Non-EPI DWI).	30 year-old male with petrous apex smooth bony erosion, suspected petrous apex cholesteatoma.	0	0	1	1	1	1	1	1	0	1	0	1	0	1	1	0
72	Fat-Suppressed T1W C+	20 year-old male with abducens nerve paralysis, suspected petrous apex granuloma	0	0	1	1	1	1	1	0	0	0	1	0	1	1	1	1
73	T1W with and without fat suppressed	21 year-old male with tinnitus and asymetrical bone tissue at petrous apex on CT, suspected asymmetric pneumatization of the petrous apex	1	0	0	1	1	0	0	0	0	1	1	1	1	0	1	1
74	Diffusion weighted imaging	20 year-old male with known frontal sinusitis and new soft tissue swelling on frontal region, suspected Pott Puffy tumor	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1
75	T2W or T1W C+	42 year-old male with nasal cavity soft tissue on CT without bony erosion, suspected inverted papilloma	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1
76	Fat-Suppressed T2W or STIR	30 year-old female patient known ankylosing spondylitis to evaluate active sacroiliitis	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1
77	GRE T2* or SWI	50 year-old male patient with extensor pollicis longus tendon steath tumor to differentiate giant cell tumor of tendon sheath and fibroma	0	0	1	0	0	0	1	0	0	1	0	1	1	1	1	1
78	T1W with and without fat suppressed	53 year-old female patient wih suspected lipoma arborescens	0	0	0	1	1	0	0	0	1	0	0	1	1	1	1	1
79	Fat-Suppressed T1W C+	50 year-old male with a large thigh hyperechoic mass with some blood flow on power Doppler US, to differentiate lipoma and liposarcoma	0	1	1	0	1	1	0	1	1	0	0	1	0	1	1	1
80	Fat-Suppressed T1W C+	40 year-old male with a mass near the knee joint and some blood flow on power Doppler US to differentiate synovial sarcoma and ganglion cyst.	1	0	1	0	1	0	0	1	0	1	1	0	1	0	1	1
81	T2W	32 year-old male with shoulder pain following a sports injury, suspected rotator cuff tear.	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1
82	Proton Density Fat-Suppressed	55 year-old male with a history of knee osteoarthritis, suspected chondromalacia / cartilage damage.	0	0	1	0	1	0	1	1	0	1	1	0	0	1	1	1
83	Fat-Suppressed T2W	25 year-old athlete with anterior cruciate ligament (ACL) injury, presenting with instability in the knee, suspected ACL tear.	1	1	0	0	1	0	0	1	1	0	0	0	1	0	1	1
84	Proton Density Fat-Suppressed	29 year-old male with knee pain and instability, suspected meniscal tear.	1	0	1	0	1	0	1	1	0	0	0	1	1	1	1	1
85	T2W Fat-Suppressed or STIR	35 year-old female runner with lateral knee pain, suspected iliotibial band syndrome.	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1
86	T1W C+	25 year-old male with known proximal scaphoid fractur, suspected avascular necrosis	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1
87	T1W with and without fat suppressed	60 year-old male with foot pain, suspected Morton's neuroma.	0	0	0	1	1	1	1	0	0	0	0	0	1	0	1	0
88	Fat-Suppressed Proton Density	30 year-old male with shoulder instability, suspected Bankart lesion.	0	1	1	0	0	0	0	1	0	0	0	1	0	1	1	1
89	Suppressed T2W or Fat-Suppressed T1W after intra-articular contrast injection (MR arthrogra	45 year-old male with ankle pain, suspected Achilles tendon rupture.	1	1	1	1	1	1	1	1	0	1	1	0	1	0	1	1
90	Fat-Suppressed T2W	25 year-old male with an acute ankle injury, suspected syndesmotic ligament injury.	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1
91	Silicone-sensitive or silicone-saturated	40 year-old female patient with suspected intracapsular breast implant rupture	1	1	0	1	1	0	1	1	1	0	0	0	1	0	1	1
92	Fat-suppressed late phase or dynamic T1W C+	50 year-old woman with a history of breast cancer, undergoing routine screening after radiation therapy, to differentiate radiation induced fibrosis and residual cancer	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
93	Fat-suppressed T1W C+	55 year-old woman with BI-RADS 6 lesion to evaluate pectoralis muscle invasion	1	1	1	0	0	1	1	1	1	1	1	1	1	0	1	1
94	Fat-suppressed T1W C+	39 year-old woman with bloody nipple discharge, suspected intraductal mass on ultrasound	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1
95	T1W	30 year-old woman with a mass left outer-upper quadrant mass and suspected intramammarian lypmh node	1	0	1	0	0	0	1	0	1	1	0	1	1	1	1	1
96	Fat-suppressed T1W C+	40 year-old female with a strong family history of breast cancer and deep located hypoechoic mass lesion very difficult to evaluate with breast US	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
97	T1W with and without fat-suppressed	20 year-old woman with a palpable mass and suspected giant hamartoma on breast US	0	0	0	0	1	0	1	0	0	1	1	1	0	1	1	1
98	Silicone-sensitive or silicone-saturated	42 year-old female patient with breast implant, snowstorm appearance on breast US at left axillary lymph node	0	0	0	0	1	1	0	1	0	1	0	0	0	1	1	0
99	Fat-suppressed late phase(dynamic) T1W C+	55 year-old woman with a history of breast cancer, undergoing routine screening after surgery, to differentiate granulation tissue and recurrent cancer	0	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1
100	Fat-suppressed T1W C+	43 year-old female with a mass with few lobulations on its margin and unable to differentiate complicated cyst and solid mass	1	0	1	1	0	0	0	1	1	0	0	1	1	0	0	1
101	Fat-suppressed T1W C+	62 year-old woman with BI-RADS 6 lesion to evaluate chest wall invasion	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1
102	Fat-suppressed T1W C+	61 year-old woman with BI-RADS 6 lesion to local staging	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1
103	T1W	49 year-old woman with BI-RADS 6 lesion and suspected lymph node on left axilla ambigious fatty hilum on US	0	1	1	1	1	0	0	1	1	0	1	1	1	1	1	1
104	Silicone-sensitive or silicone-saturated	51 year-old female patient with breast implant, multiple irregular non paralel linear echogenic lines on breast US	0	0	0	1	1	1	1	1	0	0	0	0	1	0	1	1
105	Silicone-sensitive or silicone-saturated	45 year-old female patient with breast implant, stepladder appearance on breast US	0	0	0	1	1	0	1	0	0	0	0	0	1	1	1	1

ABDOMEN and PELVIC MRI CASES	1: Correct
BRAIN MRI CASES	0: Incorrect
CARDIOTHORACIC MRI CASES	
SPINAL MRI CASES	
HEAD AND NECK MRI CASES	
MUSCULOSKELETAL MRI CASES	
BREAST MRI CASES	