

Clinical Indications MRI vs. CT, Contrast Option

<u>Clinical Problem: Brain</u>	<u>Preferred Study</u>	<u>Contrast</u>	<u>Comments</u>
Headache, acute	CT	Without IV	Bone windows replace skull series
Headache, chronic	MR	Without IV	Repeat with IV contrast if necessary.
CVA	MR/CT	Without IV	CT first (quick). Can follow with CTA or CT Profusion (we do not do CTGP) if positive to assess for potential intervention.
Acute Bleed	CT	Without IV	
Brain Tumor	MR	With/Without	CT better for tumor calcification
Seizure	MR	With/Without	
CNS infection, abscess, meningitis	MR	With/Without	
AIDS	MR	With/Without	
Dementia	MR > CT	Without IV	MR superior evaluation of white matter changes
Neurodegenerative disorder	MR	Without IV	Parkinson's disease, etc.
Subdural hematoma	CT	Without IV	MR detects smaller nonsurgical SDH
MS	MR	With/Without	
Posterior fossa, brainstem lesion	MR	With/Without	CT ONLY if patient cannot undergo MR exam.
Acoustic neuroma	MR	With/Without	CT ONLY if patient cannot undergo MR exam.
Pituitary tumor	MR	With/Without	CT ONLY if patient cannot undergo MR exam.
Aneurysm	MR/MRA CT/CTA	Without IV	Depends on indication. CT/CTA in acute setting. MRA for screening.
Sinus venous thrombosis	MR & MRV		Preferred exam: MRI Brain With contrast (3D Inversion Recovery will be completed)
			2nd Choice: MRV Brain Without contrast
			3rd Choice: CT Venogram (we do not do CTV)
Trauma	CT	Without IV	
<u>Clinical Problem: Neck, Skull Base, Orbit</u>	<u>Preferred Study</u>	<u>Contrast</u>	<u>Comments</u>
Sinuses	CT	Without IV	
Neck mass	CT > MR	With/Without	MR w/wo better for perineural tumor spread
Skull base	CT, MR	Without IV	CT for trauma. MR w/wo for tumor with supplemental CT as needed.
Nasopharynx	MR > CT	With/Without	Especially for tumor
Optic nerves/orbits	MR > CT	With/Without	CT – for calcification
Cavernous sinus	MR	With/Without	
Cranial nerve dysfunction	MR	With/Without	
Trauma	CT	Without IV	Maxillofacial CT replaces plain films
Brachial Plexus	MR	With/Without	

Clinical Problem: Musculoskeletal	Preferred Study	Contrast	Comments
Avascular necrosis	MR	Without IV	Bone scan if MRI contraindicated
Hip pain; negative x-rays	MR	Without IV	Best to look for occult hip fracture if x-rays are negative
Metastasis/Myeloma	MR	With/Without	
Osteomyelitis/Cellulitis	MR	With/Without	
Knee: Meniscal tear/cysts; ligamentous injury; tendon injury; bone contusion; fracture; osteochondritis dissecans; chondromalacia	MR	Without IV	
Shoulder: rotator cuff tear; tendinitis; labral abnormality; bone injury; contusion	MR	Without IV	MR arthrogram if labral tear suspected
Soft tissue mass	MR	With/Without	Specific for lipoma---Detects extent/neurovascular involvement of non--- lipomatous masses
Bone tumor	MR	With/Without	Evaluates extent/neurovascular involvement. CT can be good for evaluating matrix type.
Fracture	MR or CT see comments	Without IV	MRI if radiographically occult fracture is suspected. CT if fracture is seen on x---ray and position or alignment is to be addressed. CT for avulsion or small cortical fracture.
Bone bruise	MR	Without IV	
Loose bodies	MR or CT	Without IV	Patient may need arthrography followed by CT or MRI. MRI can detect loose bodies in the presence of effusion. CT can detect ossified loose bodies.
Clinical Problem: Spine	Preferred Study	Contrast	Comments
Herniated disc, cervical, thoracic, or lumbar	MR	With/Without if prior surgery	Contrast distinguishes between scar and disc after surgery
Herniated disc, cervical, thoracic, or lumbar	CT	Without	
Stenosis	MR	Without IV	
Discitis	MR	With/Without	
Metastasis, epidural tumor	MR	With/Without	MR also superior to myelography
Compression fracture, possible tumor	MR	With/Without	MR allows evaluation of bone marrow
Cord disease	MR	With/Without	Demyelination – syrinx
Cord tumor	MR	With/Without	

Clinical Problem: Chest	Preferred Study	Contrast	Comments
*Contrast Disclaimer for ALL CT Chest Exams: Exams are ordered with OR without IV contrast, NOT with AND without.			
Pulmonary Embolism	CT	With IV	Will be able to bill out as CTA after new CTA install (late summer 2018).
Thoracic Aortic Aneurysm	CT Angiogram Chest	Without IV	R/O DISSECTION ONLY
Thoracic Aortic Aneurysm	CT Angiogram Chest	With/Without	Evaluation and follow-up
Clinical Problem: Abdomen/Pelvis	Preferred Study	Contrast	Comments
*Disclaimer: Below is a sample of the organs/diagnoses the are frequently questioned for abdomen/pelvis. Please call our office to consult with our CT techs or the radiologist about IV/oral contrast options and/or appropriate anatomy to scan if not addressed below.			
Hemangioma Protocol	CT Abdomen (only)	With/Without IV	No ORAL Contrast
Dual Liver	CT Abdomen (only)	With/Without IV	No ORAL Contrast
Triple Phase Liver	CT Abdomen (only)	With/Without IV	No ORAL Contrast
Pancreas	CT Abdomen (only)	With/Without IV	Oral contrast
Adrenal Mass	CT Abdomen (only)	With/Without IV	Typically, NO ORAL Contrast
Abdominal Aortic Aneurysm (AAA)	CT Angiogram Abdomen/ Pelvis	With IV	No ORAL Contrast
Abdominal Aortic Aneurysm (AAA)	CT Angiogram Abdomen/ Pelvis	With/Without IV	STENT GRAFT ONLY; No ORAL Contrast
Renal Artery Stenosis	CT Angiogram Abdomen (only)	With IV	No ORAL Contrast
Iliac Artery Aneurysm	CT Angiogram Abdomen/ Pelvis	With IV	No ORAL Contrast
Iliac Artery Aneurysm	CT Angiogram Abdomen/ Pelvis	With/Without IV	STENT GRAFT ONLY; No ORAL Contrast