



MRI and CT Indications Guidelines

Abdomen/Pelvis

Indication	Preferred Study	Contrast	Comments
Adrenal Gland	CT Abdomen without. Contrast if needed after non-contrast per radiologist.	With and without contrast	Contrast without helps characterize masses that do not meet benign criteria on precontrast images and increases sensitivity for pheo. MR useful if CT indeterminate.
Appendicitis, Diverticulitis	CT Abdomen and Pelvis	Oral contrast +/- IV contrast	IV contrast increases sensitivity and specificity.
Cancer Patient	CT Abdomen and Pelvis with contrast; may need Chest CT	Oral and IV contrast	Chest CT usually follows an Abdomen and Pelvis CT for optimum IV contrast timing.
Focal Organ Pathology	CT Abdomen +/- Pelvis with contrast	Contrast timing and use vary with organ	Be sure to specify organ of concern on imaging request.
Non-focal Pain	CT Abdomen and Pelvis	Oral contrast, with or without IV contrast	IV needed for solid organ disease
Painful Hematuria, Rule Out Kidney Stone	CT Abdomen and Pelvis without contrast	No IV or oral contrast	If negative, may need follow up CT Abdomen Pelvis with IV contrast to evaluate for tumor.
Pelvis, Female	MR for uterus and adnexa, CT preferred for bowel pathology	CT: Oral and sometimes IV contrast	
Pelvis, Male	CT for bowel or general symptoms, MR for prostate	MR with and without contrast usually except for prostate cancer staging.	
Renal Mass	CT Abdomen without and with IV contrast; consider MR without and with contrast if CT indeterminate	IV contrast, no oral contrast	Useful for indeterminate renal cysts/lesions on US.

Brain

Indication	Preferred Study	Contrast	Comments
Acoustic Neuroma, Sensorineural Hearing Loss	MR (see comment)	YES	CT not sensitive for small IAC lesions but may be needed for otic capsule disease
AIDS	MR	YES	
Aneurysm	MRA preferred for screening CTA for greater detail	YES for CTA	
Bleed, Acute	CT preferred	NO	
Bleed, Subarachnoid	CT	NO	
Brain Tumor, Metastases	MR preferred	YES	CT better for tumor calcification
CNS Infection, Abscess, Meningitis	MR	YES	
CVA	CT ≤ 24 hrs MR > 24 hrs	NO	Emergency evaluation if < 6hrs, consider CTA or MRA of neck and brain. If < 24 hrs, referral to ER / Acute care facility for imaging is preferred
Dementia	MR preferred	NO	MR provides superior evaluation of white matter changes, patterns of atrophy
Headache	MR	(See comment)	Contrast for meningeal/dural disease, mass, meningioma
MS	MR	YES	Contrast helpful if non-contrast is abnormal
Neurodegenerative Disorder	MR	NO	Parkinson's Disease, etc
Pituitary Tumor	MR	YES	MR far superior in this region
Posterior Fossa, Brainstem Lesion	MR	YES	MR far superior in this region
Pulsatile Tinnitus	MR preferred	YES	MRA neck and/or intracranial sometimes helpful
Seizure	MR	YES	Contrast for adults if first time seizure, especially if age > 40.
Subdural Hematoma	Acute – CT Non-acute – MR	NO	MR detects smaller non-surgical acute SDH and sub-acute to chronic SDH
Venous Sinus Thrombosis	MRV preferred over CTV	YES	Usually can avoid conventional venography. MRV preferred but CT can be done more quickly in emergent situations.

Spine

Indication	Preferred Study	Contrast	Comments
Compression Fracture	MR CT	NO NO	MR allows evaluation of bone marrow and fracture acuity, CT for operative planning
Cord Disease	MR	YES	Demyelination, Multiple Sclerosis, Syring
Cord Tumor	MR	YES	
Discitis/Ostomyelitis	MR	YES	
Herniated Disc, Cervical or Thoracic	MR	NO	Contrast not needed for most post-op C or T spine
Herniated Disc, Lumbar	MR preferred	If previous surgery, YES	Contrast essential to distinguish scar from disc after surgery.
Metastasis, Bone	MR	Preferred for MR	CT useful if planning
Metastasis, Epidural or Intraspinial	MR CT sometimes useful adjunct	Usually not needed for CT	Surgical reconstruction
Post Operative	MR CT	YES NO	MR for soft tissue abnormalities such as scar or disc. CT for bony fusion or hardware displacement.
Stenosis	MR preferred	NO	Helical CT with reconstructions can be adequate especially if MR contraindication.

Chest

Indication	Preferred Study	Contrast	Comments
Breast Cancer Staging	MR	YES	Consult radiologist for other Breast MR indications
Interstitial Lung Disease	High Resolution CT	NO	1 or 2 mm slices at 5 or 10 mm increments
Nodule, Mass, Infiltrate	CT	YES or NO	Peripheral nodules remote from hilum can be imaged without contrast. Contrast helpful for hilar disease.
Pulmonary Embolus	CTA	YES	Image in a hospital setting if acute or chest pain

Neck, Skull, Base, Orbit

Indication	Preferred Study	Contrast	Comments
Cavernous Sinus	MR	YES	MR: brain/sella CT with contrast may be useful if needed emergently.
Cranial Nerves	MR	YES	
Facial Trauma	CT	NO	
Hearing Loss, Conductive	CT	NO	Mastoid, middle ear, ossicles, conductive hearing loss
Hearing Loss, Sensorineural	MR/IAC	YES	IAC, brainstem/CPA, labyrinth
Neck Mass	CT or MR	YES	Bony detail better on CT. Tongue and perineural skull base disease better on MR.
Optic Nerves	MR preferred	YES	MR: Optic neuritis, high field best CT: meningioma, calcification
Orbit – Proptosis	CT preferred	YES	No contrast for Graves' Disease
Salivary Gland	CT	YES	Non-contrast first, then contrast
Sinus	CT for sinusitis MR for sinus tumor/mass	NO	CT defines ostial obstruction, bone changes
Skull Base	Either MR or CT	YES	CT sometimes necessary to better show bony detail.
Squamous CA	CT preferred	YES	Skull base to thoracic inlet
Vocal Cord Paralysis	CT preferred	YES	Skull base to carina

Extremities

Indication	Preferred Study	Contrast	Comments
Extremity/Joint for Mass/Lump	MR	YES	
General Joint Pathology	MR	Usually NO	
Joint Infection/Osteomyelitis	MR	YES	Contrast increases sensitivity/specificity.
Lower Extremity Claudication	MRA or CTA	YES	Often needs non-invasive testing as adjunct to images.
Shoulder or Hip for Labral Tear, Post Op Shoulder for recurrent Rotator Cuff Tear	MR	Intra-articular contrast (MR Arthrogram)	Requires joint injection as well.

This chart may be downloaded from the Physician Resources page on our website:
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