

BRAIN / NEURO INDICATIONS	RECOMMENDED STUDY	COMMENTS
TIA, Stroke	CT Head without contrast to rule out hemorrhage MRI Brain without contrast (includes Diffusion-weighted imaging DWI)	Order CT if patient is uncooperative or suspect bleed MRI with DWI most sensitive for an acute or sub-acute infarct MRI DWI will detect an acute infarct long before CT
Acute Bleed, Severe Headache Follow up acute hemorrhage	CT Head without contrast	
Brain Tumor, Suspected Brain Tumor, Metastases	MRI Brain MRI superior to CT Contrast – WO/W	
Seizure	MRI Brain (seizure protocol) Contrast – WO/W	MRI superior to CT, "Seizure Protocol"
CNS Infection, Abscess, Meningitis, AIDS	MRI Brain Contrast – WO/W	MRI more sensitive for meningeal disease and infection
Dementia, Neurodegenerative Disorder	MRI Brain Contrast – WO/W	MRI more sensitive for white matter changes
Multiple Sclerosis	MRI Brain (MS protocol) Contrast – WO/W	Acute plaques may show enhancement with MRI, "MS Protocol"
Trauma	CT preferred initial study, MRI Brain, No Contrast	MRI more sensitive for diffuse axonal injury, post-concussion syndrome
Cerebellar, Brainstem Lesion, Cranial Nerve Deficit, Diplopia	MRI Brain Contrast – WO/W	MRI much more sensitive than CT
Sensory Neural Hearing Loss, Tinnitus Acoustic Neuroma, Bell's Palsy	MRI Brain (IAC protocol) Contrast – WO/W	MRI much more sensitive than CT, "IAC Protocol"
Pituitary Tumor	MRI Brain (pituitary protocol) Contrast – WO/W	MRI much more sensitive versus CT, "Pituitary Protocol"
Pediatric Anomaly, Pediatric Developmental Delay	MRI Brain, No Contrast	WO/W if sedation is required
Venous Sinus Thrombosis	MRV, No Contrast	Replaces conventional angiography
Known Aneurysm	MRA Head, No Contrast	Does not replace angiography. Reasonable screening tool in patients with family history. Satisfactory to R/O aneurysms 5mm or larger
Spectroscopy of the Brain. May aid in the diagnosis of brain tumors or brain parenchyma abnormalities.	MRI Brain Spectroscopy No Contrast	
SPINE INDICATIONS	RECOMMENDED STUDY	COMMENTS
Herniated Cervical or Thoracic Disc, Pain	MRI, No Contrast	MRI superior to CT for disc disease
Herniated Lumbar Disc, Pain, Stenosis	MRI, No Contrast	MRI superior to CT for disc disease CT superior to MRI for spondylolysis
Post-Operative Spine with Pain	MRI, Contrast – WO/W	Contrast helps distinguish between scar tissue and recurrent disc pathology MRI superior to CT for disc disease
Discitis/Osteomyelitis	MRI, Contrast – WO/W	MRI preferred versus CT
Metastasis, Epidural Tumor	MRI, Contrast – WO/W	MRI superior to myelography and CT
Compression Fracture, Trauma	MRI, No Contrast	MRI allows for evaluation of bone marrow, determine acute versus chronic



MUSCULOSKELETAL INDICATIONS	RECOMMENDED STUDY	COMMENTS
Meniscus, Ligament, Tendon, Muscle Pathology, Bone Contusion	MRI, No Contrast	
Fracture	MRI for occult x-ray fractures	
Avascular Necrosis	MRI, No Contrast	Consider a bone scan if MRI is contraindicated
Cancer, Metastasis, Myeloma	MRI Contrast – WO/W	A bone scan is good for whole body survey for metastasis but may give a false negative for multiple myeloma an purely lytic bone metastases (e.g. renal cell CA)
Osteomyelitis, Cellulitis, Infection/Abscess Soft Tissue Mass	MRI Contrast – WO/W	Consider a 3 phase bone or Indium WBC scan if MRI is contraindicated
Osteochondritis Dissecans, Chondromalacia	MRI, No Contrast	
Bone Tumor	MRI Contrast – WO/W	Evaluates extent/neurovascular involvement
Loose Bodies	MRI, No Contrast	
BODY INDICATIONS	RECOMMENDED STUDY	COMMENTS
Pulmonary Embolus	CT Chest, PE Protocol With IV Contrast	CT is the most sensitive test. If IV contrast is contraindicated or if the patient has poor venous access, consider a Nuclear Medicine V/Q scan
Aortic Dissection	CT With IV Contrast	If CT IV contrast is contraindicated, consider a MRA
Liver – Mass, Hepatoma, Hemangioma, Cancer, Metastases, Hepatitis, Cirrhosis, Fatty Liver, Pain	MRI Abdomen (Liver) Contrast – WO/W	
Pancreas – Mass, Epigastric Pain, Cancer, Metastases, Pancreatitis	MRI Abdomen (Pancreas) Contrast – WO/W	
Renal MRA	MRA Renals Contrast – Yes	Evaluate Renal Artery Stenosis, Hypertension
Renal Mass, Hematuria	MRI Renals Contrast – WO/W	"Renal Mass Protocol"
MRCP	MRCP, No Contrast	Evaluate biliary tract for stones, stricture, dilatation, mass
Adrenal – Mass/Cyst	MRI Abdomen (Adrenals Protocol) Contrast – No	
Brachial Plexus Pathology/Mass	MRI Chest, No Contrast	"Brachial Plexus Protocol"
Uterine Fibroids, Adenomyosis	MRI Female Pelvis Contrast – WO/W	Evaluates blood supply to fibroids, determines number, location and size of fibroids
Runoff	MRI Runoff Contrast – Yes	Evaluates aorta, iliac & lower extremity vessels
Pelvic Mass, Pain, Cancer, Metastases, Infection, Abscess	MRI Pelvis Contrast – WO/W	
Breast Cancer	MRI Breast Contrast – WO/W	Initial Diagnosis, Cancer Follow up, Strong Family History, Diagnostic Dilemma
Breast Implant Leak	MRI Breast, No Contrast	
ORBIT/HEAD & NECK INDICATIONS	RECOMMENDED STUDY	COMMENTS
Nasopharynx, Tongue, Floor of Mouth, Neck Mass, Soft Tissue Neck	CT Neck With IV Contrast	
TMJ – Pain, Dysfunction	MRI TMJ, No Contrast	
Orbit Proptosis, Orbit or Eye Swelling (infection)	CT or MRI Orbits With IV Contrast	
Optic Nerves, Visual Field Defect	MRI Orbits With Contrast	Orbit MRI for optic neuritis. MRI Brain for visual field defect
Carotid Stenosis	MRA Neck With Contrast	