



MRI Neuro Referrer's Guide v1: What should I order? What do I get?

Dr. Sahil Sood, Director of Neuroradiology

MRI EXAM	COMMON REASONS FOR EXAM	WHAT'S IMAGED?/NOTES
Brain	<p>Without contrast: Headaches, memory loss, stroke, TIA, dementia, hydrocephalus</p> <p>With & without contrast: Tumor, metastatic disease, demyelinating disease, infection, inflammation, suspected tumor, venous sinus thrombosis</p>	<p>Entire skull from the foramen magnum to vertex. Sag T1, Ax T2, Ax T1, Ax T2 FLAIR, Ax DWI, & Ax T2* GRE. Postcontrast Ax T1 and Cor T1</p> <p>If vision disturbance: we add Cor T2 FatSat through orbits</p> <p>If seizures: we add Cor T2 through hippocampi</p> <p>If demyelinating disease: we add Sag T2 FLAIR</p> <p>If ? of AVM or aVF: we add ax 3D FSPGR C+ with reformats</p> <p>If ? of venous sinus thrombosis: we add ax 3D FSPGR C+</p> <p>If "stealth" or "brainlab:" we add ax 3D FSPGR C+</p>
Orbits/Brain	<p><i>Usually test is ordered with and without</i></p> <p>With & without contrast: vision loss, papilledema, optic neuritis, cavernous sinus thrombosis, cranial nerve dysfunction, trigeminal neuralgia, infection, inflammation</p> <p>Without contrast: rare</p>	<p>Complete brain & detailed thin cut evaluation of orbits, optic nerves, optic chiasm, cavernous sinus, brainstem, and cranial nerves. Whole brain images are also performed.</p> <p>Whole brain: Ax T2 FLAIR, Ax DWI, Ax T1 + C</p> <p>Orbits/brainstem: Ax T1, Ax T2 FatSat, Cor T1, Cor T2 FatSat, Cor T1 FatSat + C, Ax T1 FatSat + C</p> <p>If ? of trigeminal neuralgia: we add Ax T2 FIESTA with reformats</p>
Sella/Brain	<p><i>Usually test is ordered with and without for better detection of microadenomas</i></p> <p>With & without contrast: pituitary microadenoma, macroadenoma, hyperprolactinemia, hypogonadism, prior surgery</p> <p>Without contrast: rare</p>	<p>Complete brain & detailed thin cut evaluation of pituitary/sella Whole brain images are also performed.</p> <p>Whole brain: Ax T2 FLAIR, Ax T1 + C (time permitting)</p> <p>Sella: Sag T1, Cor T1, Cor T2 FatSat, Cor T1 dynamic + C, Cor T1 FatSat + C, Sag T1 FatSat + C</p>
IAC/Brain	<p><i>Usually test is ordered with and without for increased detection of vestibular schwannomas</i></p> <p>With & without contrast: acoustic neuroma, vestibular schwannoma, Bell's palsy, facial nerve palsy, hearing loss, sensorineural hearing loss, cerebellopontine angle mass</p> <p>Without contrast: rare</p>	<p>Complete brain and detailed thin cut evaluation of inner ear and facial nerve. Whole brain images are also performed</p> <p>Whole brain: Ax T2 FLAIR, Ax DWI, Ax T1+C</p> <p>IAC: Ax T1, Cor T1, Ax 3D FIESTA with reformats, Cor T1 FatSat + C, Ax T1 FatSat + C</p>
MRA head	<p>Without contrast (always): history of stroke, aneurysm, arteriovenous malformation, dural arteriovenous fistula</p> <p>With contrast (never): leads to venous contamination</p>	<p>Images vessels with upward flow from foramen magnum to M3 branches, Ax 3D TOF SPGR w/ MIP reformats</p> <p>If ? of AVM or dAVF, we will scan to vertex, also, a complete MRI brain w/ and w/o including a 3D FSPGR sequence is strongly recommended</p>
MRA neck	<p><i>Most accurate assessment is with and without</i></p> <p>With and without contrast: stroke, carotid artery disease, bruit, carotid dissection</p> <p>Without contrast:: stroke, carotid artery disease, bruit, carotid dissection</p>	<p>Aortic arch to circle of Willis. Ax 2D TOF, Ax 3D TOF SPGR, Cor C+ MRA 3D SPGR w/ reformats</p> <p>*With and without contrast is best test to delineate vessels</p> <p>If ? of dissection: we add Ax T1 Fatsat to identify thrombus</p>
MRV head	<p>Without contrast: : headaches, venous sinus thrombosis</p> <p>should be adjunct to MRI brain w/ and w/o as best test for venous sinus thrombosis is an ax 3D FSPGR C+ sequence or a CTA head</p>	<p>Images vessels with downward flow from vertex to upper neck, Coronal 2D TOF with MIP reformats</p> <p>*Strongly recommend an MRI brain w/ and w/o as well</p>
MRI Neck	<p><i>Usually ordered with and without</i></p> <p>With and without contrast: palpable mass, head & neck cancer, lymphadenopathy, infection, inflammation</p> <p>Without contrast: rare</p>	<p>Nasopharynx to supraclavicular fossa, Ax T1, Ax T2 FatSat, Sag T2 FatSat, Cor T2 FatSat, Ax T1 FatSat + C, Cor T1 FatSat + C</p> <p>*1.5 T and 1.2T magnets used, 3T leads to poor fat suppression</p>