

HIGH PLAINS RADIOLOGICAL ASSOCIATION

NEURO MRI PROTOCOLS

Rev. 01.31.2025

BRAIN/NECK						
BRAIN	BRAIN TRAUMA	BRAIN	BRAIN	BRAIN/METAL	BRAIN with IAC	IAC SCREEN **
ROUTINE	TRAUMA	Indications: Seizure, Memory loss, Dementia.	Indications: Multiple Sclerosis			
T1 SAG PD AXIAL (DUAL ECHO) T2 AXIAL -(DUAL ECHO) DWI w/ adc map FLAIR AXIAL propeller	T1 SAG PD AXIAL T2 AXIAL -PROPELLER DWI w/ adc map FLAIR AXIAL propeller T1 AX T2* GRE AXIAL	T1 SAG PD AXIAL T2 AXIAL -PROPELLER DWI w/ adc map FLAIR AXIAL propeller T1 AX STIR COR/OBL through temporal lobes	T1 SAG PD AXIAL T2 AXIAL -PROPELLER DWI w/ adc map FLAIR AXIAL propeller FLAIR SAG T1 COR	T1 SAG - 2 AQU (NEX) PD AXIAL T2 AXIAL -PROPELLER DWI w/ adc map FLAIR AXIAL propeller T1 AX	T1 SAG DWI w/ adc map T2 AXIAL FLAIR AXIAL 3D T2/FIESTA/CISS AXIAL sm FOV 1mm T2 COR - THIN sm FOV T1 AXIAL - THIN sm FOV	T1 SAG 3D T2/FIESTA/CISS AXIAL sm FOV 1mm T2 COR - THIN sm FOV T1 AXIAL - THIN sm FOV
POST CONTRAST (Mass,Mets,etc) T1 AX PRE CONTRAST T1 AX T1 COR		POST CONTRAST (opt) T1 AX T1 SAG T1 COR	POST CONTRAST (recomm) T1 AX FAT SAT T1 SAG T1 COR MAG TRANSFER if available	POST CONTRAST (optional) T1 SAG - 2 AQU T1 AXIAL 2 AQU T1 COR - 2 AQU	POST CONTRAST (recommended) T1 AXIAL - THIN T1 COR - THIN T1 AXIAL FAT T1 AXIAL WHOLE HEAD	POST CONTRAST (recomm) T1 AXIAL - THIN T1 COR - THIN ** use <u>BRAIN w/ IAC</u> if no prior brain MRI
LEGEND: Opt = Optional Recomm = Recommended Req'd = Required BH = Breath Hold RT = Respiratory Triggered Propeller is a motion reduction technique. The name varies with each vendor.						

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BRAIN/ORBITS	BRAIN PITUITARY	BRAIN w/ ORBITS & PIT	PEDI BRAIN SEE PEDS NEURO SECTION	BRAIN/MRA HEAD	BRAIN/MRA HEAD/NECK	MRA HEAD/NECK	*MRA HEAD/NECK w/ CONTRAST
			(5 YRS & UNDER)			See below for Dissection	See below for Dissection
T1 SAG	T1 SAG	T1 SAG	T1 SAG	T1 SAG	T1 SAG - LOC (H-N)	T1 SAG - LOC (H-N)	Dissection: T1 Ax PreC FatSat NECK *3D TOF (CIRCLE OF WILLIS)
DWI w/ adc map	DWI w/ adc map	DWI w/ adc map	PD AXIAL	PD AXIAL	*2D TOF CAROTIDS (AX)	*2D TOF CAROTIDS (AX)	T1 SAG - LOC (H-N)
T2 AXIAL	T2 AX FLAIR -PROPELLER	T2 AXIAL	T2 AXIAL	T2 AXIAL	*3D TOF (BIFURCATION)	*3D TOF (BIFURCATION)	
FLAIR AXIAL	T2 AXIAL - THIN	FLAIR AXIAL	T1 AXIAL	T1 COR		Dissection: T1 Ax FatSat NECK	TRICKS CAROTIDS: Use 30cc contrast be sure to include arch)
STIR COR - THIN T1 COR - THIN T2 COR - THIN	T1 COR - THIN POST CONTRAST (recomm) T1 AXIAL - THIN	STIR COR - THIN (both) T1 COR - THIN (both)	T1 COR 3D GRE AX DWI w/ adc map	DWI w/ adc map FLAIR AX	Calibration T1 SAG (BRAIN) PD AXIAL	T1 SAG LOC (BRAIN) *3D TOF (CIRCLE OF WILLIS)	*3D TOF (BIFURCATION) 2D PHASE COR
POST CONTRAST (recomm)	**DYNAMIC POST IMAGES** Small FOV Coronals with 4-6 slices throughout pituitary obtained at 30sec intervals up to 180s (i.e. 0, 30, 60 ,90, 120, 150, 180s)	POST CONTRAST (recomm)	POST CONTRAST(Opt)	POST CONTRAST (opt)	T2 AXIAL -PROPELLER T1 COR DWI w/ adc map	2D PHASE COR 2D PHASE SAG	2D PHASE SAG
T1 AXIAL FAT - THIN		T1 AXIAL FAT - THIN (both)	T1 AXIAL	T1 AXIAL	T2 AXIAL FLAIR *3D TOF (CIRCLE OF WILLIS)		
T1 COR FAT - THIN T1 AXIAL WHOLE HEAD		T1 COR FAT - THIN (both) T1 SAG - THIN (pit) T1 AXIAL WHOLE HEAD	T1 COR	T1 COR 2D PHASE COR 2D PHASE SAG	POST CONTRAST (Opt) T1 AXIAL T1 COR 2D PHASE COR 2D PHASE SAG		* Carotids only - if the dx is for Dissection of the carotid arteries Add T1 axial fat sat to include from the arch to base of skull
			NOTES: Please note that under pedi brain PROTOCOLS, there are additional series that can be used example: pituitary and orbits. Also note there is a neonatal PROTOCOLS for brains. *MRA NECK: if the diagnosis is for Dissection of carotid arteries you add a T1 axial fat sat that includes from the arch to the base of the skull!				

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BRAIN/MRV	MRV HEAD ONLY	BRAIN LAB-SRS	BRAIN LAB SURGERY	CANCER - treatment planning Head	CANCER - treatment planning Head/Neck
T1 SAG FLAIR	T1 SAG FLAIR	T1 SAG FLAIR	T1 SAG FLAIR	T1 SAG - LOC	T1 SAG - LOC
CALIBRATION	T2 AX	CALIBRATION	T1 AXIAL - THIN (2mm skip 0)	T2 AXIAL - ORTHOGONAL AX (3 SKIP 0)	T2 AXIAL - ORTHOGONAL AX (3MM SKIP 0)
PD AXIAL	CALIBRATION	PD AXIAL			
T2 AXIAL	FLOW ACCENTUATION AX	T2 AXIAL THIN (3mm - 0)	3D FSPGR AX (faster scan)	T1 AXIAL - ORTHOGONAL AX	T1 AXIAL - ORTHOGONAL AX (3mm skip 0)
T1 COR DWI w/ adc map FLAIR AX PROPELLER	FLOW ACCENTUATION COR *2D MRV AX *2D PHASE COR	T1 AXIAL - THIN (3mm skip 0)		POST CONTRAST (Recomm)	POST CONTRAST (Recomm)
FLOW ACCENTUATION AX FLOW ACCENTUATION COR	*2D PHASE SAG *2D PHASE AX	FLAIR AX			
		T1 COR	All of brain lab for surgery is done post contrast. If motion, repeat series as necessary.	T1 AXIAL - ORTHOGONAL AX (3mm skip 0)	T1 AXIAL - ORTHOGONAL AX (3mm skip 0)
POST CONTRAST (opt)	POST CONTRAST	AX DWI			
*2D MRV AX *2D PHASE COR *2D PHASE SAG *2D PHASE AX T1 AXIAL	none	POST CONTRAST (recomm)			
T1 COR T1 SAG		FSPGR 3D AX T1 AXIAL - THIN (3mm skip 0) *T1 COR			
* If no contrast is ordered for brain/mrv you still need to run the phase contrast and mrv Brain lab/SRS - IMPORTANT - all slices MUST include tip of nose and beyond the top of the head.			IMPORTANT On all 2mm of 3mm series it is of the utmost importance that you include the tip of the nose, below the cantion and go beyond the top of the head. On the HCC - Head/neck treatment your slices are to start 3cm below the sterna notch and extend to the roof of the orbits.		

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*SPECTROSCOPY	TMJ'S	CAVERNOUS SINUS	SINUSES	NASOPHARYNX	SOFT TISSUE NECK
T2 AXIAL - ORTHOGONAL AX	T1 AXIAL - LOC				
	Closed mouth	T1 SAG	T1 SAG	T1 SAG (5MM SKIP 1MM, H/N 24FOV)	T1 AXIAL
PROBE SV35 - (Do not alter box place on normal tissue)	T1 SAG/OBL 8 SLICES EACH	T2 AX	T1 COR THIN		T1 AXIAL FAT SAT
	PD SAG/OBL 8 SLICES EACH	DWI w/ ADC map	T1 AXIAL THIN	T1 AXIAL (4MM SKIP O-1 HYOID TO PETROUS)	T2 AXIAL FAT SAT
PROBE SV35 - (Do not alter box place on area of interest)	T2 SAG/OBL 8 SLICES EACH	STIR COR THIN (PIT TO ORBIT)	STIR COR THIN		DW RTr b600 n/a on 3T
PROBE SV144 - (Do not alter box place on area of interest)	T1 COR/OBL 6 SLICES EACH	T1 AXIAL THIN (Pit to Orbit)	T2 AX THIN	T2 SAG T2 AXIAL	COR STIR (SKULL BASE TO STERNAL NOTCH) T2 SAG
PROBE SV144 - (Do not alter box place on normal tissue)	Open Mouth				
	T1 SAG/OBL 8 SLICES EACH				
	PD SAG/OBL 8 SLICES EACH				
	T2 SAG/OBL 8 SLICES EACH				
		Post contrast (Recomm)	Post contrast (Opt)	POST CONTRAST (Recomm)	POST CONTRAST (recomm)
*IMPORTANT: All metal must be removed. When running probe sv144 push Autoprescan let it click once push stop and then click button to scan. Go to fuction tool to do screen saves . Notes in MRI Notes Book	*use the TMJ clicker for keeping the mouth open	T1 AX FAT THIN (Pit to orbit) T1 COR FAT THIN (PIT TO ORBIT) T1 AXIAL THIN (Pit to Orbit) T1 AXIAL FAT 3D TOF Circle of Willis	T1 COR THIN 2 AQU T1 AXIAL THIN 2 AQU	T1 AXIAL (4MM SKIP O-1 HYOID TO PETROUS) T1 COR Whole brain/pharynx	T1 AXIAL FAT SAT T1 COR FAT SAT T1 SAG FAT SAT

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SPINE								
CERVICAL	THORACIC	LUMBAR	SACRUM	LUMBAR PLEXUS	SCOLIOSIS	CORD COMPRESSION screening	THORACIC OUTLET SYNDROME	CSF FLOW - HYDROCEPHALUS
T1 SAG PD SAG T2 SAG STIR SAG T2 GRE AXIAL T2 FSE AXIAL </								