PEDIATRIC DEMYELINATION (SMALLER PATIENTS) 3T

INSTRUCTIONS AND PATIENT PREPARATION

Instructions	Position the head in the head coil and immobilize with cushions Give cushions under the legs for extra comfort Connect the anterior portion of the head coil and secure it in place. Sedation vs bundle and feed is the ordering provider's decision
Common Indications	Demyelination Disease Multiple Sclerosis
Position	Head First Supine
Coil	Head Coil 20ch
Landmark	Center over the glabella
Patient Population	These protocols are intended for smaller patients and serve as starting points. If a smaller FOV is needed, the parameters are modified accordingly.

CONTRAST AGENT PARAMETERS

Contrast Agent	Dose	Injection Rate	Dose Timing Method and Scan Delay
Gadopiclenol (VUEWAY)	0.1 mL/kg	Hand injected	Post-contrast series acquired after gadolinium administration

IMAGING PARAMETERS

Scan Description	AAhead_scout	SAG MPRAGE 3D	SAG 3D T2 FLAIR	AX SWI	AX DWI	COR T2WI (3mm) DRB	COR T2 DIXON ORBITS (3mm) DRB	POST SAG MPRAGE 3D	POST AX T1WI FLAIR DRB	POST AX T2 FLAIR DRB	POST COR T1WI FS DIXON ORBITS (3mm) DRB
Sequence Name	fl	tfl	spcir	swi_r	epse	tse	tse	tfl	tir	tir	tse
Dimension	3D	3D	3D	3D	2D	2D	2D	3D	2D	2D	2D
Acceleration mode	GRAPPA	GRAPPA	GRAPPA	GRAPPA	SMS	GRAPPA	GRAPPA	GRAPPA	GRAPPA	GRAPPA	GRAPPA
Total Factor	—	—	2	—	—	—	—	—	—	—	—
Acceleration Factor PE	3	2	2	2	2	3	2	2	3	3	2
Acceleration Factor 3D	1	1	1	1	—	—	—	1	—	—	—
Reference Lines PE	24	64	24	24	30	26	31	64	27	52	27
Reference Scans	Integrated	GRE/Separate	Integrated	Integrated	EPI/Separate	Integrated	Integrated	GRE/Separate	Integrated	Integrated	Integrated
Deep Resolve	—	—	—	Off	Off	On	On	—	On	On	On

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MR Gadopiclenol (VUEWAY®) Protocol for Siemens MRI Scanners
Pediatric

IMAGING FORUMS, INC.

SCAN PARAMETERS

Scan Description	AAhead_scout	SAG MPRAGE 3D	SAG 3D T2 FLAIR	AX SWI	AX DWI	COR T2WI (3mm) DRB	COR T2 DIXON ORBITS (3mm) DRB	POST SAG MPRAGE 3D	POST AX T1WI FLAIR DRB	POST AX T2 FLAIR DRB	POST COR T1WI FS DIXON ORBITS (3mm) DRB
TR	3.15 ms	2500.0 ms	5000.0 ms	27.0 ms	3200.0 ms	4000.0 ms	3000.0 ms	2500.0 ms	2000.0 ms	9000.0 ms	600.0 ms
TE	1.37 ms	3.87 ms	382.00 ms	20.00 ms	87.00 ms	106.00 ms	84.00 ms	3.87 ms	9.00 ms	126.00 ms	9.50 ms
TI	—	1240 ms	1800 ms	—	—	—	—	1240 ms	900 ms	2500 ms	—
Flip Angle	8 deg	8 deg	T2 Var	15 deg	—	160 deg	160 deg	8 deg	150 deg	150 deg	160 deg
Bandwidth	540 Hz/Px	170 Hz/Px	651 Hz/Px	120 Hz/Px	1540 Hz/Px	250 Hz/Px	383 Hz/Px	170 Hz/Px	260 Hz/Px	289 Hz/Px	630 Hz/Px
Turbo Factor	—	224	278	—	—	17	17	224	5	21	3
Echo Spacing	—	9.06 ms	3.94 ms	—	0.94 ms	9.66 ms	10.50 ms	9.06 ms	9.02 ms	9.02 ms	9.48 ms
Echo Trains per Slice	—	—	—	—	—	11	16	—	26	7	90
EPI Factor	—	—	—	—	112	—	—	—	—	—	—
Gradient Mode	Normal	Normal	Fast	Normal	Fast*	Fast	Fast	Normal	Fast	Fast	Fast
RF Pulse Type	Fast	Normal	Normal	Fast	Normal	Normal	Normal	Normal	Normal	Normal	Normal
RF Spoiling	On	On	—	On	—	—	—	On	—	—	—
Asymmetric Echo	Weak	Off	—	Off	—	—	Off	Off	—	—	Off
Flow Compensation	—	None	None	On	—	None	None	None	None	None	None
Reduce Motion Sens.	—	—	—	—	—	On	On	—	On	On	On
Phase Correction	—	—	—	—	External	Automatic	Automatic	—	Automatic	Automatic	Automatic

CONTRAST & MAGNETIZATION

Scan Description	AAhead_scout	SAG MPRAGE 3D	SAG 3D T2 FLAIR	AX SWI	AX DWI	COR T2WI (3mm) DRB	COR T2 DIXON ORBITS (3mm) DRB	POST SAG MPRAGE 3D	POST AX T1WI FLAIR DRB	POST AX T2 FLAIR DRB	POST COR T1WI FS DIXON ORBITS (3mm) DRB
Fat-Water Contrast	Standard	Standard	Fat Saturation	Standard	Fat Saturation	Standard	Dixon	Standard	Standard	Fat Saturation	Dixon
Fat Saturation	—	—	Strong	—	Strong	—	Strong	—	—	Strong	Strong
Magn. Preparation	—	Non-sel. IR	Non-sel. T2-IR	None	None	None	None	Non-sel. IR	Slice-sel. IR	Slice-sel. IR	None
MTC	—	—	Off	Off	Off	Off	Off	—	Off	Off	Off
Dark Blood	—	Off	Off	Off	—	Off	Off	Off	Off	Off	Off
Contrasts	1	1	—	1	—	1	1	1	1	1	1
Reconstruction	Magnitude	Magnitude	Magnitude	Magn./Phase	Magnitude	Magnitude	Magnitude	Magnitude	Magnitude	Magnitude	Magnitude
Wrap-up Magn.	—	—	None	—	—	None	None	—	None	None	None

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ACQUISITION PARAMETERS

Scan Description	AAhead_scout	SAG MPRAGE 3D	SAG 3D T2 FLAIR	AX SWI	AX DWI	COR T2WI (3mm) DRB	COR T2 DIXON ORBITS (3mm) DRB	POST SAG MPRAGE 3D	POST AX T1WI FLAIR DRB	POST AX T2 FLAIR DRB	POST COR T1WI FS DIXON ORBITS (3mm) DRB
Base Resolution	160	224	256	256	112	400	256	224	320	320	256
Phase Resolution	100 %	100 %	100 %	96 %	100 %	85 %	80 %	100 %	70 %	70 %	80 %
Slice Resolution	69 %	100 %	100 %	100 %	—	—	—	100 %	—	—	—
Averages	1	1	1.0	1	—	1	1	1	1	1	1
Concatenations	1	1	1	1	1	2	2	1	2	2	2
FoV Read	260 mm	200 mm	200 mm	180 mm	180 mm	180 mm	140 mm	200 mm	180 mm	180 mm	140 mm
FoV Phase	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Phase Encoding Dir.	A >> P	A >> P	A >> P	R >> L	A >> P	R >> L	R >> L	A >> P	R >> L	R >> L	R >> L
Phase Oversampling	0 %	0 %	0 %	0 %	0 %	50 %	150 %	0 %	50 %	50 %	150 %
Slice Oversampling	0.0 %	7.7 %	0.0 %	10.0 %	—	—	—	7.7 %	—	—	—
Phase Partial Fourier	6/8	Off	Off	7/8	7/8	Off	Off	Off	Off	Off	Off
Slice Partial Fourier	6/8	Off	Off	7/8	—	—	—	Off	—	—	—
Interpolation	—	On	On	Off	On	On	On	On	On	On	On
Trajectory	Cartesian	—	—	—	—	—	Cartesian	—	—	—	Cartesian
Multi-Slice Mode	Sequential	Single Shot	—	Interleaved	Interleaved	Interleaved	Interleaved	Single Shot	Interleaved	Interleaved	Interleaved

SCANNING RANGE

Scan Description	AAhead_scout	SAG MPRAGE 3D	SAG 3D T2 FLAIR	AX SWI	AX DWI	COR T2WI (3mm) DRB	COR T2 DIXON ORBITS (3mm) DRB	POST SAG MPRAGE 3D	POST AX T1WI FLAIR DRB	POST AX T2 FLAIR DRB	POST COR T1WI FS DIXON ORBITS (3mm) DRB
Slice Thickness	1.6 mm	0.90 mm	0.78 mm	1.50 mm	4.0 mm	3.0 mm	3.0 mm	0.90 mm	4.0 mm	4.0 mm	3.0 mm
Slices	128 Slices per Slab	208 Slices per Slab	192 Slices per Slab	80 Slices per Slab	34 Slices	45 Slices	30 Slices	208 Slices per Slab	33 Slices	34 Slices	27 Slices
Distance Factor	20 %	50 %	—	20 %	10 %	10 %	10 %	50 %	10 %	10 %	10 %
Special Saturation	—	—	None	None	None	None	None	—	None	None	None
Raw Filter	Off	Off	On	Off	Off	Off	Off	Off	Off	Off	Off
Elliptical Filter	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Image Filter	Off	On	Off	Off	—	Off	Off	On	Off	Off	Off
Distortion Correction	3D	2D	2D	2D	Off	2D	2D	2D	2D	2D	2D
Normalize	Prescan	Prescan	Prescan	Prescan	Prescan	Prescan	Prescan	Prescan	Prescan	Prescan	Prescan
Noise Masking	Off	—	—	—	Off	—	—	—	—	—	—
Time of Acquisition	14 sec	4:52 min	8:12 min	4:11 min	3:20 min	1:38 min	3:20 min	4:52 min	1:50 min	2:26 min	3:39 min

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DIFFUSION

Scan Description	AAhead_scout	SAG MPRAGE 3D	SAG 3D T2 FLAIR	AX SWI	AX DWI	COR T2WI (3mm) DRB	COR T2 DIXON ORBITS (3mm) DRB	POST SAG MPRAGE 3D	POST AX T1WI FLAIR DRB	POST AX T2 FLAIR DRB	POST COR T1WI FS DIXON ORBITS (3mm) DRB
Diffusion Mode	—	—	—	—	MDDW	—	—	—	—	—	—
Diffusion Scheme	—	—	—	—	Monopolar	—	—	—	—	—	—
Diff. Directions	—	—	—	—	6	—	—	—	—	—	—
b-value 1	—	—	—	—	0 s/mm²	—	—	—	—	—	—
b-value 2	—	—	—	—	1000 s/mm²	—	—	—	—	—	—
Averages b-value 1	—	—	—	—	1	—	—	—	—	—	—
Averages b-value 2	—	—	—	—	3	—	—	—	—	—	—
Diff. Weightings	—	—	—	—	3	—	—	—	—	—	—
Diff. Weighted Images	—	—	—	—	Off	—	—	—	—	—	—
Trace Weighted Images	—	—	—	—	On	—	—	—	—	—	—
ADC Maps	—	—	—	—	On	—	—	—	—	—	—
Exponential ADC Maps	—	—	—	—	Off	—	—	—	—	—	—
FA Maps	—	—	—	—	On	—	—	—	—	—	—
Calculated Image	—	—	—	—	Off	—	—	—	—	—	—

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