

PROTOCOL: MRI THORACIC SPINE WWO-MS

multiple sclerosis, demyelination

CLINICAL INDICATIONS/ HISTORY * Study optimized to evaluate for multiple sclerosis ONLY, potentially at the expense of other competing pathology. Intended user is a neurologist with subspecialty training in multiple sclerosis. *
 -> If the study order says "rule out multiple sclerosis, disc herniation, nerve root impingement" then consider running a routine thoracic spine protocol instead.

TIPS:
 -Localizer not optional; should include skull base to at least T3 to allow radiologist count vertebral levels.
 -T1 +C should have fat saturation on all planes, unless it creates extensive artifact due to metal hardware
 -For scoliosis, add a coronal T2 and consider running axial T2s through disc not as a stack.
 -Hospitals should be using STIR + T2, NOT T2 DIXON fat suppression techniques.
 -If metal hardware, scan on 1.5T magnet rather than 3T magnet (if available), and use metal suppression techniques for extended bandwidth or echo train OR metal suppression software like MARS or MAVRIC or WARP

SCAN ORDER	PLANE	IMAGE CONTRAST/WEIGHTING	MODE	PULSE SEQ	COVERAGE	TR RANGE	TE RANGE	TI	FLIP ANGLE	THICKNESS/ GAP (mm)	FOV (cm)	Max Pixel (mm) x Ph	Fr PHASE AXIS	SEND TO PACS	Max scan time (target)
1 (COUNT LOC, 2 STATION)	SAG	T1	2D	FSE	LOWER CLIVUS TO L1	<790	MIN	-	>130	4/0	36-40	1.0x1.0	SI	FULL SERIES	2:30
2	SAG	STIR	2D	FSE	THROUGH CORD ONLY 12-14 SLICES	3000-6000	50-70	135-160	>130	3/0	30-32	1.0X1.0	SI	FULL SERIES	3:30
3	SAG	PD / T2 DUAL ECHO	2D	FSE	THROUGH CORD ONLY 12-14 SLICES	2800-3900	17-28 + 90-120	-	>130	3/0	30-32	.7X.7	SI	FULL SERIES	4:00
4	SAG	T1	2D	PSIR/IRPS	THROUGH CORD ONLY 12-14 SLICES	2800-3200	45-55	350	>130	2/0	30-32	.9X.9	SI	FULL SERIES	4:00
5A	AX	T2	2D	FSE	UPPER LEVELS FROM MID C7 TO ~T7/8	4000-7000	90-110	-	>120	3.5-4/1	14-16	1.2X1.2	PA	FULL SERIES	3:30
5B	AX	T2	2D	FSE	LOWER LEVELS FROM OVERLAP POINT TO MID L1	4000-7000	90-110	-	>130	3.5-4/1	14-16	1.2X1.2	PA	FULL SERIES	3:30
CONTRAST															
6+C	SAG	T1 DIXON/ IDEAL	2D	FSE	COVER BONY THORACIC SPINE	<790	MIN	-	>130	3/0	30-32	.7X.9	SI	IN-PHASE AND WATER ONLY	4:55
7A+C	AX	T1 FS	3D	VIBE DIXON/ LAVA FLEX	UPPER LEVELS FROM MID C7 TO ~T7/8	MIN	IN-PHASE	-	15-25	3/OVLP	14-20	.7X.9	PA	IN-PHASE AND WATER ONLY	4:00
7B+C	AX	T1 FS	3D	VIBE DIXON/ LAVA FLEX	LOWER LEVELS FROM OVERLAP POINT TO MID L1	MIN	IN-PHASE	-	15-25	3/OVLP	14-20	.7X.9	PA	IN-PHASE AND WATER ONLY	4:00
If 3D DIXON +C not available:															
7A+C (ALTERNATE)	AX	T1 FS	2D	FSE	UPPER LEVELS FROM MID C7 TO ~T7/8	<790	MIN	-	>130	3.5-4/1	14-16	1.2X1.2	PA	FULL SERIES	3:30
7B+C (ALTERNATE)	AX	T1 FS	2D	FSE	LOWER LEVELS FROM OVERLAP POINT TO MID L1	<790	MIN	-	>130	3.5-4/1	14-16	1.2X1.2	PA	FULL SERIES	3:30