

**PROTOCOL: MRA SPINAL VESSELS WWO/SPINAL MRA WWO**

**CLINICAL INDICATIONS/ HISTORY** dural arteriovenous fistula/AVM

**TIPS:** Injection rate of 2 mL / sec with delay of 10 second  
majority of these fistula are within the lower thoracic spine

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) Fr x Ph	Freq Axis	SEND TO PACS	Max scan time (target)
1	SAG	T1	2D	TSE/FSE	COVER ENTIRE SPINE (C1-S1) IN TWO TO 3 STEPS. PASTE OR COMPOSE.	<790	MIN	-	>130	4/0	28-32	.75X1.2	AP	FULL SERIES	4:00 (TOTAL)
2	SAG	T2	2D	TSE/FSE	COVER FROM T6-L3, INCLUSIVE	3000+	95-115	-	>130	3/0	38	.75X.9	AP	FULL SERIES	4:30
3	SAG	T1	2D	TSE/FSE	COVER FROM T6-L3, INCLUSIVE	<790	MIN	-	>130	3/0	38	.75X.9	AP	FULL SERIES	4:00
<b>CONTRAST</b>															
4+C	COR	TEMPORAL MRA	3D	TRICKS/TWIST	COVER FROM T6-L3, INCLUSIVE	MIN	MIN	1.8-3.0 SEC TEMP RES OVER 70-90 SEC TOTAL	20-25	.9-1.1/ OVLP	34-45	.85X1.0	SI	FULL SERIES+ AX/SAG/COR VOLUME MIP	90s
5+C	SAG	T1 FS DIXON/IDEAL	2D	TSE/FSE	COVER FROM T6-L3, INCLUSIVE	<790	MIN	-	>130	3/0	38	.8X1.0	AP	FULL SERIES	5:00