



MRA COW WWO

Magnet Vendor/Field	Approved By	Published/Rev
Siemens MAGNETOM 3.0T XQ Numaris/X VA60A-0CN3	Dr Alvarez	8.11.26 / 2

Protocol	Contrast	Estimated Scan Time
MRA CIRCLE OF WILLIS (COW) WWO	Yes	~15–25 min room time

TECHNOLOGIST WORKFLOW

#	Step	Seq	Pulse	Dim	Ori	Scan Dir	Phase Enc	FOV (mm)	Slc (mm)	Gap (mm)	TR (ms)	TE (ms)	Fat Sat	Freq	Phase	Notes
1	♥ SETUP	LOCALIZER	LOCALIZER	2D	Sag	R>>L	A>>P	300	7.0	1.4	8.6	4.00	Standard	256	230	
2	■ MRA LOC	VESSELS_HEAD LOC	FLASH	3D	Cor	A>>P	R>>L	280	1.50	0.8	23.0	8.00	Standard	256	192	1 slab / 96 slices
3	■ SOURCE	AXIAL SOURCE COW	TOF	3D	Ax	S>>I	R>>L	205	0.53	-0.1	22.00	3.78	Standard	384	384	4 slabs / 44 slices per slab
4	■ PRE	AXIAL 3D PRE	VIBE	3D	Ax Oblique	S>>I	A>>P	245	1.00	0.2	4.24	1.56	Standard	352	317	1 slab / 88 slices;
5	■ BOLUS	CARE_BOLUS_C OR (FLUORO TRIGGER)	VIBE	2D	Cor Oblique	A>>P	F>>H	390	40.0	8.0	31.78	1.65	Standard	320	240	
6	■ POST	AXIAL 3D POST	VIBE	3D	Ax Oblique	S>>I	A>>P	245	1.00	0.2	4.24	1.56	Standard	352	317	Matches PRE subtraction enabled **If able, run a TWIST/TRICKS in

																	place of this vibe with 5 phases. Post process the best arterial phase. Send all source phases to PACS
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TECHNOLOGIST POST-PROCESSING

- ☐ Confirm complete COW coverage and adequate arterial signal on the source images.
- ☐ Confirm PRE and POST 3D acquisitions use matching geometry and subtraction is available.
- ☐ Use the Care_bolus_cor sequence for fluoroscopic contrast timing.
- ☐ Review the post-contrast subtraction images
- ☐ Send source, pre/post, subtraction and required reconstructed images to PACS.

POST PROCESSING

- TOF images will be reformatted into:
 - AX and COR thin MPR @ 1 thickness and 1 spacing
 - AX, COR, and SAG thick MPR @ 12 thickness and 2 spacing
- TOF will also be processed to only display arteries that will be rotated in VERTICAL L-R & HORIZONTAL A-P MIP 360 degree rotations with 39 images.

ACTION ITEMS

- ♥ Complete localization and confirm head/COW positioning.
- Acquire vessels_head LOC and AXIAL SOURCE COW before contrast.
- Acquire AXIAL 3D PRE and verify the pre-contrast subtraction reference is stored.
- Perform Care_bolus_cor fluoroscopic triggering
- Acquire AXIAL 3D POST and verify subtraction/reconstruction quality.