

MRI Brachial Plexus With and Without

Technical Parameters

Patient Positioning: Head first supine, center the laser beam localizer over the sternoclavicular joint

Anatomic Coverage:

3 plane localizer:

Coronal localizer: Thinner and more numerous images than usual; see diagram #1 below

Axial Oblique: On coronal localizer, prescribe slices parallel to brachial plexus of interest. See diagram #2. The slices must be sufficient to cover the brachial plexus from C3 down to the level of T4 and the FOV must be big enough to encompass the entire unilateral brachial plexus from the shoulder joint to the cervical spine.

Coronal Oblique: Once axial oblique images are obtained, use them to prescribe coronal oblique images parallel to the brachial plexus of interest. See diagram #3.

Sagittal Oblique: Once axial oblique images are obtained, use them to prescribe sagittal oblique images perpendicular to the brachial plexus of interest. See diagram #4. The slices must be sufficient to cover the affected side (right or left) from the spinal cord out to the shoulder. The phase direction in the sagittal scans can be head to foot with 100-150% oversample to reduce arterial pulsation and swallowing artifacts.

Coil: NV - three-plane localizer must be taken at the beginning to localize and plan the sequences; normally completed in less than 25 seconds using T1-weighted low-resolution scans. A Coronal localizer with thinner slices is very helpful to determine the location of the brachial plexus for the Axial Oblique series.

Scanner Preference: 1.5T or 3T

Contrast:

Pre-injection:

Post-injection:

Scanning Plane:	Axial Oblique	Axial Oblique	Coronal Oblique	Coronal Oblique	Sagittal Oblique (of affected side)	Sagittal Oblique (of affected side)	Axial Oblique	Coronal Oblique
Slice Thickness:	3mm	3mm	3mm	3mm	3mm	3mm	3mm	3mm
Gap:	1mm	1mm	1mm	1mm	1mm	1mm	1mm	1mm
Weighting:	T1	T2	T1	T2	T2	T1	T1	T1
Mode:	TSE	TSE	TSE	TSE	TSE	TSE	TSE	TSE
FAT SAT:	NO	STIR	NO	STIR	NO	STIR	DIXON	DIXON
FOV:	32-35cm	32-35cm	20-30cm	20-30cm	20-23cm	20-23cm	32-35cm	20-30cm
MPR:	NO	NO	NO	NO	NO	NO	NO	NO
Notes:						Angle the positioning block perpendicular to the brachial plexus		

[Diagram 1](#)

[Diagram 2](#)

[Diagram 3](#)

[Diagram 4](#)

Review article: The diagrams above, and an excellent review of brachial plexus anatomy, can be found at <https://pmc.ncbi.nlm.nih.gov/articles/PMC4202880/>