

CTA Head (COW)

Updated 05/02/24

Reviewed 05/14/25

Indications - stroke, intracranial artery stenosis/occlusion/aneurysm, intracranial hemorrhage, trauma.

Perform a routine noncontrast head first before CTA if one has not been performed within last 6 hours.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Position patient's head so that the line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.

Topogram - C2 vertebrae through top of head.

Craniocaudal overage - C2 vertebrae through top of head.

Adjust FOV (field of view) on topogram to smallest without cropping anatomy.

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **100 mL**.

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off aortic arch triggered at **100 HU**.

For **GE scanners**, it is essential for the 1st recon thickness on the scanner to match the 1st recon thickness in this protocol book for the prescribed Noise Index to be valid. The 1st recon should generally be the thickest recon in the protocol.

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	140	on	NA	1.15	16	0.75	0.5	4.3
Go Up 32	spiral	80	84	on	on 105	1.50	32	0.7	0.8	2.9
Sensation 64	spiral	120	160	on	NA	1.20	64	0.6	0.5	2.6
Definition 64	spiral	100	175	on	on	1.40	64	0.6	0.5	2.2
Go Top 64	spiral	90	83	on	on 105	1.50	64	0.6	0.33	0.7
Drive 128	spiral	80 Sn140	178 89	on	on	0.70	64	0.6	0.33	2.9
Force 192	spiral	80 140	345 69	on	on	0.90	64	0.6	0.25	1.7

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX COW	2.0	2.0	Bv36 / H20f	CT angio	3	feet/head
AX COW THINS	1.0	1.0	Bv36 / H20f	CT angio	3	feet/head
COR COW MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	front/back
SAG COW MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		
3D VRT (tumble)	0.75	0.5	Bv36 / B31f	CT angio		

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GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR	Scan Time
LS 16	helical	head	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	6.4
Opt 540	helical	head	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	6.4
LS VCT 64	helical	head	120	100-450	5.00	on	2.5	20	0.969	19.37	0.5	20	20	3.1
Disc VCT 64	helical	head	120	100-450	5.00	on	2.5	20	0.969	19.37	0.5	NA	NA	3.1

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX COW	2.5	2.5	std full	400/40	feet/head
AX COW THINS	1.25	1.25	std full	400/40	feet/head
COR COW MIPS	2.5	2.5	std full	400/40	front/back
SAG COW MIPS	2.5	2.5	std full	400/40	left/right
3D VRT (spin)	0.625	0.625	std full	400/40	
3D VRT (tumble)	0.625	0.625	std full	400/40	

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	203	22	on	1.00	64	0.625	1.00	3.0

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX COW	2.0	2.0	B	CTA	2	feet/head
AX COW THINS	1.0	1.0	B	CTA	2	feet/head
COR COW MIPS	2.0	2.0	B	CTA	2	front/back
SAG COW MIPS	2.0	2.0	B	CTA	2	left/right
3D VRT (spin)	0.75	0.5	B			
3D VRT (tumble)	0.75	0.5	B			