

CT Urogram Routine

Updated
5/2/2024

Indications - hematuria, renal/ureteral stones/calculi, nephrolithiasis, hydronephrosis, hydroureter, chronic urinary tract infection, urothelial malignancy.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage - lung bases through pubic symphysis on all phases (obtained during end inspiration).

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

IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **2.5 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Oral contrast:

Give patient 32 oz water 30 mins prior to imaging.

Tell patient not to use the restroom prior to scan. The bladder needs to be distended for the best study.

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.

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SIEMENS PARAMETERS & RECONS

For the Pre Contrast, Nephrographic (90 secs) and Excretory (5 mins) phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	on	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR PRE	3.0	3.0	Br40 / B41f	mediastinum	3	front/back

NEPHROGRAPHIC PHASE (90 secs)

AX NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

Just before 5 mins, roll the patient three times to mix contrast within bladder.

PRONE EXCRETORY PHASE (5 mins)

Flip prone recons supine and proper right/left (i.e. mirror and both) before sending to PACS.

AX EXCRETE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR EXCRETE MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG EXCRETE MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	left/right

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GE PARAMETERS & RECONS

For the Pre Contrast, Nephrographic (90 secs) and Excretory (5 mins) phases:

	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	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	2.5	2.5	std full	400/40	head/feet
COR PRE	2.5	2.5	std full	400/40	front/back

Must be first recon.

NEPHROGRAPHIC PHASE (90 secs)

AX NEPRHO	2.5	2.5	std full	400/40	head/feet
COR NEPRHO	2.5	2.5	std full	400/40	front/back
SAG NEPRHO	2.5	2.5	std full	400/40	left/right

Must be first recon.

Just before 5 mins, roll the patient three times to mix contrast within bladder.

PRONE EXCRETORY PHASE (5 mins)

Flip prone recons supine and proper right/left (i.e. mirror and both) before sending to PACS.

AX EXCRETE	2.5	2.5	std full	400/40	head/feet
COR EXCRETE MIPS	5.0	3.0	std full	400/40	front/back
SAG EXCRETE MIPS	5.0	3.0	std full	400/40	left/right

Must be first recon.

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PHILIPS PARAMETERS & RECONS

For the Pre Contrast, Nephrographic (90 secs) and Excretory (5 mins) phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	5.6

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet
COR PRE	3.0	3.0	B	mediastinum	3	front/back

NEPHROGRAPHIC PHASE (90 secs)

AX NEPHRO	3.0	3.0	B	mediastinum	3	head/feet
COR NEPHRO	3.0	3.0	B	mediastinum	3	front/back
SAG NEPHRO	3.0	3.0	B	mediastinum	3	left/right

Just before 5 mins, roll the patient three times to mix contrast within bladder.

PRONE EXCRETORY PHASE (5 mins)

Flip prone recons supine and proper right/left (i.e. mirror and both) before sending to PACS.

AX EXCRETE	3.0	3.0	B	mediastinum	3	head/feet
COR EXCRETE MIPS	5.0	3.0	B	mediastinum	3	front/back
SAG EXCRETE MIPS	5.0	3.0	B	mediastinum	3	left/right