MRA Chest

Updated 11/04/23

Reviewed 05/14/25

Indications: aortic aneurysm/dissection and pulmonary embolus.

Go to MRIMaster.com for a guide of proper positioning.

Pulse Sequence	PACS Name	plane	fat sat	slice (mm)	gap (mm)	first slice
T2 HASTE/SSFSE	T2 AX	ax	no	5	1	top
T2 HASTE/SSFSE	T2 FS AX	ax	yes	5	1	top
True FISP	TRUE FISP COR	cor	no	5	1	front
T1 VIBE/LAVA	T1 FS PRE AX	ax	yes	3.5	0.6	top
3D FLASH T1	3D T1 PRE SAG	sag	no	1.35	0.27	right
3D FLASH T1	3D T1 PRE COR	cor	no	1.35	0.27	front

CONTRAST - 2 mL/sec standard dose gadolinium (0.2 mL/kg Clariscan or 0.1 mL/kg Gadavist) followed by 20 mL saline flush.

For the angio phase bolus track and trigger when contrast reaches the ascending aorta.

3D FLASH T1	3D T1 ANGIO SAG	sag	no	1.35	0.27	right
3D FLASH T1	3D T1 ANGIO COR	cor	no	1.35	0.27	front
*T1 VIBE/LAVA	T1 FS POST AX	ax	yes	3.5	0.6	top
*T1 VIBE/LAVA	T1 FS POST SAG	sag	yes	3.5	0.6	right
*T1 VIBE/LAVA	T1 FS POST COR	cor	yes	3.5	0.6	front

*The post T1 VIBE/LAVA sequences are begun just after the 3D angio sequences finish scanning.

RECONS:

sagittal subtractions of the angio sequence

axial and coronal MPRs of the subtracted sagittal angio sequence (3 mm thick no gap)

horizontal MIP spinners of the subtracted sagittal angio sequence

axial subtractions of the T1 VIBE/LAVA sequence

MRA Renal

Updated 11/04/23

Reviewed 05/14/25

Indications: renal artery stenosis and hypertension.

FOV for the T2 HASTE/SSFSE and T1 VIBE/LAVA sequences is normal abdomen FOV.

Go to MRIMaster.com for a guide of proper positioning.

Pulse Sequence	PACS Name	plane	fat sat	slice (mm)	gap (mm)	first slice
T2 HASTE/SSFSE	T2 COR	cor	no	7	1.4	front
T2 HASTE/SSFSE	T2 AX	ax	no	7	1.4	top
T2 HASTE/SSFSE	T2 FS AX	ax	yes	7	1.4	top
In/Out Phase w/ DIXON	IN/OUT AX	ax	no	5	1	top
T1 VIBE/LAVA	T1 FS AX	ax	yes	3.5	0.6	top
3D FLASH T1	3D T1 PRE COR	cor	no	1.35	0.27	front
3D FLASH T1	3D T1 PRE SAG	sag	no	1.35	0.27	right

CONTRAST - 2 mL/sec standard dose gadolinium (0.2 mL/kg Clariscan or 0.1 mL/kg Gadavist) followed by 20 mL saline flush.

For the angio phase bolus track and trigger when contrast reaches the renal arteries.

3D FLASH T1	3D T1 ANGIO COR	cor	no	1.35	0.27	front
3D FLASH T1	3D T1 ANGIO SAG	sag	no	1.35	0.27	right
*T1 VIBE/LAVA	T1 FS POST AX	ax	yes	3.5	0.6	top
*T1 VIBE/LAVA	T1 FS POST COR	cor	yes	3.5	0.6	front

*The post T1 VIBE/LAVA sequences are begun just after the 3D angio sequences finish scanning.

RECONS:

coronal subtractions of the angio sequence

axial and sagittal MPRs of the subtracted coronal angio sequence (3 mm thick no gap)

vertical MIP spinners of the subtracted coronal angio sequence

axial subtractions of the T1 VIBE/LAVA

MRA Mesenteric/Portal

Updated 11/04/23
Reviewed 05/14/25

Indications: mesenteric ischemia, mesenteric artery stenosis and portal vein thrombosis.
FOV for the T2 HASTE/SSFSE and T1 VIBE/LAVA sequences is normal abdomen FOV.
Go to MRIMaster.com for a guide of proper positioning.

Pulse Sequence	PACS Name	plane	fat sat	slice (mm)	gap (mm)	first slice
T2 HASTE/SSFSE	T2 COR	cor	no	7	1.4	front
T2 HASTE/SSFSE	T2 AX	ax	no	7	1.4	top
T2 HASTE/SSFSE	T2 FS AX	ax	yes	7	1.4	top
T1 VIBE/LAVA	T1 FS AX	ax	yes	3.5	0.6	top
3D FLASH T1	3D T1 PRE SAG	sag	no	1.35	0.27	right
3D FLASH T1	3D T1 PRE COR	cor	no	1.35	0.27	front

CONTRAST - 2 mL/sec standard dose gadolinium (0.2 mL/kg Clariscan or 0.1 mL/kg Gadavist) followed by 20 mL saline flush.
For the angio phase bolus track and trigger when contrast reaches the renal arteries.

3D FLASH T1	3D T1 ANGIO SAG	sag	no	1.35	0.27	right
3D FLASH T1	3D T1 ANGIO COR	cor	no	1.35	0.27	front
*T1 VIBE/LAVA	T1 FS POST AX	ax	yes	3.5	0.6	top
*T1 VIBE/LAVA	T1 FS POST COR	cor	yes	3.5	0.6	front

*The post T1 VIBE/LAVA sequences are begun just after the 3D angio sequences finish scanning.

RECONS:

sagittal subtractions of the angio sequence
axial and coronal MPRs of the subtracted sagittal angio sequence (3 mm thick no gap)
horizontal and vertical MIP spinners of the subtracted sagittal angio sequence
axial subtractions of the T1 VIBE/LAVA

MRA Pelvis

Updated 11/04/23
Reviewed 05/14/25

Indications: pre surgical uterine artery embolization for fibroids and pelvic renal transplant.
FOV for the T2 HASTE/SSFSE and T1 VIBE/LAVA sequences is normal pelvis FOV.
Go to MRIMaster.com for a guide of proper positioning.

Pulse Sequence	PACS Name	plane	fat sat	slice (mm)	gap (mm)	first slice
T2 HASTE/SSFSE	T2 COR	cor	no	7	1.4	front
T2 TSE	T2 SAG	sag	no	5	1	right
T2 TSE	T2 AX	ax	no	5	1	top
T2 HASTE/SSFSE	T2 FS AX	ax	yes	7	1.4	top
T1 VIBE/LAVA	T1 FS SAG	sag	yes	3.5	0.6	right
T1 VIBE/LAVA	T1 FS AX	ax	yes	3.5	0.6	top
3D FLASH T1	3D T1 PRE COR	cor	no	1.35	0.27	front

If ordered for a renal transplant, have a **body Radiologist check** before contrast to see if any additional sequences are needed.
CONTRAST - 2 mL/sec standard dose gadolinium (0.2 mL/kg Clariscan or 0.1 mL/kg Gadavist) followed by 20 mL saline flush.
For the angio phase bolus track and trigger when contrast reaches the aortic bifurcation.

3D FLASH T1	3D T1 ANGIO COR	cor	no	1.35	0.27	front
*T1 VIBE/LAVA	T1 FS POST AX	ax	yes	3.5	0.6	top
*T1 VIBE/LAVA	T1 FS POST SAG	sag	yes	3.5	0.6	right
*T1 VIBE/LAVA	T1 FS POST COR	cor	yes	3.5	0.6	front
Diffusion (b50, b800, ADC)	DIFFUSION AX	ax	yes	6	1	top
T1 VIBE/LAVA	T1 FS DELAY AX	ax	yes	3.5	0.6	top

*The post T1 VIBE/LAVA sequences are begun just after the 3D angio sequences finish scanning.

RECONS:

coronal subtractions of the angio sequence
axial and sagittal MPRs of the subtracted coronal angio sequence (3 mm thick no gap)
horizontal and vertical MIP spinners of the subtracted coronal angio sequence
axial and sagittal subtractions of the T1 VIBE/LAVA

MRA Runoff (Iliofemoral)

Updated 11/18/23
Reviewed 05/14/25

Go to MRIMaster.com for a guide of proper positioning.

Pulse Sequence	PACS Name	plane	fat sat	slice (mm)	gap (mm)	first slice	Field of View
3D FLASH T1	LOWER PRE	cor	no	1.5	0.3	front	lower legs
3D FLASH T1	THIGHS PRE	cor	no	1.5	0.3	front	thighs
3D FLASH T1	ABD/PEL PRE	cor	no	1.5	0.3	front	abdomen/pelvis

CONTRAST - 2 mL/sec standard dose gadolinium (0.2 mL/kg Clariscan or 0.1 mL/kg Gadavist) followed by 20 mL saline flush. For the angio phase bolus track and trigger when contrast reaches the renal arteries.

3D FLASH T1	ABD/PEL POST	cor	no	1.5	0.3	front	abdomen/pelvis
3D FLASH T1	THIGHS POST	cor	no	1.5	0.3	front	thighs
3D FLASH T1	LOWER POST 1	cor	no	1.5	0.3	front	lower legs
3D FLASH T1	LOWER POST 2	cor	no	1.5	0.3	front	lower legs
3D FLASH T1	LOWER POST 3	cor	no	1.5	0.3	front	lower legs

RECONS:

abdomen/pelvis

coronal subtractions of the angio sequence

axial MPRs of the subtracted coronal angio sequence (3 mm thick no gap)

horizontal MIP spinners of the subtracted coronal angio sequence

thighs

coronal subtractions of the angio sequence

axial MPRs of the subtracted coronal angio sequence (3 mm thick no gap)

horizontal MIP spinners of the subtracted coronal angio sequence

lower legs

coronal subtractions of the 1st angio sequence

axial MPRs of the subtracted coronal 1st angio sequence (3 mm thick no gap)

horizontal MIP spinners of the subtracted coronal 1st angio sequence

MRI Extremity Lymphangiogram

Updated 06/07/18
Reviewed 05/14/25

Bill as MRI Extremity w/ + w/o Contrast and MRA Extremity w/ + w/o Contrast.

Place hand of arm to be imaged on IV board palm up. Place IV in opposite arm.

Use body coil. Need to image from wrist to shoulder. May need to break up sequences into two sets (shoulder/arm and forearm/wrist). If in two sets, overlap some at elbow and name sequences upper and lower.

The arm being imaged needs to remain stationary as subtractions may be needed.

After the tech has positioned patient on scanner, he/she will Chloroprep and lather viscous lidocaine around the web spaces of the hand of the arm to be imaged.

Supplies needed for hand injection – 1 pair sterile gloves, 1 pack sterile blue towels, 1 pack 4x4s, 4 1 mL tuberculin syringes w/ needles attached, 1 3 way stopcock, 1 12 mL syringe, 1 3.5 cm 18 g needle, 2 Chloropreps, 30 mL Clariscan, 1 bottle/ampule 1% lidocaine, 1 bottle 0.5% bupivacaine and 1 bottle viscous lidocaine.

Pulse Sequence	PACS Name	plane	fat sat	slice (mm)	gap (mm)	first slice	Field of View
T2 TSE	T2 FS AX UPPER	ax	yes	4	0.5	top	upper arm
T2 TSE	T2 FS AX LOWER	ax	yes	4	0.5	top	lower arm
T1 VIBE/LAVA	T1 FS AX UPPER	ax	yes	3	0	top	upper arm
T1 VIBE/LAVA	T1 FS AX LOWER	ax	yes	3	0	top	lower arm

Inject 1 mL of contrast mix into each of the 4 web spaces of the hand using tuberculin syringes. Inject over a few seconds. Mixture is 10 mL contrast, 1 mL 1% lidocaine and 1 mL 0.5% bupivacaine. Inject into web spaces without worrying about making a wheal like with breast lymphoscintigraphy.

T1 VIBE/LAVA	T1 FS 5 MIN LOWER	ax	yes	3	0	top	lower arm
T1 VIBE/LAVA	T1 FS 5 MIN UPPER	ax	yes	3	0	top	upper arm
T1 VIBE/LAVA	T1 FS 10 MIN LOWER	ax	yes	3	0	top	lower arm
T1 VIBE/LAVA	T1 FS 10 MIN UPPER	ax	yes	3	0	top	upper arm
T1 VIBE/LAVA	T1 FS 15 MIN LOWER	ax	yes	3	0	top	lower arm
T1 VIBE/LAVA	T1 FS 15 MIN UPPER	ax	yes	3	0	top	upper arm
T1 VIBE/LAVA	T1 FS 20 MIN LOWER	ax	yes	3	0	top	lower arm
T1 VIBE/LAVA	T1 FS 20 MIN UPPER	ax	yes	3	0	top	upper arm
T1 VIBE/LAVA	T1 FS 25 MIN LOWER	ax	yes	3	0	top	lower arm
T1 VIBE/LAVA	T1 FS 25 MIN UPPER	ax	yes	3	0	top	upper arm
T1 VIBE/LAVA	T1 FS 30 MIN LOWER	ax	yes	3	0	top	lower arm
T1 VIBE/LAVA	T1 FS 30 MIN UPPER	ax	yes	3	0	top	upper arm

CONTRAST - 2 mL/sec standard dose gadolinium (0.2 mL/kg Clariscan or 0.1 mL/kg Gadavist) followed by 20 mL saline flush.

T1 VIBE/LAVA	T1 FS VEN LOWER	ax	yes	3	0	top	lower arm
T1 VIBE/LAVA	T1 FS VEN UPPER	ax	yes	3	0	top	upper arm
T1 VIBE/LAVA	T1 FS POST COR	cor	yes	3	0	front	whole arm