

Liver & Pancreas Protocols

Routine Liver

Last updated: 5/3/2002

Phased array coil centered over the liver.

Weight based Gadolinium contrast (*), 15cc if pt is less than 180 pounds; otherwise 20cc Gd

Assess the patient's breath holding capability. If poor capability, give oxygen. If the patient can't hold his/her breath call body radiologist.

Run sequences in the order listed.

Sequence	Plane	Comment	Film #
STIR	Ax	Run concatenated. If bad ghosting, run Ax HASTE with fat sat (8mm 0.2 gap)	1
T1 in/out	Ax		2,1
HASTE	Cor	No fat sat. 4mm slices	2
HASTE	Ax	Concatenated, No fat sat. 4mm slices	2
Sat up	Ax		0
VIBE	Ax	Try to get effective thickness 2mm. Use FOV that covers the entire liver and both kidneys	0
Timing Run	Ax	Thru kidneys – 1cc at 2cc/sec followed by 20 cc saline at 2cc/sec	0
VIBE	Ax	3 measures (0, 60, 180 sec) Start scanning at time to peak.	2,2,1
Do Subtraction		Arterial phase – pre-contrast	0

Helpful hint: If patient has limited breath holding capacity, increase slice thickness on vibe (up to 7-8 mm if necessary) before switching to non-breath hold liver.

(*) The use of gadolinium contrast material for these applications represents off-label usage in the U.S. Outside the U.S., please consult your country's regulations for local guidelines.

NOTE: These protocols apply to Siemens Symphony (with Quantum gradients) and Sonata systems. While they reflect the protocols used at NYU Medical Center, NYU is not responsible for their application elsewhere.

Follow Up Liver

Last updated: 4/29/2002

Phased array coil centered over the liver.

Weight based Gadolinium contrast (*), 15cc if pt is less than 180 pounds; otherwise 20cc Gd

Assess the patient's breath holding capability. If poor capability, give oxygen. If the patient can't hold his/her breath call body radiologist.

Run sequences in the order listed.

Sequence	Plane	Comment	Film #
STIR	Ax	Run concatenated. If bad ghosting, run Ax HASTE with fat sat (8mm 0.2 gap)	1
T1 in/out	Ax		2,1
VIBE	Ax	Try to get effective thickness 2mm. Use FOV as small as possible. If >375 needed call MD.	0
Timing Run	Ax	Thru kidneys – 1cc at 2cc/sec followed by 20 cc saline at 2cc/sec	0
VIBE	Ax	3 measures (0, 60, 180 sec) Start scanning at time to peak.	2,2,1
Do Subtraction		Arterial phase – pre-contrast	0

Helpful hint: If patient has limited breath holding capacity, increase slice thickness on vibe (up to 7-8 mm if necessary) before switching to non-breath hold liver.

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Non-Breath Hold Liver

Last updated: 4/1/2002

ONLY USE THIS PROTOCOL AT THE DIRECTION OF THE BODY RADIOLOGIST IN PATIENTS WHO ARE UNABLE TO BREATH-HOLD OR WHO ARE UNABLE TO FOLLOW BREATHING INSTRUCTIONS.

Phased array coil centered over the liver.

Weight based Gadolinium contrast (*), 15cc if pt is less than 180 pounds; otherwise 20cc Gd

Run sequences in the order listed.

Sequence	Plane	Comment	Film #
NBH-STIR	Ax	Run concatenated. If bad quality, run Ax HASTE with fat sat (8mm 0.2 gap)	2
Turbo FLASH Out-of-phase	Ax		1
Turbo FLASH In-phase	Ax		2
HASTE	Cor	No fat sat. 4mm slices.	2
HASTE	Ax	Concatenated, No fat sat. 4mm slices	2
Sat up	Ax		0
Timing Run	Ax	Thru kidneys – 1cc at 2cc/sec followed by 20 cc saline at 2cc/sec	0
Turbo FLASH In-phase	Ax	3 measures (0, 60, 180 sec) Start scanning at time to peak. Consider a 4 th delayed measure.	1,2,1

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Routine Pancreas & Biliary MR

Last updated: 6/12/03

The patients should fast four hours prior to the study.

If gastric pathology is suspected, consider giving the patient 2 cups of water to drink immediately prior to scanning

Phased array coil centered over liver.

Weight based Gadolinium contrast (*), 15cc if pt is less than 180 pounds; otherwise 20cc Gd

Assess the patient's breath holding capability. If poor capability, give oxygen. If the patient can't hold his/her breath call body radiologist.

Run sequences in the order listed.

Sequence	Plane	Comment	Film #
HASTE	Cor	No fat sat. 4 mm slices	2
HASTE	Ax	Run concatenated. No fat sat. 4 mm slices.	1
3D PACE	Cor or obl	usually coronal is better. But oblique if fits patient's habitus	1
Thick Slab	Cor	Straight (Try to get FOV ~ 250)	1
Thick Slab	Obl	30° to the right (Try to get FOV ~ 250)	1
Thick Slab	Obl	30° to the left (Try to get FOV ~ 250)	1
STIR	Ax	Run concatenated. If bad ghosting, run Ax HASTE with fat sat (8mm 0.2 gap)	2
T1 in/out	Ax		2,1
VIBE	Ax	Try to get effective thickness 2mm. Include pancreas in FOV. Use FOV as small as possible. If >375 needed call MD.	0
Timing Run	Ax	Thru kidneys – 1cc at 2cc/sec followed by 20 cc saline at 2cc/sec	0
VIBE	Ax	3 measures (0, 60, 180 sec) Use formula: SD = TP + 5.	1,2,1
Do Subtraction		Arterial phase – pre-contrast	0

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Follow Up IPMT

Last updated: 4/29/2002

The patients should fast four hours prior to the study.

If gastric pathology is suspected, consider giving the patient 2 cups of water to drink immediately prior to scanning

Phased array coil centered over liver.

Weight based Gadolinium contrast (*), 15cc if pt is less than 180 pounds; otherwise 20cc Gd

Assess the patient's breath holding capability. If poor capability, give oxygen. If the patient can't hold his/her breath call body radiologist.

Run sequences in the order listed.

Sequence	Plane	Comment	Film #
HASTE	Cor	No fat sat. 4 mm slices	2
HASTE	Ax	Run concatenated. No fat sat. 4 mm slices.	1
VIBE	Ax	Try to get effective thickness 2mm. Include pancreas in FOV. Use FOV as small as possible. If >375 needed call MD.	0
Timing Run	Ax	Thru kidneys – 1cc at 2cc/sec followed by 20 cc saline at 2cc/sec	0
VIBE	Ax	3 measures (0, 60, 180 sec) Use formula: SD = TP + 5.	1,2,1
Do Subtraction		Arterial phase – pre-contrast	0

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Routine MRCP without Contrast

Last updated: 6/12/03

The patients should fast four hours prior to the study.

Phased array coil centered over liver.

Assess the patient's breath holding capability. If poor capability, give oxygen. If the patient can't hold his/her breath call body radiologist.

Run sequences in the order listed.

Sequence	Plane	Comment	Film #
HASTE	Cor	No fat sat. 4 mm slices	2
HASTE	Ax	Run concatenated. No fat sat. 4 mm slices.	1
3D PACE	Cor or obl	Coronal usually better. If need to, slightly oblique due to patient's body habitus.	1
Thick Slab	Cor	Straight Use 2 posterior sat bands for all thick slabs. (Try to get FOV ~ 250)	1
Thick Slab	Obl	30° to the right (Try to get FOV ~ 250)	1
Thick Slab	Obl	30° to the left (Try to get FOV ~ 250)	1
STIR	Ax	Run concatenated. If bad ghosting, run Ax HASTE with fat sat (8mm 0.2 gap)	2
T1 in/out	Ax	cover entire liver	2,1
VIBE	Ax	Try to get effective thickness 2mm. Include pancreas in FOV. Use FOV as small as possible. If >375 needed call MD.	0

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Routine MRCP with Contrast (*)

Last updated: 12/3/02

The patients should fast four hours prior to the study.

Phased array coil centered over liver.

Assess the patient's breath holding capability. If poor capability, give oxygen. If the patient can't hold his/her breath call body radiologist.

Run sequences in the order listed.

Sequence	Plane	Comment	Film #
HASTE	Cor	No fat sat. 4 mm slices	2
HASTE	Ax	Run concatenated. No fat sat. 4 mm slices.	1
3D PACE	Cor or obl	Coronal usually better. If need to, slightly oblique due to patient's body habitus.	1
Thick Slab	Cor	Straight Use 2 posterior sat bands for all thick slabs. (Try to get FOV ~ 250)	1
Thick Slab	Obl	30° to the right (Try to get FOV ~ 250)	1
Thick Slab	Obl	30° to the left (Try to get FOV ~ 250)	1
STIR	Ax	Run concatenated. If bad ghosting, run Ax HASTE with fat sat (8mm 0.2 gap)	2
T1 in/out	Ax	cover entire liver	2,1
VIBE	Ax	Try to get effective thickness 2mm. Include entire liver and pancreas in FOV. Use FOV as small as possible. If >375 needed call MD.	0
Timing Run	Ax		
VIBE	Ax	3 measures (0, 60, 180 sec)	
optional VIBE	Ax	4 th measure (10 min delayed) if history of cholangiocarcinoma	

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Living Related Liver Donor

Last updated: 6/12/2003

Phased array coil centered over liver.
30 cc Gadolinium contrast (*)

Teslascan Dosage-see bottom of page—MUST GET CONSENT (2 copies)
Assess the patient's breath holding capability. If poor capability, give oxygen. If the patient can't hold his/her breath call body radiologist.
Run sequences in the order listed.
Body radiologist to monitor.

Sequence	Plane	Comment	Film #
HASTE	Cor	No fat sat. 4 mm slices	2
HASTE	Ax	No fat sat. 5 mm slices	
Thick Slab	Cor	Straight (Try to get FOV ~ 250)	1
Thick Slab	Obl	30° to the right (Try to get FOV ~ 250)	1
3D PACE	Cor/obl	Coronal usually better. If need to, slightly oblique due to patient's body habitus.	1
T1 in/out	Ax		2,1
VIBE	Ax	Try to get effective thickness 2mm. Include pancreas in FOV.	0
3D FLASH	Cor		0
Timing Run	Ax	Thru porta hepatis- 1cc at 2cc/sec followed by 20 cc saline at 2cc/sec Use Standard Timing Formula	0
3D FLASH	Cor	1 measure	0
VIBE	Ax	1 measure	1
		LEAVE PATIENT IN MAGNET INJECT TESLASCAN. WAIT 10 MINUTES AND BE READY FOR FIRST POST VIBE	
		THE REST OF THE STUDY IS DONE ON INSPIRATION	
VIBE	Obl Cor.	High Resolution (~1x1mm) FA=35 PARALLEL TO INTRAHEP DUCTS	0
VIBE	Ax	High resolution (~1 x 1 mm) FA=35	0
Do Subtraction		Arterial phase – pre-contrast	0

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Teslascan	Dosage
Weight (lbs)	Volume (cc)
88	4
110	5
132	6
154	7
176	8
198	9
220	10
242	11
254	12
330	15

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