



## MR Abdomen Protocol – Liver

Reviewed By: Stephanie Clements, MD  
Last Reviewed: 6/13/2026

**Standard uses:** Liver lesion, cirrhosis & HCC, metastases to liver, indeterminate liver lesions – everything but focal nodular hyperplasia (FNH).

If the indication is for FNH or Eovist contrast is specifically requested, Eovist contrast should be used and a single extra post-contrast sequence should be obtained with 20 minute delay (see note\*).

**Patient prep:** Should be NPO for >4 hours prior to study if possible.

**Oral contrast:** None.

**Coil:** Body Coil.

**Coverage:** Position the coil such that there is good coverage and signal from the liver and pancreas.

**Intravenous contrast:** Single dose gadolinium.

Adult - 0.5 mmol/mL, maximum 20mL. Administer 2mL per second, example - MultiHance/ProHance/Doterem  
0.25 mmol/mL, maximum 10mL, Administer 1.5mL per second, example – Gadavist, Eovist

**Anti-peristaltic agent:** None.

### SUMMARY:

1. Localizer BH  
Localizer Free Breathing
2. Cor HASTE
3. Ax HASTE
4. Ax HASTE FS
5. Ax In-Out of Phase
6. Cor Radial HASTE
7. Ax Diff
8. Ax Vibe Pre
9. Ax Vibe Arterial
10. Ax Vibe Venous
11. Ax Vibe 5 min Delay
12. Cor Vibe Post
13. \*Ax Vibe Hepatobiliary (for Eovist contrast studies only)



## **SEQUENCES:**

### **1. Localizer**

- a. Breath hold
- b. Free Breathing

### **2. Coronal T2 Ultra fast SE (HASTE, SSFSE, FASE)**

- a. Multi-breath hold as needed
- b. Complete front to back coverage, A → P, skin to skin.
- c. Goal parameters
  - i. 3 mm thickness, (ACR Slice thickness  $\leq$  7.0 mm, Gap  $\leq$  1.5 mm, Pixel area  $\leq$  7.2 mm<sup>2</sup>)
  - ii. 33% gap (0.9 mm)

### **3. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE) thin slice WITHOUT fat suppression**

- a. Multi-breath holds as needed
- b. Slices should include coverage of the intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct.
- c. Goal parameters
  - i. 3 mm thickness, (ACR Slice thickness  $\leq$  7.0 mm, Gap  $\leq$  1.5 mm, Pixel area  $\leq$  7.2 mm<sup>2</sup>)
  - ii. 33% gap (0.9 mm)

### **4. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE) thin slice WITH fat suppression**

- a. Multi-breath holds as needed
- b. Slices should include coverage of the intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct.
- c. Goal parameters
  - i. 3 mm thickness, (ACR Slice thickness  $\leq$  7.0 mm, Gap  $\leq$  1.5 mm, Pixel area  $\leq$  7.2 mm<sup>2</sup>)
  - ii. 33% gap (0.9 mm)

### **5. Axial in and out of phase T1 GRE**

- a. Multi-breath holds as needed
- b. Slices should include coverage of the intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct.
- c. Goal parameters
  - i. 3 mm thickness, (ACR Slice thickness  $\leq$  7.0 mm, Gap  $\leq$  1.5 mm, Pixel area  $\leq$  7.2 mm<sup>2</sup>)
  - ii. 33% gap (0.9 mm)



**6. Coronal Radial T2 Ultra fast SE (HASTE, SSFSE, FASE) thick slab**

- a. Three thick slab slice groups
  - i. angled to the head of pancreas
  - ii. angled to body of pancreas
  - iii. angled to the tail of pancreas
- b. Goal Parameters
  - i. 2D Thick Slab:
  - ii. Slice thickness 40 mm, (ACR >40, < 60 mm Pixel area  $\leq 1.0 \text{ mm}^2$ )

**7. Axial DWI with ADC map**

- a. Free breathing
- b. Slices extend from dome of liver to inferior aspects of liver and pancreas to include all intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct.
- c. Goal parameters
- d. B-values of 0, 600, 800, 1000
- e. 3 mm thickness
- f. 33% gap (0.9 mm)

**8. Axial T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) pre-contrast**

- a. Breath hold
- b. Slices extend from dome of liver to inferior aspects of liver and pancreas to include all intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct.
- c. Goal parameters
  - i. Slab slices  $\leq 3 \text{ mm}$ , ACR Slice thickness  $\leq 6.0 \text{ mm}$ , Gap = 0 mm, Pixel area  $\leq 4.5 \text{ mm}^2$

**9. Axial T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) post contrast**

- a. Goal parameters
  - i. Copy pre-contrast
- b. Arterial phase trigger off aorta if possible, otherwise time at 25 seconds

**10. Axial T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) Venous Phase**

- a. Goal parameters
  - i. Copy pre-contrast
- b. Venous/Equilibrium phase, 2 minutes

**11. Axial T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) Delayed Phase**

- a. Goal parameters



- i. Copy pre-contrast
- b. Delayed phase, 5 minutes

**NOTE:** Add Subtractions for all phases

**12. Coronal T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) post-contrast**

- a. Breath hold
- b. Slices extend to cover the entire liver. Sort Anterior to Posterior
- c. Goal parameters
  - i. Slab slices  $\leq 3$  mm, ACR Slice thickness  $\leq 6.0$  mm, Gap = 0 mm, Pixel area  $\leq 4.5$  mm<sup>2</sup>

**\*NOTE:** Only if Eovist contrast is used, perform the following additional sequence at 20 minute delay:

**13. Axial T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) Hepatobiliary Phase**

- a. Goal parameters
  - i. Copy pre-contrast
- b. Hepatobiliary phase, 20 minutes
- c. This is an important sequence. Repeat if poor image quality.

**NOTE:** Add Subtractions for hepatobiliary phase if performed