

MRI Abdomen Protocol Without Contrast

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Standard uses: Limited evaluation of indeterminate lesions on other modalities (ultrasound, noncontrast CT) in patients with contraindications to IV contrast (eGFR<30 and not on dialysis, acute kidney injury, severe contrast allergy). While limited, noncontrast MRI may be able to better characterize some indeterminate lesions, particularly renal lesions (such as hemorrhagic and proteinaceous cysts).

Notes: Please see separate document for contrast agent selection. This is a basic protocol which can be used for many indications as stated above.

Patient prep: Should be NPO for >4 hours prior to study if possible. Have patient void urinary bladder before examination.

Oral contrast: None.

Field Strength: 1.5T or 3T.

Coil: Body coil.

Coverage: Position the coil such that there is good coverage of the organ of interest, typically from the dome of the diaphragm to the superior iliac crest.

Intravenous contrast: None.

Anti-peristaltic agent: None.

Sequences:

1. Localizer
 - a. Breath hold
2. Coronal Ultra fast SE (HASTE, SSFSE, FASE)
 - a. Breath hold, concatenation/Multi-breath hold is less desirable than single breath hold
 - b. Complete front to back coverage (skin to skin)
 - c. Goal parameters
 - i. Large FOV (400-450 mm)

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- ii. 7 mm thickness, 25% gap (1.5 mm)
- 3. Axial T1 in-phase and out-of-phase GRE
 - a. Must perform in 1 acquisition
 - b. Breath hold, concatenation/Multi-breath hold is less desirable than single breath hold
 - c. Cover from dome of diaphragm to iliac crest (ensure organ of interest is included in FOV)
 - d. Goal parameters
 - i. 6 mm thickness, 25% gap (1.5mm)
- 4. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE)
 - a. Breath hold, concatenation/Multi-breath hold is less desirable than single breath hold
 - b. Cover from dome of diaphragm to iliac crest (ensure organ of interest is included in FOV)
 - c. Goal parameters
 - i. 6 mm thickness, 25% gap (1.5mm)
- 5. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE) with fat saturation
 - a. as in 4., but with fat suppression
- 6. Axial steady-state free precession (True-FISP, FIESTA, b-FFE) with fat saturation
 - a. Full FOV
 - b. Slices extend from dome of liver to inferior aspects of liver to cover entire portal vein
- 7. Coronal steady-state free precession (True-FISP, FIESTA, b-FFE) with fat saturation
 - a. Full FOV
 - b. Slices extend from dome of liver to inferior aspects of liver to cover entire portal vein
- 8. Axial T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) with fat saturation
 - a. Breath hold
 - b. Cover from dome of diaphragm to iliac crest (ensure organ of interest is included in FOV)
 - c. Goal parameters
 - i. Slab slices ≤ 3 mm
- 9. Axial DWI
 - a. **Important sequence** – if DWI/ADC is high quality, this can be used as ‘pseudocontrast’
 - b. Free breathing
 - c. Same coverage
 - d. Mandatory parameters
 - i. B = 0/100/500/1000 and ADC map

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Radiologist's perspective:

This exam should only be performed if the patient has an **absolute** contraindication to contrast (eGFR <30 [if on dialysis, CT should be considered], acute kidney injury [Cr increase by at least 30%], or severe contrast allergy [anaphylaxis, laryngeal edema, severe bronchospasm]). This is a last ditch effort to try to evaluate something when no other means exist.

High quality DWI images are crucial in this protocol as we can use a high quality DWI as a 'pseudocontrast' since many malignant tumors restrict diffusion.

Please direct any questions or concerns to any of the body radiologists.