

MRI Abdomen Protocol – Adrenal without

Reviewed By: Jason Jacob, July 2025
Contact: (253) 761-4200

Standard Uses: Evaluation of previously seen indeterminate adrenal lesion(s) on a prior CT, MRI, or US, for the presence of intracellular lipid (indicative of benignity). This adrenal Protocol MRI is ALWAYS without contrast and does not checking with a radiologist during the scan. **IMPORTANT NOTE:** If the indication is Adrenal Cortical Carcinoma, Adrenal Carcinoma, Pheochromocytoma, an adrenal nodule >4 cm, or hormonal abnormality, then call a body radiologist for correct protocoling. In these cases, contrast may be necessary using a routine Abdomen MRI without and with contrast protocol, as opposed to this non-contrast study protocol.

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

Oral contrast: None. **Anti-peristaltic agent:** None.

Field Strength: 1.2T, 1.5T, or 3T

Coil: Flex and Body coil.

Coverage: Only the first and last sequences, Cor T2 HASTE and Ax T1 VIBE FS, are large field of view. The remainder of the study ONLY need image the adrenal glands.

Sequences denoted as “thin” only need to cover the adrenal glands

The T1 out/in phase imaging are the most important sequences of this study. If the adrenal nodule cannot be seen on large FOV axial out/in phase images, the sequence should be repeated with a smaller FOV to improve spatial resolution and maximize our chances of seeing the nodule.

Sequences:

1. Localizer

- a. Breath hold

2. Coronal T2 HASTE (SSFSE, FASE)

- a. Single breath interleaved >> MBH, interleaved in BH >> MBH interleaved
- b. Goal parameters
 - i. FOV
 1. in plane – large rec FOV, ~350-400mm
 2. thru plane – body wall to body wall
 - ii. Resolution
 1. Slice thickness – 6 mm, 25% gap (1.5 mm)
 2. Resolution – 1.5-2 mm pixel size (256-320 base resolution)

****sequences denoted as *thin* only need to cover the adrenal glands****

3. Axial *thin* T2 HASTE (SSFSE, FASE)

- a. Single breath interleaved >> MBH, interleaved in BH >> MBH interleaved
 - b. Goal parameters
 - i. FOV
 - 1. in plane – rec FOV, cropped as close as possible to body wall
 - 2. thru plane – cover all of adrenal glands, no more necessary, ~15-20 slices
 - ii. Resolution
 - 1. Slice thickness – 3 mm, 10% gap (0.3 mm)
 - 2. in plane – 1.0-1.3 mm pixel size (256-392 base resolution)
4. **Axial *thin* T2 HASTE Fat Suppressed (SSFSE, FASE)**
- a. same coverage/parameters as 3. Axial thin T2 HASTE, above, WITH fat suppression
5. **Coronal *thin* T2 HASTE (SSFSE, FASE)**
- a. Single breath interleaved >> MBH, interleaved in BH >> MBH interleaved
 - b. Goal parameters
 - i. FOV
 - 1. in plane – rec FOV, attention to exclude phase wrap artifact
 - 2. thru plane – cover all of adrenal glands, no more necessary, 15-20 slices
 - ii. Resolution
 - 1. Slice thickness – 3 mm, 10% gap (0.3 mm)
 - 2. Resolution – 1.0-1.2 mm pixel size (256-392 base resolution)
6. **Axial *thin* T1 in-phase and opposed-phase GRE (must be performed as Dual Echo)**
- a. Single breath interleaved >> MBH, interleaved in BH >> MBH interleaved
 - b. Goal parameters
 - i. FOV
 - 1. in plane – rec FOV ~ body wall to body wall both directions
 - 2. thru plane – cover all of adrenal glands, no more necessary
 - ii. Resolution
 - 1. Slice thickness – 3 mm, 10% gap (0.3 mm)
 - 2. Resolution – 1.0-1.3 mm pixel size (256-392 base resolution)
7. **Coronal *thin* T1 in-phase and opposed-phase GRE (must be performed as Dual Echo)**
- a. Single breath interleaved >> MBH, interleaved in BH >> MBH interleaved
 - b. Goal parameters
 - i. FOV
 - 1. in plane – rec FOV, limited to adrenals
 - 2. thru plane – cover all of adrenal glands, no more necessary
 - ii. Resolution
 - 1. Slice thickness – 3 mm, 10% gap (0.3 mm)
 - 2. Resolution – 1.0-1.3 mm pixel size (256-392 base resolution)



8. **Noncontrast Axial T1 VIBE Fat Suppressed** (LAVA, TIGRE)

- a. Single breath hold only
- b. Goal parameters
 - i. FOV
 - 1. in plane – rec FOV ~ body wall to body wall both directions
 - 2. thru plane – standard abdomen FOV, including all of adrenals
 - ii. Resolution
 - 1. Slice thickness – 3 mm
 - 2. in plane – 1.2 – 1.5 mm pixel size (224-320 base resolution)