



Uterine or Endometrial Mass and Fibroids

MRI Pelvis WO and With Contrast

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Last Reviewed: 6/13/2026

Standard uses: Evaluate uterine mass (leiomyomas/fibroids, leiomyosarcoma, etc.) or endometrial mass.

NOTE: For indications of endometriosis please refer to the Ovarian/Adnexal Mass protocol

Patient prep:

- (1) NPO for at least 4 hours prior to study
- (2) Void before examination

Oral contrast: None.

Coil: Phase array body coil.

Coverage: Position the coil such that there is good coverage and signal from the ovaries and uterus. Increase FOV as needed for very large masses to ensure entire mass is imaged.

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

Anti-peristaltic agent: None.

Note: Small FOV T2 plane through the uterus is VERY important. Majority of dynamic contrast-enhanced images obtained in the SAGITTAL plane.

Note: Unless otherwise noted, planes are orthogonal (to the magnet) axial, coronal, sagittal (i.e., not specifically oriented to an organ).

SUMMARY:

- 1. Localizer
- 2. Cor T2
- 3. Ax in/out
- 4. Sag T2
- 5. Ax T2
- 6. Ax T2FS
- 7. Obl Ax T2
- 8. Obl Cor T2
- 9. + 10. Obl Axial Vibe + Sagittal Vibe pre-contrast
- 11 + 12. + 13. +14. Obl Ax Vibe + Obl Cor Vibe + Sag Vibe + Large FOV True Ax Vibe post-contrast
- 15. Axial DWI/ADC
- 16. Subtraction series (4 total – 3 sagittal, 1 oblique axial)



Sequences

1. Localizer

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

- a. FOV: Complete front to back coverage (skin to skin)
 - i. CC extent: Include lower poles of kidneys if possible
- b. Goal parameters
 - i. Large FOV (400-450 mm)
 - ii. 7 mm thickness, 25% gap (1.5mm)

3. Axial in and out of phase T1 GRE

- a. FOV = Superior iliac crest to perineum
- b. Goal parameters
 - i. Slice thickness 4 mm
 - 1. In plane acquired resolution < 1mm

4. Sagittal T2 fast SE (Turbo SE, Fast SE)

- a. FOV = Cover all pelvic organs and each pelvic sidewall
 - i. CC: Extend above uterus/sacral promontory to below perineum
 - ii. Trans: At least extending into each femoral head
- b. Goal parameters
 - i. Slice thickness 3 mm
 - 1. In plane acquired resolution = < 1mm

5. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE)

- a. Large FOV = Superior iliac crest to perineum
- b. Goal parameters
 - i. Slice thickness 4-4.5 mm
 - ii. In plane acquired resolution = < 1mm

6. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE) with fat suppression

- a. Large FOV = Superior iliac crest to perineum
- b. Goal parameters
 - i. Slice thickness 4-4.5 mm
 - ii. In plane acquired resolution = < 1mm

7. Oblique Axial T2 fast SE (Turbo SE, Fast SE) Small FOV

- a. FOV = Cover entire uterus
 - i. CC extent: At least sacral promontory to below perineum
 - ii. PLANE angulation: Thin slice “true” axial to plane of the uterus/endometrial canal = short axis to the uterus
 - 1. Call radiologist if you have difficulty, occasionally a double oblique technique will be needed when there is significant rotation of the uterus
 - 2. Goal parameters
 - a. FOV approximately 200 mm
 - b. Slice thickness 3 mm, 0% gap



c. In plane acquired resolution = < 1mm

8. Oblique coronal T2 fast SE (Turbo SE, Fast SE)

- a. FOV = Cover entire uterus and adjacent structures
 - i. Slices should extend into bladder and sacrum, covering entire region of interest
 - ii. PLANE ANGULATION: Thin slices “true coronal” plane of the uterus/endometrial canal = long axis to the uterus
- b. Goal parameters
 - i. Slice thickness 3mm
 - ii. In plane acquired resolution = < 1mm

9. 9. & 10. Oblique Axial + Sagittal PRECONTRAST Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) – 2 PLANES

- a. Planes
 - i. Obl Axial: As #7
 - ii. Sagittal: Cover pelvic organs, extending into each femoral head
- b. Goal parameters
 - i. Slab slices <= 3 mm

10. 11. & 12. & 13. & 14. Oblique Axial + Oblique Coronal + Sagittal + Large FOV True Axial POSTCONTRAST Dynamic 3D-GE with fat suppression (VIBE, LAVA, TIGRE) – 4 PLANES

- a. Planes
 - i. Obl Axial: As #7
 - ii. Obl Coronal: As #8
 - 1. Cover front to back (skin to skin), including at least from uterus/sacral promontory to perineum (higher coverage and/or added sequences if mass extends outside of the pelvis)
 - 2. Sagittal: Cover pelvic organs, extending into each femoral head
 - iv. Large FOV True Axial: Superior iliac crests to below pubic symphysis (skin to skin, front to back, and side to side)
- b. Goal parameters
 - i. Slab slices <= 3 mm
 - ii. TIMING = Fixed scan delay (time from beginning of injection until center of k-space)
 - 1. Sagittal: 35 s, 1 min, 4 min
 - 2. Obl Axial: 2 min
 - 3. Obl Coronal: 3 min
 - 4. Large FOV True Axial: 5 min

11. 15. Axial DWI and ADC

- a. FOV: Superior iliac crest to perineum
- b. Goal parameters = 50/400/800 and ADC map

Subtraction series (4 total – 3 sagittal, 1 oblique axial)