

MR Urogram

MR Abdomen + Pelvis WO & W Contrast

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Standard uses: Examination should only be performed after approval by radiologist and from an order from urology. CT IVP is preferred and should be recommended.

Patient prep:

- (1) Should be NPO for >4 hours prior to study if possible.
- (2) Have patient void approximately 30 – 60 minutes before the study begins.
 - a. Images will be best if bladder is neither totally empty nor full.

Coil: Phased array pelvic / torso body coil

Coverage: Top of kidneys to pelvic floor

Oral contrast: None.

Intravenous contrast: Single dose gadolinium @ 2 cc / sec (Gadavist, MultiHance if Gadavist unavailable).

SUMMARY:

1. Localizer
2. Coronal T2 non-FS
3. Axial T1 GRE in/out - abdomen
4. Axial T2 non-FS – abdomen
5. Axial T2 non-FS – pelvis
6. Coronal 3D T2 TSE
7. Right and Left Ureter Sag HASTE thick (optional, only if #6 unable to be performed)
8. Axial T1 FS precontrast - pelvis
9. Axial T1 FS precontrast – abdomen
10. Coronal T1 FS precontrast – abdomen/pelvis

11. Axial & Coronal T1 FS post-contrast (x7) – detailed below

1. Localizer

2. Coronal T2 Ultra fast SE (HASTE, SSFSE, FASE) without fat suppression
 - a. Full FOV – include just above kidneys to pelvic floor, skin to skin coverage front-back
 - b. Multi-breath hold as needed

3. Axial T1 GRE in-phase and out-of-phase - ABDOMEN
 - a. FOV: Slices extend from dome of liver to inferior aspects of liver and pancreas
 - b. Breath hold, concatenation/Multi-breath hold is less desirable than single breath hold
 - c. Goal parameters
 - i. 6 mm thickness, 25% gap (1.5mm)

4. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE) without fat suppression - ABDOMEN
 - a. Breath hold, concatenation/Multi-breath hold is less desirable than single breath hold
 - b. FOV - Slices extend from just above kidneys aortic bifurcation
 - c. Goal parameters
 - i. 6 mm thickness, 25% gap (1.5mm)

5. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE) without fat suppression - PELVIS
 - a. Breath hold, concatenation/Multi-breath hold is less desirable than single breath hold
 - b. FOV - Slices extend from just above kidneys aortic bifurcation – *ensure at least 2 slices overlap with #4*
 - c. Goal parameters
 - i. 6 mm thickness, 0% gap

6. Coronal 3D T2 TSE (SPACE, CUBE, VISTA)
 - a. Similar to MRCP sequence, but centered over ureters
 - b. Respiratory navigated
 - c. Slices should include coverage from the kidneys to the pubis
 - d. 3D MIP recons of each ureter

7. Right and Left Ureter Sag HASTE thick: *Optional, to be performed only if Sequence 6 is not able to be performed*
 - a. Scan right separate from left
 - b. Scan 1 slice @ 60 mm thick
 - c. FOV = kidney to pubis
 - d. TR: 4500
 - e. TE: 750

8. **Axial** T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) **precontrast - PELVIS**
 - a. Breath hold
 - b. As in 5.
 - c. Goal parameters
 - i. Slab slices \leq 3 mm

9. **Axial** T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) **precontrast - ABDOMEN**
 - a. Breath hold
 - b. As in 4.
 - c. Goal parameters
 - i. Slab slices \leq 3 mm

10. **Coronal** T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) **precontrast - ABDOMEN + PELVIS**

11. **Axial** and Coronal T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) **post contrast (x7)**– (timing and FOV as below)
 - a. TIMING
 - 1) Axial: 30 sec – abdomen
 - 2) Axial: 60 sec – abdomen
 - 3) Coronal: 2 min – abd/pel
 - 4) Axial: 5 min – pelvis
 - 5) Coronal: 6 min – abd/pel
 - 6) Coronal: 10 min – abd/pel

7) Coronal: 15 min – abd/pel

b. Goal parameters:

i. FOV

1) Axial

2) Coronal

ii. Slab slices \leq 3 mm