TRA-MINW

MR Peri-Anal Fistula
MR Pelvis Without & With Contrast

Reviewed By: Anna Ellermeier, MD; Brett Mollard, MD
Last Reviewed: September 2018

Contact: (866) 761-4200

Standard uses: Primary diagnosis and evaluation of response to treatment of perianal fistula/abscess

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

Coverage & coil: Phase array body coil, center of coil over pubic symphysis.
Coverage is variable. See images in Appendix for guidance of inferior extent of imaging.

Intravenous contrast: Weight-based Gadavist or Multihance

Oral contrast: None

Anti-peristaltic agent: None

NOTE: See images in Appendix at end of document to help assess coverage.

Sequences:
1. **3 plane localizer**

2. **Coronal T2 Ultra fast SE (HASTE, SSFSE, FASE)**
    a. Multi-breath hold as needed
    b. Large FOV (400-450 mm) - complete front to back coverage
    c. Goal parameters:
        i. Slice thickness 7-8 mm
        ii. Gap 10-15%

3. **Sagittal T2 Ultra fast SE (HASTE, SSFSE, FASE) with fat suppression**
    a. This series is specifically designed to determine extent of inflammatory changes (hyperintense T2 signal) and delineate coverage for following sequences
    b. Breath hold
    c. Large FOV, 400 mm
        i. Approximately 20 cm above and 20 cm below anal canal
        ii. Cover femoral head to femoral head
    d. Goal parameters:
        i. Slice thickness 6 mm
        ii. Gap 10-15%

4. **Sagittal T2 fast SE (Turbo SE, Fast SE) without fat suppression**
    a. FOV 240-320 mm, see example T2 TSE image in appendix

       i. Slices should cover entire anal canal

       ii. Extend from pelvic sidewall to pelvic sidewall

    b. Goal parameters

       i. Slice thickness 3 mm

       ii. Gap 0%

       iii. In plane acquired resolution <1 mm

       iv. Number of averages = 2

5. **Oblique axial T2 fast SE (Turbo SE, Fast SE) without fat suppression, small FOV**

    a. Plane: Imaging plane should be perpendicular to the lumen of the anal canal at the level of the sphincteric complex (See Appendix for example of scout lines for the axial series).

       i. If question about plane or extent of coverage, call body radiologist for guidance.

       ii. If a body radiologist in unavailable, the pubococcygeal line is a good approximation of the correct plane.

    b. FOV 200-240 mm

       i. Cover entire anal canal and extend in z-axis to cover all T2 hyperintense fluid or edema signal on series 3 (sagittal HASTE with fat suppression).

    c. Goal parameters

       i. Slice thickness 3 mm

       ii. Gap 0%

       iii. In plane acquired resolution <1 mm

       iv. Number of averages = 2

       v. Perform P→A

6. **Oblique axial T2 fast SE (Turbo SE, Fast SE) with fat suppression, small FOV**

    a. Plane: same as #5

    b. FOV 200-240 mm

       i. Cover entire anal canal and extend in z-axis to cover all T2 hyperintense fluid or edema signal on series 3 (sagittal HASTE with fat suppression).

    c. Goal parameters

       i. Slice thickness 3 mm

       ii. Gap 0%

       iii. In plane acquired resolution <1 mm

       iv. Number of averages = 2

       v. Perform P→A

7. **Oblique coronal T2 fast SE (Turbo SE, Fast SE) with fat suppression, small FOV**

    a. Plane: Perpendicular to oblique short axis in #5

    b. FOV 200-240 mm

       i. Cover anal canal and entire extent of inflammatory changes noted in series 3 (sagittal HASTE with fat suppression)

    c. Goal parameters

       i. Slice thickness 3 mm

       ii. Gap 0%

       iii. In plane acquired resolution <1 mm

       iv. Number of averages = 2

8. **Oblique short axis (axial) T1 in-phase GRE**

    a. Plane: same as #5 (oblique short axis T2 fast SE)

    b. FOV 200-240 mm; if this does not provide adequate SNR, sue FOV 300 mm instead

    c. Goal parameters

       i. Slice thickness 3 mm

    ii. Gap 0%

    iii. In plane acquired resolution <1 mm

9. **Precontrast oblique short axis (axial) T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE)**
   a. Breath hold
   b. Plane: same as #5 (oblique short axis T2 fast SE)
   c. FOV ~400 mm
   d. Goal parameters
      i. Slice thickness 3mm
      ii. Gap 0%
      iii. In plane resolution approximately 1 mm x 1 mm

      NOTE: Please examine entire set of precontrast VIBE images for phase or frequency encoding artifacts (e.g., hands wrapped into pelvis)

10. **Postcontrast oblique short axis (axial) T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE) x 2**
    a. Breath holds
    b. Plane: same as #5 (oblique short axis T2 fast SE)
    c. Goal parameters:
       i. Slice thickness 3mm
       ii. Gap 0%
    d. Timing (2 post-contrast phases)
       i. #1 post-contrast: Acquired with center of K-space acquisition @ 45 seconds (or 40 second delay from start of injection)
       ii. #2 post-contrast: 90 second delay

11. **Postcontrast oblique coronal T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE)**
    a. Breath hold
    b. Plane: same as #7 (oblique coronal T2 fast SE)
    c. Goal parameters:
       i. Slice thickness 3mm
       ii. Gap 0%
    d. Timing: 2 minute delay

12. **Postcontrast true axial T1 Ultra fast 3D-GE with fat suppression (VIBE, LAVA, TIGRE)**
    a. Breath hold
    b. True axial plane: no angulation
    c. Large FOV = superior iliac crest to perineum
    d. Goal parameters
       i. Slice thickness 4-4.5mm
       ii. In plane acquired resolution <1 mm
       iii. Number of averages >= 2
    e. Timing: 3 minute delay (can be slightly more or less depending on patient, just to be done after #11)

13. **Axial DWI large FOV**
    a. Free breathing
    b. True axial plane, skin to skin coverage, iliac crests to below perineum
    c. Mandatory parameters
       i. B-value of 0, 100, 800
       ii. Slice thickness 8mm
       iii. Gap 25%

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<u>**Appendix**</u>
Oblique short axis of anal canal

Oblique coronal of anal canal

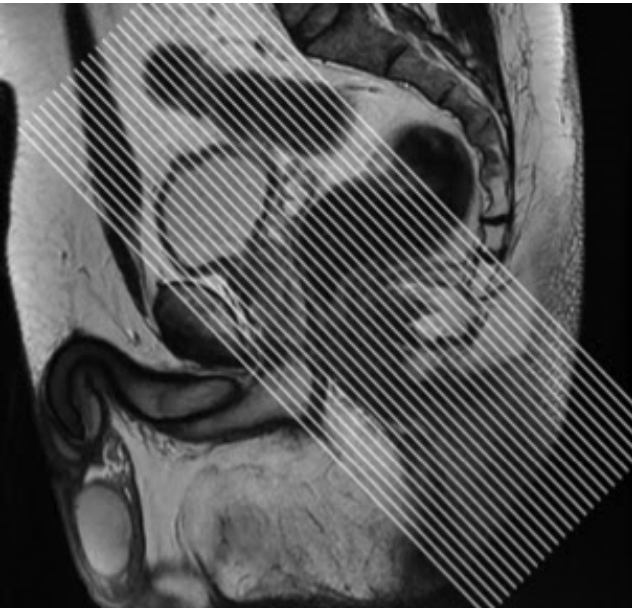**Image credits: http://mriprotocol.blogspot.com/2012/07/perianal-fistula-imaging-planes.html**

References

1. Rectal Imaging: Part 2, Perianal Fistula Evaluation on Pelvic MRI-- What the Radiologist Needs to Know. AJR, 2012; 199; W43-53. At –
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