Inner Spaces
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MRI of Perianal Fistulae

Points

- MRI is an excellent modality for assessing the anatomy of the perianal region
- Complicated perianal fistula anatomy is difficult to assess clinically
- MRI can reliably demonstrate complicated perianal fistula anatomy

Perianal fistulas are not an uncommon condition and can cause significant morbidity when present. Using Park's classification system, the St James University has a modified classification using MRI.

Grade	Description
0	Normal appearance
1	Simple linear inter-sphincteric fistula
2	Inter-sphincteric fistula with inter-sphincteric abscess or secondary fistulous track
3	Trans-sphincteric fistula
4	Trans-sphincteric fistula with abscess or secondary track within the ischio-anal or ischio-rectal fossae
5	Supralevator and translevator disease

Until recently, except for sinusograms, which have their own technical problems, imaging has had a limited role in the preoperative assessment of perianal fistulas.

The internal and external sphincters, the ischio-anal and ischio-rectal fossae and the levator ani can be easily identified (Fig. 1). In simple cases (Grade 1, 3), imaging is usually not required, though the anatomy of the lesion can still be very well delineated on MRI (Figs. 2, 3). In complex cases (Grades 2, 4, 5) however, MRI provides exquisite detail of the perianal region including the anal sphincter mechanism. MR clearly demonstrates the relationship of the fistula with the pelvic floor and ischio-rectal fossae, and its extent in the perianal region with complications if any (Figs. 4-7).

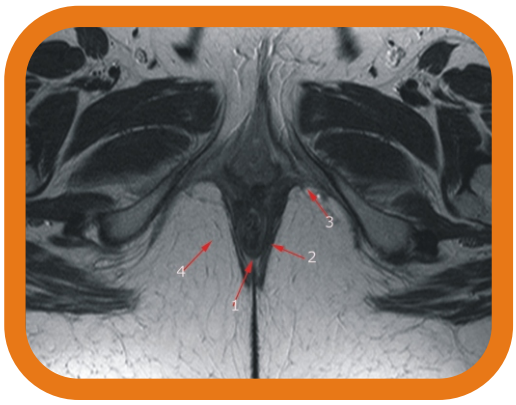

Fig 1

Fig 1 - Normal coronal anatomy showing; 1 - external sphincter, 2 - internal sphincter, 3 - ischio-anal fossa, 4 - levator ani.

MR Imaging Technique

1 Axial and coronal images give the best results. Oblique imaging may also be performed in the plane of the fistula if desired.

2 The most important sequences are the STIR coronal, axial, T2W coronal, axial and post-contrast T1W coronal and axial

3 Intravenous contrast is used to differentiate fibrotic from inflammatory tracts and to identify abscesses from granulation tissue.

Objectives of Imaging

1. Determine relationship of the track to the sphincter complex.
2. Identify secondary fistulous tracks and sites of abscess cavities.

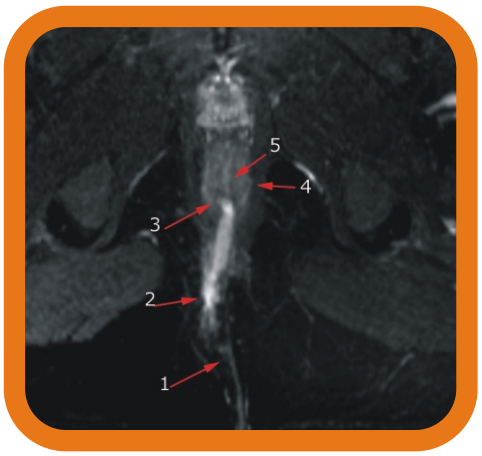

Fig 2

Fig 3

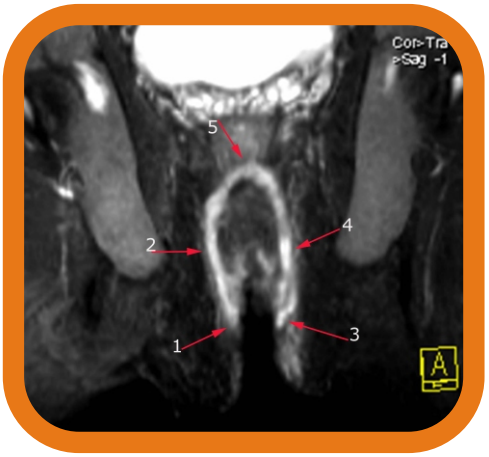

Fig 4

Fig. 2: Grade 1 simple inter-sphincteric fistula. Composite axial MIP showing; 1 - external opening, 2 - tract, 3 - internal opening, 4 - external sphincter, 5 - internal sphincter

Fig. 3: Grade 3 simple trans-sphincteric fistula. Coronal STIR image showing; 1- external opening, 2 - tract, 3 - internal opening, 4 - external sphincter, 5 - internal sphincter, 6 - levator ani

Fig. 4: Bilateral simple trans-sphincteric fistulae with a common internal opening. Composite, coronal STIR image showing; 1 - rt external opening, 2 - rt tract, 3 - lt external opening, 4 - lt tract, 5 - common internal opening.

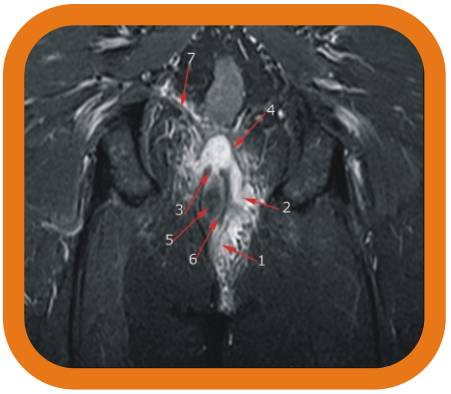

Fig 5

Fig. 5 - Grade 4 complicated trans-sphincteric fistula, with a horse-shoe abscess in the inter-sphincteric space. Coronal STIR images showing; 1 - external opening, 2 - tract, 3 - internal opening, 4 - horse-shoe abscess in the inter-sphincteric space, 5 - internal sphincter, 6 - external sphincter, 7 - levator ani.

Fig 6

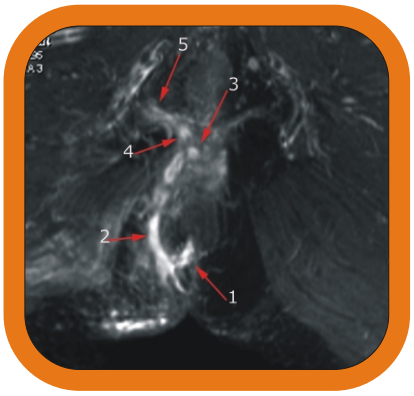

Fig 7

Fig. 6 - Grade 4 complicated trans-sphincteric fistula, showing an old fibrosed tract in the left ischio-rectal fossa (1) with a new abscess (2).

Fig. 7 - Grade 5 complicated trans-sphincteric fistula with supra-levator extension. Coronal composite STIR MIP showing; 1 - external opening, 2 - tract, 3 - internal opening, 4 - secondary tract, 5 - levator ani. In this case, there is a secondary tract that involves the levator ani and other coronal image showed a small collection superior to the levator.

Advantages

1 Greater concordance with surgical findings

2 Demonstration of fistulous tracts in relation to the sphincter complex, ischio-rectal fossae and levator ani.

3 No radiation

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