

## **Perianal fistulas: Evaluation with MR Imaging with phased-array multichannel surface coil**

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## Learning objectives

To describe the anatomy of the perianal region; to show the diagnostic capabilities of Magnetic Resonance Imaging (MRI) with phased-array multichannel surface coil in the preoperative assessment of perianal fistulas; to correlate MRI findings with implications for surgical planning.

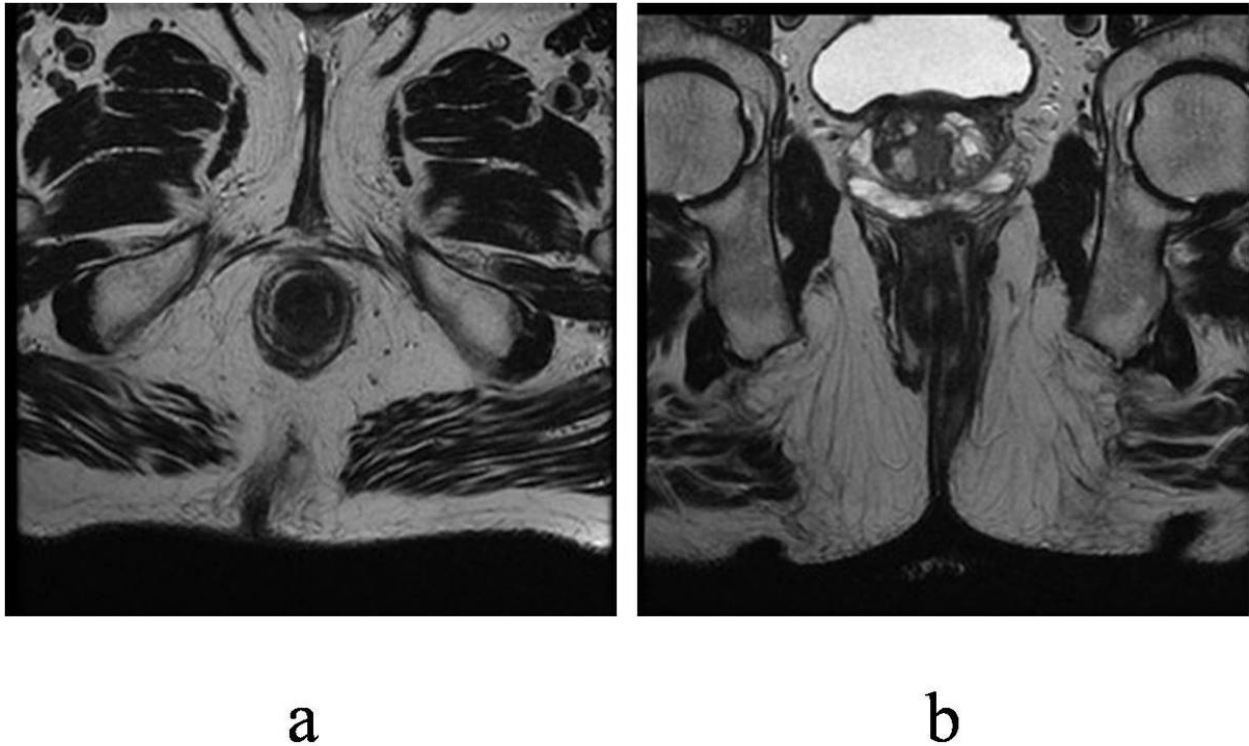
## Background

The challenge in the management of perianal fistulas is to define the course of the fistulous track in a non invasive way. Owing to its excellent soft-tissue contrast and multiplanar capabilities, MRI has been shown to demonstrate accurately the perianal anatomy. The different surgical options vary depending on the extent and ramifications of the fistulous track; preservation of the external sphincter integrity is mandatory in order to maintain fecal continence.

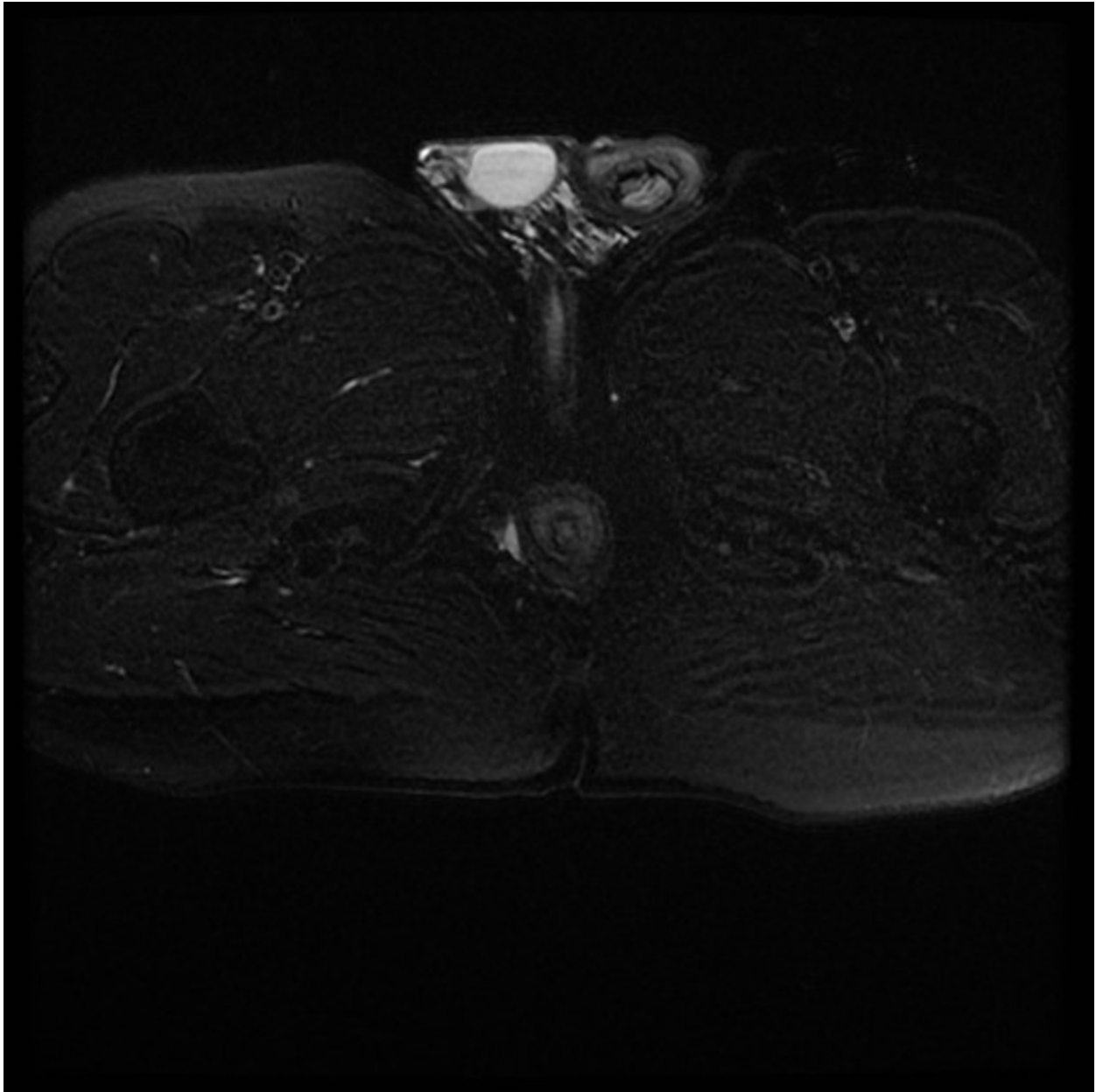
## Imaging findings OR Procedure details

Our MRI protocol includes high-resolution T2-weighted FSE sequences performed on axial and coronal planes. On these images fistulas, secondary fistulous tracks, and fluid collections appear as areas of high signal intensity in contrast with the lower signal intensity of the sphincters and muscles (Fig. 1a-b) on page 3. Fat-saturated T2-weighted FSE sequences may be useful in distinguishing inflammatory tissue from the surrounding fat (Fig. 2) on page 3. Gd-enhanced T1-weighted sequences are performed in selected cases for detecting residual disease activity in previously operated patients. Images in the coronal and axial planes demonstrate fistulous tracks in relation to the sphincter complex, ischiorectal fossa, and levator plate, thus permitting to recognize different patterns of fistulas: intersphincteric (Fig. 3) on page 4, trans-sphincteric (Fig. 4a-b) on page 5, extrasphincteric (Fig. 5a-b) on page 6. These patterns imply different surgical approaches. For intersphincteric fistulas a fistulotomy or fistulectomy can be performed. For trans-sphincteric and extrasphincteric fistulas more complex surgery may be required.

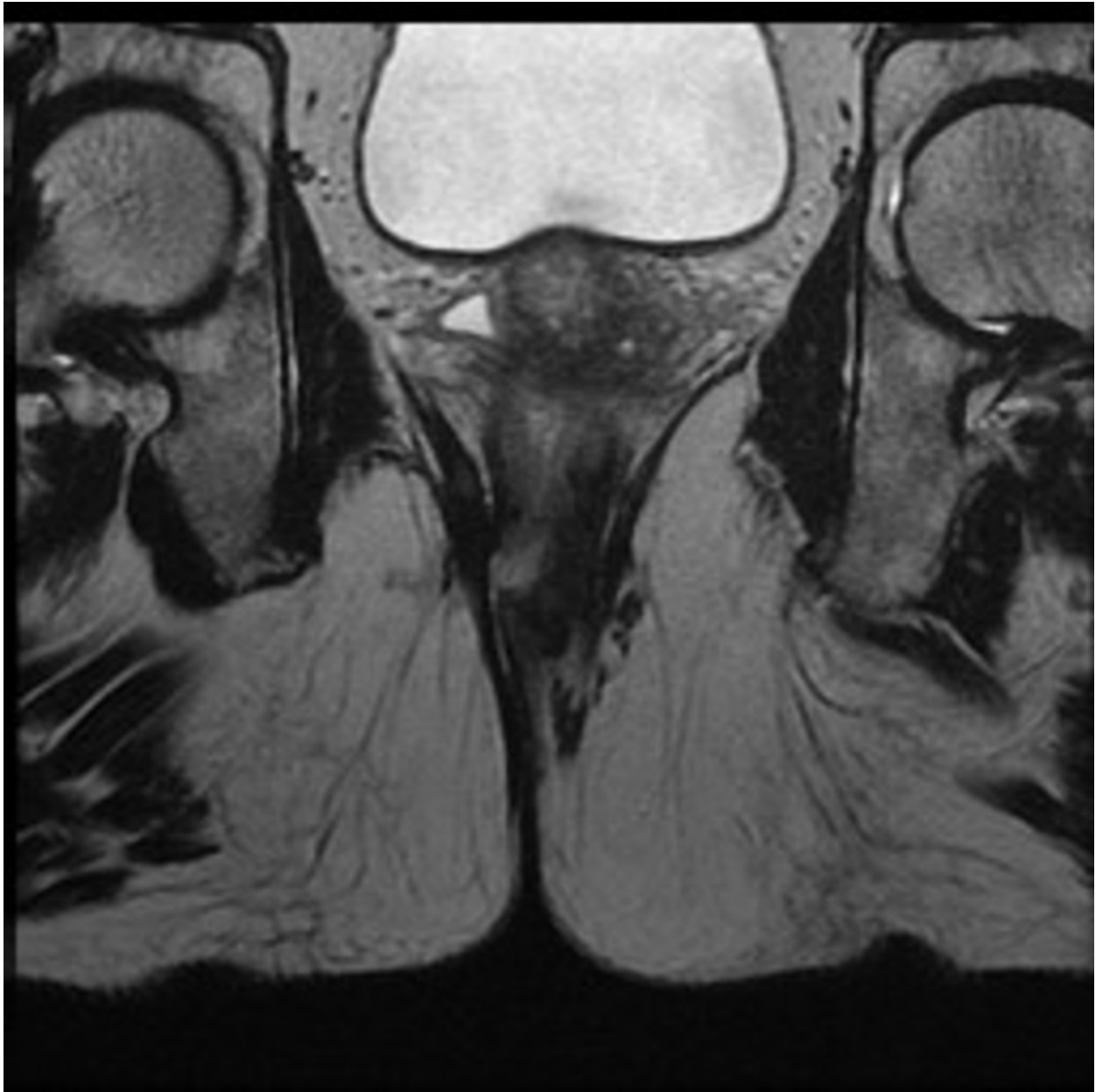
Images for this section:



**Fig. 1:** Fig. 1 a-b: Perianal region anatomy. Axial (a) and coronal (b) T2-weighted FSE images. External sphincter and internal sphincter show low signal intensity; the left trans-sphincteric fistula, intersphincteric fat and adipose tissue of ischiorectal and ischioanal fossa show high signal intensity.

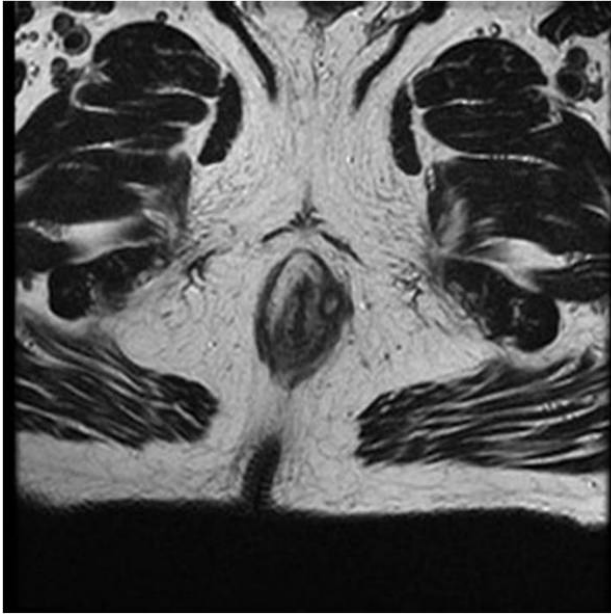


**Fig. 2:** Fig. 2: Axial fat-saturated T2-weighted FSE image shows a right extrasphincteric fistula in the ischioanal fossa.

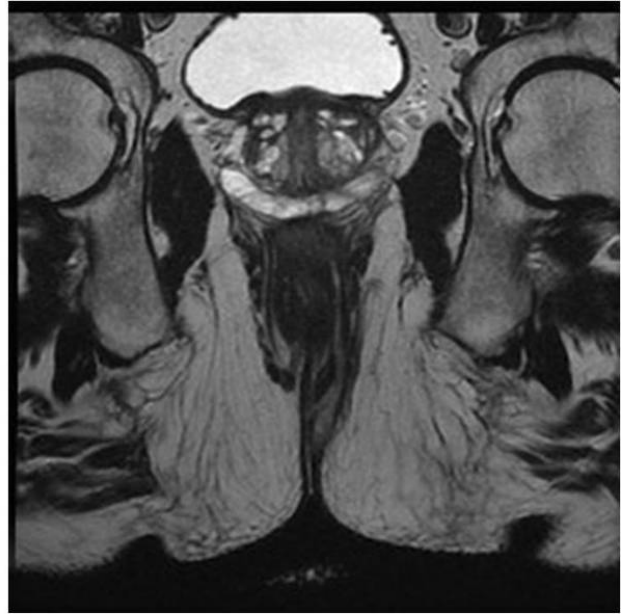


**Fig. 3:** Fig. 3: Intersphincteric fistula. Coronal T2-weighted FSE image shows a right intersphincteric fistula.



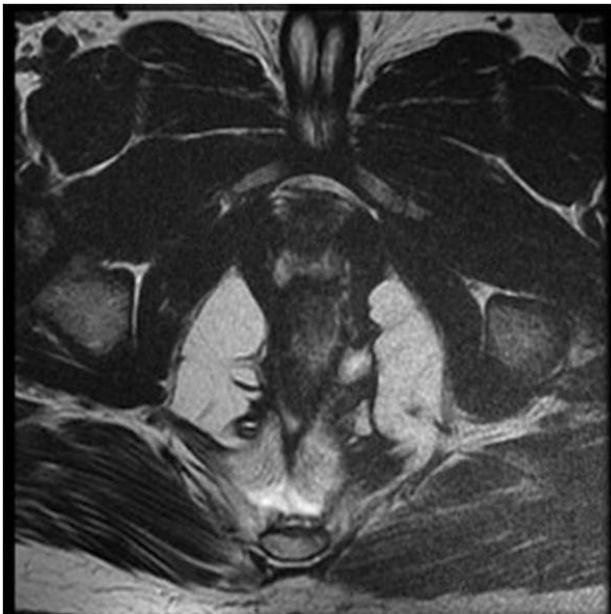


a

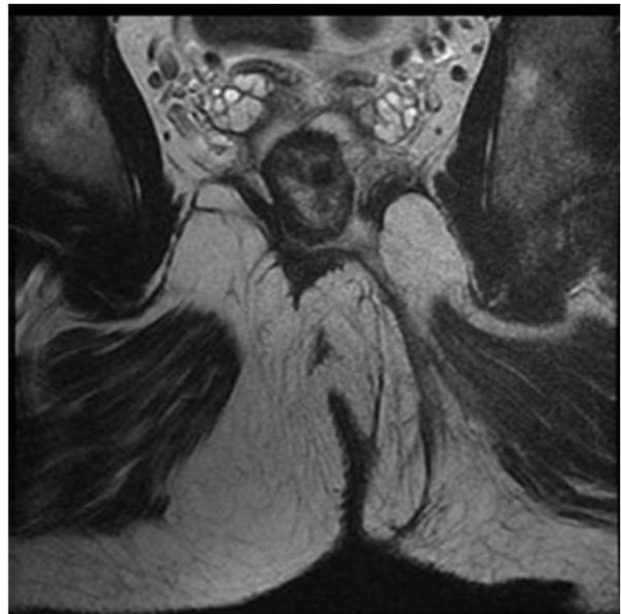


b

**Fig. 4:** Fig. 4 a-b: Trans-sphincteric fistula. Axial (a) and coronal (b) T2-weighted FSE images show a left trans-sphincteric fistula piercing the external sphincter.



a



b

**Fig. 5:** Fig. 5 a-b: Extrasphincteric fistula. Axial (a) and coronal (b) T2-weighted FSE images show a left extrasphincteric translevator fistula piercing the levator plate.

## Conclusion

MRI with phased-array surface coil is a reliable, non invasive technique to study perianal fistulas. It is easy to perform and provides useful information to address surgical strategy.

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