Perianal Crohn inflammatory disease: staging and post-treatment follow-up with MR

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Section: Abdominal imaging
Area of Interest: Pelvis
Technique: MR
Special Focus: Abscess Case Type: Clinical Cases
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Patient: 43 years, female

Clinical History:

A middle-aged woman with a long-standing history (19 years) of colonic Crohn disease (CD) complicated by anorectal stricture, had previously never undergone surgical treatment. During re-evaluation because of the recent onset of fever and pelvic pain, clinical examination did not disclose any perianal fistulous orifice.

Imaging Findings:

At laboratory tests, raised C-Reactive Protein (133 mg/L) was noted. Contrast-enhanced MR, requested to investigate the possible presence of perianal inflammatory disease, disclosed a 6 cm axial diameter left-sided perianal fluid collection with strongly enhancing walls: the large abscess caused some dislocation of the anorectal tract and crossed upwards the ipsilateral levator ani muscle reaching the ischio-anal space. These findings were compatible with an MRI grade 5 disease according to St. James criteria. The patient underwent antibiotic therapy and surgical drainage, with improvement of symptoms and resolution of laboratory abnormalities.

After one year follow-up MR documented a significant reduction of the abscess size in its three diameters, and allowed the detection of an active extra-sphincter fistula connected to the residual collection and extending to the left ischio-anal space. The fistulous tract soon reached the cutaneous plane, draining through a skin orifice and was treated with seton placement and biologics (Infliximab).

Discussion:

Perianal inflammatory disease complicates CD in up to 21-23% of patients and includes ulcers, fistulas, abscesses and anorectal strictures as its main features. Clinical manifestations include local pain, dyschezia, dyspareunia and perianal drainage, causing patients a significant morbidity and diminished quality of life.

Perianal CD is commonly staged using the classical anatomical Parks’ criteria that rely on the relationship between the fistulous tract and pelvic muscles such as the levator ani, internal and external sphincters. The American Gastroenterological Association (AGA) proposed a more practical classification approach, which distinguishes fistulas as simple or complex according to both anatomical and clinical parameters. The AGA classification has a proven prognostic value, since patients with simple fistulas experience better outcomes after therapy and a lower recurrence rate compared to those with complex tracts. The more recent MR-based, St. James University Hospital staging system re-elaborates the Parks’ classification, sorting perianal disease in five grades according to the presence of abscesses and secondary tracts. Supra- and extra-sphincteric fistulas are grouped together since both
cross the levator ani muscle, represent a complex disease, and require the same surgical approach.

Concerning perianal Crohn complications, the aim of imaging is to identify and classify all fistulous tracts, to confirm or exclude abscess collections, and to assess the impairment of muscular sphincters in order to plan a therapeutic approach with the focus on preservation of continence.

MR performed with phased-array coils and intravenous contrast medium is considered the mainstay for diagnostic imaging assessment of perianal CD. Complementary diagnostic modalities include surgical examination under anesthesia, endoanal ultrasound and transperineal ultrasound. MR offers a very good soft tissue discrimination, a wide field of view with a satisfactory spatial resolution and allows multiplanar image acquisition in absence of radiation.

There is consent to use MR to diagnose fistulous tracts even when no skin orifices are present, and to assess disease activity according to the presence of contrast enhancing lesions. Abscesses - frequently situated deep in ischio-anal or supra-levator fatty spaces - are easily detected, thanks to the large field of view and the high contrast resolution with fat-suppressed and contrast-enhanced sequences.

As this case exemplifies, MR provides both assessment of anatomical extent and activity status of perianal inflammatory disease, allowing an accurate staging according to the AGA criteria, and a precise re-evaluation after surgical and medical therapies.

**Differential Diagnosis List:** Crohn disease with complex extra-sphinteric perianal fistula and abscess., Crohn disease acute relapse, Anal carcinoma

**Final Diagnosis:** Crohn disease with complex extra-sphinteric perianal fistula and abscess.

**References:**


Description: Axial STIR (a) and post contrast fat suppressed T1 (b) show a large polylobulated abscess collection extending towards the left ischio-anal space and displacing the anal canal contralaterally. Origin:
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Description: Coronal T2 (c) and post-contrast T1 (d) demonstrate upward extension of the abscess involving the levator ani muscle. Origin:
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Description: Axial T2 (a) and post-contrast T1 (b) show significant reduction of the abscess. Origin:
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Description: Coronal T2 (c) and post-contrast T1 (d) images demonstrate persistent levator ani involvement. Origin:
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Description: Detailed axial T2 (e) and post-contrast T1 (f) images allow the detection of a thin fistulous tract (arrow) in 4 o'clock position draining into the residual collection. Origin:
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