

MRI findings in Fournier's gangrene

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Section: Uroradiology & genital male imaging

Area of Interest: Soft tissues / Skin Pelvis

Procedure: Diagnostic procedure

Imaging Technique: MR

Special Focus: Tissue characterisation Case Type:

Clinical Cases

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Patient: 30 years, male

Clinical History:

A 30 year-old male patient presented to the emergency department with progressive painful swelling and marked local inflammation of the scrotum, and perineal region for 2 days. He has history of previous fistula operation one week before. Serum glucose level was >200 mg/dl with no previous history of diabetes mellitus.

Imaging Findings:

MRI examination of the pelvis and perineal region was done to assess the extent of the inflammatory process. MRI images showed edema and inflammation the skin and subcutaneous planes of the scrotum and the perineal region with multiple small air loculi denoting subcutaneous emphysema with extension of inflammation along the right inguinal canal. Bilateral hydroceles are noted. Fluid collection is seen at the right ischiorectal fossa.

Discussion:

Fournier's gangrene (FG) is a fulminant form of infective necrotising fascitis of the perineal, or genital regions [1]. Comorbid conditions that compromise the immune system as diabetes mellitus and alcoholism have been implicated as predisposing factors for the development of FG [2]. The cause of infection is commonly colorectal (eg, colorectal cancer, inflammatory bowel disease, and perirectal abscess), urologic (eg, epididymitis and urinary tract infection), or cutaneous (eg, pressure ulceration) [2,3]. Most FG infections are poly microbial of mixed aerobic and anaerobic bacteria [4].

The most common presenting symptoms include scrotal swelling, pain, hyperemia, pruritus, crepitus, and fever [5]. Infection spreads along the facial planes and it can involve the scrotum, penis and can pass up the anterior abdominal wall [6]. The testes are usually spared as their blood supply originates intra-abdominally [7].

US may depict fluid and subcutaneous emphysema and may be of particular use in patients who cannot leave the emergency department for CT/MRI scanning. If the diagnosis is unclear and there is concern for testicular torsion, US may be performed prior to CT [4]. Otherwise, US is usually suboptimal because direct pressure on the perineum is not well tolerated by patients, and the extent of disease, may not be appreciated at US [8].

CT is the modality of choice because it may depict the source of infection as a perianal abscess, a fistulous tract, or an intra-abdominal or retroperitoneal infectious process and its pathways of spread [8]. CT can demonstrate asymmetric fascial thickening, fluid collection or abscess, fat stranding around the involved structures, and subcutaneous emphysema [9,10]. Its wide availability and ability to rapidly acquire images are well suited to emergent imaging. IV contrast enhanced CT of the abdomen and pelvis and extending through the scrotum and

penis should be performed; limiting scanning to the pelvis may cause an abdominal source of infection to be missed and lead to inadequate treatment [8].

MRI gives greater soft tissue detail than CT [11]. MRI shows subcutaneous emphysema, thickening of the scrotal skin and fluid accumulation. It can detect the extension of infection to the perineum, facial planes, abdominal wall and buttocks. Occasionally MRI can define the starting point of the disease. In addition it is of value in patients who have advanced skin lesion [12].

The treatment consists mainly of aggressive surgical debridement, broad-spectrum antibiotic combinations and hyperbaric oxygen therapy [13]

Differential Diagnosis List: Fournier's gangrene, Cellulitis, Scrotal hernia containing bowel loops, Scrotal abscess with gas forming organism, Epididymo-orchitis

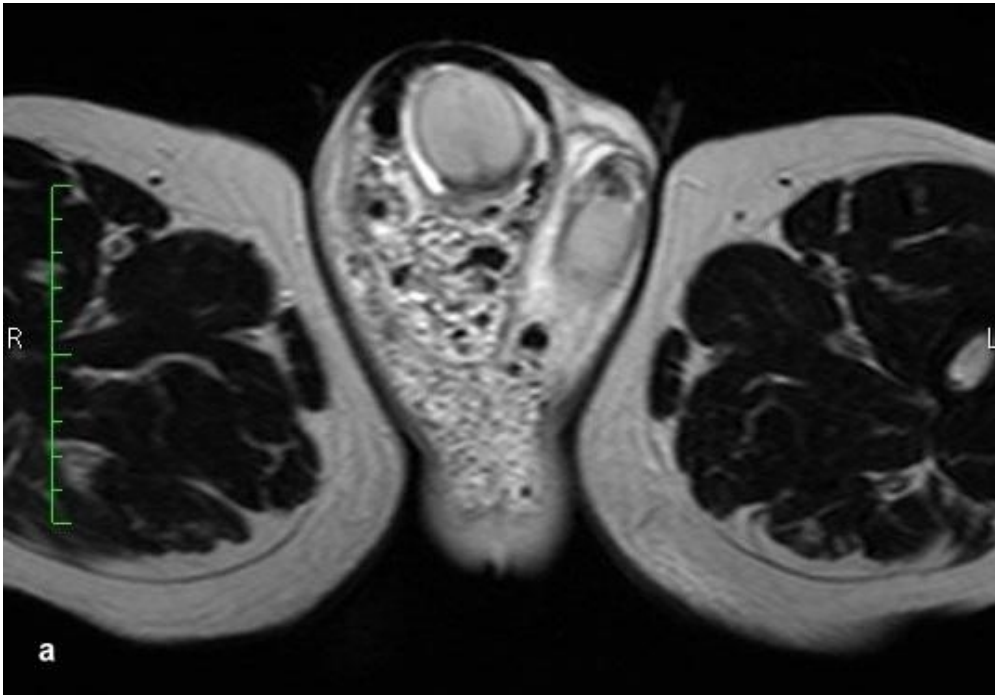
Final Diagnosis: Fournier's gangrene

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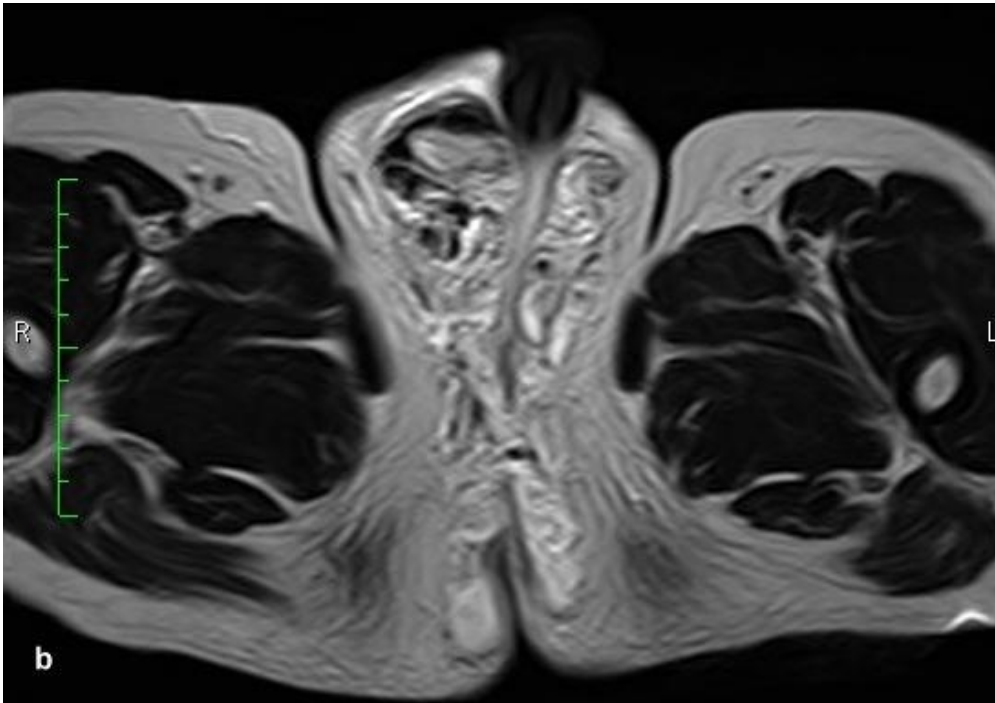
Figure 1

a



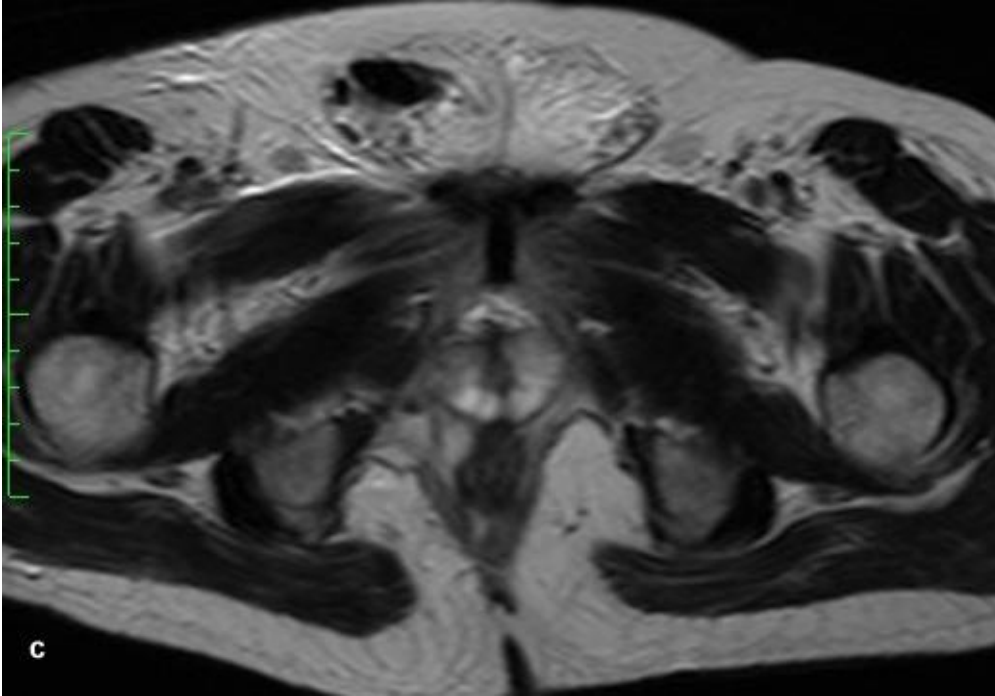
Description: Enlarged scrotal sac, with extensive inflammatory changes and gas pockets more on the right side than on the left together with bilateral reactive hydroceles **Origin:** Department of radiology, Kasr Al-Ainy hospital, Cairo University/Egypt.

b



Description: Extension of inflammatory changes to the perineum **Origin:** Department of radiology, Kasr Al-Ainy hospital, Cairo University/Egypt.

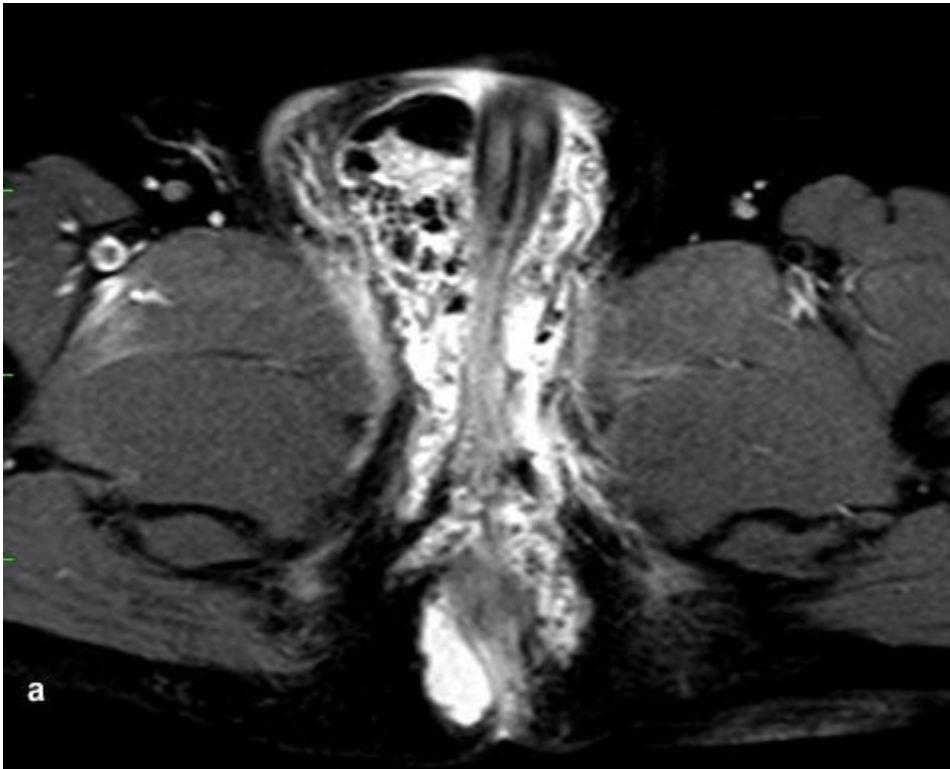
c



Description: Small fluid collection is noted at the right side of the rectum. **Origin:** Department of radiology, Kasr Al-Ainy hospital, Cairo University/Egypt.

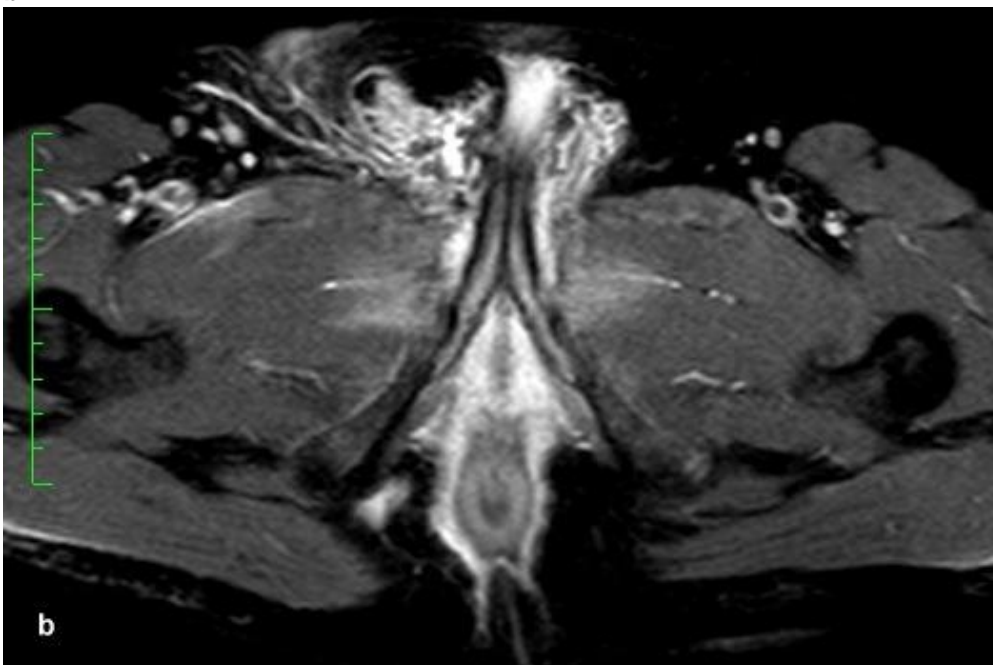
Figure 2

a



Description: Air loculi, and edematous subcutaneous tissue of the scrotum and perineum **Origin:** Department of radiology, Kasr Al-Ainy hospital, Cairo University/Egypt.

b



Description: Small amount of fluid collection at the right ischiorectal fossa **Origin:** Department of radiology, Kasr Al-Ainy hospital, Cairo University/Egypt.

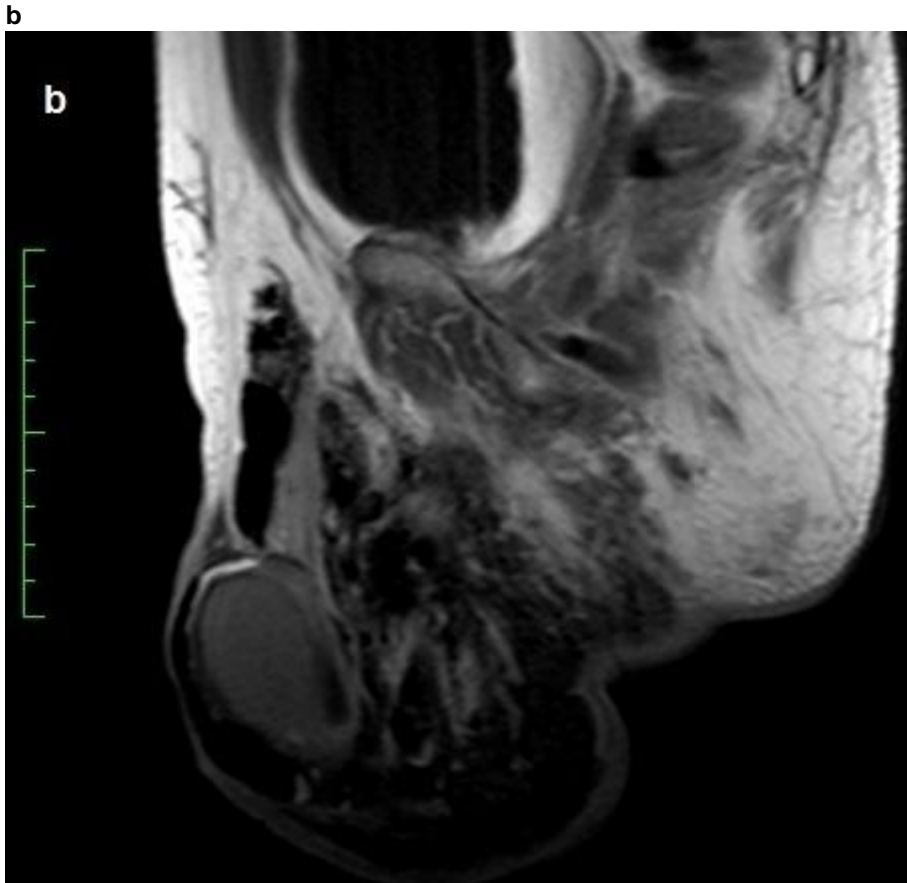
Figure 3

a



Description: Post contrast coronal T1WI showing cranial extension of inflammation, fluid collection and surgical emphysema along the right inguinal canal. Note bilateral enlarged inguinal lymph nodes.

Origin: Department of radiology, Kasr Al-Ainy hospital, Cairo University/Egypt.



Description: Post contrast sagittal T1WI showing cranial extension of inflammation, fluid collection and surgical emphysema along the right inguinal canal **Origin:** Department of radiology, Kasr Al-Ainy hospital, Cairo University/Egypt.