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Case Report

Fournier's Gangrene Developed from a Colovesical Fistula Associated with a Sigmoid Diverticulum

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Abstract

Fournier's gangrene is a necrotizing fasciitis affecting the perineum and external genitalia. It is a medical and surgical emergency characterized by sudden onset, rapidly progressive evolution, and a poor prognosis. Its etiological diversity necessitates a multidisciplinary management approach. The main etiologies include anorectal, urogenital, cutaneous, traumatic, and idiopathic causes.

Abdominopelvic CT scans have a crucial role in confirming the diagnosis, assessing the extent of tissue involvement, and identifying the underlying cause. We report a case of Fournier's gangrene with abrupt onset, where abdominopelvic CT with cystography revealed a colovesical fistula associated with diverticular disease of the sigmoid colon. We describe the clinical and radiological findings that enabled both positive and etiological diagnoses.

Keywords: *Fournier's Gangrene; CT Scanning; Colovesical Fistula; Sigmoid Diverticulum*

Introduction

Fournier's gangrene is defined as necrotizing fasciitis of the perineal region and external genitalia. Identifying the etiology is a crucial step in therapeutic management, as it helps determine the origin of the infection and guide appropriate treatment. CT scanning is considered the gold standard for this diagnostic process.

Clinical History

We report the case of a 53-year-old patient with a history of hemorrhoids, without other significant medical history, who presented to the emergency department of Avicenne University Hospital in Rabat with diffuse perineal inflammation, ongoing for three days and predominantly involving the scrotum. The patient reported repeated episodes of burning during urination and frequent urination (Pollakiuria).

On clinical examination, the scrotum was found to be red, swollen, and enlarged, with diffuse induration on palpation.

Abdominopelvic CT revealed diffuse infiltration of the scrotal layers, perineal fat, and fascial planes, containing subcutaneous air bubbles. A fluid-air level was identified within the bladder, along with localized thickening of the bladder dome wall, containing an intramural air pocket. This air pocket appeared to communicate with the sigmoid colon, which showed diverticula. However, no signs of diverticulitis, phlegmon, or perisigmoid abscess were detected.

Cystography with diluted Gastrografin contrast confirmed the communication between the bladder and the sigmoid colon by demonstrating contrast leakage from the bladder into the colon through the previously described intramural lesion.

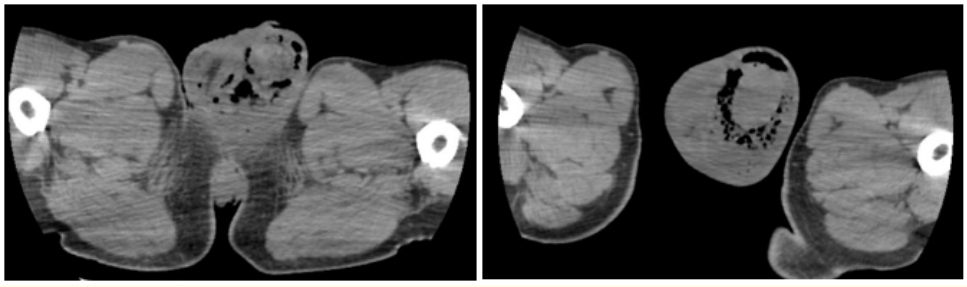

Figure 1: *Axial CT images without contrast injection.*

Soft tissue infiltration of the perineal region and scrotum, with subcutaneous emphysema and swelling of the left testicle and spermatic cord.

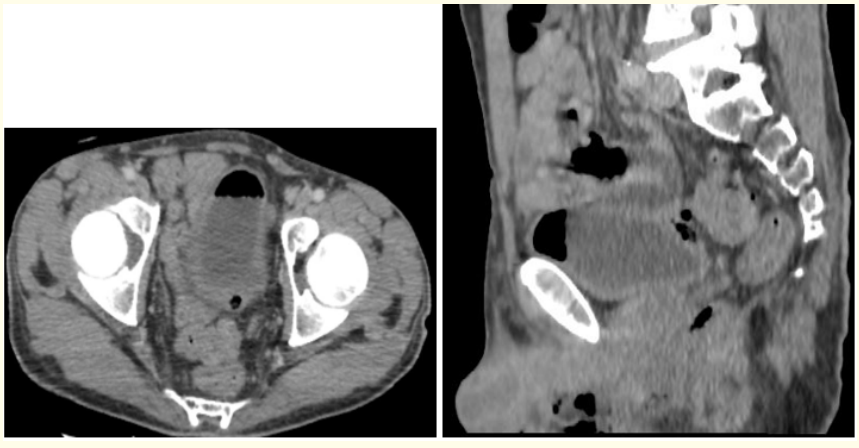

Figure 2: *Axial and sagittal CT images with contrast injection.*

Visualization of a fluid-air level within the bladder, along with thickening of the bladder dome wall containing air bubbles.

Figure 3: *Axial, sagittal, and coronal CT images with contrast injection.*

Visualization of a diverticular sigmoid colon.

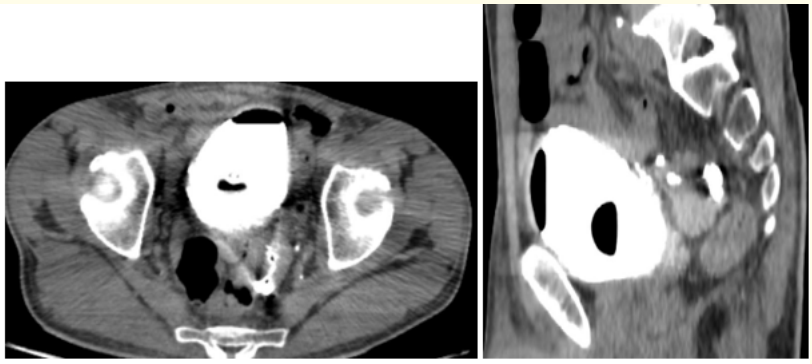

Figure 4: *Axial and sagittal cystography CT images.*

Demonstration of contrast leakage from the bladder into the sigmoid colon, confirming the presence of a colovesical fistula.

Discussion

Fournier's gangrene is primarily a clinical diagnosis, presenting in its advanced stage with both local and systemic signs. In addition to leukocytosis, laboratory tests assess the severity by detecting signs of organ dysfunction. Imaging plays a role in diagnosis but is mainly used to identify the underlying cause and should not delay treatment. While abdominopelvic CT is not always essential, it allows for confirmation of the diagnosis, evaluation of the extent of perineal involvement, and identification of any pelvic etiology, particularly when not clinically evident. CT scans can reveal fat and fascial infiltration, subcutaneous air bubbles, and the underlying cause.

Although some cases are idiopathic, the etiology can be identified in 75 - 100% of patients. Colorectal causes account for 13 - 50% of cases, while urogenital causes are responsible for 17 - 87%. Other causes include cutaneous infections and local trauma.

Colorectal sources include perirectal and perianal abscesses, rectal instrumentation, colonic perforations due to cancer, diverticulosis, hemorrhoidectomy, and anal intercourse in men who have sex with men. Urogenital sources involve urethral strictures with urine extravasation and periurethral infections, as well as urethral instrumentation, including indwelling catheters, particularly in paraplegic patients. Fournier's gangrene has also been reported following circumcision, hernia repair, and penile prosthesis implantation.

Cutaneous sources include acute and chronic scrotal infections, hidradenitis suppurativa, balanitis, and intentional trauma (e.g. scrotal piercings). Specific causes in women include septic abortions, Bartholin gland abscesses, and episiotomies.

Several factors predispose to the development of Fournier's gangrene, particularly conditions that impair immune function. Diabetes is present in 60% of cases, while other risk factors include alcoholism, extreme ages, poor hygiene, HIV infection, malnutrition, malignancies, corticosteroid use, morbid obesity, pelvic vascular diseases, cirrhosis, and spinal cord lesions causing decreased perineoscrotal sensation [1-5].

Conclusion

Fournier's gangrene remains primarily a clinical diagnosis; however, it is essential to perform a CT scan to guide surgical intervention by assessing the extent of tissue involvement and identifying an underlying cause. In our case, the underlying cause was a colovesical fistula associated with a diverticulum of the sigmoid colon.

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