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Inflammation and infection

Fournier's gangrene revealing an aggressive squamous cell carcinoma of the penis: An exceptional case report

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ABSTRACT

Fournier's gangrene is a fast progressive necrotizing fasciitis of the perineum and external genitals, It is secondary to polymicrobial infection by aerobic and anaerobic bacteria with synergistic action. The origin of the infection is either cutaneous, urogenital or colorectal. There are age, diabetes and immunosuppression, are frequently present in affected patients. Fluid and electrolyte management, combined with broad-spectrum antibiotic therapy followed rapidly by surgical debridement, is the standard of treatment. we report in this article a very rare case of cancer of the penis manifested by fournier's gangrene.

1. Introduction

Perineoscrotal gangrene is defined as an acute necrotic bacterial infection of the perineum and external genitalia, characterized by its rapid and extensive evolution.[1] From an etiological standpoint, a distinction must be made between primary and secondary gangrene.

Perineoscrotal gangrene is a rare but serious condition with significant complications affecting both local and systemic health. It represents a medical and surgical emergency, where a delay in diagnosis and treatment can have a profound impact on the patient's overall prognosis, both in terms of survival and functional outcomes.

2. Case presentation

A 70-year-old man, with a history of unstable diabetes and arterial hypertension, consulted for a large bilateral bursa with pus discharge from a scrotal fistula, in a context of fever and altered general condition. Clinical examination shows a fever of 39°, blood pressure 95/40 cmH2O, heart frequency at 100 beats/minute, testicular examination shows a large, warm, tender bursa, with inflammatory signs, and the presence of an orifice and pus discharge, the rest of the clinical examination was normal, biology shows: WBC:1300, CRP: 340 mg/l, creatinine: 14 mg/l Procalcitonin 100 ng/ml, an abdomino-pelvic scan showed a scrotal collection with air in the perineal and anterior abdominal (Fig. 1). The patient received an antibiotic and was then taken urgently to the operating room, debridement with drainage of the abscess and resection of areas of necrosis was performed (Fig. 2a), and the patient was transferred to the intensive care unit for management of sepsis and treated with vasoactive drugs and appropriate antiobiotherapy, the evolution at 3 months was marked by bourgeoning of the scrotal tissue, clinical examination reveals an ulcerated, bourgeoning lesion on the glans penis (Fig. 2b), which posed a diagnostic problem evoking an extension of the gangrene to the penis or the development of another lesion. the decision was taken to perform a biopsy of the glans to identify the nature of the lesion, the medical team was surprised by the anatomopathological results of the biopsy, which came back in favour of a squamous cell carcinoma of the penis (Fig. 2c). Additional clinical examination did not find inguinal adenopathy, and the MRI of the penis showed the presence of a tumor of the penis extending to the cavernous cavities and the urethra. the patent was taken to the operating room for a total penectomy with perineostomy (Fig. 3). the evolution was favorable and the patient was put under surveillance.

3. Discussion

Necrotizing fasciitis is a severe soft tissue infection affecting the superficial and profound fascias, Fournier's Gangrene is a form of necrotizing fasciitis genital, perineal and perianal, resulting from a polymicrobial infection of genito-urinary, colorectal, cutaneous or idiopathic origin, which is potentially lethal, It is also the most frequent cause of genital tissue damage.[2] Men are ten times more affected than women.

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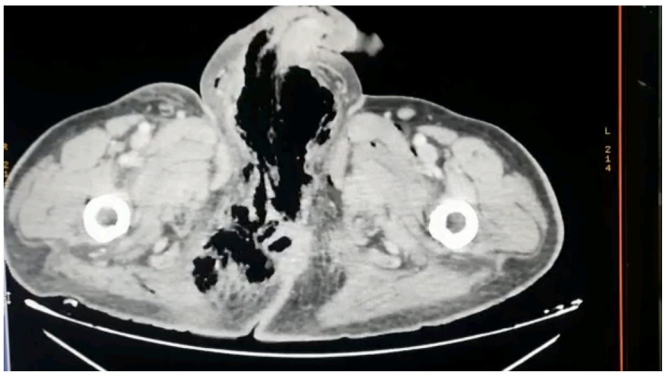

Fig. 1. Scannographic image showing a scrotal collection with air in the perineal and scrotal region.

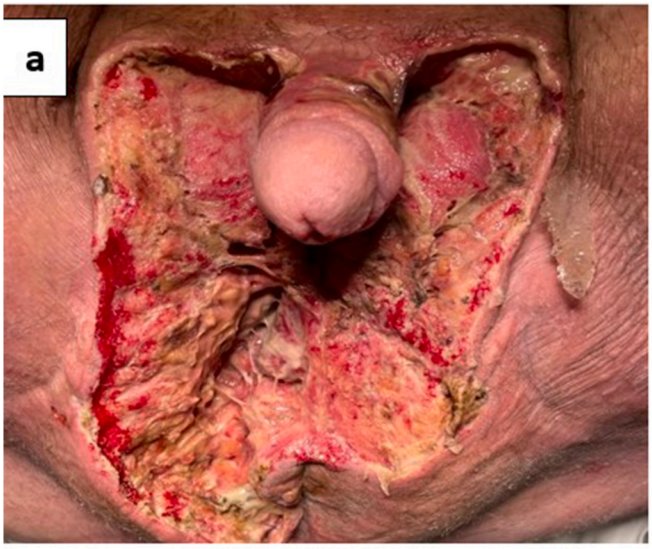

Fig. 2a. Presentation after initial debridement with abscess drainage and resection of necrotic zones.

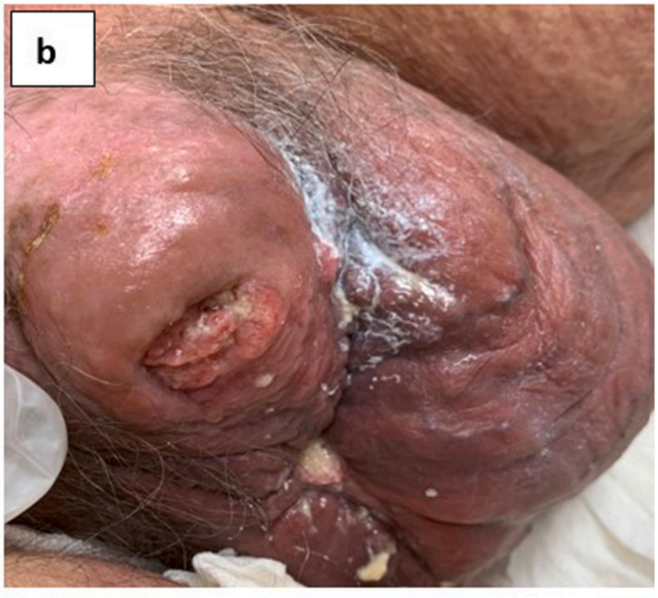

Fig. 2b. Development of an ulcerated, budding lesion on the glans penis.

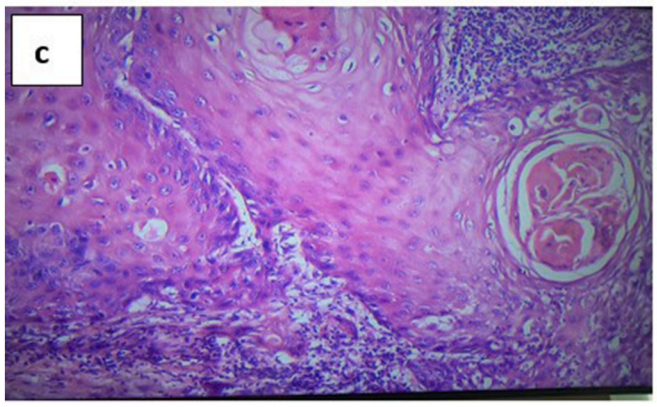

Fig. 2c. Glans biopsy showed the presence of squamous cell carcinoma of the penis.

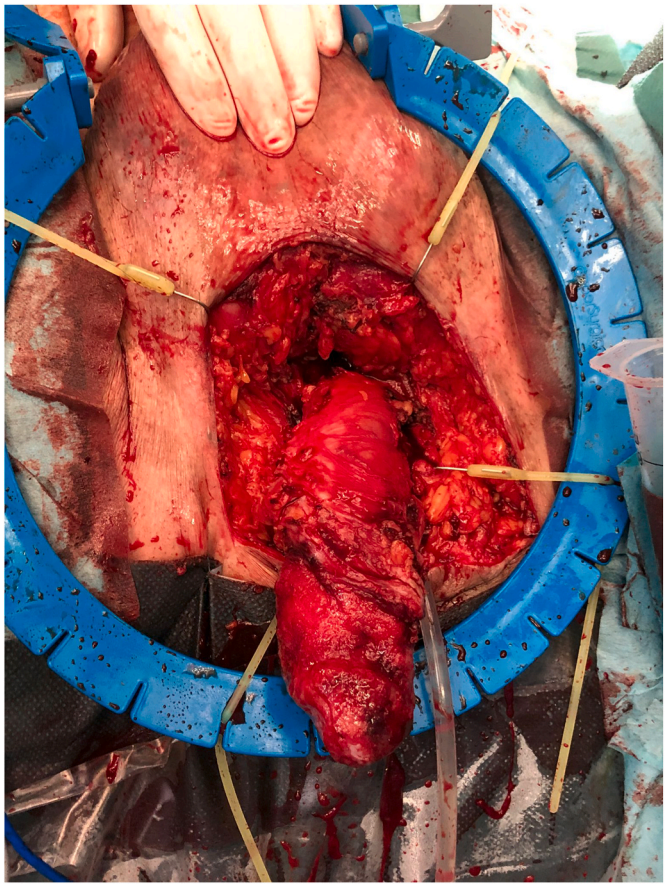

Fig. 3. Operative image showing total penectomy with perineostomy.

Although many of the cases described are idiopathic,[3] the etiology is identified in 75–100% of patients, It is colorectal in 13–50% of cases and urogenital in 17–87% of cases, Other causes include cutaneous infections and local trauma.

Several factors can contribute to the development of the disease, including conditions that depress immunity diabetes, present in 60% of cases, alcoholism, extreme age, unsanitary conditions, acquired immune deficiency virus (HIV), malnutrition, neoplasia, corticosteroid therapy, morbid obesity, pelvic vascular pathologies, cirrhosis and neurological damage to the spinal cord with reduced perineoscrotal sensitivity.

The infectious process initially begins with a local infection at a point of entry, this infection rapidly progresses to endarteritis obliterans,

which causes vascular leads to cutaneous and subcutaneous vascular necrosis, the result is tissue necrosis secondary to local ischemia. Usually corpora cavernosa, urethra, testicles and spermatic cords cords are not affected.

The symptoms of the disease are insidious, sometimes accompanied by pruritus or pain in the external genitalia.[4] Infection begins as cellulitis at the point of entry, the affected zone then begins to swell and become erythematous. The pain then becomes prominent with the appearance of fever and systemic signs, edema and crepitations increase rapidly with the appearance of dark erythematous zones that progress rapidly to extensive gangrene.

Treatment is divided into two phases:

- The first consists of extensive debridement combined with parenteral antibiotic therapy, fluid and electrolyte management.
- the second consists of a reconstruction, once the infectious process is under control.

Antibiotic therapy is immediately instituted and should include a penicillin to cover Gram-positive aerobes and Clostridium, an aminoglycoside for Gram-negative bacteria and metronidazole or clindamycin for anaerobes, If initial cultures show fungi, the addition of amphotericin B or capsufungin is essential. Debridement should be performed as early as possible.

A colostomy is indicated in cases of extensive rectal and sphincter damage, and in cases of fecal incontinence.Which may contaminate the debrided incision, Suspubic urinary drainage is recommended in extensive gangrene because it improves wound care and reduces complications from of prolonged urethral catheterization.

Perineal tissue in these patients is poorly perfused often due to long-term diabetes, microangiosclerosis or the infection process. Hyperbaric oxygen therapy[5] increases local oxygen concentration, improving leukocyte function facilitating wound healing and preventing the multiplication of anaerobic bacteria.

The main complication of Fournier's gangrene is a persistent septic state, due to a failure to recognize of the initial cause of infection. Risk factors for penile tumors include phimosis, maceration and insufficient hygiene, and chronic inflammation, in our case we suppose that the penis tumor was caused by insufficient hygiene and chronic infection, which is why it is important to perform penis biopsies if the clinical examination reveals an abnormality in the context of Fournier gangrene.

4. Conclusion

Fournier's gangrene is considered a major surgical emergency, The prognosis depends on the terrain, diagnostic and therapeutic extension of lesions, and the occurrence of general occurrence of general complications. we have reported in our case the occurrence of a cancer of the penis after a Fournier gangrene which is a very rare entity.

Declaration of competing interest

The authors declare that there is no conflict of interests regarding the publication of this article.

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