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A CASE REPORT: FOURNIER'S GANGRENE IN A PATIENT WITH TYPE-1 DIABETES MELLITUS

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ABSTRACT

Aims: Fournier's gangrene is a necrotizing fasciitis of the perinea and genital areas. Scrotal Fournier's gangrene, while being rare, is an urological emergency and requires urgent surgery. In this case report, we aimed to investigate a patient with Fournier's Gangrene (FG), caused by a cut to scrotum.

Case Report: Forty-four-year-old male patient with a history of type-1 diabetes mellitus for 16 years was taken to the Emergency Service of Trakya University Medical Faculty Hospital after the swelling and pain, following a cut to this scrotum while he was shaving his genital area. After 2 days of follow-up, Fournier's Gangrene occurred in this patient.

Conclusion: Fournier's Gangrene, if left untreated, may lead to morbidity, on a broad scale such as erectile dysfunction, loss of testicles, penile amputation or even sepsis and mortality. Treatment includes aggressive debridement, systemic broad-spectrum antibiotics, orchiectomy, skin reconstruction, alternatively hyperbaric oxygen therapy and honey application. Since it sudden occurance and severity, urgent intervention is required. In this case, with prompt intervention, the patient survived his sexual functions were preserved and with a skin graft an aesthetic appearance was also provided.

Keywords: Fournier's Gangrene, scrotum, fasciitis, necrotising, urologic, emergency, debridement

INTRODUCTION

Fournier's Gangrene (FG), was firstly reported by dermatologist Bauriene in 1764. Dermatologist and venerologist Jean Alfred Fournier was the first to characterize it as a scrotal pathology in 1883 and it is named after him (1). Another point to consider is, Avicenna has described the same disease in his book centuries ago (2).

Fournier has described the disease as a fulminant hepatitis of penis and scrotum, especially targeting healthy young males, suddenly starting and quickly progressing, with an uncertain cause.

FG is characterized by the necrotizing fasciitis of perinea, genital and perianal areas, in accordance with synergistic polymicrobial infection. Only 600 cases were reported around the world between 1996 and 2006 (1). Despite being a very rare disease, because of its insidious characteristics it has a high mortality and thus requires urgent surgery. Any delay on its diagnosis and treatment can be fatal, that's why a thorough investigation of the symptoms bears utmost importance.

Today, FG is mostly diagnosed on 50-60 years old male patients. Men have a 10 times higher chance to develop FG, the reason is an easier drainage of female perinea through vaginal path, reducing the chance of occurrence (3). In women, the most frequent cause is anorectal infection (4).

Currently, on most FG cases the cause can be identified. Only 10% of FG cases remain uncertain (3, 5). Infections close to entrance zones like scars, burns, incision; anorectal infections, genitourinary infections, abscess, anal fissures, colon perforations line up among the most frequent causes. It is also reported that in some cases FG can occur secondary to rectal carcinoma and diverticula (6). It can also accompany some cases which weaken the immune system (diabetes mellitus, chronic alcoholism) (5).

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CASE REPORT

Forty-four-year-old patient, while doing genital shaving, made a cut on a nevus located on the scrotum, and bled for a long period of time. Following the swelling, sensitiveness and pain, he was taken to the Emergency Service of Trakya University Medical Faculty Hospital. The patient was followed-up with a diagnosis of Fournier's Gangrene after the sudden rash, swelling, unpleasant smell and pain, on his second day in the ward. He had been using insulin for 16 years because of type-1 DM and smoking 1.5 packs a day for 30 years. He stated that he has never used alcohol before. His physical examination revealed subicteric sclera, pale conjunctiva, relaxed abdomen, resonant Traube's space, and hyperactive bowel sound. The patient's laboratory results were as following: leukocyte: 11.960/mm3, Hb: 9.3 gr/dl, platelets: 257.000/mm3, CRP: 22 mg/dl, urea: 13 mg/dl, kreatinin: 0.7 mg/dl, ALT: 54 U/L, AST: 165 U/L, LDH: 277 U/L, CK: 535 U/L. His liver function tests resulted with high values and his abdominal ultrasonography revealed the liver diameter as 19 cm. Liver echogenicity was diffusely increased (Grade 2 hepatosteatosis). The patient did not have a history of hepatitis, and following a preoperative consideration he has undergone a scrotal debridement and reconstruction surgery, under general anesthesia. Firstly, the necrotic skin tissue was removed completely (Figure 1, 2). Later, the skin tissues of the left testicle and penile area were sutured. However, the right testicle could not be covered primarily (Figure 3). A skin graft was prepared from the right thigh and it was used to cover the area (Figure 4, 5, 6). After taking test samples, broad-spectrum antibiotics were administered (penicillin G, metronidazole and aminoglicozide).

DISCUSSION

Fournier's Gangrene is a rare clinical case and its diagnosis is based on clinical suspicion. Treatment options are hemodynamic stabilization, broad-spectrum anti-biotherapy and early aggressive surgery.

A multidisciplinary approach is necessary for the treatment. Especially for the cases originating from the perinea, debridement in perirectal and perianal areas is necessary, as well as colostomy (7, 8). In such cases, a cooperation with General Surgery is advised. Broad debridement is usually preferred, which lead to a loss of tissues, in this case a cooperation with the Plastic Surgery department is advised, for the recovery and healing. Study reports that in some progressed cases hyperbaric oxygen (HBO) therapy in addition to debridement stops the progression and speeds up the healing process (9). The mechanism of HBO therapy consists of increasing the aerobic metabolism, speeding up the intake of antibiotics through the bacteria wall, causing toxic effect on the bacteria by forming free-radicals and increasing the leukocyte functions, phagocytosis, collagen formation, fibroblast growth and angiogenesis. The application of honey on open wound after debridement is another method to speed up healing, after the surgery (10, 11).

When it comes to sexual health, a certain case in literature catches attention. An intracavernous self-injection for erectile dysfunction, which is not listed among the known causes, caused Fournier's Gangrene(12). The patient was suffering from DM for 20 years, and macrovasculary complications caused erectile dysfunction. The infection originated from the cavernous structure of the injection area and after the necrosis of both cavernous bodies it invaded the scrotum. Case reported by Gürdal et al. (12) had undergone penile amputation surgery.

In Fournier's Gangrene, testicular uptake is rare and orchiectomy is indicated if there is a present testicular gangrene. In cases with necrotic penile skin, cavernous structures are usually conserved and total penile amputation is not necessary. Diabetes, among the predisposed factors is mostly present on publications (4, 10, 12).

The characteristic of the case reported in this article is, a broad loss of tissue due to FG (Figure 1, 2) and a fast skin graft. A large skin graft from the thigh was applied for covering the skin defects caused by the aggressive necrotic tissue care, as seen on Figures 3, 4 and 5. Skin graft is reported to be a better option for both the functional and cosmetic aspects (13). Additionally, in this case the necrotizing fasciitis was only restricted to the scrotum. Orchiectomy or penile amputation were not necessary. Erectile dysfunction is not to be expected for this patient. With a prompt debridement the patient survived and his sexual functions were preserved, also with skin grafting an aesthetic appearance was provided.

Ethics Committee Approval: N/A
Informed Consent: Written informed consent was obtained from the participants of this study.
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Figure 1, 2: Pre-op appearence of the scrotal Fournier's gangrene

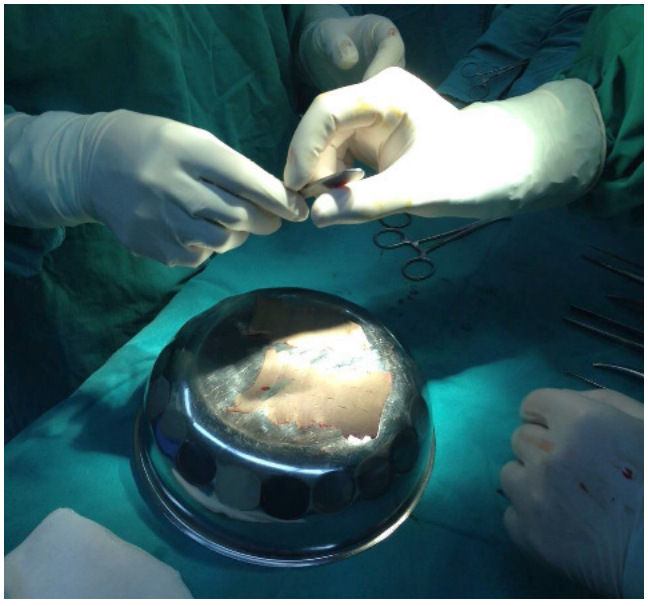

Figure3, 4: Preparation of the reconstructive skin graft from the anterior thigh (STSG)

Figure 5: Preparation of the skin graft from the anterior thigh

Figure 6: Applied skin graft

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