



## **Fournier Gangrene: Case Report & Literature Review**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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**Case Study**

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## **ABSTRACT**

**Introduction:** Necrotizing fasciitis of the perineal and vaginal region is a symptom of Fournier's gangrene, which is caused by a synergistic polymicrobial infection. The clinical presentation varies depending on the original aetiology, ranging from anorectal or vaginal pain with limited evidence of cutaneous necrosis to a rapidly spreading necrosis of the skin and soft tissue, to systemic sepsis without any obvious signs or symptoms.

**Case history:** A 65-year-old male who was admitted in hospital with the chief complaint of Scrotal enlargement, discomfort, hyperemia, pruritus, crepitus, and fever. There may also be a foul-smelling discharge. Symptoms usually appear during a two- to seven-day period. Soft-tissue gas

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may be present before clinical crepitus is detected. The patient with Fournier gangrene frequently seems poorly on physical examination, with prodromal signs of fever and lethargy lasting 2-7 days. Edema of the overlying skin is usually present, as is acute pain and tenderness in the genitalia; pruritus may also be present. Skin may show evidence of trauma, surgery, insect or human bites or injection sites, In Respiratory system, B/L Air entry present. In cardiovascular system, S1 and S2 sound heard and Patient get conscious and well oriented to time, place, and person. Then, as quickly as possible, treatment was began; he did not improve after treatment, and treatment would continue till the conclusion of my care.

**Conclusion:** We focus on professional management and superior nursing care in this study so that we may provide the complete treatment that Fournier Gangrene requires while also effectively managing the complex case. After a full recovery, the patient's comprehensive health care team collaborates to help the patient regain his or her previous level of independence and happiness.

*Keywords: Fournier gangrene; necrotizing fasciitis.*

## 1. INTRODUCTION

Fournier gangrene (FG) is a rare but highly infectious illness that results in fulminant necrotizing fasciitis in the vaginal and perineal regions [1]. With a 40% mortality rate, this is one of the most serious surgical situations. Early identification of FG is crucial for establishing when therapy should begin [2]. The cornerstones of therapy are hemodynamic stabilisation, broad-spectrum antibiotics, and prompt surgical debridement [3].

Fournier's gangrene is caused by a synergistic polymicrobial infection, and necrotizing fasciitis of the perineal and vaginal area is a sign [4]. The clinical presentation varies depending on the underlying cause, ranging from anorectal or vaginal discomfort with no signs of cutaneous necrosis to rapidly spreading necrosis of the skin and soft tissue to systemic sepsis with no symptoms of sepsis [5].

It is a polymicrobial necrotizing fasciitis of the perineal, perianal, and vaginal regions that spreads rapidly and has a fatality rate ranging from 15% to 50%. Infection-induced inflammation and edema obstruct local blood flow, causing vascular thrombosis in the cutaneous and subcutaneous areas. Perifascial dissection occurs, causing bacteria to spread and the underlying tissues to deteriorate to gangrene. Because facial necrosis can proceed at a rate of up to 2-3 cm per hour, early diagnosis is crucial [6]. During a scrotum ultrasound, skin thickening and subcutaneous air were discovered in a patient with normal-appearing testicles and signs and symptoms suggestive of an acute inflammatory disease, such as epididymitis or orchitis (US). The patient had Fournier gangrene, which was detected. In an increasing percentage of individuals, skin thickening and subcutaneous

air expansion posteriorly to cover the perineum and buttocks. Because of the significant mortality rate of this mixed anaerobic and aerobic infection.

### 1.1 Patient Information

A 65-year-old male who was admitted to the Rural Hospital with the chief complaint of scrotal edema, discomfort, hyperemia, pruritus, crepitus and fever. There may also be a foul-smelling discharge. Symptoms usually appear during a two- to seven-day period. Prior to the appearance of illness, soft-tissue gas may be present. He was diagnosed with Fournier Gangrene after extensive research and evaluation. He showed no improvement following treatment, and his patient condition was in a state of flux. The patient's family is from a working-class family. Both communicable and non-communicable diseases were absent in his family. With relatives, neighbors, and other family members, he and his family maintained good interpersonal relationships. When he is admitted, he has a temperature of 102.0 degrees Fahrenheit. Blood was drawn, a liver function test was performed, and a kidney function test was performed. Antipyretics, antibiotics, anti-inflammatory potassium, intravenous fluids, and anti-allergic are all used in radiologic imaging, particularly computed tomography (CT) and magnetic resonance imaging (MRI). Treatment is provided as needed, and medicine is administered according to physician directions. Excellent nursing care was given and continues to be provided till the end of my stay.

### 1.2 Physical Examination

The patient with Fournier gangrene frequently appears sick on physical examination. Fever and lethargy are prodromal symptoms that might last

2-7 days. Edema of the overlying skin is usually present, as is acute pain and tenderness in the genitalia; pruritus may also be present. Erythema, skin sloughing or necrosis, palpation of the genitalia and perineum, as well as digital rectal examination, may reveal induration, edema, blistering, skin discoloration, foul discharge, crepitus, and the absence of lymphangitis (lymphangitis is uncommon in Fournier gangrene). In Respiratory system, B/L Air entry present. S1 and S2 are heard in the cardiovascular system, and the patient becomes aware of time, place, and person. Then treatment was started as soon as possible.

### 1.3 Diagnostic Assessment

Hemoglobin –10.9 g/dl, total red blood count – 2.74 million/cu.mm, total white blood count – 6100/cu.mm, total platelet count – 1.35 lacs/cu.mm T3, T4, and TSH levels were all normal. Globulin-3.6, Albumin-2.2 Leukocyte counts, urea, creatinine, kinase, alkaline phosphatase, and lactate dehydrogenase all increased. Hematocrit, bicarbonate, sodium, potassium, calcium, and total protein levels were all reduced. The Fournier's Gangrene Severity Measure (FGSI) is a prognostic index that determines the severity and prognosis of Fournier Gangrene in patients. Using common vital signs (temperature, heart rate, respiration rate) and laboratory data (serum sodium, serum potassium, serum creatinine) to assess the severity of infection. The FGSI score (which includes serum bicarbonate, hematocrit, and white blood cell count) can help predict prognosis and death. The departure from normal is graded on a scale of 0 to 4, and the FGSI score is derived by summing the individual values.

### 2. MEDICAL MANAGEMENT

Upon admittance, the patient is given information about time, person, and location. After undergoing therapy he exhibits no change, and his condition is unstable. Following the placement of an intravenous line Antibiotics having a broad range of action are prohibited. Ciprofloxacin, Penicillin, and Cephalosporin injections Piperacillin/Tazobactam 4g iv TDS, Pan 40 mg OD, Tab Cap. Limcee OD RBS's Urimax, Orofer-XT Syrup TDS 4 Hourly Chart 3 mL multivitamin in 100 mL normal saline IV OD, 25 mL Neomol IV SOS, 750 mg Ceftriaxone IV BD, Syp. SOS paracetamol 5 mL orally, as advised by the doctor.

### 3. NURSING MANAGEMENT

The vital signs were thoroughly documented. His health is not stable, and he is not responding to therapy. The patient was in a state of agitation. The nurse will need to work hard to help patients with Fournier Gangrene. To guarantee early and vigorous surgical debridement of necrotized tissue, we provided hemodynamic support with prompt fluid resuscitation and broad-spectrum antibiotics [7]. As the rate of fascial necrosis has been reported to be as high as 2-3 cm per patient, customised therapy is the cornerstone for effective treatment. When Fournier Gangrene is diagnosed, broad-spectrum parental antibiotic treatment is started on the spot. Instruct the patient on how to control edoema and discomfort efficiently. Nurses monitor the degree of necrotizing soft tissue at all times. It was noted that debridement and supportive care were provided. Open wounds are often treated with sterile cloths or negative-pressure wound treatment after initial drastic debridement. Keeping infections and skin degeneration at bay Excellent service was reported by patient family members to nursing personnel.

### 4. DISCUSSION

A 65 year old man was taken to the Rural Hospital with the chief complaint of scrotal swelling, pain, hyperemia, pruritus, crepitus, and fever. A foul-smelling discharge may also be present. The onset of symptoms tends to occur over a 2-7 day period. Soft- tissue gas may be present prior to the appear to be ill. After all investigation and examination he was diagnosed as Fournier Gangrene. He has not responded to treatment and patient was very irritable. patient health status is not stable after treatment. Excellent nursing care was given and continues to be provided till the end of my stay.

Fournier Gangrene was found to be a rare yet dangerous condition in this investigation. This disease affects both men and women, and it affects people of all ages, from newborns to the elderly. Despite this, patients tend to be between the ages of 40 and 50. Our patient was 65 years old, which is consistent with recent findings of a rise in peak age incidence [8].

Scrotal enlargement, discomfort, hyperemia, pruritus, crepitus, and fever are the most typical clinical characteristics. There may also be a foul-smelling discharge. Symptoms usually appear during a two- to seven-day period. Soft-tissue

gas may be present before clinical crepitus is detected. Other systemic signs such as fever, tachycardia, electrolyte abnormalities, and scrotal discomfort are prevalent. Scrotal edema, crepitus, fever, tachycardia, and low blood pressure were all present when our patient was admitted to our hospital [9].

Once a Fournier Gangrene diagnosis has been made, the mainstays of treatment are vigorous hemodynamic stabilisation and parenteral broad-spectrum antibiotics, which will be altered or continued based on the results of the culture. The crucial step in ensuring a favourable outcome is quick and comprehensive surgical debridement. Despite the use of broad-spectrum antibiotics, aseptic and antiseptic operating room conditions, advanced surgical methods, and intensive care circumstances, Fournier's gangrene remains a high-mortality pathology in Turkey. Because patients with Fournier's gangrene cannot fully describe their symptoms or allow a complete inspection of the genital region due to shame, diagnosis is sometimes made late [10].

To reduce the high rate of mortality in Fournier's gangrene, early diagnosis, the use of appropriate antibiotics, and, when necessary, long-term hemodynamic support are required. Dressing the surgically debrided wound in a suitable manner. The nutritional requirements of the body for re-granulation of the tissues, monitoring the nutritional status of the patient, and giving supportive food supplement are all required [11].

Despite the fact that Fournier's gangrene was first characterised as a gangrene of the penis and scrotum spreading fast in young male adults, it has recently been proven in the literature to be more common in instances of old age with predisposing conditions [12]. Elderly individuals with inadequate self-care and nutritional status, on the other hand, are more prone to Fournier's gangrene, and their prognosis is worse. Consequently, slightest complaints in the perineal, genital and perianal regions, especially in elderly patients, should be evaluated carefully [13]. Fournier's gangrene is a high-mortality pathology in Turkey, despite the use of broad-spectrum antibiotics, aseptic and sterile operating room settings, improved surgical procedures, and intensive care situations.

## 5. CONCLUSION

Fournier's gangrene is an uncommon and potentially fatal emergency illness, and delays in

identification and treatment increase the risk of death. To keep the patient alive, establish a quick diagnosis, administer broad-spectrum antibiotics, do emergency surgical debridement, maintain the patient's nutrition, and provide adequate wound care. Fournier's gangrene is a deadly disease with a high mortality rate. As a result, aggressive multidisciplinary care is necessary. Fluid resuscitation, antibiotic medication, dietary assistance, and, most importantly, recurrent surgical debridement remain part of the treatment plan.

## CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline Patient's consent and ethical approval has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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