

A REVIEW ON FOURNIER'S GANGRENE***Sheeba Kumari**

Nursing Lecturer, College of Applied Medical Sciences, King Faisal University, KSA.

***Corresponding Author: Sheeba Kumari**

Nursing Lecturer, College of Applied Medical Sciences, King Faisal University, KSA.

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ABSTRACT

Fournier's gangrene (FG) is a rare but life threatening disease. FG has been shown to have a predilection for patients with diabetes as well as long term alcohol misuse; however, it can also affect patients with non-obvious immune compromise. The disease is usually located in the genitourinary tract, lower gastrointestinal tract, or skin. Fournier's gangrene is a mixed infection caused by both aerobic and anaerobic bacterial flora. The development and progression of the gangrene is often fulminating and can rapidly cause multiple organ failure and death.^[1]

KEYWORDS: Fournier's gangrene, genitourinary tract.**INTRODUCTION**

Fournier's gangrene is a life-threatening acute necrotizing fasciitis of perianal, genitourinary and perineal areas. Nowadays, it is well known that Fournier gangrene is almost never an idiopathic disease.^[2] Which commonly affects men, but can also occur in women and children.^[3]

FG is caused by a mixture of aerobic and anaerobic microorganisms. This infection leads to complications including multiple organ failure and death. Due to the aggressive nature of this condition, early diagnosis is crucial. Treatment involves extensive soft tissue debridement and broad-spectrum antibiotics. Despite appropriate therapy, mortality is high.^[4]

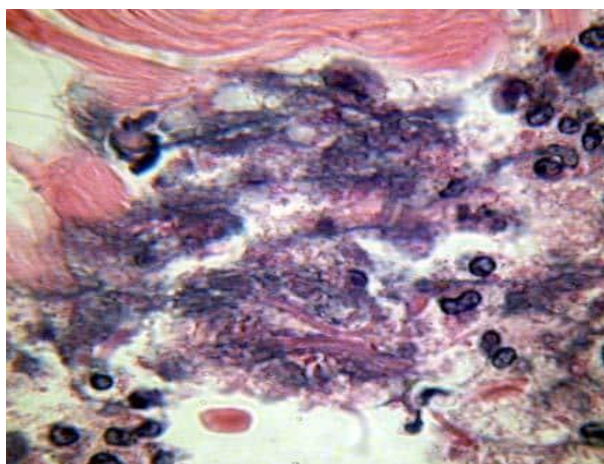
BACKGROUND

Fournier gangrene was first identified in 1883, when the French venereologist Jean Alfred Fournier described a

series in which 5 previously healthy young men suffered from a rapidly progressive gangrene of the penis and scrotum without apparent cause.^[5] Fournier's gangrene is not a contagious disease. Fournier's gangrene is a type of necrotizing fasciitis (flesh-eating disease). Necrotizing fasciitis destroy soft tissues, including:

- Arteries (blood vessels).
- Muscles.
- Nerves.^[6]

This condition, which came to be known as Fournier gangrene, is defined as a polymicrobial necrotizing fasciitis of the perineal, perianal, or genital areas (see the image below. Fig: 1).^[5]

**Fig: 1**

Photomicrograph of Fournier gangrene (necrotizing fasciitis), oil immersion at 1000X magnification. Note the acute inflammatory cells in the necrotic tissue. Bacteria are located in the haziness of their cytoplasm. Courtesy of Billie Fife, MD, and Thomas A. Santora, MD.

AETIOLOGY

Higher risk

- Diabetes. Between 20 and 70% of people with Fournier's gangrene also have diabetes.^[11]
- Alcohol abuse disorders. About 25 to 50% of people with Fournier's gangrene also have an alcohol use disorder.
- Cardiovascular disorders.
- Cirrhosis.
- HIV.
- High blood pressure (hypertension).
- Kidney (renal) failure.
- Age 50 or older.
- Obesity.
- Smoke or use other tobacco products.
- Taking steroids.
- Had some sort of trauma to the area.
- Receiving chemotherapy
- Immune response is slow or it fails (immunosuppression).

Causes of Fournier's gangrene

Bacteria (anaerobic bacteria or aerobic bacteria) sometimes cause Fournier's gangrene. The most common aerobic organisms include:

- *E. coli* (*Escherichia coli*).
- *Klebsiella*.
- *Proteus*.
- *Staphylococcus*.
- *Streptococcus*.

The most common anaerobic organisms include:

- *Bacteroides*.
- *Clostridium*.
- *Peptostreptococcus*.

Bacteria can enter the genital and rectal areas of the body in several ways. A few examples include an:

- Abscess.
- Anal fistula and diverticulitis.
- Genital piercing.
- Infection of the bladder or urinary tract.
- Injury that causes a scratch or burn.
- Insect bite.
- Rectal cancer.
- Sex.
- Ulcer.
- Children sometimes get a bacterial infection from circumcision.

SIGNS AND SYMPTOMS

One or more symptoms of Fournier's gangrene, including

- Red genitals or perineum.
- Tender genitals or perineum.
- Swollen genitals or perineum.

And one or both of the following symptoms, including

- A fever of at least 100.4 degrees Fahrenheit.
- A general feeling of sickness.^[6]

INVESTIGATIONS

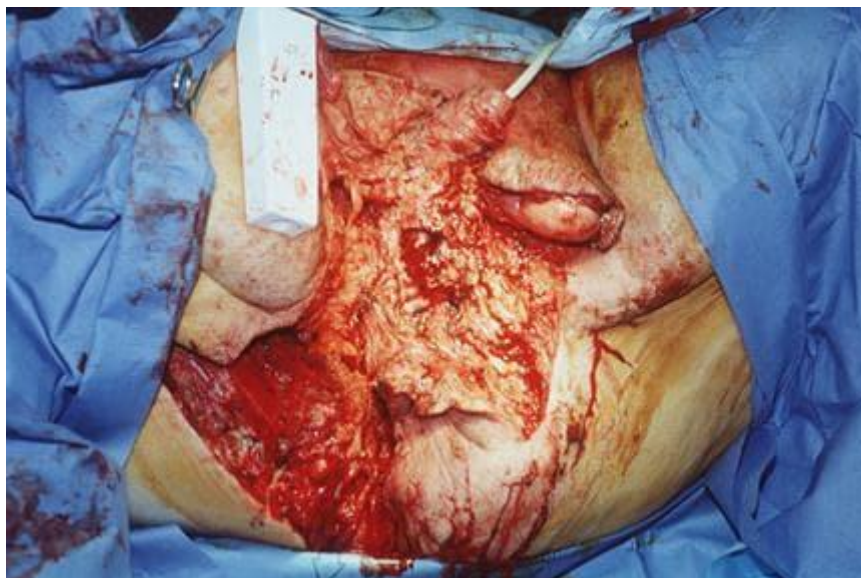
Ultrasonography is useful to differentiate intrascrotal abnormality and can also show thickened and swollen scrotal wall, with gas within.^[7]

Computed tomography and magnetic resonance imaging are useful in select cases to diagnose or rule out retroperitoneal or intra-abdominal disease process.^[8]

Blood investigations: including a complete blood count (CBC) test with differential, a comprehensive metabolic panel (CMP) and lactate to look for an elevated white blood count, electrolyte abnormalities, septic shock and arterial blood gas.^[6]

TREATMENT

- ✓ **Debridement** (Fig:2)^[5]
- ✓ **Antibiotics:** Broad-spectrum antibiotics. The usual combination includes penicillin for the streptococcal species, third generation cephalosporin, with or without an aminoglycoside, for the Gram negative organisms, plus metronidazole for the anaerobes.^[9]
- ✓ **Reconstructive surgery.** Reconstructive surgery helps perineum, scrotum or penis look like it did before the Fournier's gangrene. skin flaps & grafts to cover bare areas after surgical debridement
- ✓ **Hyperbaric oxygen therapy.** That is where you inhale pure oxygen in a pressurized room. The procedure helps in several ways, including:
 - Promoting wound healing.
 - Reducing blood vessel damage.
 - Stopping bacteria from growing.^[6]



(Fig: 2)

Patient with Fournier gangrene following radical debridement. A dorsal slit was made in the prepuce to expose the glans penis. Urethral catheterization was performed. Incision into the point of maximal tenderness on the right side of the perineum revealed gangrenous necrosis that involved the anterior and posterior aspects of the perineum, the entirety of the right hemiscrotum, and the posterior medial aspect of the right thigh. The skin and involved fascia were excised from these areas. Reconstruction of this defect was performed in a staged approach. A gracilis rotational muscle flap taken from the right thigh was used to fill the cavity in the posterior right perineum as the first step. The remainder of the defect was covered with split-thickness skin grafts. This patient made a full recovery.^[5]

Complications /side effects of Fournier's gangrene

There are many possible complications of Fournier's gangrene. They include:

- Acute respiratory distress syndrome.
- Acute kidney (renal) failure.
- Arterial occlusion.
- Decreased quality of life, which can contribute to clinical depression.
- Heart failure and arrhythmia.
- Ileus, the absence of normal muscle contractions in intestines.
- Sexual dysfunction.
- Stroke.
- Urinary tract infections.^[6]

PREVENTION

Effective measures for the primary prevention of Fournier gangrene include:

- ✓ Prevention of trauma/breaks in skin integrity that act as a portal of entry
- ✓ Treatment of cellulitis to prevent extension into the subcutaneous tissue

- ✓ Ensure wounds are cleaned and monitored for signs of infection
- ✓ Do not delay first aid of wounds like blisters, scrapes, or any break in the skin
- ✓ Patients with underlying co-morbidities should watch carefully for any signs of infection.^[12]

CONCLUSION

Fournier's gangrene is a rare necrotising fasciitis of the genitalia originally described in healthy young men. Recent evidence has shown that a cause for the condition can be identified in most patients and today's cohort are unlikely to be healthy young men but elderly patients with co-morbid conditions such as diabetes, immunosuppression or alcoholism. The most common sources of infection are perineal and genital skin infections, although other factors have been implicated in the aetiology of the disease such as pelvic or perineal injury, pelvic interventions and colorectal diseases such as neoplasia or diverticulitis.^[10]

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