

**MANAGEMENT OF FOURNIER'S GANGRENE RESULTING FROM BARTHOLIN'S GLAND ABSCESS IN A DIABETIC FEMALE: A CASE REPORT**Amani Ghazalah<sup>\*1</sup>, Khaoula Lakhdar<sup>1</sup>, Aziz Slaoui<sup>1</sup>, Soukaina Mouiman<sup>1</sup>, Amina Lakhdar and Aziz Baydada<sup>1</sup><sup>1</sup>Gynecology-Obstetrics and Endoscopy Department, Maternity Souissi, University Hospital Center IBN SINA, University Mohammed V, Rabat, Morocco.**\*Corresponding Author: Dr. Amani Ghazalah**

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**ABSTRACT****Introduction and importance:** Fournier's gangrene is a life-threatening necrotizing fasciitis of the perineum, which is uncommon in females. Bartholin's gland abscess is a rare source of infection leading to this condition.**Case presentation:** We present a 43-year-old diabetic female admitted for perineal pain and fever, with rapid progression to necrotizing fasciitis. Examination revealed an abscess in the Bartholin's gland area with signs of sepsis. Emergency surgical debridement was performed without preoperative imaging due to the urgency.**Clinical discussion:** The diagnosis was primarily clinical. The patient underwent urgent debridement and received broad-spectrum antibiotics. A multidisciplinary team, including gynecologists, surgeons, infectious disease specialists, and psychologists, was involved in care. **Conclusion of the Abstract:** This case underscores the importance of rapid diagnosis and intervention in atypical presentations of Fournier's gangrene. Multidisciplinary management and early surgical treatment are crucial.**KEYWORDS:** Fournier's gangrene, Bartholin's gland abscess, diabetes mellitus, necrotizing fasciitis, case report.**INTRODUCTION**

Fournier's gangrene (FG) is a rapidly progressive necrotizing fasciitis of the perineum and genital regions, most commonly reported in men. In women, FG is extremely rare and poses a diagnostic challenge, especially when the source of infection is unusual, such as a Bartholin's gland abscess. Early recognition and prompt surgical intervention are essential to reduce mortality and morbidity. The following case represents a rare instance of FG originating from a Bartholin's gland abscess in a diabetic female, treated surgically in an emergency setting without preoperative imaging. This case report has been reported in line with the SCARE checklist (Agha RA et al. Int J Surg. 2020;84:226-230).

**Case Report** She was a known case of poorly controlled type 2 diabetes mellitus and was not on regular follow-up. Her past medical history did not reveal any previous episodes of perineal infection or surgical intervention. She had no known drug allergies and was not on any chronic medications prior to admission.

Gynecological examination showed complete destruction of the right labia majora and Bartholin's gland area, with necrosis extending to the perineum.

The patient underwent emergency surgical debridement under general anesthesia. The necrotic tissue was excised until viable margins were reached. She received broad-spectrum antibiotics (imipenem/cilastatin, metronidazole), insulin therapy, anticoagulation, and supportive care. Psychological support was provided due to depressive symptoms noted during hospitalization. Cultures revealed a polymicrobial infection (E. coli and anaerobes). Postoperative evolution was favorable with progressive healing. She was discharged after 21 days and was lost to follow-up after the first outpatient visit.

**Diagnostic Assessment**

Laboratory tests showed leukocytosis (WBC 22,000/mm<sup>3</sup>), anemia (Hb 9.5 g/dL), and hyperglycemia (glucose 3.5 g/L). No imaging was performed due to the emergency context.

**Diagnostic Challenges**

The main challenge was the absence of time for imaging. Diagnosis relied entirely on clinical signs due to the rapidly progressing necrosis.

**Diagnostic Reasoning**

Clinical presentation (fever, perineal necrosis, sepsis) in a diabetic patient strongly pointed to Fournier's

gangrene.

**Differential diagnoses** such as cellulitis, Bartholin cyst rupture, or vulvar abscess were ruled out based on extent and progression.

### Prognostic Characteristics

Prognosis was influenced by the presence of diabetes, the extent of necrosis, and the speed of intervention.

Early surgery and multidisciplinary care were decisive factors in the favorable outcome.

### Intervention

**Preoperative preparation:** The patient was in a septic state upon admission. Due to the life-threatening emergency, preoperative optimization was limited.

Immediate fasting was initiated. Insulin therapy was started to correct hyperglycemia.

An intravenous infusion was established for rehydration, and empiric broad-spectrum antibiotic therapy was initiated (imipenem/cilastatin, metronidazole).

Psychological support was offered from the outset, given the patient's state of anxiety.

### Intervention chirurgicale

La patiente a bénéficié d'un débridement chirurgical d'urgence réalisé sous anesthésie générale.

L'intervention a été réalisée dans un bloc opératoire d'un hôpital universitaire par un chirurgien sénior spécialisé en chirurgie gynécologique avec plus de 10 ans d'expérience, assisté d'un résident en chirurgie. La patiente a été installée en position gynécologique. Une préparation cutanée au chlorhexidine a été réalisée.

### Surgical intervention

The patient underwent emergency surgical debridement under general anesthesia.

The procedure was performed in the operating theater of a university hospital by a senior surgeon specialized in gynecologic surgery with over 10 years of experience, assisted by a surgical resident.

The patient was placed in the lithotomy position, and skin preparation was carried out using chlorhexidine.

Surgical exploration revealed extensive necrosis of the vulvar and perineal region. Necrotic tissue was excised until viable margins were reached.

Debridement was performed using a scalpel. No sutures were placed due to the extent of the necrosis. A Delbet drain was placed.

Moist dressings were applied postoperatively, with multiple daily local wound care sessions.

Prophylactic anticoagulant therapy was administered, along with antibiotic coverage adjusted according to culture and sensitivity results.

Collaboration was maintained with the infectious diseases department for antibiotic management and with the psychiatry department for psychological support.

There was no change to the initial management plan. After discharge, the patient was scheduled for weekly outpatient wound care visits. However, she only attended the first visit before being lost to follow-up.

### Follow-up Strategy

After hospital discharge, the patient was scheduled for weekly outpatient wound care visits at the infectious disease and gynecologic surgery clinics.

### The initial follow-up plan included

Local wound assessment and debridement if needed  
Monitoring of glycemic control in coordination with the endocrinology department  
Psychological support sessions offered every two weeks  
Laboratory monitoring for inflammatory markers and glucose levels  
The goal was to continue this plan over a 6-week period until complete wound healing and psychological stabilization.

### Adherence and Compliance

During hospitalization, the patient adhered well to the prescribed medical and psychological care plans. Adherence after discharge could not be assessed due to lack of follow-up.

### Expected vs Actual Outcomes

The anticipated outcome was a slow but complete recovery with residual scarring.  
The actual outcome was favorable in the short term with good wound healing observed before discharge, but long-term outcomes remain unknown due to follow-up loss.

### Timeline

Day -5: Onset of symptoms (perineal pain, fever)  
Day 0: Emergency consultation and diagnosis of FG; immediate surgery performed  
Day 1-21: Hospital stay with multidisciplinary care and wound management  
Day 22: Discharge

## Extracted Figures from Poster - Formatted



Figure 1: Vue macroscopique des tissus nécrotiques.





Figure 2: Evolution post-opératoire après plusieurs pansements.



Figure 3: Image de cicatrisation complète.

## DISCUSSION

Fournier's gangrene, although uncommon in females, poses significant challenges in diagnosis and treatment. FG is a polymicrobial necrotizing fasciitis primarily affecting the perineum and genital region. While classically described in men, cases in women—though rare—are often underdiagnosed due to atypical presentations and less clinical suspicion. FG may be considered a conglomerate endpoint of multiple disease processes, each with distinct microbiological profiles depending on the infection source.

FG more frequently involves gram-negative organisms; however, no predominant organism can be identified in approximately 25% of cases.<sup>[4]</sup>

Fournier's gangrene due to Bartholin gland abscess is rare but serious, especially in immunocompromised women. Early diagnosis and surgical intervention are critical for improving outcomes.

In women, FG is frequently of anorectal or urogenital origin. Bartholin's gland abscesses, typically benign, may rarely serve as a nidus for necrotizing fasciitis in immunocompromised patients, such as those with diabetes mellitus. Literature on this presentation is scarce, with fewer than 20 well-documented cases reported in indexed databases. Diabetes mellitus plays a pivotal role in the pathogenesis and prognosis of FG. Poor glycemic control impairs neutrophil function, increases tissue glucose concentration favoring microbial proliferation, and leads to microangiopathy and poor wound healing. Infectious spread continues along the deeper fascial planes, compromising neurovascular structures; however, due to the rich and redundant vasculature within the skin, cutaneous manifestations may present much later than deep tissue necrosis.<sup>[5]</sup> Diabetes mellitus is an established risk factor that weakens immune responses and accelerates the development of infections.<sup>[1,2]</sup> In females, the infection often originates from anorectal or urogenital sources, including Bartholin's gland abscesses.<sup>[6]</sup> In Fournier's original description, the disease was idiopathic. In a review of the more recently published series, a cause was found in 75% to 100% of cases. Colorectal sources were identified in 13% to 50% of cases. Urogenital sources were identified in 17% to 87%. The remaining identified causes were cutaneous infections and local trauma. Cases have been recorded where Bartholin's abscesses progressed to necrotizing fasciitis, underscoring the imperative for vigilance in these situations.<sup>[7]</sup> Most studies indicate a mortality rate of 20% to 40% with some studies showing a fatality rate of as high as 88%.<sup>[1]</sup>

The etiology of Fournier's gangrene includes a synergistic polymicrobial infection, which usually involves both aerobic and anaerobic bacteria. Common causative bacteria include *Escherichia coli*, *Klebsiella pneumoniae*, *Bacteroides fragilis*, *Streptococcus* species, *Pseudomonas* species, and *Staphylococcus* species.

Recent studies identify *E. coli* as the most frequently isolated pathogen, followed by *Enterococcus faecium*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*. Less common isolates, such as *Acinetobacter* and methicillin-resistant *Staphylococcus aureus* (MRSA) can be associated with higher mortality rates.<sup>[8]</sup> Timely recognition and prompt surgical debridement are essential, since delays negatively impact the outcome.<sup>[5,6]</sup> Imaging techniques can be useful to confirm the diagnosis in doubtful cases, and may help in assessing the cause and determining the extent of gangrene.<sup>[9]</sup> Tomography (CT) is invaluable in the diagnosis and surgical planning for FG and is considered the gold standard. The ability of CT to offer rapid, detailed, and comprehensive evaluation, including the assessment of gas within the soft tissues, makes it the preferred imaging modality. Recent studies have demonstrated the high accuracy of contrast-enhanced CT, with 100% sensitivity and 98% specificity.<sup>[10]</sup>

Several reports tried to evaluate the usefulness of diverse scoring systems. Fournier's Gangrene Severity Index (FGSI) has become a standard for researchers, and is considered as a good predicting tool.<sup>[11]</sup> The Fournier's Gangrene Severity Index (FGSI), based on physiological and laboratory parameters, is a validated prognostic tool. Although not computed at the time, the patient's profile would likely have reflected moderate to high severity.

Systemic therapy includes hemodynamic stabilization, broad-spectrum antibiotics, and meticulous wound management. After initial radical debridement, open wounds are generally managed with sterile dressings or negative-pressure wound therapy.<sup>[12]</sup> Negative Pressure Wound Therapy (NPWT) involves breathing 100% oxygen in a pressurized chamber, increasing plasma oxygen levels.<sup>[13]</sup> It has been explored in FG management, improving granulation and reducing bacterial load. It was not used here due to availability constraints but may be considered in future cases to optimize healing. Its clinical efficacy remains controversial. Some studies suggest improved mortality outcomes, while others report no significant benefits.<sup>[14]</sup>

Urgent resuscitation with fluids like blood transfusion is necessary in patients who are seriously ill. The treatment includes multiple antimicrobial agents targeted at three groups of organisms. Penicillin is recommended for streptococci, metronidazole for anaerobic organisms and third generation cephalosporin with or without gentamicin for coliform organisms and staphylococci.<sup>[15]</sup> Broad-spectrum empirical antibiotics covering aerobic and anaerobic flora are critical. Cultures confirmed *Staphylococcus aureus* and yeast, justifying continued dual-targeted therapy. Early collaboration with infectious disease specialists can be considered for optimal management when available. While local antibiograms and culture results should guide therapy.<sup>[16]</sup>

Surgical debridement remains the cornerstone of

treatment, with outcomes directly linked to early intervention. In this case, prompt surgical response after initial stabilization allowed for infection control and tissue preservation.

In persons with diabetes, strict glucose control is crucial for enhancing immune function and promoting wound healing. Moreover, the onset of Fournier's gangrene has been associated with particular antidiabetic medications, notably sodium-glucose cotransporter-2 (SGLT2) inhibitors, necessitating meticulous management in susceptible individuals.<sup>[17]</sup> Psychological outcomes are important but often overlooked. The patient developed depressive symptoms during her prolonged hospitalization, underlining the need for integrated psychiatric care.

The case underscores the need for heightened suspicion and early treatment in diabetic women presenting with perineal infections. Interdisciplinary collaboration is essential to address the complex medical and surgical needs of these people. Multidisciplinary care—combining gynecology, surgery, infectious disease, endocrinology, and psychiatry—is essential for holistic recovery. Fournier's gangrene is associated with increased mortality rates, underscoring the importance of early diagnosis and vigorous treatment. The effectiveness of broad-spectrum antibiotics in treating polymicrobial infections linked to Fournier's gangrene is well-documented. Surgical debridement is essential for management, with outcomes improved by early intervention. Recent descriptions of strategic incisions to access deep tissues without compromising salvageable skin have led to the development of skin-sparing approaches. This strategy offers comparable outcomes in terms of length of stay and mortality, but with vastly improved wound and reconstruction outcomes when compared to traditional, more aggressive debridement methods.<sup>[18]</sup> Optimal patient positioning during debridement is crucial for effective access and visualization. For most FG cases, lithotomy positioning provides wide exposure of the perineum. Strategic incisions are essential; one recommended approach is a long unilateral incision, approximately 2 cm medial to the inguinal crease.<sup>[19]</sup> Following initial debridement, various reconstructive strategies can be employed especially in cases in which skin-sparing debridement was not performed. In cases with significant tissue loss, loco-regional flaps, such as fasciocutaneous or myocutaneous flaps, become necessary, providing robust blood supply for optimal tissue coverage. Skin grafting serves as another option when flaps are not adequate or feasible.<sup>[20]</sup>

High-quality wound care is critical to promote tissue salvage and minimize the risk of disease progression. In the early phases of post-debridement care, antimicrobial solutions are commonly used.<sup>[19]</sup>

### Strengths and Limitations

**Patient Perspective:** During her recovery, the patient expressed emotional distress and was referred for psychiatric support. Her feedback emphasized the psychological burden of prolonged hospital stays.

**Limitations:** The patient was lost to follow-up. Negative pressure wound therapy could not be implemented due to resource limitations.

**Strength:** Prompt recognition and surgical intervention likely contributed to patient survival. The case.

### CONCLUSION

This case illustrates an unusual origin of Fournier's gangrene in a female patient and highlights the critical importance of early clinical diagnosis and emergency surgical intervention.

### Key takeaways include

- Always consider FG in diabetic patients with perineal infections.
- Bartholin's gland abscess can be a life-threatening condition in rare cases.
- Multidisciplinary care, including psychological support, is essential.

### Strengths and Limitations

This case demonstrates the value of clinical vigilance in atypical presentations and benefits from a collaborative management approach.

A limitation was the lack of follow-up beyond one month, which prevents long-term outcome assessment.

### Patient Perspective

The patient expressed relief after surgical intervention and reported satisfaction with the care provided. She mentioned concerns about body image and expressed gratitude for psychological support.

### Informed Consent

Written informed consent was obtained from the patient for both the intervention and the publication of this case report.

### Additional Information

The authors declare no conflicts of interest. No external funding was received. All authors contributed equally. The case was not presented at any conference. Ethical committee approval was not required in accordance with our institution's policy for single anonymized case reports with documented patient consent.

### Background

Fournier's gangrene is a rare, rapidly progressing soft tissue infection more frequently observed in males. In females, diagnosis is often delayed due to lower suspicion.

### Rationale

This case highlights a rare cause of FG in a female

patient and emphasizes the need to consider this diagnosis even when the origin is uncommon, such as Bartholin's gland abscess.

### Guidelines and Literature

Relevant literature and international standards of care were reviewed, including studies emphasizing early surgical intervention, broad-spectrum antibiotics, and multidisciplinary management of FG.

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