wjpmr, 2025, 11(10), 215-221

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH
www.wjpmr.com

SJIF Impact Factor: 6.842

Case Study
ISSN (O): 2455-3301
ISSN (P): 3051-2557

MANAGEMENT OF FOURNIER'S GANGRENE RESULTING FROM BARTHOLIN'S GLAND ABSCESS IN A DIABETIC FEMALE: A CASE REPORT

Amani Ghazalah*, Khaoula Lakhdar, Aziz Slaoui, Soukaina Mouiman, Amina Lakhdar, Aziz Baydada

Gynecology-Obstetrics and Endoscopy Department, Maternity Souissi, University Hospital Center IBN SINA, University Mohammed V, Rabat, Morocco.

***Corresponding Author: Dr. Amani Ghazalah**
Gynecology-Obstetrics and Endoscopy Department, Maternity Souissi, University Hospital Center IBN SINA, University Mohammed V, Rabat, Morocco. **DOI:** https://doi.org/10.5281/zenodo.17222844

Article Received on 24/07/2025 **Article Revised on 13/08/2025** **Article Accepted on 02//09/2025**

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 female She had a history of poorly controlled type 2 diabetes mellitus, with no other past medical, surgical, or family history, and no known allergies. 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.

Highlights

- Rare presentation of Fournier's gangrene in a diabetic female patient.
- Unusual etiology originating from a Bartholin's gland abscess.
- Emergency surgical intervention without preoperative imaging.
- Multidisciplinary approach was critical to management.
- Psychological impact observed during hospitalization.

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.

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.
"This work has been reported in line with the SCARE 2025 criteria"

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/mm³), 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 realizer 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 a6-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.

Complications and Adverse Events
No intraoperative or postoperative complications observed.

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.

Figure 1: Evolution post-opératoire après plusieurs pansements.

Figure 2: Image de cicatrisation complète.

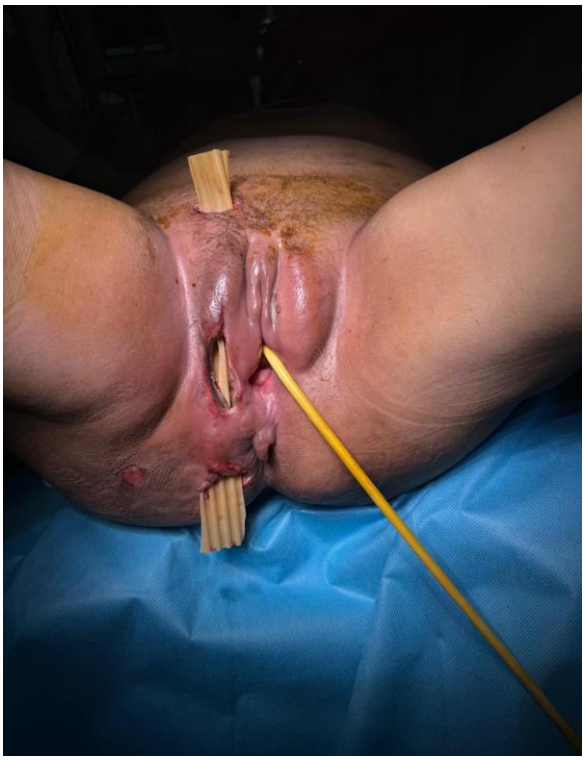

Figure 3: Vue macroscopique des tissus nécrotiques.

DISCUSSION

Summary of Results
This case report presents a rare occurrence of Fournier's

gangrene (FG) in a diabetic female, originating from a Bartholin's gland abscess. The patient presented with perineal pain and fever, which rapidly progressed to necrotizing fasciitis. Immediate surgical debridement without preoperative imaging, combined with broad-spectrum antibiotics, insulin therapy, and multidisciplinary care, resulted in short-term favorable outcomes with progressive wound healing. Psychological support was provided due to depressive symptoms during hospitalization. The patient was lost to follow-up after the first outpatient visit, preventing long-term outcome assessment.

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.[4]

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.[5] Diabetes mellitus is an established risk factor that weakens immune responses and accelerates the development of infections.[1,2] In females, the infection often originates from anorectal or urogenital sources, including Bartholin's gland abscesses.[6] 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.[7] Most studies indicate a mortality rate of 20% to 40% with some studies showing a fatality rate of as high as 88%.[1]

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 been associated with higher mortality rates.[8] Timely recognition and prompt surgical debridement are essential, since delays negatively impact the outcome.[5,6] lmaging techniques can be useful to confirm the diagnosis in doubtful cases, and may help in assessing the cause and determining the extent of gangrene.[9] 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.[10]

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.[11] 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.[12] Negative Pressure Wound Therapy (NPWT) involves breathing 100% oxygen in a pressurized chamber, increasing plasma oxygen levels.[13] 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.[14]

Urgent resuscitation with fluids like blood transfusion is necessary in patients who are seriously ill. The treatment include multiple antimicrobial agents targeted at three groups of organisms. Penicillin is recommended for

streptococci , metronidazole for anaerobic organisms and third generation cephalosporin with or whitout gentamicin for coliform organisms and staphylococci.[15] 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.[16]

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.[17] 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[18] 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.[19] 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.[20]

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.[19]

Future Implications

This case highlights the importance of maintaining a high index of suspicion when diabetic women present with perineal infections, even when the source is uncommon, such as a Bartholin's gland abscess. Future clinical practice should:

- Promote early multidisciplinary involvement, integrating gynecology, surgery, infectious disease, endocrinology, and psychiatry.
- Encourage the use of imaging when possible, without delaying urgent surgical intervention.
- Consider advanced wound care modalities, such as negative-pressure wound therapy, when available.
- Develop guidelines for the management of rare female FG cases to standardize care and improve survival rates.

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: 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.

Ethical approval
Ethics approval has been obtained to proceed with the current study.

Funding
There are no funding sources to be declared.

Author contribution
Amani GHAZALAH: Study concept and design, data collection, data analysis and interpretation, writing the paper.

Khaoula lakhdar: Study concept and design, data collection, data analysis and interpretation, writing the paper.

Fatima Zahra BELOUEZA: Study design, data collection, data interpretation, writing the paper.

Soukaina MOUIMAN: Study concept and design, data collection, data analysis and interpretation, writing the paper.

Amina LAKHDAR: Study concept and design, data collection, data analysis and interpretation, writing the paper.

Aziz BAYDADA: Study concept, data collection, data analysis, writing the paper.

Guarantor
The corresponding author is the guarantor of submission.

Research registration number
Not applicable.

Consent
Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Availability of data and materials
Supporting material is available if further analysis is needed.

Declaration of competing interest
The authors declare that they have no competing interests.

ACKNOWLEDGEMENTS
None.

REFERENCES
1. Kerwan A, Al-Jabir A, Mathew G, Sohrabi C, Rashid R, Franchi T, Nicola M, Agha M, Agha RA.
2. Revised Surgical CAse REport (SCARE) guideline: An update for the age of Artificial Intelligence. Premier Journal of Science, 2025; 10: 100079.
3. Eke, N. Fournier's gangrene: a review of 1726 cases. British Journal of Surgery, 2000; 87(6): 718-728. DOI:
4. Sorensen, M. D., et al. Fournier's gangrene: population based epidemiology and outcomes. Journal of Urology, 2009; 181(5): 2120-2126. DOI:
5. Yilmazlar, T., et al. Necrotizing fasciitis: clinical presentation and outcomes in 105 patients. Ulusal Travma ve Acil Cerrahi Dergisi, 2017; 23(5): 371-376.
6. Vick, R., & Carson, C. C. Fournier's disease. Urologic Clinics of North America, 1999; 26(4): 841-849. DOI:
7. Yaghan, R. J., et al. Fournier's gangrene: changing face of the disease. Diseases of the Colon & Rectum, 2000; 43(9): 1300-1308. DOI:
8. Benjelloun, E. B., et al. Fournier's gangrene: our experience with 50 patients and analysis of factors affecting mortality. World Journal of Emergency Surgery, 2013; 8(1): 13. DOI:
9. Chennamsetty, A., et al. Contemporary diagnosis and management of Fournier's gangrene. Therapeutic Advances in Urology, 2015; 7(4): 203-215. DOI:
10. Bersoff-Matcha SJ, Chamberlain C, Cao C, Kortepeter C, Chong WH. Fournier Gangrene Associated With Sodium-Glucose Cotransporter-2 Inhibitors: A Review of Spontaneous Postmarketing Cases. Ann Intern Med., Jun. 4, 2019; 170(11): 764-769. doi: 10.7326/M19-0085. Epub 2019 May 7. PMID: 31060053.
11. Hagedorn JC, Wessells H. A contemporary update on Fournier's gangrene. Nat Rev Urol. Apr. 2017; 14(4): 205-214. doi: 10.1038/nrurol.2016.243. Epub 2016 Dec 13. PMID: 27958393.
12. Norton KS, Johnson LW, Perry T, Perry KH, Sehon JK, Zibari GB. Management of Fournier's gangrene: an eleven year retrospective analysis of early recognition, diagnosis, and treatment. Am Surg, Aug. 2002; 68(8): 709-13. PMID: 12206606.
13. Hollabaugh RS Jr, Dmochowski RR, Hickerson WL, Cox CE. Fournier's gangrene: therapeutic impact of hyperbaric oxygen. Plast Reconstr Surg., Jan. 1998; 101(1): 94-100. doi: 10.1097/00006534-199801000-00016. PMID: 9427921.
14. Kopechek, K.J., Patel, H.V. & Koch, G.E. Modern Management of Fournier's Gangrene. Curr Urol Rep., 2025; 26: 47.
15. Leslie SW, Rad J, Foreman J. Fournier gangrene. StatPearls. Treasure Island (FL): StatPearls publishing copyright © 2025. StatPearls Publishing LLC., 2025.
16. Zhang, N., Yu, X., Zhang, K. et al. A retrospective case series of Fournier's gangrene: necrotizing fasciitis in perineum and perianal region. BMC Surg, 2020; 20: 259.
17. Martinez M, Peponis T, Hage A, Yeh DD, Kaafarani HMA, Fagenholz PJ, et al. The role of computed tomography in the diagnosis of necrotizing soft

tissue infections. World J Surg., 2018; 42(1): 82–7.
19. George ME, Rueth NM, Skarda DE, Chipman JG, Quickel RR, Beilman GJ. Hyperbaric oxygen does not improve outcome in patients with necrotizing soft tissue infection. Surg Infect (Larchmt), 2009; 10(1): 21–8.
20. Huang C, Zhong Y, Yue C, He B, Li Y, Li J. The effect of hyperbaric oxygen therapy on the clinical outcomes of necrotizing soft tissue infections: a systematic review and meta-analysis. World J Emerg Surg, 2023; 18(1): 23.
21. Koch GE, Launer BM, Li AN, Johnsen NV. A Disease-Specific antibiogram to evaluate empiric coverage patterns in Fournier's gangrene. Urology, 2023; 178: 162–6.
22. Perry TL, Kranker LM, Mobley EE, Curry EE, Johnson RM. Outcomes in Fournier's gangrene using skin and soft tissue sparing flap preservation surgery for wound closure: an alternative approach to wide radical debridement. Wounds, 2018; 30(10): 290–9.
23. Koch GE, Amighi A, Skokan AJ, Hagedorn JC. Skin-Sparing debridement in Fournier's gangrene. J Urol., 2024; 212(6): 912–4.
24. Susini P, Marcaccini G, Efica J, Giuffrè MT, Mazzotta R, Caneschi C, et al. Fournier's gangrene surgical reconstruction: A systematic review. J Clin Med., 2024; 13: 14.
25. Khalid A, Devakumar S, Huespe I, Kashyap R, Chisti I. A Comprehensive Literature Review of Fournier's Gangrene in Females. Cureus, May 12, 2023; 15(5): e38953. doi: 10.7759/cureus.38953. PMID: 37197302; PMCID: PMC10184784.
26. Morris MW Jr, Aru M, Gaugler A, Morris RF, Vanderlan WB. Necrotizing fasciitis of the perineum associated with a bartholin abscess. Surg Infect (Larchmt), Apr. 2014; 15(2): 131-3. doi: 10.1089/sur.2012.153. Epub 2013 Oct 11. PMID: 24116742.