

Fournier Perineal and Scrotum Gangrene: Early Diagnosis and Prompt Urgently Surgical Debridement, A Case Report

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Received: July 18, 2019; **Published:** September 26, 2019

Abstract

Introduction: Fournier's gangrene is one of the few surgical emergencies that requires immediate, rapid, and early intervention to reduce mortality and saving the life's patient. Overall mortality rates ranges on 20.8%. Aggressive surgical debridement and medical treatment are mandatory.

Case Presentation: A 45 year old male was referred from a penitentiary to our hospital, presenting uncontrolled diabetes, fever, tachycardia, high glucose levels and leucocytosis. Physical examination performed by the surgeon revealed, severe inflammation of perineal and scrotum region, erythema and oedema as well, severe pain also was complained by the patient. Patient was delivered immediately to the operating room, extensive surgical debridement on a U shaped scrotum incision was done, extended to left and right inguinal areas, purulent material drainage was done. Cover dressings impregnated with peroxide hydrogen were applied to the surgical wound. Medical follow up with aggressive IV fluid crystalloid infusion, fast insulin scheme, aggressive broad spectrum antibiotic therapy and saline and peroxide hydrogen infusions applied for wound care was applied until healthy granulation on opened surgical wound was achieved. Opened perineal and scrotum wound was closed by planes on an end to end flip borders. Skin grafts or faecal diversion was no necessary. Patient was discharged from hospital after 3 weeks, with total health recovery. Patient was unable to follow -up due to penitentiary restrictions as the patient was an internship mate.

Discussion: Fournier's gangrene is a fatal disease, mortality rates have been reported on 20.8%. Perineal, scrotum and perianal fasciitis may progress in mortal result if prompt surgical intervention is not performed earlier. Early diagnosis was reported to be associated with better outcomes in FG. A study including 379 patients identified from a nationwide database has suggested that early surgical treatment within two days after admission reduces mortality of FG. Also, the interval time between the onset of symptoms and initial debridement has been reported to be a major predictor of mortality. The key points of management to overall good outcomes on patient recovery were: a) early recognition and diagnosis of FG, b) immediate and aggressive surgical debridement, c) antibiotic broad spectrum therapy with imipenem and clindamycin for twelve days until healthy granulation tissue was evident, d) glycaemic level controls with insulin therapy, d) local consecutive opened wound irrigation with peroxide hydrogen and normal saline solution therapy.

Conclusion: The gold standard for better health outcomes on patients presenting Fournier's gangrene are: Early diagnosis, prompt and urgent surgical extensive debridement, opened wound permanence until healthy tissue granulation is achieved, and broad spectrum antibiotic therapy.

Keywords: *Fournier's Gangrene; Extensive Urgent Surgical Debridement; Necrotizing Fasciitis; Early Diagnosis*

Abbreviations

FG: Fournier's Gangrene

Introduction

Necrotizing fasciitis is a rare fatal, life-threatening disease that requires urgent, rapid and early surgical intervention to minimize or reduce mortality rates on patients with coexisting medical conditions. Diabetes has been reported in literature as one of the most frequent associated conditions, to trigger perineal fascial microorganisms spread [1].

Although a rare health condition, Fournier gangrene can result in significant morbidity and unnecessary mortality following delay in diagnosis and management [2].

Fournier's gangrene (FG) is a severe subcutaneous infection that begins adjacent to portal of entry, which may be of rectal, urethral or cutaneous. Localized cellulitis at site of entry progresses to a diffuse inflammatory reaction involving deep fascial planes. The rate of fascial necrosis has been documented to be as much as 2 - 3 cm/hr [3].

Overall mortality rate range on 20.8% [4].

Case Presentation

A 45 year old male was brought from a prison, to our public community hospital, presenting, fever, diabetes, inflammation areas on scrotum, inner groins a perineum, severe pain was also referred by the patient.

Medical interrogatory revealed, history of poor treated diabetes.

Patient was admitted on an isolated hospital room, to the general surgery service, stayed for 24 hours, he was referred from several surgeon shifts without any surgical intervention, due to administrative deficiencies.

On clinical examination, perineum and scrotum showed characteristic areas of dark skin, erythema and oedema, inflammation, and pain.

Patient was febrile 38°C and complained severe perineal pain. Blood pressure was 90/80 mmHg, heart rate was 119 beats/min, and respiratory rate was 23 breaths/min with an oxygen saturation of 100% on room air.

Abnormal findings showed on laboratory test, glucose level was higher on 400 mg/dl, leucocytosis 18,000/mm³ and neutrophilia. Clinical diagnosis of Fournier's gangrene was made on medical history, laboratory and perineum physical examination findings.

Urgent decision making was performed to the operating room, for extensive surgical debridement, with spinal anaesthesia, lithotomy position and a U shaped skin incision was performed below scrotum testes and the external aponeurosis in the right and left inguinal area extended down posteriorly to the perineal area were exposed.

After skin incision was performed, immediate purulent brown material drainage come out, fetid odour was characteristic, debridement of necrotizing skin was performed.

During surgical procedure after draining approximately 80 ml of purulent material and finishing debridement on devitalized tissue, local irrigation with povidone iodine and peroxide hydrogen solution was extensively applied (Figure 1). Haemostasis was assured with monopolar coagulation.

The exposed denudated area was covered with sterile peroxide hydrogen impregnated compresses. Aggressive IV therapy and antibiotic regimen with Imipenem and Clindamycin regimen was started, crystalloid solution infusions and insulin therapy was also installed.



Figure 1: Large U shaped perineal and low scrotum incision was performed, extended upper and lateral, to left and right thighs.

No microorganism cultures were available to perform at our facility.

During 2 weeks, local wound irrigation with peroxide hydrogen and saline solution was performed twice on a daily basis. Antibiotic treatment lasted for 12 days (Figure 2).



Figure 2: During 2 weeks, local wound irrigation with peroxide hydrogen and saline solution was performed twice on a daily basis. Antibiotic treatment lasted for 12 days.

Full recovery of perineal clean tissue was observed, healthy granulation tissue was achieved on day 14, afebrile, normal vital signs and laboratory tests were observed (Figure 3).

Opened perineal and scrotum wound was closure by planes, subcutaneous cellular tissue with polyglycolic acid 3-0, and on an end to end tissue and skin borders basis. Skin was closed with nylon 3-0 simple separated sutures. The patient was discharged after 3 weeks with total health recovery. Patient was unable to follow -up due to penitentiary restrictions as the patient was an internship mate.



Figure 3: Full recovery of perineal clean tissue was observed, healthy granulation tissue was achieved on day 14, afebrile, normal vital signs and laboratory tests were observed.

Discussion

Fournier's gangrene is a fatal disease, mortality rates have been reported on 20.8% [1].

Perineal, scrotum and perianal fasciitis may progress in mortal result if prompt surgical intervention is not performed earlier [3].

Early diagnosis was reported to be associated with better outcomes in FG [4]. A study including 379 patients identified from a nationwide database has suggested that early surgical treatment within two days after admission reduces mortality of FG [5].

Also, the interval time between the onset of symptoms and initial debridement has been reported to be a major predictor of mortality [6].

Fournier's gangrene is a severe subcutaneous infection that begins adjacent to the portal of entry, which may be urethral, rectal, or cutaneous. Localized cellulitis at the site of entry progresses to a diffuse inflammatory reaction involving deep fascial planes. The rate of fascial necrosis has been documented to be as much as 2 - 3 cm/hr [1].

This progression of tissue necrosis results from an obliterated endarteritis caused by the spread of microorganisms along perineal fascial planes. The subcutaneous infection with oedema and inflammation in an enclosed space impairs blood supply. Cutaneous and subcutaneous vascular thrombosis occurs, allowing normal flora to enter previously sterile sites via perifascial dissection. Cutaneous and subcutaneous vascular thrombosis is the histologic hallmark of necrotizing fasciitis.

In our patient the clinical manifestations that he presented, fever, swelling, erythema, pain oedema of the scrotum and perineal region, and hyperdynamic circulatory status, associated with a medical history of uncontrolled diabetes, marked the keystone for clinical clue diagnosis of Fournier's gangrene.

Despite our hospital is a communitarian public facility, with very limited financial resources, to perform microorganism cultures, to find etiological agent, and CT scan or ultrasound work-up to complete diagnosis, clinical diagnosis is still one of the most relevant tools to treat properly these patient, performing urgent and immediate surgical debridement, abscess drainage of subcutaneous perineal region and necrotizing and infected tissue debridement.

Large U shaped perineal and low scrotum incision was performed, extended upper and lateral, to left and right thighs (Figure 4). Extensive tissue incision assured and facilitate proper purulent drainage and minimize microorganism colonization on subcutaneous and deep perineal fasciae (Figure 4).



Figure 4: Extended aggressive debridement on perineal and scrotum area. Observe subcutaneous tissue without purulent or necrotic material.

The onset of surgical intervention was after 24 hours on hospital admission, no data on day time of onset of symptoms was available to be collected, due to particular hermetic characteristics of the patient coming from a penitentiary.

Regardless these variables, the key points to overall good outcome on patient recovery were: a) early recognition and diagnosis of FG, b) immediate and aggressive surgical debridement, c) antibiotic broad spectrum therapy with imipenem and clindamycin for twelve days until healthy granulation tissue was evident, d) glycaemic level controls with insulin therapy, e) local consecutive opened wound irrigation with peroxide hydrogen and normal saline solution therapy.

Conclusion

The patient present on these case is a male on the middle age, with high risk factors, for development of Fournier's gangrene, he suffered from uncontrolled diabetes mellitus, confinement on a prison and poor hygiene conditions related.

Early recognition of potential perineal gangrene and aggressive surgical debridement and medical treatment was administered the patient evolution and outcome was satisfactory without need of skin grafts or faecal diversion and good prognosis for life and function.

The gold standard for better health outcomes on patients presenting Fournier's gangrene are: Early diagnosis, prompt and urgent surgical extensive debridement, opened wound permanence until healthy tissue granulation is achieved, and broad spectrum antibiotic therapy.

Bibliography

1. Chen Y., *et al.* "Successful treatment following early recognition of a case of Fournier's scrotal gangrene after a perianal abscess debridement: a case report". *Journal of Medical Case Reports* 12.1 (2018): 193.
2. Üreyen O., *et al.* "Usefulness of FGSI and IFGSI scoring systems for predicting mortality in patients with Fournier's gangrene: a multicentre study". *Turkish Journal of Trauma and Emergency Surgery* 23.5 (2017): 389-394.

3. Eke N., *et al.* "Fournier's gangrene: a review of 1,726 cases". *British Journal of Surgery* 87.7 (2000): 718-728.
4. Aridogan IA., *et al.* "Epidemiological characteristics of Fournier's gangrene: a report of 71 patients". *Urologia Internationalis* 89.4 (2012): 457-461.
5. Sugihara T., *et al.* "Impact of surgical intervention timing on the case fatality rate for Fournier's gangrene: an analysis of 379 cases". *BJU International* 110.11 (2012): E1096-E1100.
6. Ahmadnia H., *et al.* "New prognostic factors in Fournier's gangrene: a 10-year experience". *Urology Today* 2.4 (2009): 1944-5784.

Volume 6 Issue 10 October 2019

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