

Fournier's Gangrene - An experience in POF Hospital, Wah Cantt

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Abstract

Objective: To share our experience of treating patients with Fournier's Gangrene and their outcomes at POF Hospital, Wah Cantt.

Methods: A descriptive study was conducted at the Urology Department, POF Hospital, Wah Cantt from October 2006 to March 2007. A total of 22 patients, all men with ages ranging from 30-75 years, were included in the study. The diagnosis was established on the basis of history and clinical examination. The gangrenous patches with crepitus due to subcutaneous collection of seropurulent fluid was a diagnostic sign.

Results: A total of 22 patients were included in the study. All patients were men of ages ranging from 30 to 75 years. Of the 22 patients, 10 were diabetic, 02 had history of CVA and 10 had no co-morbidities. In 10 patients, genitals and anterior abdominal wall was involved whereas 04 patients had genital and perineal involvement. In 05 patients only genitals were involved whereas 03 patients presented with scrotal infection. All patients received broad spectrum antibiotics and underwent regular debridement. Secondary suturing was done in 13 patients, 07 patients needed skin grafting whereas orchidectomy was done in 02 patients.

Conclusion: Fournier's gangrene is an uncommon but life threatening condition with high associated mortality and morbidity. Early diagnosis and treatment decrease the morbidity and mortality of this life threatening condition (JPMA 59:161; 2009).

Introduction

One of the most challenging situations in urology is the patient admitted with Fournier's Gangrene. In 1883 French venereologist Jean Alfred Fournier described a series in which five previously healthy young men suffered from rapidly progressive gangrene of penis and scrotum without any apparent cause.¹ Originally the term Fournier gangrene was used to describe the idiopathic gangrene of genitalia; however it has also been used to describe most soft tissue necrotizing infections of perineum. Only 600 cases of Fournier's gangrene were reported in the world literature in the ten years since 1996, with most patients in their 60s or 70s with other concurrent illnesses.² A similar infection in women has been occasionally described.³

In majority of the cases Fournier's gangrene is a mixed infection caused by both aerobic and anaerobic bacteria.⁴ The infective process leads to thrombosis of subcutaneous blood vessels, resulting in gangrene of the overlying skin. It is a urological emergency requiring intravenous antibiotics and debridement of necrotic tissue. Despite such measures, the overall mortality rate is 40%, but 78% if sepsis is already present at the time of initial hospital admission.⁵ Men with alcoholism, diabetes mellitus, leukaemia, morbid obesity, immune system disorders are at increased risk for developing Fournier's gangrene.⁶

Patients and Methods

The study was conducted in Urology Department,

POF Hospital, Wah Cantt from October 2006 to March 2007. POF Hospital is a tertiary care Hospital receiving referred cases from places like Havelian, Sanjwal, Taxila, Kamra and Attock.

Twenty two patients diagnosed as having Fournier's gangrene were included in this study. The diagnosis was established clinically on the basis of patients' history and clinical examination. The gangrenous patches with crepitus due to subcutaneous collection of seropurulent fluid was a diagnostic sign. All patients undergoing surgical excision of scrotal and/or perineal necrosis along with other involved areas were included. The general condition of the patients was noted with special emphasis on their vital signs including heart rate, respiratory rate, blood pressure and temperature, mental status of the patients and co-morbid conditions.

Before the operation all patients underwent aggressive fluid resuscitation and were treated with parenteral broad spectrum antibiotics — using the 3rd generation cephalosporin, aminoglycosides and metronidazole. Patients were also given total parenteral nutrition and underwent regular debridement and dressings.

Results

A total of 22 patients were included in the study. All patients were men of ages ranging from 30 to 75 years. The division of organ involvement is given in Table-1. Twelve patients had co-morbid conditions as mentioned in Table-2. Secondary suturing was done in 13 patients, 07 patients needed

Table-1: No of patients with different organ involvement. (n=22)

| Organs Involved | No of Patients |
|--------------------------------------|----------------|
| Genitals and anterior abdominal wall | 10 |
| Genitals and perineum | 04 |
| Genitals only | 05 |
| Scrotum only | 03 |

Table 2: Incidence of Co-morbid conditions. (n=22)

| Co-Morbid Conditions | No of Patients |
|---------------------------|----------------|
| Diabetes Mellitus | 10 |
| Cerebrovascular accidents | 02 |
| No co-morbid state | 10 |

skin grafting whereas orchidectomy was done in 02 patients. We had only one death in these 22 cases and that was due to septicaemia with uncontrolled diabetes mellitus.

Discussion

Fournier's gangrene is defined as a synergistic, polymicrobial, necrotizing fasciitis of the perineum, scrotum and penis characterized by obliterative endarteritis, and resulting in gangrene of the deep fascia, subcutaneous tissue and overlying skin.⁷ An identifiable source of infection is reported in more than 75% cases. In general, sepsis can arise from the colorectal region (13-50%), the urinary tract (17-87%),⁸ or less commonly, the local skin.⁹

Many patients have a co-morbid condition resulting in immunosuppression, such as diabetes mellitus, transplant or chemotherapy, alcoholism, HIV/AIDS, prolonged hospital stay, malignancy, malnutrition and intravenous drug abuse. A study by Morpurgo showed that up to 70% patients were diabetic¹⁰ as compared to our study where 45.5% patients were diabetic and proposed mechanism for this association is small vessel disease that predisposes to tissue ischaemia. In our study we had ten patients having diabetes as co morbid condition.

Although presentation is variable, patients almost always come with pain and swelling of the affected areas.¹⁰ In advanced cases the diagnosis is clinical. In cases presenting prior to the development of typical symptoms and signs, ultrasound can confirm the diagnosis by showing gas within the scrotal wall and by excluding other causes of acute scrotum.¹¹ CT and MRI can be useful in diagnosis and in demonstrating the extent of disease and presence of abscess prior to EUA and debridement.^{12,13} The gangrenous patches or severe redness of involved skin is also helpful in diagnosis.

The four main principles of management¹⁴ of Fournier's gangrene are resuscitation, antibiotics, surgical debridement and, when necessary and reconstruction. Resuscitation and correction of electrolyte disturbances should be followed by empiric broad-spectrum antibiotics that cover Gram-positive,

Gram-negative and anaerobic bacteria.¹⁵ Urgent surgical debridement remains the cornerstone of treatment. The patient and the surgical team must be prepared for potentially major surgery. If adequate preoperative imaging has not been obtained prior to initial debridement, careful EUA is necessary to determine the extent of disease and to identify any underlying colorectal or urogenital pathology. In our study we found that early debridement helped in early wound healing.

A Fournier's gangrene severity index score based on clinical and laboratory parameters has been devised by Laor et al. to predict prognosis, although it has little application to the management of individual patients.¹⁶ With this index, any deviation from homeostasis is associated with a worse prognosis.

Many surgeons advocate the use of hyperbaric oxygen therapy which can inhibit and kill anaerobes, reduce systemic toxicity, limit necrosis and enhance demarcation of gangrene.⁸ Although there is a strong rationale for its use, it remains controversial as some evidence suggests it might not improve morbidity or mortality.¹⁷

With a mortality rate of up to 38%, the primary objective in the management of this often rapidly progressive condition is to limit and eradicate sepsis.¹⁰ Once this is achieved and the patient is well enough, the focus shifts to reconstruction if necessary. A multidisciplinary approach, such as that involving urology, plastic surgery, anaesthetics, intensive care, transplant, diabetes and nutrition in our case, is crucial in obtaining a good overall outcome. In almost all the patients presenting to us with Fournier's gangrene, some lacking in the care of genital hygiene was seen. Lack of hygiene was either in the form of not caring for the cleanliness of genitalia or using some infected or used item for removing the hairs around the genitalia. Comparing our study with the study conducted by Alexander Shuliek et al¹⁸ we found a better outcome as they had 3 deaths out of 13 patients as compared to our study in which we had only one death and that also due to diabetes. Comparing our study with the study conducted by Laor E et al¹⁶ they had 30 patients in 15 years while we received 22 patients in one year. Our survival rate was also better as they had 4 deaths out of 30 as compared to our study in which we had only one death.

Conclusion

Fournier's gangrene is a urologic emergency associated with high morbidity and mortality. The principles of management are immediate resuscitation, early broad-spectrum antibiotics, urgent surgical debridement (usually followed by serial EUAs), and when necessary, reconstruction once sepsis has been eradicated and fitness permits. Early diagnosis and prompt treatment is the mainstay and helps in decreasing the morbidity and mortality.

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