

FOURNIER'S GANGRENE: REVIEW OF 57 CASES IN TERTIARY INSTITUTIONPradeep Soni¹, Anil Haripriya², Santosh Uddesh³**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: INTRODUCTION: Fournier's gangrene is a rapidly spreading polymicrobial necrotising fasciitis affecting the perineum, perianal and genital regions but remarkably sparing the testicle, bladder and rectum due to their separate blood supply which is directly from the aorta. The purpose of this study is to share our experience in the management of Fournier's gangrene. **MATERIAL & METHODS:** We had retrospectively analysed the medical records of 57 patients admitted with Fournier's gangrene between January 2012 to January 2015 in Chhattisgarh institute of medical sciences. Data extracted from these includes patient's age, sex, hospital stay, Premorbid diseases, morbidity, mortality, laboratory investigations and treatment carried out. **RESULTS:** 57 patients were admitted and managed for Fournier's gangrene during the study period. All the patients were male and mean age was 41 years (05-76). 6 patients died, mortality was 10.52%. The shortest hospital stay was 5 days and longest was 44 days. Polymicrobial synergistic infection was common in most of the cases (77.19%). **CONCLUSION:** Fournier's gangrene is a life threatening disease and world-wide in its distribution. It is a rapidly progressive, fulminant polymicrobial synergistic infection of the perineum and genitals, now changing its pattern. Extensive debridement and broad spectrum intravenous antibiotics remain mainstay of treatment.

KEYWORDS: Fournier's gangrene, Necrotizing fasciitis, Synergistic infection.

INTRODUCTION: Fournier's gangrene is the sudden onset of fulminant gangrene of the external genitalia and perineum. It was first reported by Baurienne in 1764,⁽¹⁾ and then described by Jean Alfred Fournier a French dermatologist and venereologist, in 1883, in a series of five cases with no apparent cause.⁽²⁾

Fournier's gangrene is a rapidly spreading necrotising gangrene affecting the perineum, perianal and genital regions but remarkably sparing the testicle, bladder and rectum due to their separate blood supply. It is a polymicrobial synergistic infection caused by the aerobic, anaerobic, gram positive and negative bacteria, yeast and sometimes mycobacteria. It can progress to a fulminant soft tissue infection rapidly spreading along the facial planes, causing necrosis of the skin, subcutaneous tissue and fascia and subsequently septicaemia. Rising incidence is due to increasing elderly population, prevalence of diabetes mellitus, immunosuppressive therapy and multi drug resistant pathogens. Although, it is thought to be uncommon, but usually presents as a surgical emergency, with high morbidity and prolonged hospital stay with a huge financial burden on the patient and relatives. However the mortality rate is decreasing now due to newer antibiotics and public awareness towards early treatment.

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Fournier's gangrene commonly affects men but does not spare women who constitutes about 10% and also affects children. It occurs commonly among those in their 5th and 6th decade. Predisposing factors include diabetes mellitus, local trauma, urine leakage, perirectal or perineal surgery, extension of per urethral, anal infection anorectal abscess, genitourinary infection, alcoholism, immunosuppressive and renal or hepatic diseases.⁽³⁾ Low socioeconomic level has also been reported to be a predisposing factor.⁽⁴⁾

The aim of our study is to report our experience with the management of Fournier's gangrene.

MATERIALS & METHODS: All patients who were diagnosed and managed for Fournier's gangrene in Chhattisgarh institute of medical sciences from January 2012 to January 2015 were included in this study. Their medical records were retrospectively studied for the age, sex, predisposing factors, duration of hospital stay and outcome of treatment. The diagnosis was made from history and physical examination. The data collected was analysed.

Descriptive statistics was used for data analysis. Mean summation, percentage and frequency distribution were used where applicable.

RESULTS: A total of 57 patients were admitted and managed for Fournier's gangrene during the study period. All the patients were male and mean age was 41 years range 5-76 year. (Table 1). All patients presented late to the hospital. The earliest presented two days after commencement of the symptoms. Most of them had fever, pain and discharge of sero-purulent material from the site. They also had swelling, redness, tenderness and black dermal necrosis of the skin. Diagnosis was made on clinical ground. All were treated with broad spectrum intravenous antibiotics initially than according to their culture sensitivity reports. They all had crystalloid infusion, aggressive repetitive wound debridement, analgesics, antibiotics, and tetanus prophylaxis. Five of patients had blood transfused. Serial debridement under antibiotics coverage was done in all cases. In majority of cases (35 cases) secondary suturing was done. Skin grafting had done in four patients. Out of 57 patients, 6 patients died (10.52%) mortality, 51(89.47%) patients survived. The shortest hospital stay was 5 days and longest was 44 days. Predisposing conditions were identified in only 19 patients (33.33%). 15 were diabetic, one HIV positive, 3Hbs Ag positive. Majority of them were of low socioeconomic status.

Demographic Variables	No. of Cases	Percentage
(A) Gender		
Male	57	100%
Female	-	-
Total	57	
(B) Age group		
0-20year	02	3.5%
21-30 year	10	17.54%
31-40 year	11	19.29%

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41-50 year	16	28.07%
51-60 year	8	14.03%
61-70 year	6	10.52%
71-80 year	4	7.01%
Total	57	

Table 1: Demographic characteristic of cases

Duration	No. of Cases	Percentage
5-10 days	9	15.70%
11-20 days	15	26.31%
21-30 days	16	28.07%
31-40 days	12	21.05%
41-50 days	5	08.77%

Table 2: Distribution of cases according to duration of hospital stay

Result	No. of Cases	Percentage
Cured	51	89.47%
Death	6	10.53%

Table 3: Outcome of treatment

MICROBIOLOGY: A variety of organism had been cultured from necrotic tissue or pus during surgery or at the time of admission. Only one organism was identified in 13 patients (22.80%), while culture results revealed polymicrobial infection in 44 patients (77.19%) (Table-4) The most commonly isolated organisms from wound were Escherichia coli in 32 patients (56.14%), Staphylococcus aureus 26 (45.61%), bacteroides fragilis in 18 patients (31.57%), klebsiella in 16 patients (28.07%), Proteus mirabilis in 16 patients (28.07%), Enterococcus spp in 14 patients (24.56%) and Pseudomonas in 8 (14.03%) (Table-5).

Organism	No. of Cases	Percentage
(A) Single	13	22.80%
(B) Polymicrobial	44	77.19%

Table 4: Distribution of cases according to Organism cultured

Micro Organism	No. of Cases	Percentage
E. coli	32	56.14%
Staphylococcus aureus	26	45.61%
Bacteroides fragilis	18	31.57%
Klebsiella	16	28.07%

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Proteus mirabilis	16	28.07%
Enterococcus spp.	14	24.56%
Pseudomonas aeruginosa	8	14.03%

Table 5: Bacteriology according to Culture Report

DISCUSSION: Fournier's gangrene is truly a life threatening disease and surgical emergency too. Any genders can be affected and the mortality is high. Though, disease is commoner in older age group, but no age is exempted.^[5,6] In our study, oldest patient was a 76 year old while the youngest was 5 year. Majority of the cases belong to the age group 41-50 years. The age distribution is in keeping with the report from other studies.

Various organisms both aerobes and anaerobes have been identified as agents that acts synergistically in causing the disease. Meleny, in his article described it in relation to streptococcus infection,^[7] while Cullen associated it with bacteria acting in synergism.^[8] Polymicrobial organisms were identified in most of the reports^[9,10,11,12] In our study single organism was identified in 13cases (22.80%), poly microbial organisms were identified in 44cases (77.19%). The most common organism was Escherichia coli in 32cases (56.14%) staphylococcus aureus, Klebsiella pneumonia, Pseudomonas aeruginosa, Proteus mirabilis and streptococcus. This is similar with results of other reports.^[13,14] We also believe that synergism of these different micro-organism might be responsible for the fulminant infection. Co-morbid conditions like hypertension Diabetes, Alcoholism and immunocompromised status, Chronic liver disease, uraemia usually carry higher rate of mortality. In spite of advancement in management, mortality rates are still high. In some series, it ranges from 14-45%.^[11,12,15] However, in this study mortality rate was (10.52%). Rapid and accurate diagnosis is a key component for successful treatment. Fluid, hemodynamic and nutritional support, use of appropriate broad-spectrum antibiotics, and prompt and repeated surgical intervention are the cornerstones of treatment.

CONCLUSION: Fournier's gangrene which is a rapidly progressive, fulminant polymicrobial synergistic infection of the perineum and genitals is now changing its pattern. Both genders can be affected and the mortality is still high (around10%). The clinical presentation in many patients in early stage may not be prominent. Thus rapid and accurate diagnosis is must for prompt treatment. Extensive surgical debridement and broad spectrum intravenous antibiotic remains the mainstay of treatment in order to reduce the morbidity and mortality.

REFERENCES:

1. Baurienne H. Su une plaie contuse qui s'est terminee par le sphacele de la scrotum. J Med Chir Pharm. 1764; 20: 251-6.
2. Fournier JA. Gangrene Foudroyante de la verge. Semaine Med. 1883; 3: 345-8.
3. Sorensen M.D., Krieger, J.N., Rivara, F.P., Broghammer, J. A., Klein, M.B., Mack, C. D., et al.: Fournier's Gangrene: population based epidemiology and outcomes. In: J Urol. 2009 May; 181(5): 2120-6. Medline.

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4. Medina Polo, J., Tejido Sanchez, Felip Santamaria, N., Blanco Alvarez, M., Leiv Galvis, O.: Fournier gangrene: evaluation of prognostic factors in 90patients. In ActasUrol Esp. 2008 Nov-Dec; 32(10): 1024-30.
5. Adams J R, Jr Mata JA ea al. Fournier's gangrene in children. Urology 1990May; 35(5): 439-441.
6. Silva-Vilasenor J A, Velazquez M et al. Fournier's gangrene in a new born. Bol Med Hosp Infant Mex 1990Jan; 47(1): 48-50.
7. Meleny F L. Haemolytic streptococcal gangrene. Arch surg 1924; 9(2): 317-364.
8. Cullen T S .Progressive enlarging ulcers of abdominal wall involving the skin and fat, following drainage of abdominal abscess apparently of appendical origin. Sur Gynecol Obstet, 1924, 38: 579-582.
9. I. Khan, "Experience in Management of Fournier's gangrene: A Review of 19 Cases," Gomal Journal of Medical Sciences,Jan-June 2009, Vol. 7, No. 1,pp. 65-67.
10. Efem SE. The features and eatiology of Fournier's gangrene. Postgrad Med J 1994, 70,568-571.
11. David P, Girvan MD et al. Fournier's gangrene Canadian J of sueg Dec 1996; 39(6): 448-449.
12. Shi-Guo L, Hong-Hwa C et al. Fournier's gangrene in Female patients. J Soc Colon Rectal Surgeon (Taiwan) 2008; 19: 57-62.
13. Wolach MD, Mac Dermott JP, et al. treatment and complications of Fournier's gangrene. Br J urol 1989 Sep; 64(3):310-314.
14. Fahal, AH, Hassan MA, Fournier's gangrene. In Khartoum, Sudan. Br J Urol May 1988; 61(5): 451-454.
15. Vick R. Fournier's gangrene. Urol Clin North Am Nov 1999; 26(4): 841-9.

AUTHORS:

1. Pradeep Soni
2. Anil Haripriya
3. Santosh Uddesh

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of General Surgery, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh.
2. Assistant Professor, Department of General Surgery, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh.
3. Associate Professor, Department of General Surgery, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Pradeep Soni,
Shivam Nursing Home,
Ashok Nagar,
Seepat Road,
Bilaspur-495001,
Chhattisgarh.
E-mail: dr.psoni1304@gmail.com

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