

EARLY DEBRIDEMENT BETTER PROGNOSIS A CLINICOPATHOLOGICAL STUDY OF FOURNIER'S GANGRENE AND ITS MANAGEMENT

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ABSTRACT: BACKGROUND: Fournier's Gangrene is a rare type of necrotizing fasciitis affecting commonly the male external genitalia, perineum or perianal region. It is potentially fatal and life threatening infection caused by a mixture of aerobic and anaerobic microorganisms. Most of the patients have an associated co-morbid condition that leads to the development of Fournier's gangrene. Early debridement with proper antibiotic coverage is the cornerstone for better prognosis. If treatment is delayed, the disease results in severe sepsis, shock, multi organ failure and death. **AIM:** To assess the predisposing factors, various clinical presentations, common causative organisms and culture sensitivity, histopathological findings and treatment of Fournier's gangrene. **STUDY DESIGN:** A prospective study conducted over a period from Dec. 2012 to Oct. 2014 in a tertiary care institute. **RESULTS:** In our study of 50 cases, all the patients were males. Incidence of Fournier's gangrene in general surgical admission is 0.69%. The mean age of presentation was 50.14 years with age range of 20 to 85 years and most of the patients were in the age group 36-45 years (38%). In 44 patients (88%) there was a history of associated co-morbid condition. 36 cases (72%) of diabetes mellitus, 34 cases (64%) poor personal hygiene, 31 cases (62%) low socioeconomic status, 28 cases (56%) chronic alcoholisms, 17 cases (34%) hypertension, 3 cases (6%) HIV infection and 1 case (2%) was of malignancy, while in 6 patients (12%) we could not identify any underlying co-morbid condition. Type 1 was the most common type of Fournier gangrene in which the E. Coli was the most common organism isolated (64%). Surgical debridement was done in all the cases after the initial fluid resuscitation and empirical broad spectrum antibiotic treatment. Mortality was low (4%) in our study because of early and aggressive management of disease. **CONCLUSION:** The treatment of infections such as Fournier's gangrene may induce dread and trepidation among surgeons. This reaction results from the belief that Fournier's gangrene require hours of arduous and unrewarding surgery followed by a prolonged downward course in the intensive care unit; and a slow, unavoidable death. However, this study and other recent reports point out that is not necessarily the case. To the contrary, if the diagnosis is made early and treatment instituted promptly, prognosis is good.

KEYWORDS: Fournier's gangrene, early debridement, Prognosis.

INTRODUCTION: Fournier's gangrene is defined as an acute, rapidly progressive and potential fatal, infective necrotizing fasciitis affecting the external genitalia, perineal or perianal region.^[1]

In 1764, Baurienne,^[2] originally described an idiopathic, rapidly progressive soft tissue necrotizing process that led to gangrene of male genitalia. However, the disease was named after Jean-Alferd Fournier,^[3] a Parisian venereologist, on the basis of transcript from an 1883 clinical lecture in which Fournier presented a case of perineal gangrene in an otherwise healthy young man. On the basis of bacteriology Fournier's gangrene is divided into two type-Type 1 and Type 2. In type 1, infection is mostly mixed infection from aerobic and anaerobic bacteria, including group A haemolytic streptococci, staphylococcus aureus, E.coli, clostridium and bacteriodes etc. In type 2

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,infection is caused by group A haemolytic streptococci possibly with a coinfection by S Aureus.^[4] This is more commonly seen in middle aged and elderly people.^[5,6] It is commonly associated with immunocompromised condition such as diabetes mellitus, chronic alcoholisms, poor personal hygiene, low socioeconomic status, malnutrition, malignancy, HIV infection , chronic renal and liver disease.^[7,8,9] Pathologically the disease is believed to be an obliterative end arterites caused by the spread of microorganism. Inflammation and oedema from infection results in impaired local blood supply, leading to vascular thrombosis in the cutaneous and subcutaneous tissues. Perifascial dissection with subsequent spread of bacteria and progression to gangrene of the overlying tissues with necrosis of the superficial and deep tissues with polymorphonuclear cell infiltrate.^[10] Diagnosis is primarily on clinical background, Lab test ,pus culture, radiological examination and histopathology, can aid in the diagnosis. Early and aggressive treatment is associated with reduced mortality rate and better outcome and if delayed have a negative impact on prognosis.^[11]

MATERIAL & METHODS: The study was conducted in the department of general surgery and pathology over a period from Dec. 2012 to Oct. 2014. Fifty cases of Fournier's gangrene were studied. All male patients of age more than 16 years will be included in this study.

OBSERVATIONS: The mean age of presentation was 50.14 years (Ranged from 20-85 years) with majority of the patients were in the age group of 36-45 years (38%). The scrotum was the most common site involved. In our study involvement of scrotum, and perianal, was 82%, & 18%, respectively. More than 85% of the patients have an initiating etiology (Boil 32%, urethral stricture 14%, trivial trauma 20%, perianal abscess 18% and indwelling catheter 4%) that lead to the development of Fournier's gangrene.

Patients usually presented with the triad of exquisite pain: all patients (100%); swelling (92%) and fever; (48%). The most common physical findings were tachycardia (72%) and skin erythema (64%). Average duration of presentation in most of the patients is 4-6 days (58%). Laboratory investigation findings on admission were 52% presented with hypotension and sepsis. Anemia was present in 54%. Leucocytosis was present in 96%. Hyperglycemia was present in 72%. High serum creatinine level present in 50%. Hypocalcaemia was present in 42%. Increased liver enzyme was present in 30% electrolyte imbalance was present in 66%, Hypoalbuminemia was present in (44%). Radiological examination may also be helpful for the diagnosis. Soft tissue gas on x-ray is a diagnostic clue and this was found in (32%). Ultrasonographic examination of external genitalia (Scrotum), perineum and perianal regions shows soft tissue edema in early stage and fluid collection or gas in subcutaneous tissue plane of scrotal wall. In later stage of disease is the sonographic hallmark unlike other condition that causes acute scrotal pain. In Fournier's gangrene the scrotal contents-the testis and epididymis are normal and no mass or other abnormal structure are present.

Histopathological Findings: Histopathological examination was done in all patients. The pathologic evaluation of the involve tissue may reveal the central area of ischemic necrosis surrounded by inflammatory granulation tissue, congestion and thrombosis of nutrient blood vessels. Overlying squamous epithelium is ulcerated, edematous and shows Polymorphonuclear cell infiltration in the all cases.

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Bacteriology: The bacteriology of Fournier's gangrene in this study was characterized by a wide variety of organisms, cultured from affected wounds. The most cultures were polymicrobial (type-1) found in 43 patients (86%) and Monomicrobial (type-2) was found in 7 patients (14%). In polymicrobial, the most common organisms isolated was E.coli found in 32 cases (64%) the other organisms isolated were klebsiella (56%) proteus (42%), pseudomonas (46%) acenetobacter (8%) ,staphylococcus aureus, (20%), streptococcal group A (14%). The most common anaerobic organism isolated were bacteroides found in (36%) cases while other anaerobes were Actinomyces (6%) and Peptostreptococcus (10%). In our study a mean of 3.09 cultures were isolated from each Polymicrobial.

Bacteria	No. of patients		Percentage (%)	
Aerobes	Gram +ve	Staph	10	20
		Strepto	7	14
		Enterococci	5	10
	Gram-ve	E. coli	32	64
		Klebsiella	28	56
		Proteus	21	42
		Pseudomonas	23	46
Anaerobes	Gram+ve	Peptostreptococcus	5	10
		Actinomyces	3	6
	Gram-ve	Bacteroides	18	36
Fungal	Candida albicans	1	2	

Table 1: The table showing organisms isolated in this study

Treatment: The treatment includes radical surgical debridement of the entire necrotic tissue done in all patients. Multiple surgical debridements is the rule rather than the exception, with an average of 3.12 debridement required per patients Regular wound dressing with hypertonic saline, broad-spectrum antibiotic, and general and aggressive supportive measures is done in all patients.

Prognosis: The prognosis of Fournier's gangrene depends on age co-morbidity and severity of septic syndrome. Prognosis is eventually fatal if surgically not treated. The hospital stay of patients in our study was comparable to other study. Mortality is less (4%) as comparison to other study. Table 2 and 3

DISCUSSION: Fournier's Gangrene is a relatively uncommon infection usually beginning with insidious onset of pruritus and discomfort of the external genitalia, perineal and perianal regions and characterized by widespread fascial necrosis with relative sparing of skin and underlying muscle leading to obliterative endarteritis resulting in gangrene.^[12,13] The disease is classified as type-1 when caused by a mixture of aerobic and anaerobic microorganisms and type-2 when caused by group A streptococcus alone or synergistic with a second organisms (s, aureus, coliforms, bacteroides spp). Type 1 is common in our study which is comparable to other study.^[14,15,16]

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The predisposing factors include urogenital, ano-rectal cutaneous retroperitoneal, iatrogenic trauma and others are the main source of infection origin,^[7,8] The clinical course of Fournier's gangrene had not changed since Fournier described the disease in 1883.^[4] The difficulty of making an early diagnosis is due to the paucity of cutaneous findings early in the course of disease. A suspicion of Fournier's gangrene should be entertained in patients presented with atypical cellulitis, when the pain is disproportionate to the area involved and there is no early response to antibiotics. Pus culture, radiological findings and histopathological examination can aid the diagnosis. Fournier's gangrene is a surgical emergency even today. Meleny introduced debridement in patients with Fournier gangrene in 1920s this has remained the basis of management of this gangrene today also.^[5]

The prognosis of Fournier's gangrene depends on age co-morbidity and severity of septic syndrome. Prognosis is eventually fatal if surgically not treated the patients.^[11] Early surgical treatment is the cornerstone of good prognosis in our study.

CONCLUSION: In present study, poor personal hygiene and low socioeconomic status are the most common associated co-morbid condition other than diabetes mellitus. E.coli is the most common isolated organisms which were also found in normal colonic and urogenital micro flora. If personal hygiene of external genitalia and perianal region is properly maintained then we can reduce development of Fournier's gangrene. Early diagnosis and prompt surgical and medical management is mainstay of good prognosis of these patients with reduced mortality.

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