Fournier's Gangrene: Report of 20 Patients

FOURNIER GANGRENİ: 20 HASTANIN BİLDİRİMİ

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Summary

Fournier's description consists of abrupt onset of scrotal pain and swelling and absence of a specific etiological agent for Fournier's gangrene. Today it is usually associated with predisposing factors. Our twenty patients with Fournier's gangrene were treated for a 13-year period. Associated conditions and specific etiological factors were recorded. An associated urologie or colorectal disease had been identified in 10 patients. Ten patients had diabetes mellitus. The prodromal period average was 4.9 days and symptoms were penoscrotal discomfort, pain, erythema and edema. In 12 patients 2 or more different bacteriological species were isolated. All patients were treated with broad spectrum antibiotics. Immediate surgical debridement was performed in all cases. Fournier's gangrene is recognized as a synergistic polymicrobial necrotizing fasciitis usually associated with predisposing factors. Diabetes mellitus is the most common systemic disorder associated with Fournier's gangrene. Fournier's gangrene remains as a rare but life threatening disease.

Key Words: Fournier, Gangrene, Diabetes mellitus

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Özet

Fournier, spesifik bir etiyolojik ajan bulunamayan ve aniden ortaya çıkan skrotal şişme ve ağrı olarak tanımlarken, bugün Fournier gangreni genellikle predisposan faktörlerle ilişkili olarak tanımlanmaktadır. Onüç yıllık sürede Fournier gangrenli 20 hasta tedavi edildi. Eşlik eden patolojiler ve spesifik etiyolojik faktörler kaydedildi. On hastada eşlik eden ürolojik veya kolorektal hastalık tespit edilebildi. On hastada (%50) diabetes mellitus vardı. Ortalama prodromal period 4.9 gün ve semptomlar penoskrotal rahatsızlık, ağrı, eritem ve ödem idi. Oniki hastada 2 veya daha fazla farklı bakteriyolojik türler tespit edildi. Tüm hastalar geniş spekturumlu antibiyotiklerle tedavi edildi. Tüm olgulara acil cerrahi debridman yapıldı. Fournier gangreni, genellikle predisposan faktörlerin eşlik ettiği, sinerjistik polimikrobiyal bir nekrotizan fasiit olarak tanımlanır. Diabetes mellitus Fournier ganrenine en sık eşlik eden hastalıktır. Fournier gangreni nadir fakat hayatı tehdit eden bir hastalıktır.

Anahtar Kelimeler: Fournier, Gangren, Diabetes mellitus

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In 1883 Fournier first described a rapidly fulminating gangrene of the penis and scrotum occuring in young healthy men with no specific causative agent. Fournier's gangrene is an aggressive synergistic fasciitis of the perineum. The disease can no longer be considered to be idiopathic; in most cases urologic, colorectal, or cutaneous source can be identified (1). Despite aggressive antibiotic therapy and debridement, it is associated with a high mortality rate. This rate has been higher in older patients, those with a rectal focus, and diabetics (2). In contrast to Fournier's original report others believe that a specific etiologic factor can be identified in the majority of patients (3,4). Culture of the pus or tissue usually reveals a polymicrobial infection, including gram positive and negative aerobes as well as anaerobes (5). The Fournier's gangrene has been reported as a serious condition with high morbidity and mortality rate in the previous literature (6-8).

In this paper, we evaluated 20 patients with Fournier's gangrene and we compared the etiologic

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and predisposing factors and mortality rate with the previous reports.

Patients and Methods

Between September 1986 and October 1999, 20 male patients aged 30 to 73 years (average 44) suffering from necrotising fasciitis of the genitalia were treated by extensive surgical debridement and broad spectrum antibiotic administration. Details of medical and social history were obtained. Prodromal symptoms and specific etiological factors were recorded. Surgical debridement was performed in all patients with Fournier's gangrene, in all cases, pus and necrotic tissues were sent for culture and sensitivity tests. Patients age, indentified causative or predisposing factors and length of hospital stay were recorded. A11 the data of the patients are given in Table 1.

Results

During the last 13 years 20 male patients with gangrene of external genitalia were treated. An associated urologic or colorectal disease could be identified in 10 of the 20 patients. Five patients had urologic pathologies two of them had urethral stricture, two had neurogenic bladder and one had epididymitis. Five patients had an associated colorectal disease. The prodromal period ranged from 1 to 15 days and symptoms included penoscrotal discomfort, pain, erythema and edema, fever, malaise, diarrhea. In 12 patients, 2 or more different bacteriological species were isolated. Of the aerobic organisms, Escherichia coli and Staphylococcus Epidermides were most frequently found. Histological examination in all cases confirmed edema, acute inflammation and necrosis of the subcutaneous tissue. Three patients were alcoholic and

Table 1. 20 patients with Fournier's gangrene.

No	Patient Age	Etiology	Associated Conditions	Surgical Treatment	Cultures	Days in Hospital	Prodromal Period (Days)
1	46	Epididymitis	Trauma of the scrotal skin	Debridement	Staphylococcus Epidermides	10	3
2	48	Chronic catheter, Neurogenic bladder	Paraplegia, sacral decubitus	Debridement, suprapubic tube, orchiectomy	Proteus	12	10
3*	48	-	Chronic renal failure	Debridement	Escherichia Coli	3	5
4	40	-	Diabetes mellitus, arteriosclerotic hearth disease	Debridement, colostomy	S. Epidermides, E. Coli, Streptococcus pneumoniae	16	10
5	30	-	-	Debridement	E. Coli, Enterobacter, S. Epidermides, Serratia	14	2
6	42	-	Chronic alcohol abuse	Debridement	E. Coli	20	3
7	63	Urethral stricture	Diabetes mellitus, arteriosclerotic hearth disease	Debridement, suprapubic tube	E. Coli, Pseudomonas, Enterococcus	48	2
8	47	Perirectal abscess	Chronic alcohol abuse	Debridement, colostomy, orchiectomy	Enterococcus, S. Epidermides, E. Coli, Pseudomonas	50	4
9*	73		Diabetes mellitus	Debridement	E.Coli, S. Epidermides	13	7
10*	58	Perirectal abscess	Diabetes mellitus	Debridement, colostomy	E.Coli	6	15
11	48	Ruptured appendiceal abscess		Debridement, colostomy, orchiectomy	E.Coli, S.Epidcrmides	3	4
12	40		Diabetes mellitus	Debridement, orchiectomy	S. Aureus, S. Pneumoniae	30	10
13	46		Chronic alcohol abuse	Debridement	S.Epidcrmides	19	2
14	31		Paraplegia, sacral decubitus, diabetes mellitus	Debridement, suprapubic tube	E. Coli.S. Epidermides, Enterobacter	10	2
15	46	Diverticulitis	Alcohol abuse, diabetes mellitus	Debridement, colostomy	E. Coli.S. Epidermides, Enterococcus	18	1
16	43	Neurogenic bladder		Debridement, suprapubic tube	S.Epidermides, Proteus	14	I
17	51		Diabetes mellitus	Debridement	E. Coli, S.Epidcrmides	18	3
18	46		Diabetes mellitus	Debridement	S. Aureus	14	5
19	41	Urethral stricture	Diabetes mellitus	Debridement	S. Aureus	16	7
20	48			Debridement, suprapubic lube	S.Epidermides, Enterobacter	12	2

* These patients died.

eight diabetic (Table 1). Urgent surgical treatment was required in all cases, consisting of debridement of all necrotic tissue. Four of them underwent bilateral orchiectomy Colostomy was performed in 5 patients and suprapubic cystostomy was also needed in 5 patients. A11 patients were treated with broad spectrum triple antibiotic regime including an aminoglycoside, metronidazole and ampicillin. The hospitalization were ranged 3-48 days (average 16.3 days). One patient developed acute renal failure and two adult respiratory distress syndrome (ARDS). Three patients died from acut renal failure and ARDS.

Discussion

Fournier's syndrome is a fulminant gangrene of the penis and scrotum as described initially by Founder, remains a rare but serious urologic problem. The incidence was calculated at 1/7500 patients by Bejanga (9). Fournier's syndrome may occur in male subjects at any age. It has been reported as a scrotal gangrene in newborn (10). Fournier described a rapidly fulminating gangrene of the penis and scrotum occuring in young healthy men with no spesific causative agent. Today, Fournier's gangrene is recognized as a synergistic polymicrobial necrotizing fasciitis usually associated with predisposing factors. Immunocompromised states, such as diabetes mellitus, chronic alcoholism, steroid medication, hematological malignancies have been associated with the syndrome (3,4). Diabetes mellitus is the most common disorder associated with Fournier's gangrene in 58 to 68 % of cases (11,12). Diabetes mellitus can cause impairment of immunity and distal arterial disease (13,14). Spirnak et al reported only a 25% incidence of alcohol addiction (4). Of our 20 patients 10 had diabetes mellitus (50%) and 4 were alcohol addicts (20%). Local trauma as a predisposing factor may be thermal, chemical or mechanichal, including scratches, human bites, anal intercourse and coitus (15-17).

Surgical procedures associated with Fournier's syndrome have been hernionaphy, hydrocelectomy, hemoiThoidectomy, orchiectomy, transrectal prostatic biopsy, vasectomy and circumcision (18-22). None of our patients had surgical procedure in history. The urethral strictures were the most common pathologic entity in patients with urinary tract disorder (19-20). Our 5 patients had identifiable urologic abnormalities, two of them had urethral stricture, two had neurogenic bladder and one had epididymitis.

The most frequent perianal disease has been perirectal abscess, especially in the ischiorectal area (7,18,20). Our 5 patients had colorectal disease, two of them had perirectal abscess. Management involves prompt diagnosis and institution of broad spectrum antibiotics to cover aerobic gram positive cocci and gram negative rods, anaerobic gram positive cocci and other anaerobes, including Clostridium. However, antibiotics are only an adjunct to the more important surgical therapy (3). Surgical management includes the wide incision and drainage of all involved areas and excision of all necrotic and devitalized skin and subcutaneous tissue. Since involment of the deep fascial layers and muscle does not occur with Fournier's syndrome, it is not necessary to continue debridement into normal appearing tissue (23).

Urgent surgical treatment was required in all cases, consisting of debridement of all obviously necrotic and devitalized tissue. Urinary diversion with placement of a suprapubic catheter was done in 5 patients and diverting colostomy was performed in 5. Since the blood supply of the testicles is different from that of the penis and scrotum they rarely are involved in the gangrenous process. Orchiectomy were performed in 4 patients. The most common organisms are Staphylococcus Aureus, Streptococci, Escherichia coli and Bacteroides Species, as seen typical in other fonns of necrotizing fasciitis (3,23) A11 our cases, tissue, blood and urine cultures were obtained. In 12 patients, 2 or more different bacteriological species were isolated (Table 1). Of the aerobic organisms, Escherichia coli and Staphylococcus Epidermides were most frequently found. Of the surviving 15 patients 9 later required one or more reconstructive procedures and five wounds were epithelialised spontaneously. The use of gracilis musculocutaneous flaps to cover deep tissue defects has also been described (24). One of our patients with extensive tissue defect can be covered the use of gracilis musculocutaneous flap. Hyperbaric oxygen therapy has been used succesfully (12,25). Despite aggressive surgical and medical management,

Fournier's syndrome has a significant mortality rate. Mortality rates of 13 to 60% have been reported (3,7). Our mortality rate was 16% despite aggressive surgical and medical management. The serious systemic complications; Adult Respiratory Distress Syndrome (ARDS) and acute renal failure were occurred in 2 and 1 of our patients, respectively and these 3 patients were died. The keys to successful outcome included prompt fluid resuscitation, rapid initiation of broad-spectrum antibiotics, early surgical intervention with radical debridement, haemodynamic support and frequent repeat operative debridement.

In conclusion, Fournier's gangrene should be kept in mind in every patient with a genital lesion because of its high mortality rate. The urgent surgical debridement and antibiotherapy should be considered to decrease the mortality and morbidity rate, especially in diabetic and immunocompromised patients. A special perineal or genitelial care even should be recommended to these patients related clinics in which they are being followed.

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