

Fournier's Gangrene: A Case Report

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Fournier's gangrene is a rapidly progressive necrotizing fasciitis of penile, genital and perianal regions. Despite increasing knowledge about aetiology, diagnosis procedures and treatment, the gangrene is still destructive and potentially lethal. The case under discussion is based on a patient with diabetes mellitus and alcohol abuse who presented with pain in his scrotum. A 37-year-old Hispanic male was admitted with pain in his testicles but was discharged on the same day on oral antibiotics and referred to the urologist. However, on the same day night, he was found dead on his bed. He was a known patient with diabetes mellitus, high cholesterol, bipolar affective disorder and hypertension for more than 10 years. He was an alcoholic and known to use illegal drugs. The autopsy revealed necrosis of the skin of pubic, perineum and perianal areas. The heart was unremarkable. Liver and lungs had subtle changes. Both kidneys, bladder, ureters and prostate were normal. The testicles in the scrotum appeared normal. The skin of the scrotum and penis had hemorrhagic necrosis. Histology of the scrotum showed necrosis and acute inflammatory foci with bacterial colonisations. Toxicology of blood and urine showed non-lethal levels of alcohol and recreational drugs. Finally, the cause of death was given as Fournier's gangrene in a subject with diabetes mellitus. There were no circumstantial evidence of foul play, suicidal or homicidal activities. Considering autopsy findings, histopathology, toxicology and circumstantial evidence the cause of death was given as Fournier's gangrene and the contributory cause was diabetes mellitus.

Keywords: Fournier's gangrene, diabetes mellitus, alcohol abuse, drug abuse

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Full paper

Introduction

Fournier's gangrene is a rare but life-threatening disease^[1] and the mortality rate ranges from 10 to 80%.^[2] It is a rapidly progressive necrotizing fasciitis of penile, genital and perianal regions. Fournier's gangrene was first identified in 1883 when a French

venereologist described 5 previously healthy young men suffered from rapidly progressive gangrene of their genitalia without apparent cause. In contrast to his definition, it has identified in females and children and a cause is now identified.^[3] Despite increasing knowledge about aetiology, diagnosis procedures and treatment, the gangrene is still destructive and potentially lethal. It appears to be caused by a

combination of various commensal bacteria.^[4]The case under discussion is based on a patient with diabetes mellitus and alcohol abuse who presented with pain in his scrotum.

Case report

A 37-year-old Hispanic male was admitted with pain in his testicles. He had believed that both his testicles had “flipped” and were the source of his severe pain but was discharged on the same day on oral antibiotics and referred to the urologist. However, on the same day night, he was found dead on his bed.

His medical history consisted with diabetes mellitus, high cholesterol, bipolar affective disorder and hypertension for more than 10 years and was on regular treatment. He is an alcoholic and known to use illegal drugs but did not surface what they were.

The autopsy examination revealed that the body was that of a well built and well-nourished male. There were no external injuries or surgical wounds. The skin of the pubic, perineum and perianal areas appeared necrotic and revealed epidermolysis. The penis and scrotum were purple in colour (Fig. 01). There was no evidence of genital piercing or penile implants.

No significant amount of fluid in the pericardial, pleural or peritoneal cavity. Heart weight was 350gm. The ventricles had no fibrosis or necrosis and the thickness appeared normal. The coronary arteries revealed no visible atherosclerosis and free of thrombi or emboli. The aorta and large vessels had athermanous streaks.



Figure 01: The skin of the pubic, perineum and perianal areas were necrosed. The penis and scrotum were purple in colour

Both lungs were slightly increased in weight (right was 500gm and left 450gm) and the cut surfaces exudated a moderate amount of pinkish frothy fluid.

The alimentary canal was unremarkable and did not have anorectal abscesses, diverticulitis or rectal cancer. Liver showed greasy appearance with early fatty change but the hepato-biliary system was unremarkable. There was no evidence of liver failure due to chronic alcohol abuse such as jaundice, parotid enlargement, spider naevi, caput medusa, lobar pneumonia, nodular liver, splenomegaly, gastro-intestinal bleeding, ascites etc.

There was no evidence of HIV such as rashes, sores, or lesions in the mouth or nose etc.

Both kidneys, bladder, ureters and prostate were normal. The testicles in the scrotum appeared normal. The tunica albuginea appeared dusky. The skin of the scrotum and penis showed haemorrhagic necrosis (Fig.02). Hematopoietic musculoskeletal, central nervous and lymphatic systems were unremarkable.



Figure 02: The tunica albuginea appeared dusky. The skin of the scrotum and penis showed hemorrhagic necrosis

Histology of the scrotum showed extensive necrosis of tissue with autolytic changes. Small acute inflammatory foci with bacterial colonizations were found (Fig.03).

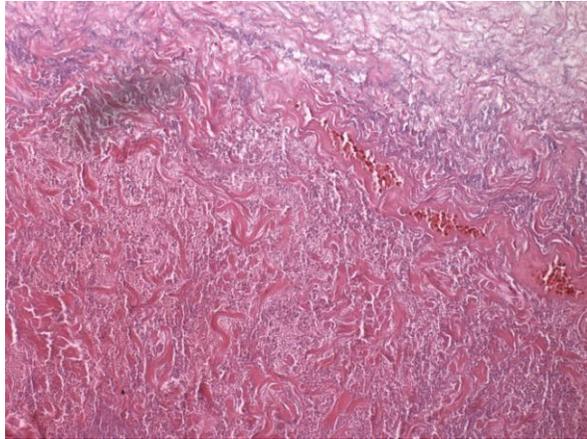


Figure 03: Photomicrograph of scrotum showed acute inflammatory foci with bacterial colourization and necrosis with autolytic changes.

Toxicology analysis of blood revealed alcohol level of 15 mg/dl, amphetamine 110 ng/ml, methamphetamine 1100 ng/ml, codeine-free 470 and morphine 10ng/ml. Urine presumptively positive for opiate, amphetamine and fentanyl metabolites.

Finally, the cause of death was given as Fournier's gangrene in a subject with diabetes mellitus.

Discussion

The deceased was a Hispanic and they are the Latin American descents such as Mexicans, living in the USA.^[5] The El Paso County of USA is bordering Mexico.

Massive soft tissue infections include necrotizing fasciitis, gas gangrene and Fournier gangrene.^[6] Fournier's gangrene was originally thought to be an idiopathic process. However, it has been shown to have a predilection for patients with diabetes^[9] as well as long-term alcohol misuse.^[6] Further, it also can affect patients with non-obvious immune compromise.^[1]

In this case, all internal organs appeared to be unremarkable except some subtle changes in the lungs and the liver. There was no evidence of torsion of the testicles. There were no external injuries to genital or perianal areas and had no penile piercing or implants.

Causes for Fournier's gangrene include external injuries, surgical wounds, anorectal abscesses, diverticulitis, rectal cancer and genital piercing.^[7] In this case, the deceased did not have such conditions. In some cases, causes are unknown.

Risk factors of Fournier's gangrene include diabetes mellitus, alcohol abuse, compromised immune

systems like in HIV and morbid obesity.^[8] However, in this case, the deceased did not have such features.

Further, there is evidence of developing Fournier's gangrene due to excessive masturbation in otherwise healthy males too.^[9]

Toxicology revealed a mixed pattern of recreational drugs and alcohol in his blood. Urine showed only recreational drugs. Those were not sufficient to cause or contribute to his cause of death.

Diabetes mellitus is the most common risk factor.^[2] He had a long history of diabetes mellitus. This will lead to reducing his immunity, rapid spread of infection, and micro-vascular changes leading them to their increased susceptibility of infection.

Diabetes can cause activation of normal commensal pathogenic organisms in a synergistic manner to develop Fournier's gangrene.^[4] Further, the commonest comorbid systemic disorders of Fournier's gangrene are diabetes mellitus and alcohol misuse. Diabetes mellitus is found in 20-70%⁹ Fournier gangrene patients. Therefore, in this case, the contributory cause for the Fournier's gangrene was concluded as diabetes mellitus.

Surgery with extensive debridement of all necrotic tissue is the mainstay of treatment.^[10] However, this patient was discharged and referred to urology. An investigation should be performed to seek whether there had been a breach of the duty of care towards the patient by the clinicians.

Conclusions

There were no circumstantial evidence of foul play, suicidal or homicidal activities. The autopsy revealed necrofasciitis of the penile, genital and perianal tissues with histological evidence of acute inflammation, necrosis and bacterial colonization. Toxicology revealed a sub-lethal level of alcohol and recreational drugs. Considering autopsy, histopathology, toxicology, and circumstantial evidence the cause of death was given as Fournier's gangrene and the contributory cause was Diabetes Mellitus.

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