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Endocrinology

A Case of Ketoacidosis Decompensation Revealing a Fournier's Gangrene at the Early Stage

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Abstract **Case Report**

A 81-year-old man with a 5-year history of diabetes mellituswas admitted for ketotic decompensation. On admission, the patient was found to be asthenic, drowsy, dehydrated and ketotic. The scrotum was grossly swollen with early patches of gangrene. On the biological assessment: C-reactive protein 264 mg/dl, serum potassium was low at 2.8 mmol/l. A scrotal ultrasound revealed a low abundance right hydrocele with edematous infiltration of scrotal envelopes. The patient was put on: intravenous insulin, fluids, potassium, and a broad empirical antibiotic therapy without any need for surgery with a good clinical and biological evolution.

Key words: Fournier's gangrene-ketoacidosis- immusuppression- early diagnosis.

INTRODUCTION

Fournier's gangrene (FG)is characterized by a combination of a poly-microbial infection and micro-thrombosis of small subcutaneous arterioles with an identifiable cause in 95% of cases, beginning in the genital or perineal regions [1]. Immunosuppression then allows the infection to remain unchecked by host defenses [2]. Risk factors for Fournier's gangrene (FG) include diabetes, colorectal disease, urethral disease, and chronic ethanol abuse. Gangrene occurs more often in patients in an immunosuppressed state [3]. It has a high death rate and an acute surgical intervention is required because of the diagnosis delay and the speed of progression [4]. Here, we present the case of ketoacidosis decompensation by a FG in the early stage.

CASE REPORT

A81-year-old Moroccan man was admitted to our department for Ketoacidosis decompensation. A chronic weaned smoker that had a 5-year history of diabetes mellitus complicated with retinopathy had presented three days before his admission a polyuro-polydipsic syndrome, fluid diarrhea, abdominal pain and significant weight loss in a context of fever and deterioration of the general state. On examination, the patient was found to be asthenic, drowsy, dehydrated and ketotic. His body temperature was 38.5°C, heart rate 116/min and blood pressure 130/70mmHg, the scrotum was grossly swollen with early patches of gangrene (Figure 1).

Laboratory data were as follows: white cell count 4010 / mm3 with lymphopenia at 680 / mm3, C-reactive protein 264 mg/dL, blood urea 0.37 g/L, serumcreatinine 8.5 mg/L, serum sodium was normal at 135 mmol / l, serum potassium was low at 2.8 mmol / l, bicarbonnate15mmol/l, cytobacteriological urine exam was sterile, blood culture has isolated AcinobacterLwoffimultisensitive to a several antibiotics including ceftriaxone. The electrocardiogram and chest X-ray were normal; investigations of weight loss's etiology were negative. A scrotal ultrasound revealed a low abundance right hydrocele with edematous infiltration of scrotal envelopes (figure 2); a scrotal puncture was performed not bringing any fluid and a culture from hisscrotal skin failed to grow pathogenic organisms.

The patient was put on: intravenous insulin, fluids, potassium, ceftriaxone 2g/day, metronidazole 500mg three times/day, gentamycin 160mg/day.

On the fourth hospital dayand without any need for surgery, the patient responded very well to the treatment with regression of cutaneous infiltration (figure 3), a glycemic equilibrium, a normalization of body temperature (figure 4) and a correction of biochemical abnormalities (C-reactive protein and

serum potassium) (figure 5). He was discharged on the 8th hospital day under ceftriaxone and metronidazole for three weeks.

Fig-1: Early patches of gangrene

Fig-2: Infiltration of scrotal envelopes

Fig-3: Regression of cutaneous infiltration

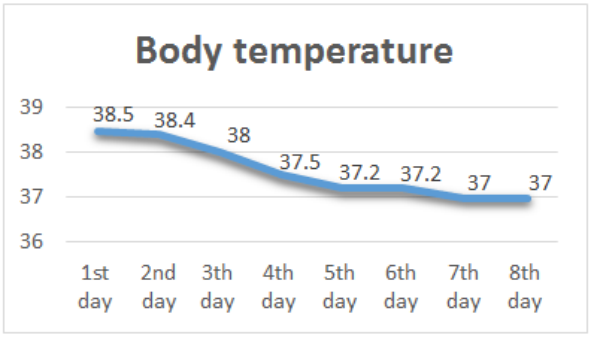

Fig-4: Normalization of body temperature

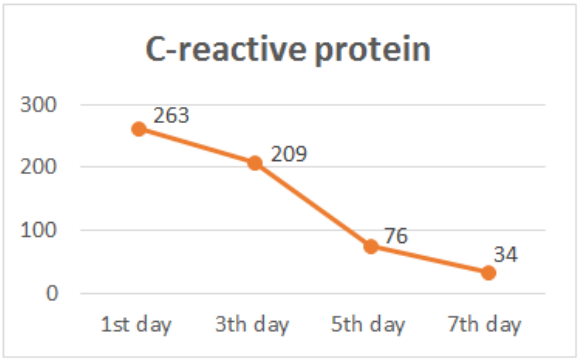

Fig-5: Normalization of CRP

DISCUSSION

Fournier's gangrene is a very rare and severe infection affecting the soft tissues of the genital and pelvic areas. It has been found that 55% of FG patients have diabetes mellitus [5]. Jean A. Fournier, a French venereologist, for whom the disease is named, was the first one that reported perineal necrosis occurring in five previously healthy young males in 1883 [6].

Diabetes is a disease with strong microvascular manifestations, such as retinopathy, nephropathy and amputation. Fournier's gangrene may be the result of a similar process as it may be exacerbated by a state of relative immunosuppression [7]. During infection, the endogenous production of glucose is increased from the overall increased rate of catabolism. Hyperglycemia has been found to affect adherence, chemotaxis, and bactericidal activities of phagocytes. It has also been shown to have detrimental effects on cellular immunity [8, 9]. In our case, the patient was diabetic, immunosuppressed with lymphopenia at 680/mm3.

It has been suggested that the apparent predisposition of diabetics to Fournier's gangrene reflects their well-known increased susceptibility to bacterial infections [10]. Numerous hematologic abnormalities have been reported in diabetic patients and disseminated intravascular coagulation has been reported in cases of ketoacidosis. This indicates that when Fournier's gangrene develops in diabetics, coagulation abnormalities are likely to be present [11].

FG has a serious surgical problem, because it is commonly associated with a polymicrobial infection of genitourinary or perianal source with high mortality and morbidity. The reason for the lethality despite the use of multiple susceptible antibiotics combinations may be due to the uncontrollable progressionof invasion with poor host-defense mechanism or at several times due to diagnostic delay [12].

The FG in our patient was diagnosed exceptionally at a very early stage; this allowed faster healing under medical treatment without any need for surgery.

CONCLUSION

Fournier's gangrene is a sudden-onset disease that can decompensate diabetes with a progressive negative prognosis, requiring urgent and aggressive treatment to ensure patient survival. Hence, earlier detection and intervention can provide opportunities to improve outcomes of FG.

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