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Necrotizing Fasciitis: Two exceptional cases

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Abstract

Necrotizing fasciitis is a rare but potentially fatal necrotizing soft tissue infection. We report two fatal forms of necrotizing fasciitis that occurred in two elderly diabetic patients. It developed at the upper limb level with thoracic extension in one case and involved the abdominal wall with emphysematous cystitis in another.

Keywords: Necrotizing fasciitis, diabetes, surgery.

Introduction

Necrotizing fasciitis (NF) is uncommon but rapidly spreading and life-threatening bacterial infection. It is a diagnostic and therapeutic emergency requiring early surgical excision and intensive resuscitation. We report two cases of an elderly diabetic patient admitted to the emergency department for two rare and severe forms of necrotizing fasciitis. Through this article, we review the properties of this infection as well as the strategies for diagnosis and management.

Case Reports

Case 1:

A 77-year-old female presented to the emergency department with one week of anorexia and progressive impairment consciousness. The patient is followed for hypertension and type II diabetes mellitus. She was operated for osteosynthesis of per trochanteric femoral fracture 4 months ago. The physical examination found a consciousness disturbance with stable hemodynamic and respiratory parameters. A large area over the right abdominal wall was erythematous, indurated, very tender to palpation and pus-filled. The biological assessment revealed a biological inflammatory syndrome, acute renal failure and metabolic acidosis. CT scan objectified necrotizing fasciitis with large collections of fluid and gas in the right abdominal wall extended to the external genital organs and to the sub-peritoneal area. It has also shown emphysematous cystitis with lack of parietal enhancement. She underwent emergency lavage and debridement of the abdominal wall. The patient received a broad-spectrum antibiotic therapy based on

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cefotaxime, gentamicin and metronidazole with the need for transfusion as well as norepinephrine. The culture of the pus developed anaerobic germs and Escherichia coli detected by cyto-bacteriological examination of the urine. Two days later, revision surgery was performed. Despite early surgery and intensive resuscitation, the evolution was fatal after ten days with multivisceral failure.

Case 2:

An 80-year-old man with type II diabetes mellitus has developed spontaneously an erythematous plaque of the elbow without notion of microtrauma. Within a few hours, this plaque has spread rapidly reaching the whole limb and becoming necrotic. The patient was managed in the emergency intensive care unit. On admission, he was conscious. He has tachycardia hypotension and polypnea. The physical examination of the infected limb has shown cyanosis, oedema and phlyctenular lesions. Biological finding has shown biological inflammatory syndrome and ketoacidosis. The diagnosis of necrotizing fasciitis was retained and the evolution was rapidly extensive in three hours to the armpit and the right hemithorax. The radial pulse has weakened and the ulnar pulse was no more felt. The therapeutic approach consisted of early antibiotic therapy and excision of infected and necrotic tissues with multiple aponeurotomy. Skin samples were then made and sent to the laboratory. The infection was very aggressive and fatal after two days. The diagnosis of Mucor mycosis was only confirmed in post mortem.

Discussion

The term necrotizing fasciitis (NF) was coined by Wilson in the 1952 to describe necrosis of the fascia and subcutaneous tissue with relative sparing of the underlying muscle [1]. NF is a rare soft-tissue infection that affects people of a wide range of ages. The males are affected more than the females (53,2%). It is rapidly progressing, affects the cutaneous microcirculation, subcutaneous fascia and dermis, and characteristically spares the underlying muscle. [2] [3]. It is estimated at 0,4/100.000 per year [4].

NF is mostly found in immunocompromised patients such as patients with diabetes mellitus, cancer, alcoholism, chronic liver disease, vascular insufficiency, organ transplantation, human immunodeficiency virus, malnutrition, and neutropenia and other immunocompromised patients [5]

Symptoms generally appear several days after the initial attack. The patient may present with fulminant shock. The affected skin becomes warm, erythematous and edematous, so the infection may be confused with cellulitis or erysipelas. A central area of necrosis may develop and eventually ulcerate. Soft tissue crepitus is common due to gas formation. Intra-abdominal diseases such as perforation of the colon or appendix should always be considered as the source of NF at the abdominal level [6]. In their retrospective study, Leiblein et al. found that the infection was limited to the upper limb (hand) in 20% of cases, while the lower limb was affected in 53% of cases [7]. In contrast, in our study, the location was the right abdominal wall in the first case and the upper limb in the second case.

According to the literature, Giulano was the first to propose a classification of NF based on wound microbiology, giving two types of NF. Type I, which is the most represented (80 to 90%) of all cases of NF, includes polymicrobial infections including mainly anaerobes, enterobacteria and streptococci (excluding group A). Type II infections are defined by the presence of group A streptococci, often as a single agent and sometimes as a mixed infection [8].

Computed tomography (CT) and magnetic resonance imaging (MRI) are more sensitive and specific than standard X-ray. The scanner can document swelling of the fascia, inflammation, gas formation and the extent of tissue infection [9]. This is the case in our first patient whose extension extended to the external genitalia and the sub peritoneal region. MRI offers better precision than CT, but it is not widely used due to its cost [9]. Prompt and radical surgical debridement, including repeated debridement after 24 h is crucial for management of NF. Also, prompt administration of high-dose broad-spectrum antibiotics and a several intensive treatment are necessary[10].

Conclusion

Necrotizing fasciitis is rare but rapidly progressive, life-threatening bacterial infection with high morbidity and mortality. Particular attention is necessary for patients who have diabetes, have a history of hypertension, or are immunocompromised as these factors predispose patients to the development of necrotizing fasciitis.

Authors Contribution

The corresponding author is Mouna Djerbi and contribution of the authors as mentioned below their responsibility for the work:

1. Acquisition of data: Emna Gharbi

2. Drafting of the manuscript: Mouna Djerbi,

3. Critical revision: Nasri Abdennour, Leila Kammoun.

4. Approval of final manuscript: Olfa Chakroun, Noureddine Rekik

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Conflicts of Interest

- all authors declare no conflicts of interests

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