CASE REPORT

Non-streptococcal Necrotizing Fasciitis in a Diabetic Patient with Fungal Superinfection: a Case Report

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Introduction

The increased average age of the population and the prevalence of predisposing risk factors such as lower-limb ischaemic disease contribute to the increased occurrence of invasive infectious diseases such as necrotizing fasciitis. Although most cases of this disease are reported as being due to invasive strains of streptococci, the disease may also be caused by other agents. Fungal necrotizing fasciitis is of particular interest and forms the basis of our current report.

Case Report

A 49-year-old male academic medical professional with longstanding type I diabetes mellitus was admitted to hospital with pain and swelling in his left foot and ankle. On physical examination, minimal perimalleolar oedema of the affected limb was noted. Homan’s sign was absent. There was a 6-month history of an unhealed diabetic ulcer in the left calcaneal area surrounded by an erythematous rim. He was well until a day before admission, when he started to suffer increasing pain and occasional chills. On admission the patient was fully oriented but unable to walk because of pain. He was started empirically on clindamycin, gentamicin and metronidazole because of low-grade fever and a leucocytosis. Plain radiographs of the foot and calf were normal apart from some vascular calcification. No tissue gas was seen. Three hours later the patient became septic with fever, shaking chills and delirium. His left calf exhibited marked oedema with erythema. There was extreme cranial tenderness, woody-hard feel of the subcutaneous tissues and signs of impending compartment syndrome. Immediate surgical exploration revealed oedematous, dull-grey fascia with hemorrhagic foci and minimal crepitus. Thrombosis of perforating subcutaneous vessels was a frequent finding. Neither odour nor pus were encountered. Immediately after surgery the antibiotic regime was changed to piperacillin-tazobactam plus gentamicin. Bacterial culture grew mixed Gram-negative flora. Despite intensive therapy with early dermatofasciotomies and repeated debridement, extensive soft tissue necrosis and systemic toxicity led to an above knee amputation on the third day. Multiple quadriceps biopsy specimens showed Candida hyphae growing into the femoral stump from the fourth day. Antifungal therapy with fluconazole was initiated and careful debridement was continued as necessary. Twelve months after initiation of intensive therapy and stump reconstruction the patient is walking on a prosthesis and has resumed his profession.

Discussion

Necrotizing fasciitis encompasses several microbiologic entities. Local bacterial growth has been reported in as many as 98% of cases with predominant
mixed aerobic-anaerobic flora and an average of five isolates per specimen. There are few reports of rapidly progressive fatal cases of necrotizing fasciitis caused by primary fungal infection or invasive fungal superinfection following the initially successful treatment of necrotizing fasciitis. Cryptococcus, Aspergillus, and Apophysomyces have been reported as causative organisms. Fungal infection may mimic bacterial necrotizing fasciitis and therefore should be considered in the diagnosis. The use of early frozen-section biopsy has been proved beneficial in establishing a rapid diagnosis. The presence of hyphae may be indicative of fungal infection.

Surgical exploration remains the most effective method of diagnosis and may be done through a relatively small incision as a bedside procedure. Imaging studies may help to determine the extent of the disease and frozen-section biopsy may be of help in confirming the diagnosis. Therapy should consist of early and adequate fasciotomy and debridement followed by intensive antimicrobial and systemic support. The emergence of superinfection including fungal involvement requires swift and effective treatment.

References