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Case Report

Necrotizing Soft Tissue Infection in an Immunocompromised Patient -

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INTRODUCTION

Necrotizing Soft Tissue Infections (NSTI) are surgical emergencies caused by aerobic and anerobic bacteria, and less commonly by fungi [1,2]. Necrotizing cellulitis, fasciitis, and myositis are included under this term. Classically, it is associated with major penetrating trauma, diabetes mellitus, immunosuppression, and recent surgery. Crepitus, rapid progression of clinical manifestations, and severe pain in the presence of soft tissue infection and systemic illness guides clinical diagnosis. Computed Tomography (CT) findings of gas in tissues and inflammatory changes can support diagnosis. Here we present one case of suspected fungal NSTI.

CASE REPORT

A 59-year-old female presented to an outside emergency department in Pampa, Texas USA and was admitted for cellulitis. She was put on vancomycin and piperacillin/tazobactam, but her WBC counts did not improve, and she developed an abscess on her posterior calf. Her history was suspicious for rheumatoid arthritis treated with immunosuppressive agents etanercept and methotrexate; both drugs were discontinued on admission. Gram stain showed fungal elements suspicious for Rhizopus. Blood and wound cultures grew Staphylococcus hominis and Staphylococcus epidermidis, respectively. CT showed edema below the knee on the posterior calf but did not show subcutaneous gas. Due to her history of immunosuppressive agents and gram stain results, concern for a necrotizing fungal infection prompted transfer to a facility that could handle such an infection. At the facility in Amarillo, Texas, her physical exam revealed severe 10/10 throbbing pain in right posterior calf exacerbated by movement. There was no fever on admission. Voriconazole was added to her antimicrobial regimen, and the patient refused surgical debridement until her husband arrived the next morning. WBC count on admission was 18,400/mm3 and increased to greater than 20,000/mm3 despite antimicrobial treatment. On the following day, incision and drainage of right posterior calf showed necrosis, purulence, and circumferential subcutaneous tracking of necrotizing soft tissue infection extending down to fascia, but the fascia itself was intact. A portion of the anterior leg was debrided down to the dermis. A second debridement was performed three days later due to superficial fatty necrosis; silver wound vacuum was placed and changed three times weekly. Wound cultures grew group G hemolytic streptococcus and no fungal elements were seen on pathology. Voriconazole and vancomycin were discontinued. One day before discharge, therapy was changed to ceftriaxone.

DISCUSSION

NSTI is an incredibly rare clinical occurrence, with only 1000 cases reported in the United States annually. However, the incidence seems to be increasing - possibly due to higher clinical suspicion, increased virulence, or increasing rates of antimicrobial resistance. Although risk factors such as diabetes, obesity, and immunocompromised states increase the risk for developing NSTI, age and gender do not seem to play a role [3]. Recent literature suggests a link between use of NSAIDS before or during their NSTI, often leads to poorer clinical outcomes. This has been a hard effect to measure, since there is typically widespread use of NSAIDs for pain management in the early phase of the disease. It is thought that NSAIDs have a negative effect both on chemotaxis, and oxidative bursts, which can together lead to worsened clinical outcomes. Additionally, special consideration must be made with immunocompromised patients who are suspected to have NSTI's. These patients tend to present differently than immunocompetent patients, due to a lack of a proper immune response. Clinically, this results in lower systolic blood pressures, lower glucose, and lower white blood cell counts when compared to their immunocompetent counterparts [4]. Due to their atypical presentation, clinicians must be extremely vigilant when examining possible NSTI patients. Surgical debridement and systemic antimicrobial agents remain the treatment of choice for NSTIs [2]. Efficacy of hyperbaric oxygen therapy has also yielded mixed results but is not recommended if it delays surgical debridement. Additionally, there is weak evidence supporting the use of IVIG for treatment of NSTI [5]. In order to both discover new treatment options and reinforce clinical regimens still in their exploratory phase, further research needs to be undertaken in the near future.

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