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Case Report

Case of Necrotising Fasciitis in an Acute Medical Ward (AMU)

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Abstract

We report an unusual case of a 78 year old lady presenting with sepsis secondary to necrotising soft tissue infection of her right forearm which she had initially sustained when falling on her driveway and hitting her right arm.

First admission was in Acute Medical Unit (AMU) rather than Surgical ward. This was, in fact, an inappropriate referral that delayed for the emergency surgery. Eventually, she was managed in Intensive Care medicine (ICU) following her surgery with multiple complications during the recovery period and was discharged subsequently following clinical improvement.

Introduction

Necrotizing Fasciitis is a serious and potential deadly bacterial infection which can occur within soft tissue as well as the fascia. It is rare and affects approximately 500 people a year in the UK, with mainly risk factors of being immunocompromised. It can lead to severe sepsis, multi-organ failure and in worse cases, death if not caught on early and hence, would be of great importance for medical professionals to be able to identify and seek the right treatment immediately. As sepsis and Necrotising fasciitis can present in similar presentations, it would be of great importance that patients are referred to the appropriate department, for the commencement of their immediate treatment [1,2].

Case report

A 78 year old lady with a background of rheumatoid arthritis and on immunosuppressive medications for bronchiectasis was admitted to Ninewells Hospital under the Acute Medical Unit with an initial presentation of Sepsis secondary to necrotising soft tissue infection on her right forearm after having a syncopal episode whilst attending her GP practice [3].

The affected site extended from the mid dorsal aspect of the forearm down the the elbow region, erythematous and was described as 'filled with pus'. She had appeared clinically dehydrated, hypotensive, tachycardic and pyrexia after observations were done. Admission bloods then had revealed

an elevated White cell count of 16.5, CRP of >300, lactate of 3.4 and a bicarbonate 16. Bloods gases done showed slight hypoxia of pO₂-9.8 then. She was treated for Sepsis and was transferred under the care of the Plastics Team [4].

She was diagnosed as necrotizing fasciitis and underwent a debridement of her right forearm. She was transferred to ICU after the debridement in the theater and had experienced complications, Acute Kidney Injury (AKI), Low haemoglobin requiring 2 units of transfusion as well as Post-operative pneumonia, all of which were caught on and treated [5]. She had then recovered and underwent a split thickness skin graft to the open wound and was started on

Tazocin to cover both wound and respiratory sources of infection. She was an inpatient here in Ninewells Hospital for 25 days and was afterwards transferred to general ward for further physio and hand therapy. Her condition had improved and was discharged subsequently from there.

Discussion

The number of cases reported for necrotizing fasciitis in adults is 0.40 cases per 100,000 people/year while the incidence in children is reportedly higher at 0.08 cases per 100,000 people/year. Necrotizing fasciitis is considered a rare condition, however, the mortality rate remains high.

Necrotising Soft Tissue Infections (NSTI) are rapidly progressive skin and soft tissue infections that cause



widespread tissue necrosis and are associated with systemic illness. Mortality remains at over 20% despite advances in care. Case fatality rates remain highest when Necrotising Soft Tissue Infections (NSTI) is accompanied by shock and/or host factors such as advanced age, comorbidities or immunocompromised state [6].

There are mainly 2 types of NSTI, type 1 which is the most common and often described as polymicrobial infections, often including anaerobes and type 2 infections are mono-microbial typically GAS or less commonly staphylococcus aureus.

As to clinical assessment, early recognition and immediate initiation of treatment are key to a favourable outcome. The majority of cases exhibits swelling and erythema, but the most consistent finding is a pain that is out of proportion to exam findings. Suspicious should be very high in patients with a soft tissue infection who rapidly deteriorate with organ system failure [7].

Laboratory values and imaging have little value to add to diagnosis when clinical suspicion of NSTI is high enough to warrant treatment. Clinical features alone are equally little value to reach diagnosis. In addition, some practitioners may have limited experience that lead them to challenge to get correct diagnosis with appropriate management plans. An admission lactate of more than 6 mmol/l and a serum sodium of less than 135 mEq/L have been shown to be independent predictors of in-hospital mortality. Gas in the soft tissues on plain can aid in the diagnosis of NSTI [8].

Treatment consisted of antibiotics, surgical debridement, re-exploration 24 hours before surgery, nutritional and early soft tissue coverage as needed. Concerning treatment, any patient with evidence of septic shock should be treated in the critical care setting [9].

Broad spectrum coverage of polymicrobia infections should be initiated. This should include MRSA active agent such as vancomycin, daptomycin, linezolid and against gram negative agents such as piperacillin-tazobactam. If the selected agents lack anaerobic activity, add clindamycin or metronidazole. In toxic shock syndrome, clindamycin is thought to mitigate the severity of shock by decreasing toxin production [10].

The main stay of therapy remains surgical treatment.

Conclusion

It is a surgical emergency with a high morbidity and mortality. As clinicians, early recognition and appropriate referral are of critical importance. In a hospital setting, co-operation of multi disciplines such as microbiologists, surgeons, and intensivists are also of paramount importance. Bear in mind the fact that patients with immunocompromised status are at higher risk to get polymicrobial infections so early surgical exploration with broad spectrum antibiotics coverage

are key management. Surgical exploration is advised if clinical suspicion is high.

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