Staphylococcal Scalded Skin Syndrome

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Statement of Purpose

Staphylococcal scalded skin syndrome (SSSS) is a dermatologic disease, which may affect the extremities, upper torso, and posterior neck. Sloughing of the epidermis is observed. This case report presents a single case of SSSS, which is often under recognized, which is problematic due to a high adult mortality rate. The use of a foot and ankle specialist can lead to a quicker diagnosis and timely intervention. This can help reduce the impact of this disease on the patient.

Case Report

This case report presents a 64-year-old male with a history of chronic, non-infected foot ulcerations for approximately one year's duration. The patient presents to the Emergency Department with a complaint of increased redness and new onset rash to his lower extremities, hands, and torso over the last three days. The rash is non-painful and does not itch. The patient has been wrapping his foot with paper towels and reports no recent medical visits or antibiotic treatment. Past medical history is significant for anemia and chronic alcohol abuse. Family history is unknown, due to the patient being adopted. While no fever or incriminating site of injury is noted, physical examination by the resident noted rashes and increased erythema to the right dorsalis pedis and posterior tibialis pulses were non-palpable but biphasic upon doppler exam. No other neurovascular deficits were observed.

Dermatologic examination revealed cellulitis to bilateral feet and right lower extremity. A maculopapular rash was noted to bilateral lower extremities, upper torso, and posterior neck. Sloughing of the epidermis was noted to bilateral feet, external surface of the hands, and lateral right hip. (Figure 1)

Introduction

While infrequently encountered by the foot and ankle physician, Staphylococcal Scalded Skin Syndrome is a serious condition, which may have a systemic and dermatologic effect. SSSS presents as a painful cutaneous rash, which culminates with the detachment of the superficial dermis. Presentation can occur without onset, along with high morbidity and mortality. While less common in adults, timely diagnosis is critical due to much higher adult mortality rates ranging from 40-63%. SSSS encompasses a spectrum of superficial blistering skin disorders. SSSS is a syndrome of acute exfoliation of the skin, typically following an erythematous cellulitis. It is typically caused by the toxic exfoliative toxins of some strains of Staphylococcus aureus. Severity varies and may range from a few blisters localized to the site of infection to severe exfoliation affecting almost the entire body.

Patients presenting with SSSS may exhibit elevated white blood cell (WBC) count, but WBC count is often normal. Erythrocyte Sedimentation Rate (ESR) is frequently elevated, but is not diagnostic. Electrolytes and renal function should be followed closely in severe cases. While early recognition by the foot and ankle specialist can lead to a quicker diagnosis and timely intervention, this can help reduce the impact of this disease on the patient. Noncompliance, the patient had difficulty obtaining care and was discharged home.

Case Discussion

The patient was admitted to the hospital and treated with intravenous (IV) clindamycin and piperacillin/tazobactam. Following a 4-day course of IV antibiotics, the exfoliation and cellulitis resolved. The patient was released with oral anti-staphylococcal antibiotics and local wound care. The patient continued to struggle with alcoholism. Due to non-compliance, the patient had difficulty healing with the pre-existing foot ulcers, but experienced no further occurrence of systemic infection over a 15-month period.

Data

Lab Values:

CBC (Complete Blood Count): WBC=12.7(↑), RBC=4.3(↓), Hgb=11.6(↓), Hct=36.0(↓)

Sedimentation Rate (ESR): 53(↑)

ESR=19(k), CRP=10.6(↑)

Radiographs:

Increased soft tissue density noted to right foot. No soft tissue emphysema noted, bilateral. (Top images = right foot, Bottom Images = left foot)

Treatment

The patient was admitted to the hospital and treated with intravenous (IV) clindamycin and piperacillin/tazobactam. Following a 4-day course of IV antibiotics, the exfoliation and cellulitis resolved. The patient was released with oral anti-staphylococcal antibiotics and local wound care. The patient continued to struggle with alcoholism. Due to non-compliance, the patient had difficulty healing with the pre-existing foot ulcers, but experienced no further occurrence of systemic infection over a 15-month period.

Discussion

Staphylococcal Scalded Skin Syndrome is a syndrome of acute exfoliation and dermatologic effect. It is typically due to exotoxins of Staphylococcus aureus. While other non-Staphylococcal organisms have also been reported. While laboratory values may be elevated, normal lab values are commonly observed making the initial diagnosis for severe exfoliation to be clinical suspicion. Differentiation of Staphylococcal Scalded Skin Syndrome (SSSS) from Exfoliative Dermal Necrosis (TEN) is extremely important, due to a much higher mortality association with TEN. In TEN, the mucous membranes, conjunctiva, trachea, esophagus, and gastrointestinal tract are almost always affected whereas in SSSS they are spared.1,4

Most Staph infections implicated in Staphylococcal Scalded Skin Syndrome have penicillins and are resistant to penicillin. Prompt treatment with IV anti-staphylococcal antibiotics is essential.1 Initial treatment with IV Clindamycin, due to its ability to inhibit bacterial ribosomal production of exotoxin, and a penicillinase resistant penicillin are suggested in SSSS until culture & susceptibility data are obtained.2 Increasing rates of community-acquired S. aureus infection (CA-MRSA) must be also considered and Vancomycin may be indicated. Topical wound care may be required, including adjuvants to a dedicated burn center in severe cases of exfoliation. Corticosteroids are contraindicated as they may worsen immune function.2 Electrolyte and renal function should be followed closely in severe cases as fluid loss and dehydration are a concern. Abnormal lab values should be corrected and appropriate angioplasty provided. Additionally, NSAID's and other agents that potentially reduce renal function should be avoided. Intensive care support is often necessary in patients with severe infection.1 With early recognition by the foot and ankle physician and appropriate medical management mortality can be reduced.

Acknowledgements

The Northern Ohio Foot and Ankle Foundation. www.nofafoundation.org E-mail: nofafoundation@gmail.com

References

7. Pediatric Annals 39:10, p. 627
8. Infected Disease. 2015;1 9(2):228-238
10. SSSS encompasses a spectrum of superficial blistering skin disorders. SSSS is a syndrome of acute exfoliation of the skin, typically following an erythematous cellulitis. It is typically caused by the toxic exfoliative toxins of some strains of Staphylococcus aureus. Severity varies and may range from a few blisters localized to the site of infection to severe exfoliation affecting almost the entire body.
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Figure 1: Clinical Photographs: Extensive surface of the hands. (upper left) Dorsal right foot and ankle. (above) Plantar foot, bilateral. (left)