

Staphylococcal Scalded Skin Syndrome Vs Toxic Epidermal Necrolysis

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ABSTRACT

Staphylococcal Scalded Skin Syndrome (SSSS) and Toxic Epidermal Necrolysis (TEN) though rare are among the few emergencies in dermatology practice. Distinguishing between the two is vital for management. We report an 8-month-old baby with erythema and exfoliation of the skin. Certain subtle clinical clues helped to arrive at a correct diagnosis of Toxic Epidermal Necrolysis. This case exemplifies the need for a detailed history taking and astute clinical examination.

Keywords:

Staphylococcal Scalded Skin Syndrome, Toxic Epidermal Necrolysis, TEN

INTRODUCTION

One hardly encounters emergencies in the practice of dermatology. However, SSSS and TEN though rare, are among the few emergencies¹. Both conditions are clinically similar and characterized by peeling of the skin in sheets. Distinguishing between the two is vital for management.

CASE REPORT

Eight-month-old baby was brought to the OPD of Mahatma Gandhi Medical College and Research Institute with complaints of redness and peeling of skin of 2 days duration. Baby was alright until 2 days back when he started developing redness and peeling of skin of face and trunk, was febrile and highly irritable. He was on parenteral ceftriaxone for fever 5 days prior to the onset of skin lesions.

Examination revealed a febrile and incessantly crying baby. There was confluent dusky erythema of whole skin except for a few areas. There was also peeling of skin over flexures –axillae,

natal cleft, neck, groin. mucosae of eye and lips were involved and showed lid edema, conjunctival congestion and erythema of lips [Figure 1(a-c)].

Figure 1(a): Peeling of skin with lid edema



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Figure 1(b): Dusky skin with peeling on the back,



Figure 1(c): Sparing of normal skin of lower leg and adjoining foot and blisters distally.



A provisional diagnosis of Toxic Epidermal Necrolysis and Staphylococcal Scalded Skin Syndrome were made. It was a challenge for us to distinguish between the two clinically indistinguishable entities.

If it were SSSS, parenteral antibiotic therapy would be mandatory and lifesaving, while on the other hand if it were TEN, parenteral antibiotics would prove fatal for the patient.

The points that favored TEN were,

Five days H/o ceftriaxone, areas of sparing of skin of a few sites and mucosal involvement -lid edema, conjunctival congestion and erythema of lips.

While SSSS too could be considered here because it was a sick child with flexural involvement.

In view of subtle clinical clues mentioned above, we considered the diagnosis of ceftriaxone induced TEN rather than SSSS though the patient was a child. Our diagnosis of TEN was further supported by Naranjo's and WHO scale of adverse drug reaction according to which this falls under category of "Certain" drug reaction.

Prompt withdrawal of the drug saw a happy and active child the next day with post inflammatory peeling of the skin [Figure 2].

DISCUSSION

The most common cause of SSSS is *staphylococcus aureus* group II phage type 71. This disease occurs mainly in infants and children under the age of 5 years, and rarely in older children and adults². The disease may start as blisters localized to the site of infections and

Figure 2: Post inflammatory scaling without erythema after drug withdrawal.



subsequently spread to the entire body leading to loss of skin as sheets. It is rare in adults due to increased clearance of exotoxins by specific antibodies. SSSS is deemed to be an emergency and treatment with parenteral antibiotics is obligatory.

TEN is almost always (>95%) secondary to drugs. The most common drugs implicated are sulfonamides, penicillins, quinolones, cephalosporins and acetaminophen³. It is more common in adults and very few cases are reported in children

The exact pathogenesis of TEN remains unknown. Recent studies show the role of cell mediated immune response as the cause, replacing the humoral immunity theory as the cause of keratinocyte destruction.

CONCLUSION

TEN and SSSS are two important dermatologic emergencies in which treatment of one may fatally affect the other and where prompt treatment alone can save the patient. Hence the need for detailed history taking and keen observation of skin and mucous membranes.

We present this case because antibiotics, old and new are being prescribed extensively, a high index of suspicion of adverse drug reaction by every clinician is the need of the hour and prompt recognition of adverse drug reaction and withdrawal of drugs may be all that is enough to save the patient.

CONFLICTS OF INTEREST

None.

References

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'Forgotten' antibiotic offers hope against worst superbugs

Resistance to the last-resort antibiotic colistin is now widespread and new therapeutics are urgently required. Authors report the first in toto chemical synthesis and pre-clinical evaluation of octapeptins, a class of lipopeptides structurally related to colistin. The octapeptin biosynthetic cluster consisted of three non-ribosomal peptide synthetases (OctA, OctB, and OctC) that produced an amphiphilic antibiotic, octapeptin C4, which was shown to bind to and depolarize membranes. While active against multi-drug resistant (MDR) strains in vitro, octapeptin C4 displayed poor in vivo efficacy, most likely due to high plasma protein binding. Nuclear magnetic resonance solution structures, empirical structure-activity and structure-toxicity models were used to design synthetic octapeptins active against MDR and extensively drug-resistant (XDR) bacteria. The scaffold was then subtly altered to reduce plasma protein binding, while maintaining activity against MDR and XDR bacteria. In vivo efficacy was demonstrated in a murine bacteremia model with a colistin-resistant *P. aeruginosa* clinical isolate.

Professor Cooper said the study laid the foundation for the development of a new generation of antibiotics to treat life-threatening infections.

Source: Tony Velkov et al. Cell chemical Biology. 2018; 25; 380-391