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Staphylococcal Toxiderma in an 18-Month-Old Infant Evolving to Lyell's Syndrome: A Case Report

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Abstract | **Case Report**

Staphylococcal toxidermia is a rare but potentially life-threatening condition in children, occasionally evolving toward a toxic epidermal necrolysis-like presentation (1). ***Case Presentation:*** We report the case of an 18-month-old female infant presenting with fever and impetiginous lesions rapidly evolving into a generalized exfoliative eruption suggestive of Lyell's syndrome. Neurological deterioration was observed. Blood cultures were negative, but the clinical features were compatible with staphylococcal scalded skin syndrome (SSSS). The patient was treated with intravenous vancomycin and a 5-day course of immunoglobulins at 0.4 g/kg/day, resulting in a favorable outcome. ***Conclusion:*** This case highlights the importance of early recognition of severe staphylococcal skin syndromes and the potential benefit of adjunctive immunoglobulin therapy in extensive cases with neurological involvement.

Keywords: Staphylococcal scalded skin syndrome, Toxiderma, Lyell's syndrome, Intravenous immunoglobulin, Exfoliative toxins.

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INTRODUCTION

Toxidermia caused by Staphylococcus aureus, particularly in the form of staphylococcal scalded skin syndrome (SSSS), is a dermatological emergency in pediatrics. Although mostly benign, severe forms can mimic toxic epidermal necrolysis (TEN or Lyell's syndrome) and may include systemic involvement. Prompt diagnosis and appropriate antimicrobial therapy are essential.

CASE REPORT

An 18-month-old previously healthy girl was admitted with a 3-day history of high fever (39.5°C), irritability, and erythematous lesions localized around the mouth and buttocks, initially diagnosed as impetigo. Prior to admission, the patient had received an oral anti-inflammatory drug (ibuprofen) for fever management, prescribed during the initial outpatient evaluation. No antibiotics had been administered at that time, her condition worsened within 48 hours with generalized erythema, bullae formation, and epidermal detachment on over 30% of body surface area.

Neurological signs appeared on day 4 with drowsiness, photophobia, and a Glasgow Coma Scale of 10/15. Laboratory findings showed leukocytosis (18,000/mm³), C-reactive protein at 62 mg/L, and normal renal and liver function tests. Blood cultures and CSF were sterile.

The diagnosis of severe SSSS mimicking Lyell's syndrome was made based on clinical presentation. Intravenous vancomycin (60 mg/kg/day) was initiated along with intravenous immunoglobulins at a dose of 0.4 g/kg/day for 5 days. Supportive care included fluid resuscitation, temperature control, and strict infection prevention.

Clinical improvement was observed within 72 hours with re-epithelialization starting by day 5 and full neurological recovery by day 7. The patient was discharged after 10 days without sequelae.

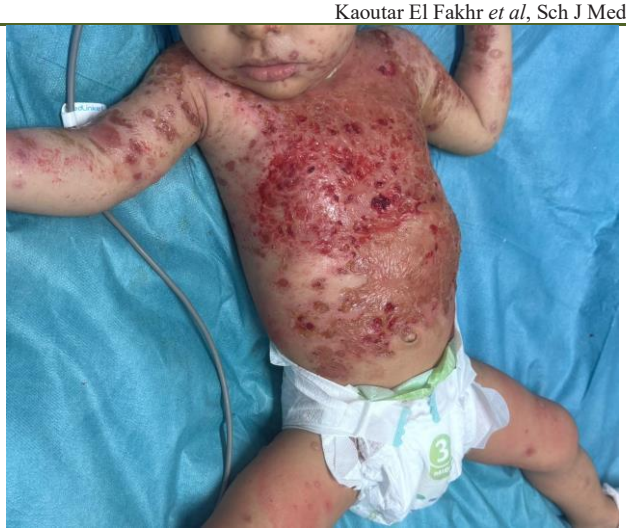

Figure 1: Initial skin lesions in an 18-month-old infant showing diffuse erythema with superficial exfoliation and ruptured flaccid bullae

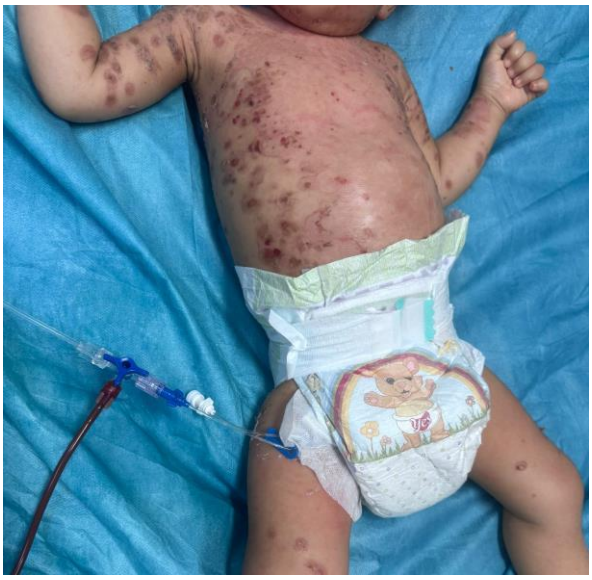

Figure 2: Clinical improvement on day 2: beginning of re-epithelialization with significant reduction of erythema and no new bullous lesions

Figure 3: Clinical improvement on day 5

DISCUSSION

Staphylococcal scalded skin syndrome (SSSS) is a toxin-mediated dermatologic condition caused by exfoliative toxins (exfoliatins A and B) produced by Staphylococcus aureus [2, 3]. These toxins induce intraepidermal cleavage within the granular layer, resulting in the characteristic superficial desquamation, particularly in young children due to their immature renal clearance of the toxins [3].

Clinical presentations can range from localized disease to extensive involvement mimicking Lyell's syndrome (toxic epidermal necrolysis—TEN). Our case illustrates this severe form with widespread skin involvement, neurological symptoms, and high fever, complicating the differential diagnosis with classical drug-induced Lyell's syndrome [2,3].

Diagnosis relies primarily on clinical features. The absence of mucosal involvement and the rapid progression are key to differentiating SSSS from drug-induced epidermal necrolysis. In our case, sterile blood and cerebrospinal fluid cultures were typical findings, as staphylococcal toxidermia is often a toxin-mediated illness without bacteremia [3].

Antibiotic treatment should target S. aureus, with empirical use of vancomycin often recommended due to the rising prevalence of methicillin-resistant S. aureus (MRSA) strains [4]. The use of intravenous immunoglobulins (IVIG) remains controversial but can be considered in severe cases, especially with neurological involvement, given their capacity to neutralize exfoliative toxins [4].

IVIG therapy has demonstrated efficacy in other severe toxin-mediated conditions, such as infectious purpura fulminans [5] and severe Kawasaki disease in infants [6], highlighting their immunomodulatory and antitoxin role.

Our case also aligns with literature reports of systemic complications associated with severe infections in infants, including thromboembolic events like neonatal renal artery thrombosis [7] and viral myocarditis [8], underscoring the particular vulnerability of this population.

Furthermore, complications such as acute hemolytic transfusion reactions [9], infectious encephalopathies [10], and electrolyte disorders like cerebral salt wasting syndrome [11] exemplify the complexity and diversity of possible sequelae in pediatric sepsis, requiring heightened clinical vigilance.

Severe neonatal bacterial infections caused by unusual pathogens such as Citrobacter koseri [12] or invasive fungal infections [13], although rare, represent significant diagnostic and therapeutic challenges, reinforcing the need for multidisciplinary management in specialized centers.

Finally, although not directly related to our case, infant anaphylaxis and allergic reactions [14] constitute another pediatric emergency necessitating prompt recognition and appropriate management.

CONCLUSION

This case underlines the importance of recognizing severe staphylococcal skin infections in infants, especially when clinical features suggest overlap with toxic epidermal necrolysis. Early initiation of targeted antibiotics and adjunctive therapy with immunoglobulins may be life-saving.

Conflicts of Interest: The authors declare no conflicts of interest.

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Parental Consent: Written informed consent was obtained from the patient's parents for the publication of this case report and any accompanying images. Efforts were made to ensure anonymity, and no identifiable information has been disclosed.

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