***Case report***

**Overlapping Stevens-Johnson Syndrome and Staphylococcal Scalded Skin Syndrome in a Three-Year-Old Child: A Rare Pediatric Dermatologic Emergency**

**ABSTRACT**

**Aims**: To report a rare pediatric case presenting with overlapping Stevens-Johnson Syndrome and Staphylococcal Scalded Skin Syndrome complicated by impetigo in a three -year-old child, highlighting diagnostic and therapeutic challenges.

**Presentation of Case**: A three-year-old female child presented to the emergency department with fever, perioral vesicles, crusting, and perioral pain. The symptoms began after an upper respiratory tract infection and treatment with amoxicillin. Over a period of four days, the child developed worsening vesiculobullous lesions with perioral crusting and mucosal involvement. Examination revealed erosive, erythematous lesions, positive Nikolsky’s sign, and inability to open the mouth due to lip involvement. There was no ocular or genital involvement. A diagnosis of overlapping Steven Jonson Syndrome(SJS) (Body Surface Area <10%) and Staphylococcal Scalded Skin Syndrome(SSSS) with secondary impetigo was made. The patient was managed with IV fluids, IV cefotaxime, paracetamol, ranitidine, topical paraffin, saline soaks, and zinc supplementation. Clinical improvement was noted within 5–7 days, and the child was discharged in stable condition.

**Discussion**: Coexistence of SJS and SSSS is rare in children and presents diagnostic challenges due to overlapping features. Early differentiation and treatment are crucial, especially when diagnostic tools are limited.

**Conclusion**: This report emphasizes the need for clinical vigilance in pediatric exfoliative dermatoses and the importance of early empirical therapy to ensure recovery

Key words: Stevens-Johnson Syndrome, Dermatologic Emergency, Staphylococcal Scalded Skin Syndrome, serious dermatologic conditions, beta-lactam antibiotics

**1.INTRODUCTION**

Stevens–Johnson Syndrome (SJS) and Staphylococcal Scalded Skin Syndrome (SSSS) are rare, serious dermatologic conditions affecting pediatric populations. SJS is a type IV hypersensitivity reaction, typically triggered by medications such as beta-lactam antibiotics, and is characterized by mucocutaneous necrosis involving less than 10% of the body surface area [1]. In contrast, SSSS is a toxin-mediated disorder caused by exfoliative toxins A and B released by *Staphylococcus aureus*, leading to intraepidermal splitting at the level of the stratum granulosum [2].

The incidence of Stevens–Johnson Syndrome is estimated at 1–6 cases per million person-years, with a mortality rate of up to 10%, whereas Staphylococcal Scalded Skin Syndrome occurs more commonly in children under five, though with lower mortality when treated promptly [1,2]. Such epidemiological insights highlight the clinical significance and urgency of accurate diagnosis and treatment in pediatric patients presenting with exfoliative dermatoses

Although SJS is immune-mediated and SSSS is toxin-induced, their clinical features may overlap, especially in children. Both conditions can present with fever, erythema, blistering, and positive Nikolsky’s sign, which can complicate early diagnosis [3]. Mucosal involvement, typically absent in SSSS, is a hallmark of SJS and serves as a key differentiating feature [4].

Overlap of SJS and SSSS in children is rare but important, as the treatments differ significantly.SJS requires immediate withdrawal of the causative drug and supportive care, while SSSS warrants prompt antibiotic therapy targeting S. aureus [5,6]. In resource-limited settings, where confirmatory diagnostics such as biopsy and culture may be unavailable, clinical judgment plays a vital role.

We report a unique case of a three -year-old child with overlapping features of SJS and SSSS, complicated by impetigo and managed successfully in a tertiary care hospital.

**2. PRESENTATION OF CASE**

A three -year-old female child, weighing 10 kg, was brought to the emergency department with complaints of fever, painful perioral vesicles, crusting, and difficulty opening the mouth. The symptoms began with oral blisters and fever and lasted for one week. . Parents initially applied traditional remedies, including honey and oil, which exacerbated the lesions.

The child had been treated previously by private practitioners with syrup amoxicillin and clavulanic acid, mefenamic acid, and multivitamins. The child was prescribed syrup amoxicillin–clavulanic acid (amoxiclav) on Day 2 of fever, and vesicular skin lesions began to appear on Day 3, within 24 hours of starting the medication. The lesions worsened despite using topical metronidazole and chlorhexidine gels. On examination, perioral crusting, erythema, and erosions were noted, with mucosal involvement of the lips and inability to examine the oral cavity. Nikolsky’s sign was positive. No genital or ocular involvement was observed.

**Past Medical History**

* History of a rash one month earlier (managed as outpatient)
* Pneumonia at age two, managed as inpatient
* No known drug allergies prior to this episode

**Perinatal and Developmental History**

* Term, normal vaginal delivery; birth weight 3.75 kg
* NICU admission for neonatal jaundice (2 days)
* Normal developmental milestones
* Fully immunized

**Laboratory Investigations**

Table 1 summarizes the investigations. Key findings were microcytic anemia and high CRP..

Table 1: Summary of Laboratory Findings

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| --- | --- | --- |
| Parameter | Value | Normal Range (Pediatric) |
| White Blood Cell Count (WBC) | 9,200 /mm³ | 5,000–15,000 /mm³ |
| Hemoglobin | 8.7 g/dL | 11.5–15.5 g/dL |
| Mean Corpuscular Volume (MCV) | 63.9 fL | 75–87 fL |
| Mean Corpuscular Hemoglobin (MCH) | 17.9 pg | 25–33 pg |
| Mean Corpuscular Hemoglobin Concentration (MCHC) | 28.2 g/dL | 31–37 g/dL |
| C-Reactive Protein (CRP) | 9.8 mg/L | <5 mg/L |
| Blood Urea | 21 mg/dL | 7–20 mg/dL |
| Serum Creatinine | 0.64 mg/dL | 0.3–0.7 mg/dL |
| Total Bilirubin | 0.73 mg/dL | 0.1–1.0 mg/dL |
| SGOT (AST) | 17 U/L | 10–40 U/L |
| SGPT (ALT) | 19 U/L | 7–56 U/L |
| Serum Sodium (Na⁺) | 139 mmol/L | 135–145 mmol/L |
| Serum Potassium (K⁺) | 3.7 mmol/L | 3.5–5.0 mmol/L |
| Serum Chloride (Cl⁻) | 104 mmol/L | 98–107 mmol/L |
| Random Blood Sugar (RBS) | 79 mg/dL | 70–140 mg/dL (random) |

Microbiological cultures and skin biopsy were not performed due to limited resources.

**Diagnosis**

A clinical diagnosis of overlapping Stevens–Johnson Syndrome (SJS) and Staphylococcal Scalded Skin Syndrome (SSSS), complicated by impetigo, was made.

**Treatment Administered**

* IV fluids (DNS with KCl at 40 ml/hour)
* IV cefotaxime 500 mg Three times daily
* IV paracetamol and IV ranitidine
* Saline soak dressings and liquid paraffin for local application
* Oral zinc supplements and B-complex with vitamin C

The child showed gradual clinical improvement over 5–7 days and was discharged in stable condition.

Due to unavailability of photographic documentation, no clinical image could be provided. However, parental consent was obtained in case of future educational use

**3. DISCUSSION**

Staphylococcal Scalded Skin Syndrome (SSSS) is a rare toxin-mediated skin disorder primarily affecting neonates and young children. It is caused by exfoliative toxins A and B produced by *Staphylococcus aureus*, which target desmoglein-1, resulting in superficial epidermal splitting at the stratum granulosum [2,7,13]. Stevens–Johnson Syndrome (SJS), on the other hand, is a severe mucocutaneous hypersensitivity reaction, most commonly drug-induced, and involves full-thickness epidermal necrosis along with mucosal membrane involvement [1,4].

Histopathological examination in SJS typically reveals full-thickness epidermal necrosis, subepidermal blister formation, and sparse dermal inflammation, distinguishing it from SSSS where cleavage occurs within the granular layer without necrosis. The pathogenesis involves cytotoxic T‑cell-mediated keratinocyte apoptosis via Fas–FasL interactions and granulysin release from activated T cells and NK cells[12]

Though rare, SJS and SSSS can overlap clinically in early stages, particularly in children. Both conditions can present with fever, erythema, positive Nikolsky’s sign, and desquamation, which can make diagnosis challenging [3]. A major clinical differentiator is mucosal involvement, which is common in SJS but typically absent in SSSS [4,5]. In our case, the presence of lip mucosal crusting pointed to SJS, possibly triggered by recent amoxicillin use, while the rapid progression of superficial erosions and response to antibiotic therapy supported a diagnosis of SSSS.

The differential diagnosis for exfoliative skin conditions in children includes bullous impetigo, toxic epidermal necrolysis (TEN), erythema multiforme major, and other blistering disorders. TEN, unlike SJS, involves >30% body surface area and more extensive epidermal detachment. Bullous impetigo is more superficial but may mimic early SSSS. Erythema multiforme major is often confused with SJS but typically presents with target lesions and less mucosal involvement. Careful clinical examination and response to therapy helped differentiate these conditions in our case

In similar reported pediatric cases, the diagnostic uncertainty was heightened due to overlapping features and lack of confirmatory diagnostics such as skin biopsy or toxin assay, particularly in resource-limited settings [2,6]. Our case was managed empirically with IV cefotaxime, supportive fluids, and wound care, resulting in significant clinical improvement within 5–7 days. This approach is consistent with other published reports of toxin-mediated pediatric dermatoses [8,9].

Additionally, a secondary bacterial infection (complicated impetigo) may have exacerbated the skin condition and contributed to the systemic signs. Impetigo caused by S. aureus can serve as a nidus for toxin production, further complicating the clinical picture [10].

This case highlights the need for clinical suspicion when mucosal and skin symptoms occur together. Early diagnosis and timely intervention with antibiotics and supportive care can prevent complications and reduce morbidity.

**4. CONCLUSION**

Overlap syndromes involving Stevens–Johnson Syndrome and Staphylococcal Scalded Skin Syndrome are exceptionally rare in pediatric populations and pose significant diagnostic challenges. This case reinforces the importance of clinical judgment in the absence of confirmatory diagnostics and highlights the effectiveness of early empirical therapy in ensuring favorable outcomes. Clinicians must recognize overlap cases early and start prompt supportive and targeted treatment to avoid complications.

**8. CONSENT**

Written informed consent was obtained from the child’s legal guardian for publication of this case report and any accompanying clinical information.

**9. ETHICAL APPROVAL**

This case report is exempt from institutional ethical review as per the policy for anonymized single-patient case reports at our institution.

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Details of the AI usage are given below:

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**10.REFERENCES**

1. Ramien M, Goldman JL. Pediatric SJS–TEN: where are we now? F1000Research. 2020;9:982. doi:10.12688/f1000research.26900.1

2. Nusman CM, Blokhuis C, Pajkrt D, Visser DH. Staphylococcal scalded skin syndrome in neonates: case series and overview of outbreaks. Antibiotics (Basel). 2023;12(1):38. doi:10.3390/antibiotics12010038

3. Coleman I, Ruiz G, Brahmbhatt S, et al. AGEP and Stevens–Johnson syndrome overlap due to hydroxychloroquine: a case report. J Med Case Rep. 2020;14:210. doi:10.1186/s13256-020-02504-8

4. Shetty SR, Chatra L, Shenai P, Rao PK. Stevens–Johnson syndrome: a case report. J Oral Sci. 2010;52(2):343–6. doi:10.2334/josnusd.52.343

5. Hassnoot PJ, De Vries A. Staphylococcal scalded skin syndrome in a 4-year-old child: a case report. J Med Case Rep. 2018;12:20. doi:10.1186/s13256-017-1533-7

6. Meshram GG, Kaur N, Hura KS. Staphylococcal scalded skin syndrome: a pediatric dermatology case report. SAGE Open Med Case Rep. 2018;6:2050313X17750890. doi:10.1177/2050313X17750890

7. Handler MZ, Schwartz RA.Staphylococcal scalded skin syndrome: diagnosis and management in children and adults.J Eur Acad Dermatol Venereol. 2014;28(11):1418–1423. doi:10.1111/jdv.12449

8.Dalla Pria AS, Botelho BC, Batista BG, et al. Staphylococcal scalded skin syndrome in an infant: case report. Res Soc Dev. 2025;14(6):e1414648902. doi:10.33448/rsd-v14i6.48902

9.Granado MC, Gonçalo AL, Macedo-Francisco C, Santos S, Andrade JV, Carvalho L. Staphylococcal scalded skin syndrome in a breastfed newborn: a case report. Int J Clin Pediatr. 2021;10(2-3):53–56. doi:10.14740/ijcp438

10. Bowen AC, Mahé A, Hay RJ, et al. The global epidemiology of impetigo: a systematic review of the population prevalence of impetigo and pyoderma. PLoS One. 2015;10(8):e0136789. doi:10.1371/journal.pone.0136789.

11. Benani, M., Adraoui, Y. E., Najout, H., Boubekri, A., Harrak, S. E., Chouikh, C., & Balkhi, H. (2025). Stevens-Johnson Syndrome –Toxic Epidermal Necrolysis Induced by Lamotrigine in a 15-Year-Old Girl: A Case Report. Asian Journal of Case Reports in Medicine and Health, 8(1), 26–32. <https://doi.org/10.9734/ajcrmh/2025/v8i1215>.

12. Zhang H, Wang Z, Xu L, et al. Genetic studies on Stevens‑Johnson syndrome and toxic epidermal necrolysis: an update. Hum Genomics. 2019;13(1):41. doi:10.1186/s41038-019-0153-4

13. Liy-Wong C, Pope E, Weinstein M, Lara-Corrales I.Epidemiological and clinical review of staphylococcal scalded skin syndrome in 84 children. Pediatr Dermatol. 2021;38(1):149 153.doi:10.1111/pde.14459