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(CASE REPORT)

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Severe Staphylococcal Scalded Skin Syndrome with Multiple Complications in a 5-Week-Old Neonate: A Case from a Refugee Camp Clinic

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Abstract

Staphylococcal scalded skin syndrome (SSSS) is a severe, toxin-mediated dermatologic condition that primarily affects neonates and young children. It is characterized by widespread epidermal exfoliation, often complicated with dehydration and sepsis. This report describes a 5-week-old male neonate who presented with a 10-day history of rapidly progressing vesicular skin lesions ultimately leading to a near-total body exfoliation with radial fissuring and crusting around the mouth and eye, high-grade fever, severe dehydration, and concurrent conjunctivitis (ophthalmia neonatorum). The case highlights the critical importance of early diagnostic recognition and emergent care; including fluid resuscitation, meticulous skin and ocular care, especially in resource-limited or humanitarian practices. Such settings are often challenged with limited access to antibiotics, specialty care, and delayed patient presentation. The need for a comprehensive antibiotic strategy and preventive neonatal eye care is particularly important where there is co-occurrence of ophthalmia neonatorum. Where access to healthcare is limited by multiple social determinants, prognosis is usually poor. Improving survival in these environments will require strengthening both human resources and ensuring robust supply chains.

Keywords: Severe Staphylococcal Scalded Skin Syndrome; Ophthalmia neonatorum; Neonatal skin infections; Humanitarian setting; Radial fissuring

1. Introduction

Staphylococcal scalded skin syndrome (SSSS) also known as Ritter disease or pemphigus neonatorum is a toxin-mediated dermatologic disorder primarily affecting neonates and young children. It is caused by epidermolytic toxins A and B, produced by certain strains of *Staphylococcus aureus*, which are the primary pathogenic factors underlying the syndrome [1]. SSSS can lead to widespread epidermal splitting, erythema, and systemic symptoms in neonates and immunocompromised individuals [2]. The severity of staphylococcal scalded skin syndrome (SSSS) can range from a few localized, fluid-filled blisters to widespread exfoliation involving the entire body surface. These red blisters resemble scalded or burned skin, which is why the condition is termed “staphylococcal scalded skin syndrome” [3].

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The condition can rapidly progress to dehydration, sepsis, and secondary infections. Ophthalmia neonatorum, a purulent conjunctivitis in neonates, may co-occur and poses a risk for long-term visual impairment [4]. With timely treatment, staphylococcal scalded skin syndrome (SSSS) usually resolves within one to two weeks and rarely results in dire emergency complications. Children often recover well, leaving little to no scarring. Mortality in pediatric cases is generally low, at around 4% or less, whereas in adults it can rise to as high as 50%, largely due to preexisting health conditions [5]. In low-resource and humanitarian settings, where neonatal care is often constrained by limited availability of essential supplies and health care workers, delayed presentation and limited access to care may precipitate morbidity of patients.

2. Case Presentation

2.1. Patient information

A 5-week-old male neonate was brought to Al-Hashaba Refugee Clinic in Sudan with a 10-day history of progressive vesicular skin lesions. The lesions began at the flexor surfaces of his arms and legs, umbilical area and buttocks and gradually extended to involve nearly the entire body. The illness was accompanied by high-grade intermittent fever, irritability, vomiting, decreased urine output, and mucopurulent ocular discharge. The infant had been born at home, with labor managed by an untrained neighbor, and the mother had only attended two antenatal visits. The child had not received any vaccinations, and prior to presentation, topical treatment from a traditional healer had been attempted without improvement. There were no reports of similar illness within the household.

2.2. Clinical findings and diagnostic assessment

On examination, the neonate appeared acutely ill, irritable, and febrile with a temperature of 38.4°C. Vital signs revealed a heart rate of 136 beats per minute, respiratory rate of 34 cycles per minute, and oxygen saturation of 96%, weight was 2.8 kgs. Physical findings included extensive skin desquamation and fissuring that extended to the palms and soles, with boggy swelling of the buttocks and thighs. Ocular findings showed loss of eyelashes, mucopurulent discharge, extensive periocular ulceration and inflammation with radial fissuring and cracking of the eyes and mouth. Clinical signs of severe dehydration were evident; sunken eyeballs, depressed anterior fontanelle, and floppiness. Mild abdominal distension was also noted. Based on the findings, the child was diagnosed with generalized staphylococcal scalded skin syndrome (SSSS) complicated by severe dehydration, and ophthalmia neonatorum.

2.3. Management

Immediate management focused on stabilization and supportive care. The neonate was resuscitated with intravenous fluids at 20 ml/kg of 0.9% normal saline to correct dehydration given twice, then put on pediatric maintenance fluid. Ocular care included sterile saline-soaked gauze packing and the application of tetracycline ophthalmic ointment to control infection and reduce the risk of vision loss. And one dose of 50mg/kg ceftriaxone was given. The skin lesions were cleansed and dressed with sterile coverings to reduce contamination and facilitate healing. Given the severity of systemic illness and limitations at the clinic, urgent referral was arranged for intravenous antibiotic therapy and ophthalmologic evaluation to a nearby Gedarif state referral hospital.

2.4. Challenges

The management of this case was complicated by the challenges inherent to the refugee setting. Access to essential medications was severely constrained, with limited availability of systemic antibiotics at the primary care level. The absence of specialized ophthalmologic services posed additional risks, as the neonate's ocular involvement carried a high likelihood of permanent sequelae without timely intervention. Furthermore, the overall resource-constrained environment limited the ability to provide advanced wound care, microbiological testing, or intensive monitoring. These challenges underscored the difficulties of managing life-threatening neonatal infections in fragile humanitarian contexts, where prompt referral and innovative resource optimization are critical for survival. With delayed presentation in this case driven by extreme financial and healthcare access limitations, a common systemic challenge in resource-poor settings, the health outcomes was adversely affected[14,16].

3. Discussion

Staphylococcal Scalded Skin Syndrome (SSSS) represents a severe toxin-mediated dermatological emergency, most often affecting neonates and young children due to their immature renal clearance mechanisms and limited ability to neutralize circulating exotoxins of Staphylococcus aureus [1,6]. The condition is characterized by widespread bullae, epidermal desquamation, and tenderness, with the classical sparing of mucous membranes. Diagnosis in most cases is

clinical, relying on recognition of the distribution pattern of lesions, a positive Nikolsky's sign, and the absence of systemic organomegaly [7]. While histopathology or bacterial cultures from distant colonization sites may support the diagnosis, these confirmatory tests are often unavailable in resource-limited settings, where reliance on clinical acumen remains paramount [8].

In this case, the clinical presentation of extensive desquamation with fissuring, fever, and systemic signs was consistent with SSSS, with concurrent ocular involvement raising concern for S. aureus–associated ophthalmia neonatorum. Management of SSSS hinges on three main principles: early initiation of systemic anti-staphylococcal antibiotics, meticulous supportive care including fluid and electrolyte replacement, and strict infection control practices to prevent secondary sepsis [1,9]. In high-resource settings, intravenous anti-staphylococcal penicillins or first-generation cephalosporins remain the cornerstone of therapy, with clindamycin often added for its antitoxin effects [10]. However, in low-resource contexts such as refugee camps, where intravenous antibiotics may be unavailable, timely referral is critical to mitigate mortality. Our patient was resuscitated with fluids and stabilized prior to referral, underscoring the importance of prioritizing basic supportive measures when definitive therapy is delayed.

Supportive care is a vital determinant of survival in SSSS. Dehydration is a major complication due to widespread epidermal loss, and close monitoring of fluid balance is essential [11]. Wound care with non-adherent sterile dressings and strict aseptic precautions help prevent secondary infection, which remains the leading cause of mortality in affected neonates [12]. Pain management and nutritional support further contribute to recovery, though these interventions are often under-resourced in humanitarian contexts.

The concomitant presentation of ophthalmia neonatorum in this neonate illustrates the broad pathogenic capacity of S. aureus in early infancy. Ophthalmia neonatorum, if untreated, can progress to keratitis, corneal ulceration, and permanent visual impairment [13]. Standard management includes topical and systemic antibiotic therapy tailored to the identified pathogen. Preventive strategies, particularly the routine use of 0.5% erythromycin ophthalmic ointment at birth, have been shown to be highly effective in reducing neonatal ocular infections [15]. Unfortunately, in settings with high rates of home births and poor access to neonatal preventive services, this practice is inconsistently implemented, contributing to higher morbidity.

Figure 1 The newborn with SSSS at the time of presentation

Figures 2&3 Severe ophthalmic involvement with periocular desquamation and radial fissuring

Figure 4 Extensive skin desquamation

4. Conclusion

This case highlights the amplified challenges of diagnosing and managing SSSS in resource-poor settings such as refugee camps. Limited availability of systemic antibiotics, absence of specialist ophthalmologic care, and delayed presentation due to structural cultural and religious barriers contribute to suboptimal outcomes. Prompt recognition, aggressive fluid resuscitation, early wound and ocular care, and urgent referral for definitive antibiotic therapy remain the cornerstones of management. The experience underscores the pressing need for context-adapted strategies, including training frontline health workers to identify SSSS early, ensuring supply chains for essential antibiotics, and integrating neonatal prophylactic eye care into maternal-child health programs in refugee and other low-resource settings.

Compliance with ethical standards

Disclosure of conflict of interest

Authors have no conflict of interest to declare.

Statement of ethical approval

Ethical approval was obtained.

Statement of informed consent

As per international standard for minors, patient's mother's consent was collected and preserved by the authors.

Authors' contributions

- **Author 1**: Led patient management, coordinated the diagnostic and treatment process, provided clinical oversight and supervised preparation of the report.
- **Author 2**: Conducted the literature review, collected and verified case details, and drafted the initial manuscript.
- **Author 3:** Provided patient follow-up coordination and contributed to manuscript revision.
- **Authors 4 & 5**: Assisted with literature reviewing and revising the manuscript for clinical clarity and accuracy.
- **Author 6**: Oversaw ethical standards, guided manuscript structure, and approved the final draft.

All authors have read and approved the final manuscript.

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