

# Cefotaxime Induced Staphylococcal Scalded Skin Syndrome: A Case Report

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## ABSTRACT

Staphylococcal Scalded Skin Syndrome (SSSS) is as well called as Ritter von Ritterschein disease, Lyell disease, Ritter disease and staphylococcal necrolysis of the epidermis. More common in neonates and children of age less than five years and are at a greater risk of SSSS. To fight against SSSS, children should attain lifetime immunity in the form of antibodies against exotoxins of staphylococcal strains. Symptoms include fever and redness on the overall surface of skin. Within 24-48h, fluid-filled blisters appear on the body. We report a case of 2-year-old male child developed SSSS after intravenous administration of Cefotaxime.

**Key words:** Staphylococcal scalded skin syndrome, Immunity, Exotoxins, Cefotaxime, Exfoliative, Cephalosporins.

## INTRODUCTION

Staphylococcal Scalded Skin Syndrome is one of the major exfoliating skin infections. Mainly caused by *Staphylococcus* and the skin looks as if it has been burnt by a hot liquid.<sup>1</sup> Due to the lack of immunity and underdeveloped renal clearance, there is a greater chance of SSSS in children.<sup>2</sup>

Two exfoliating toxins A and B which are released from *Staphylococcus aureus*, but the mechanism for exfoliation is unclear until today. Beneath the granular cell layer, separation of the epidermis and red rash occurs when these toxins act at a remote layer.<sup>3</sup> Two types of SSSS exist localized form superficial involvement of skin and a generalized form involvement of significant areas. Localized infection of *Staphylococcus* occurs in the skin, nose, mouth, throat, umbilicus and gastrointestinal tract (GIT). General malaise, irritability, fever, skin tenderness may be prominent. Other signs include facial edema, conjunctivitis and perioral crusting.<sup>4</sup>

Cephalosporin's are used as a prophylactic treatment in many patients because of their

$\beta$ - lactamase stability, lack of toxicity and broad-spectrum.<sup>5</sup> Cefotaxime is a third-generation cephalosporin antibiotic.<sup>6</sup> Here we discuss a case of SSSS due to Intravenous Cefotaxime administration.

## CASE REPORT

A two years old male child who was hospitalized in the Pediatric Department for fever since 3 days, facial puffiness, 2 episodes of vomiting containing food for 1 day, Swelling of legs and feet for 2 days. Then the patient was given Cefotaxime 280mg IV, Paracetamol 5ml syrup, Cetirizine 5ml syrup.

After two days, the patient developed pedal edema and rashes on legs. The physician stopped the medication and the patient was referred to dermatology. On general examination child was conscious, febrile. His pulse rate was 146/min and blood pressure was 90/50mmHg. Physical examination revealed multiple fluid-filled vesicles and bullae noted on the lower limbs and hyperpigmented lesions noted on the face (Figure 1 and Figure 2). On admission

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**Figure 1: Multiple fluid filled vesicles noted on the lower limbs.**



**Figure 2: Hyperpigmented lesions noted on the face.**

the CBC count showed Neutrophilia (85%), anemic (hemoglobin 9g%) WBC (15,000cells/cumm). Other blood test includes direct bilirubin (0.5mg/dl), indirect bilirubin (0.3mg/dl) and Serum creatinine (1mg/dl).

Chest radiograph showed reticulonodular opacity noted in the bilateral right upper zone, abdominal ultrasound was normal.

The patient was diagnosed with Staphylococcal scalded skin syndrome due to Cefotaxime based on physical examination. Fusidic acid ointment, Calamine lotion, other supportive measures were taken. After 5 days, the patient discharged with medication.

## DISCUSSION

Cephalosporins have many side effects but SSSS has

rarely been reported. Cefotaxime the administration is associated with the possible adverse drug reaction such as hypersensitivity reactions, pruritis.<sup>7</sup> *Staphylococcus aureus* may cause cutaneous and systemic infections such as staphylococcal scalded skin syndrome (SSSS), although exfoliating toxins A and B, which cause SSSS, may be produced by different strains of *Staphylococcus aureus*.<sup>8</sup>

In a study done by Mikkelsen CS *et al.* in 2010, Infants and children less than 5 years are predisposed to SSSS, this was comparable to the present study. Because of inefficient renal clearance and lack of protection through anti-toxin antibodies.<sup>9</sup>

The mortality rate due to SSSS is very low in children than in adults until associated with any medical condition.<sup>10</sup> SSSS diagnosis is mainly based on clinical ground. Initially, exfoliation of the skin occurs around the face, mouth, neck and subsequently on the body and limbs. These are comparable to the study of Singer M, *et al.*<sup>11</sup> After 24-48 h, fluid-filled blisters, vesicles develop and large areas of overlying epidermis loosen and skin peels off like a burn.<sup>12</sup>

In hospitalized patients, the most common pathogen involved in skin and systemic infection is *Staphylococcus aureus*.<sup>13</sup> Sepsis, super infection, dehydration or electrolyte imbalance are complications due to denuded skin.<sup>14</sup>

## CONCLUSION

Staphylococcal scalded skin syndrome due to cefotaxime is a rare condition. It was concluded that any Cephalosporin's derivative can cause SSSS. It is very important for health care professionals to take a proper history, any drug allergies and clinical examination. The standard treatment for cefotaxime induced SSSS, to this patient is mainly the withdrawal of the responsible drug. Most of the cases are cured only when treatment starts at the early stage of the disease, if not treated may lead to complications such as cellulitis, septicemia, guttate psoriasis, Post-streptococcal glomerulonephritis and scabies. Intravenous immunoglobulin is recommended in Staphylococcal scalded skin syndrome, but only when its use is associated with prolonged hospitalization.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## ABBREVIATIONS

**SSSS:** Staphylococcal scalded skin syndrome; **GIT:** Gastrointestinal Tract.

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