Case Report

Toxic Epidermal Necrolysis versus Staphylococcal Scalded Skin Syndrome: A Diagnostic Confusion in a 2-year-old Child with Ceftriaxone Therapy

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Abstract

Toxic epidermal necrolysis (TEN) is a rare, but serious condition characterized by widespread death of epidermis involving skin and mucous membrane. Ceftriaxone-induced TEN in the pediatric age group is rare. Hereby, we present a child of 2 years, who was treated for food poisoning with ceftriaxone, amikacin, and ranitidine. The child developed generalized rash and hyperpigmentation with mucosal involvement. A diagnosis of staphylococcal scalded skin syndrome (SSSS) was considered initially, and ceftriaxone was advised to continue. Since the lesions aggravated and therapy was ineffective, ceftriaxone was discontinued. A diagnosis of ceftriaxone-induced TEN was made and treated symptomatically. The patient was discharged with complete recovery. Naranjo's algorithm showed a possible relationship with the adverse event. Ceftriaxone is generally considered safe in the pediatric population but still needs a watchful eye on the development of TEN as it closely resembles SSSS.

Keywords: Ceftriaxone, Naranjo's algorithm, Toxic epidermal necrolysis

Introduction

Toxic epidermal necrolysis (TEN) is a serious dermatological disorder with high mortality rate. The most common cause for TEN is pharmacological intervention, although there are other causes such as viral, bacterial, and fungal infections.[1] Antiepileptics and antibiotics are the most common cause of TEN.[2]

Ceftriaxone is a third-generation cephalosporin indicated for a wide range of bacterial infections. Although there are reports of ceftriaxone-induced TEN in literature, the majority of them are reported in adult patients.[3] To the best of our knowledge, there are few reports describing ceftriaxone-induced TEN in the pediatric age group. Hence, the current case report describes ceftriaxone-induced TEN in a 2-year-old child.

Case Report

A 2-year-old female was brought to the dermatology outpatient department on November 11, 2017, with generalized rash and hyperpigmentation for 1 day. The rashes initially started on the face followed by arms, legs, and trunk. There was involvement of oral and vaginal mucosa. It was not associated with itching or pain. There was no history of allergy to any drug or similar episodes in the past. On further inquiry, it was revealed that the child was treated for 2 days with ceftriaxone 250 mg twice daily, amikacin 125 mg once daily, and ranitidine 75 mg twice daily suspecting staphylococcal food poisoning.

On examination, the child was active, and vitals were stable. There were diffuse hyperpigmented macules present over face, bilateral arms, legs, and trunk. Bullae were present over bilateral ankles. There was diffuse erythema involving approximately 70% of body surface area. Nikolsky's sign was positive.The extent of lesion is shown in Figures 1 and 2. Initially, a diagnosis of staphylococcal scalded skin syndrome was considered, and the patient was not discontinued with the antibiotic medications. However, the patient did not respond to treatment even after

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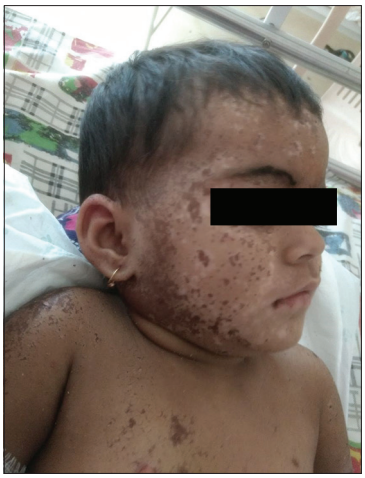

Figure 1: The extent of skin lesion

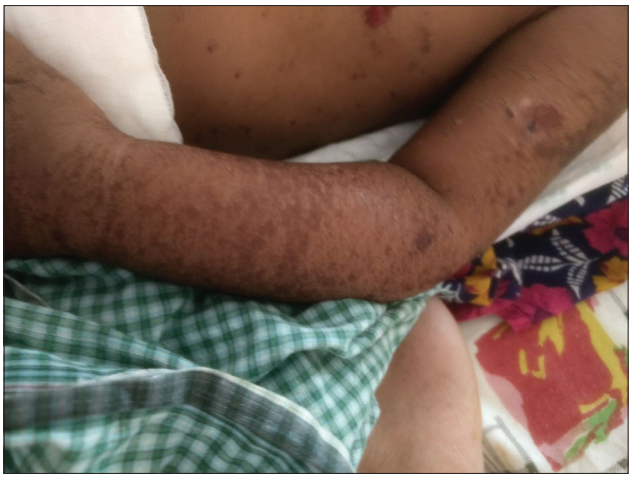

Figure 2: The extent of the lesion

2 days, and the lesions aggravated. Hence, the total duration of ceftriaxone therapy was 4 days. The involvement of vaginal and oral mucosa prompted toward a diagnosis of TEN. Ceftriaxone was stopped, and the patient was given supportive care with hydrocortisone 50 mg twice daily, paraffin gauze dressing, and fluid replacement with Ringer's lactate. The patient was discharged on complete recovery.

In the current case, TEN is probably caused by ceftriaxone as per WHO causality assessment scale.[4] A total score of five in Naranjo's algorithm suggests that the adverse event was probably related to ceftriaxone.[5] Hartwig's severity assessment scale showed the adverse reaction to be at level 4, indicating that severity was moderate.[6]

Discussion

TEN was first described in 1956 by Lyell. It is a rare but fatal disease with an incidence rate of 1–2/million and mortality rate of 20%–60%.[7] Around 60%–80% of TEN cases are associated with drugs. Risk of developing TEN varies with different drugs. The prognosis is better if the offending drug is withdrawn early.[8]

Even though there were concomitant drugs prescribed in our case, these causing TEN is least likely. Even though there are case reports of Stevens–Johnson Syndrome with ranitidine, it was unlikely to be the cause in our case as it was continued even after ceftriaxone was stopped and the lesions decreased.[9] As per literature, amikacin is least likely to cause TEN in comparison to cephalosporin group of antibiotics.[10]

Although the exact pathophysiology of TEN largely remains unknown, it is said that humoral immunity plays a major role in its pathology.[11] In our case, skin biopsy could have confirmed the diagnosis of TEN, but it was not performed due to early clinical judgment. In literature, there are few case reports of ceftriaxone causing TEN. It is usually treated with immunoglobulin,[12] but in our case, the patient was treated symptomatically with steroids and the patient completely recovered.

Conclusion

Ceftriaxone is widely used in clinical practice for pediatric as well as adult patients. It is considered safe. However, the development of serious adverse events such as TEN cannot be ignored. Especially in pediatric age group, a close differential diagnosis is staphylococcal scalded skin syndrome, which is difficult to differentiate with TEN. The involvement of mucosa is the only clue that can guide clinical judgment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the parents of the patient have given consent for her images and other clinical information to be reported in the journal. The parents understand that names and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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