RESEARCH PAPER

Clinical Spectrum and Ophthalmic Management of Toxic Epidermal Necrolysis: A Detailed Case Series Analysis

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ABSTRACT

Purpose: To report ocular manifestations and management outcomes in pediatric and adult patients with Toxic Epidermal Necrolysis (TEN), a severe drug-induced mucocutaneous hypersensitivity reaction.

Methods: A case series of three patients with TEN presenting with extensive epidermal detachment and ocular involvement was reviewed. Clinical examination was performed and treatment done.

Results: All cases exhibited significant epidermal detachment (40–80% BSA) with corneal epithelial defects and conjunctival involvement. Early ophthalmic intervention prevented severe sequelae such as symblepharon. Visual acuity was variably affected but maintained with intensive topical therapy.

Conclusion: Prompt recognition and management of ocular involvement in TEN are critical to prevent long-term complications.

Clinical Implications: Early multidisciplinary care with ophthalmic monitoring and intervention is essential to preserve vision and ocular surface integrity in TEN patients.

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INTRODUCTION

Toxic epidermal necrolysis (TEN) is a rare, life-threatening mucocutaneous disorder characterized by widespread epidermal detachment and severe mucosal involvement.[1] Among the various organ systems affected, ocular manifestations are particularly significant due to their potential to cause long-term morbidity and vision loss. The ocular involvement in TEN ranges from acute conjunctivitis and corneal epithelial defects to chronic complications such as symblepharon, dry eye syndrome, and corneal scarring.[2] Despite advances in understanding the pathophysiology of TEN, the mechanisms underlying ocular damage and optimal management strategies remain areas of ongoing research. This case series aims to elucidate the spectrum of ocular findings in patients with TEN, highlight clinical challenges in diagnosis and treatment, and contribute to improving patient outcomes through early recognition and targeted ophthalmologic intervention.

Case 1

A 9-year-old girl presented with fever, generalized rash, burning sensation in both eyes, throat pain, and vomiting. She had a recent history of cefpodoxime intake, after which fluid-filled lesions appeared on the left arm and rapidly progressed to involve approximately 40% of her body surface area, including the eyelids, with loss of eyelashes. Fluorescein staining revealed corneal epithelial defects measuring 3 × 4 mm in the right eye and 2 × 3 mm in the left eye. The patient was managed with topical antibiotics, lubricants, and daily eyelid sweeping to prevent conjunctival adhesions. Early ophthalmic intervention successfully prevented symblepharon and other ocular sequelae. Amniotic membrane transplantation is planned after the acute phase.

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Figure 1: Image showing posterior segment – central fundus

Figure 2: Post admission day 3 of case no 1.

Case 2

A 24-year-old female, presented with upper eyelid skin peeling, generalized burning sensation, skin peeling over the body, redness, and watering of the eyes. She had a history of fever four days prior and was treated with intravenous cefpodoxime and oral aceclofenac. On examination, she exhibited 80% epidermal detachment of body surface area, including the eyelids. Fluorescein staining showed corneal epithelial defects of 5 × 4 mm in the right eye and 5 × 5 mm in the left eye. Pseudomembrane formation and giant papillae were noted. Visual acuity was counting fingers at more than 3 meters in both eyes. Anterior segment examination revealed lid edema, erythema, severe mucopurulent discharge, eyelid skin peeling, and conjunctival hyperemia with chemosis bilaterally. Central fundus examination was normal. Treatment included topical antibiotics (VISAMOX eye drops six times daily, SOTA eye drops four times daily) and LACRYL PF eye ointment three times daily. Glass rod peeling of the pseudomembrane and saline-soaked gauze application on the upper eyelid were performed. By postoperative day 7, epithelial defects had reduced to 3 × 4 mm in the right eye and 2 × 3 mm in the left eye, with mild conjunctival congestion and persistent pseudomembrane.

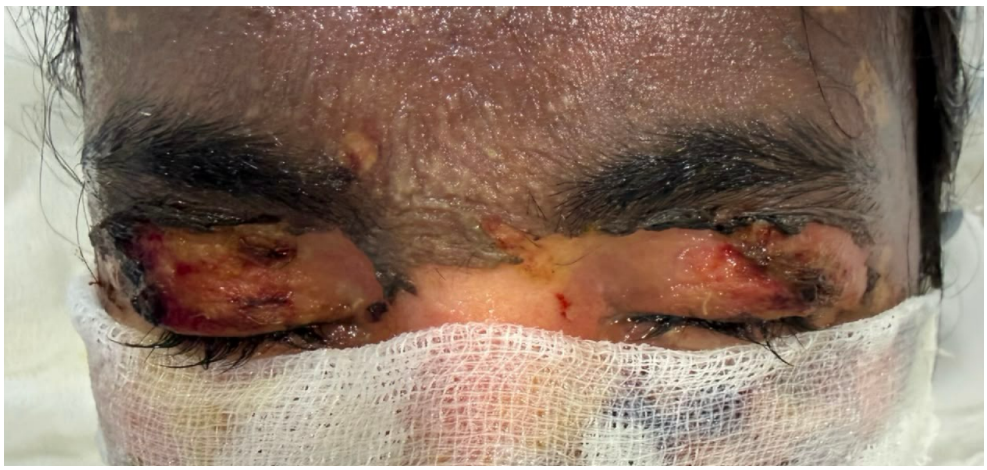

Figure 3: Pre-operative image of case 2

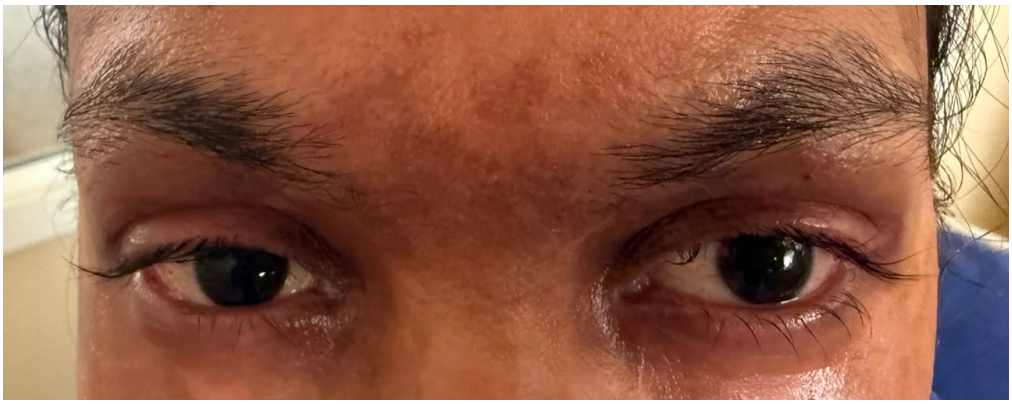

Figure 4: Post operative image of case 2

Case 3

A 2-year-old boy, presented with a one-week history of skin lesions following cefpodoxime syrup administration. His parents noted rash exacerbation, swelling of the eyelids and lips, and widespread skin peeling. Visual acuity assessment showed the child was able to follow and fixate on light. Previous ocular medications included TOBASTAR eye drops, BRISVIR GEL eye ointment, and OHOBLISS eye ointment. Anterior segment examination revealed lid edema and peeling, conjunctival xerosis, and fluorescein stain-positive corneal epithelial defects in both eyes. Pupils were reactive, and anterior chamber details were not determined. Diagnosis of bilateral ocular involvement secondary to TEN was made. Treatment consisted of topical corticosteroids (PREDFORTE eye drops four times daily), topical antibiotics (VISAMOX eye drops four times daily), lubricants (AQUIM PF eye drops four times daily, LACRIGEL eye ointment twice daily), and cyclosporine eye drops four times daily.

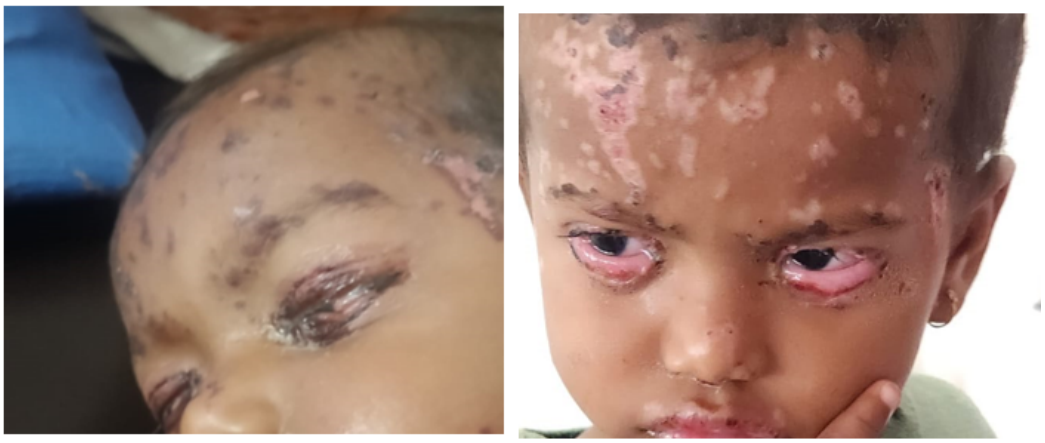

Figure 5: Pre-treatment image of case 3

This case series highlights the varied ocular manifestations of TEN across different age groups, emphasizing the importance of early ophthalmologic evaluation and tailored management to prevent long-term vision-threatening complications.

Table 1: Clinical features, management and outcome of the cases under study.

Case No.	Patient Details	Clinical Presentation	Ocular Findings	Treatment/Management	Outcome/Notes
1	9-year-old girl	Fever, generalized rash, burning eyes, throat pain, vomiting; recent cefpodoxime intake; 40% BSA involvement including	Corneal epithelial defects: RE 3 × 4 mm, LE 2 × 3 mm; eyelid involvement	Topical antibiotics, lubricants, daily eyelid sweeping to prevent adhesions; planned amniotic membrane transplantation after acute phase	Early intervention prevented symblepharon and ocular sequelae

		eyelids with eyelash loss			
2	24-year-old female	Peeling of upper eyelids and skin, redness, watering eyes; history of fever treated with IV cefpodoxime and oral aceclofenac; 80% BSA detachment including eyelids	Corneal epithelial defects: RE 5 × 4 mm, LE 5 × 5 mm; pseudomembrane formation; giant papillae; lid edema, erythema, mucopurulent discharge, conjunctival hyperemia and chemosis; visual acuity CF > 3 m both eyes	Topical antibiotics (VISAMOX, SOTA), LACRYL PF ointment; glass rod peeling of pseudomembrane; saline-soaked gauze on upper eyelid	By day 7, epithelial defects reduced; mild conjunctival congestion and persistent pseudomembrane
3	2-year-old male	One-week history of lesions after cefpodoxime syrup; rash exacerbation, eyelid and lip swelling, widespread skin peeling	Lid edema and peeling, conjunctival xerosis; fluorescein positive corneal epithelial defects both eyes; reactive pupils; visual acuity: able to follow and fixate light	Topical corticosteroids (PREDFORTE), antibiotics (VISAMOX), lubricants (AQUIM PF, LACRIGEL), cyclosporine eye drops	Bilateral ocular involvement diagnosed; ongoing treatment

DISCUSSION

The present case series highlights the complexity of ocular surface reconstruction in Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN) patients with severe ocular complications (SOC), emphasizing the integration of multiple surgical modalities and adjunctive hyperbaric oxygen therapy (HBOT) to enhance graft survival and visual recovery. Consistent with findings from Sotozono et al. and Thorel et al., early and aggressive management of ocular surface inflammation and epithelial defects is critical to prevent long-term sequelae.[3,4] The use of amniotic membrane transplantation (AMT) in the acute phase, as supported by both Sotozono et al. and Thorel et al., is well established to suppress inflammation and promote epithelial healing, with early intervention linked to improved prognosis.[3,4] Our case series extends this understanding by combining AMT with allogeneic limbal stem cell transplantation (LSCT), minor salivary gland transplantation, and oral mucosal grafting, reflecting the evolving surgical trends described by Akgun et al., who emphasize multimodal approaches including limbal stem cell transplantation techniques such as simple limbal epithelial transplantation (SLET) and cultivated oral mucosal epithelial transplantation (COMET) for chronic ocular surface stabilization.[5]

The adjunctive use of HBOT in our series aligns with Tsai et al. who reported enhanced graft uptake and epithelial recovery following ocular surface reconstruction in SJS/TEN, attributing these improvements to HBOT-induced hyperoxygenation, angiogenesis, and anti-inflammatory effects.[6] This novel addition addresses the hypoxic microenvironment of the reconstructed ocular surface, a factor implicated in graft failure and persistent epithelial defects. While systemic corticosteroid pulse therapy and topical steroids remain foundational treatments in the acute phase, our findings suggest that combining surgical reconstruction with HBOT may further optimize outcomes, particularly in cases with extensive limbal stem cell deficiency and severe symblepharon.

The grading systems for acute and chronic ocular involvement outlined by Sotozono et al. and Akgun et al. provide valuable frameworks for assessing severity and guiding treatment, yet the multifaceted nature of severe SJS/TEN ocular disease necessitates individualized, staged interventions as demonstrated in our cases.[3,5] The

integration of multiple graft types addresses the multifactorial pathophysiology including limbal stem cell loss, dry eye due to lacrimal gland dysfunction, and eyelid abnormalities, echoing the comprehensive management strategies highlighted in Akgun et al. and Tsai et al.[5,6] Furthermore, the use of scleral contact lenses postoperatively to improve visual acuity and ocular surface protection, as described in both Akgun et al. and Tsai et al., was effective in our series, reinforcing their role in rehabilitation.[5,6]

Overall, the current case series corroborates and expands upon the literature by demonstrating that a multidisciplinary, multimodal surgical approach combined with HBOT can yield significant improvements in ocular surface stability and visual function in severe SJS/TEN. Future studies with larger cohorts and longer follow-up are warranted to validate the efficacy and safety of HBOT as an adjunctive therapy and to refine surgical protocols for optimal patient outcomes.

CONCLUSION

The present case series demonstrates that severe ocular complications in Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN) require a comprehensive, multidisciplinary approach. The use of standardized grading systems facilitates severity assessment and guides timely interventions, while postoperative rehabilitation with scleral contact lenses contributes to visual rehabilitation.

REFERENCES

1. Tiwari P, Panik R, Bhattacharya A, Ahirwar D, Chandy A. Toxic epidermal necrolysis: an update. Asian Pac J Trop Dis. 2013 Apr;3(2):85–92. doi:10.1016/S2222-1808(13)60051-1
2. Abulfateh FK, AlHaqbani YJ, Albuainain AS. Early Recognition and Management of Ocular Manifestations of Toxic Epidermal Necrolysis in a Pediatric Patient: A Case Report. Cureus. 2024 Sep 27. doi:10.7759/cureus.70323
3. Sotozono C, Ueta M. Updates on the ocular manifestations and treatment of SJS/TEN. Allergology International. 2025 Jul;74(3):356–60. doi:10.1016/j.alit.2025.05.003
4. Thorel D, Ingen-Housz-Oro S, Royer G, Delcampe A, Bellon N, Bodemer C, et al. Management of ocular involvement in the acute phase of Stevens-Johnson syndrome and toxic epidermal necrolysis: french national audit of practices, literature review, and consensus agreement. Orphanet J Rare Dis. 2020 Dec 22;15(1):259. doi:10.1186/s13023-020-01538-x
5. Akgun Z, Can GD, Selver OB. Ocular involvement in Stevens–Johnson syndrome and toxic epidermal necrolysis: A review of current management and changing trends. Indian J Ophthalmol. 2025 Dec;73(12):1711–22. doi:10.4103/IJO.IJO_1119_25
6. Tsai TY, Chang HT, Weng SW, Chu CC, Wang YC, Zhao Z, et al. Ocular surface reconstruction of Steven Johnson syndrome / toxic epidermal necrolysis affected eye - A case report. Heliyon. 2023 Jan;9(1):e12590. doi:10.1016/j.heliyon.2022.e12590