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OCULAR TOXICITY FOLLOWING ACCIDENTAL EXPOSURE OF CALOTROPIS LATEX: A CASE SERIES

Ophthalmology

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ABSTRACT

Background: Calotropis is a perennial plant whose milky latex is well known for causing ocular toxicity when it comes in contact with the eye. This is important clinically since exposure of its flower, garland and leaves is often accidental during rituals, traditional therapeutic application can result in keratoconjunctivitis, corneal edema and anterior uveitis. Prompt recognition and treatment are essential to prevent vision- threatening complications. **Purpose:** To describe a case series of patients presenting with ocular toxicity due to calotropis latex and highlight clinical finding, management and outcomes. **Methods:** Four patients with a history of calotropis latex exposure were examined. Clinical finding, treatment strategies and outcomes were analyzed. **Results:** Patients presented with conjunctival injections, corneal epithelial defects, stromal edema, DM folds and anterior uveitis. One patient developed raised IOP. All were treated with copious irrigation, topical antibiotics, corticosteroids, lubricants and cycloplegics. Recovery occurred between 5- 14days with complete restoration of vision. **Conclusion:** Calotropis latex causes acute ocular toxicity but generally has a favorable prognosis with early recognition and treatment. Awareness is essential to prevent accidental exposure.

KEYWORDS

Calotropis, Ocular Toxicity, Latex Exposure, Calotopis Procera

INTRODUCTION

Calotropis (Calotropis procera and Calotropis gigantea), commonly known as Akanda or Madar, is a perennial shrub widely distributed in India and tropical countries. Traditionally, it has been used in folk medicine for ailments such as fever, skin diseases, and respiratory problems. However, the plant's latex is highly toxic due to its content of alkaloids, cardiac glycosides, and proteolytic enzymes, including calotropin, calotoxin, and uscharin. These compounds have corrosive, cytotoxic, and pro-inflammatory effects. (1)

Accidental ocular exposure usually occurs during plucking leaves or flowers, gardening, and religious rituals where the plant is commonly offered. The resultant ocular injury can range from mild conjunctivitis to severe keratouveitis. The clinical picture often mimics microbial keratitis or anterior uveitis, leading to misdiagnosis and inappropriate antimicrobial therapy.(2)

In India and other tropical countries, Calotropis grows abundantly and has cultural significance. Latex exposure is more common in rural areas where individuals handle the plant during farming or religious rituals. Many cases remain unreported due to lack of awareness and spontaneous resolution of mild toxicity. However, misdiagnosis as microbial keratitis may lead to unnecessary antimicrobial therapy, increased patient anxiety, and financial burden. Public health education regarding the potential ocular hazards of Calotropis and the need for immediate eye irrigation can significantly reduce morbidity. Healthcare workers in peripheral centres should be sensitized to identify this condition and initiate early supportive therapy.

In this case series, we report four patients who presented with Calotropis-induced ocular toxicity to highlight its clinical features, management, and outcomes.

MATERIALS AND METHODS

This was a Descriptive case series done in tertiary care hospital, Department of Ophthalmology, Sheikh Bhikhari Medical College & Hospital, Hazaribagh, Jharkhand from Jan 2025 to June 2025. This study was conducted in accordance with the tenets of the declaration of Helsinki and was approved by departmental research committee.

Patients presenting with acute ocular complaints following a definite history of Calotropis latex exposure were included. All patients underwent detailed history-taking, slit-lamp biomicroscopy, and intraocular pressure measurement using applanation tonometry. Corneal scrapings were performed in patients with epithelial defects to exclude microbial keratitis.

Treatment included immediate ocular irrigation with copious normal saline, topical lubricants, prophylactic antibiotics, topical corticosteroids (short course and low dose), cycloplegics for anterior uveitis, and Antiglaucoma medications if required. Patients were followed up regularly until resolution of signs and symptoms.

RESULTS

Case Series

Case 1: A 45-year-old male presented with severe pain, watering, and photophobia after latex splash while plucking leaves. Slit-lamp revealed diffuse stromal edema, Descemet folds, and mild anterior chamber reaction. This case was managed with irrigation, topical steroids, lubricants, and cycloplegics and resolved within 7 days.

Case 2: A 32-year-old female developed redness and blurred vision after touching her eye during a religious ritual. Findings: epithelial defect with conjunctival congestion, no infiltrates. This case was treated with lubricants, prophylactic antibiotics, and homatropine and healed within 5 days.

Case 3: A 50-year-old male gardener developed sudden dimness of vision and pain following latex splash. Examination: stromal edema and raised intraocular pressure. Treatment given was topical steroids, lubricants, and antiglaucoma medications. Vision improved in 10 days.

Case 4: A 28-year-old female reported burning and redness after rubbing eyes with latex-contaminated fingers. Findings: conjunctival chemosis and mild keratitis. It was managed with lubricants only and symptoms resolved within 3 days.

DISCUSSION

Calotropis latex is known to be alkaline and cytotoxic. On ocular exposure, it produces immediate epithelial injury, stromal edema, and anterior segment inflammation. The toxic glycosides may penetrate the corneal endothelium, leading to endothelial dysfunction and intraocular pressure elevation. Clinical manifestations vary depending on the amount of latex exposure and time to irrigation. The main differential diagnoses include microbial keratitis and acute anterior uveitis.

However, the absence of stromal infiltrates, presence of diffuse corneal edema, and a clear history of latex exposure strongly suggest toxicity rather than infection. Several authors have reported ocular toxicity due to Calotropis exposure. Reddy et al. (1992) conducted an epidemiological study in South India and documented multiple cases of keratoconjunctivitis linked to Calotropis, especially during festive seasons when the plant is commonly used in religious rituals. Singh et al. (2012) described the classical presentation of diffuse corneal edema without infiltrates, highlighting the diagnostic challenge it poses. Al-Mezaine et al. (2005) further confirmed the histopathological features of latex toxicity, demonstrating epithelial necrosis and endothelial dysfunction. (3)

More recently, Choudhary et al. (2019) emphasized the importance of awareness in rural healthcare settings, as primary care providers are often the first point of contact.(4,5)

Previous studies by Singh et al. (2012) and Reddy et al. (1992) have documented similar presentations, reinforcing the importance of early recognition. Management is supportive, with irrigation being the most crucial step. Topical corticosteroids should be used judiciously after excluding infection. Prognosis is generally excellent, with most cases resolving in 5–10 days.

Recommendations

Based on this case series and literature review, the following recommendations are proposed:

1. Awareness campaigns in rural communities about the ocular hazards of Calotropis.
2. Training of primary healthcare workers to promptly recognize and manage latex-induced ocular toxicity.
3. Availability of irrigation facilities and lubricating drops in rural health centres.
4. Avoidance of unnecessary use of broad-spectrum antibiotics when infection is ruled out.
5. Further research into the biochemical pathways of latex-induced corneal toxicity for better-targeted therapy.

CONCLUSION

Calotropis-induced ocular toxicity is an under-recognized but important cause of acute keratoconjunctivitis in rural and semi-urban settings. Its clinical resemblance to microbial keratitis may lead to misdiagnosis. Awareness among ophthalmologists and primary care physicians is essential for correct diagnosis. Prompt irrigation, judicious use of topical corticosteroids, and supportive therapy ensure rapid recovery and good visual outcomes.

Table 1: Patients Profile with History of Exposure, Presenting Signs and Symptoms, Treatment Given and Outcome

Case	Age/ Sex	History of Exposure	Presenting Symptoms	Ocular Findings	Treatment Given	Out-come
1	45/M	Latex splashed while plucking leaves	Severe pain, watering, photo-phobia	Diffuse corneal edema, Descemet folds, mild AC reaction	Irrigation, lubricants, topical steroids, cyclo-plegics	Comp-lete re-solution in 7 days
2	32/F	Touched eye after handling flowers in religious ritual	Redness, blurred vision	Epithelial defect, con-junctival injection, no infiltrates	Lubricants , antibiotic cover, homa-tropine	Epi-thelial healing in 5 days
3	50/M	Acci-dental latex splash during gardening	Sudden diminishion of vision, pain	Stromal edema with raised IOP	Topical steroids, anti-glaucoma drops, lubricants	Vision im-proved after 10 days
4	28/F	Rubbing eyes after touching plant	Burning, redness	Con-junctival chemosis, mild keratitis	Lubricants only	Re-solved in 3 days

Figure 1: Photograph of Calotropis Procera Plant

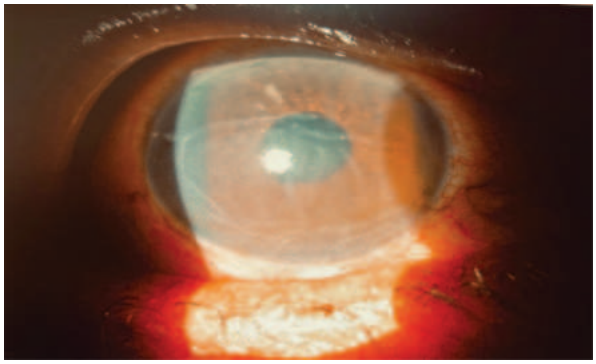

Figure 2: Photograph of Slit Lamp Examination of Left Eye Showing Conjunctival Injection, Diffuse Corneal Edema and Descemet's Folds in a Case After Accidental Exposure of Calotropis Latex

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