Nonpreserved amniotic membrane transplantation for bilateral toxic keratopathy caused by topical anesthetic abuse: a case report

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Abstract

Introduction: Corneal damage associated with abuse of topical anesthetics is a rare clinic entity. Topical anesthetic abuse is one of the causes of ring keratitis. Ring keratitis is easily overlooked because it can mimic acanthamoeba keratitis or other infectious keratitis. The outcome is often poor, leading to persistent epithelial defects, corneal scarring, and perforations.

Case presentation: We report the clinical presentation, diagnosis, and treatment of a 65-year-old Caucasian man, who worked as a health care worker, with bilateral toxic keratopathy caused by topical anesthetic abuse. Nonpreserved amniotic membrane transplantation was performed for both eyes of the patient.

Conclusion: It is important to identify and treat patients who abuse topical anesthetics before permanent vision loss ensues. Nonpreserved amniotic membrane transplantation may be useful in relieving pain and improving corneal surface in anesthetic agent abusers.
eye. Owing to the pain in the right eye of our patient and persistent corneal epithelial defect decreased during the follow-up period, we performed NP-AMT on the left eye from another donor. At this stage, our patient’s visual acuity was hand motions in both eyes. Three weeks after NP-AMT, a rapid regression of the external inflammatory signs, progressive clearing of the membrane, and a closed corneal epithelium were noted in the right eye. However, hypopyon was detected in the left eye (Figure 2). Repeat cultures of the corneal scrapings were negative. An ultrasound of this eye showed no vitreous infiltration. Because of suspected sterile hypopyon iritis, our patient was administered 100 mg hydrocortisone and 2.0 g ceftriaxon intravenously. Subsequently, the hypopyon resolved within three days. In the second week, systemic steroid use was tapered, and the use of antibiotic eye drops was ended. In the fifth week, our patient was caught trying to steal a bottle of proparacaine. The psychiatry clinic was consulted for further investigation and treatment. Because of poor compliance our patient was re-hospitalized and kept under close surveillance.

At two months, our patient had no pain and no epithelial defects in the right eye (Figure 3). He had impending corneal perforation in the left eye. The visual acuity in the right eye was finger counting at a distance of four meters with residual corneal scarring, and in the left eye, it was limited to finger counting at a distance of one meter. Our patient was referred to the eye bank for penetrating keratoplasty, which was required to treat corneal perforation in his left eye (Figure 4).

**Discussion**

Topical anesthetic abuse is a serious disorder, which involves persistent epithelial defects, corneal stromal
Conclusions
It is important to identify and treat patients who abuse topical anesthetics before permanent vision loss ensues. In addition, close medical supervision and psychiatric consultation should be considered. As a final option, NP-AMT may be considered in relieving pain and improving corneal surface in resistant anesthetic agent abusers. However, the efficiency of NP-AMT cannot be determined based on this single case alone. Further studies, which will investigate the changes after NP-AMT, compare its clinical outcomes, and evaluate safety and efficacy of NP-AMT to treat anesthetic abuse keratopathy, are needed.

Abbreviations
NP-AMT: nonpreserved amniotic membrane transplantation.

Consent
Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
AAA and MB were major contributors in writing the manuscript and EMS drafted and revised the manuscript critically for important intellectual content. KS collected the psychiatric data, observed the patient closely. All the authors read and approved the final manuscript.

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