Presumed Corneal Ulcer Following Topical Use of Diclofenac Sodium in One Eyed Patient with Keratoplasty

Tongabay Cumurcu*, Abuzer Gunduz, Kayhan Mutlu and Mufide Cavdar

Inonu University School of Medicine, Department of Ophthalmology, Malatya/Turkey

Abstract: *Purpose*: To report a case with corneal ulcer after keratoplasty connected to long-term use of topical 0.1% diclofenac sodium. *Methods*: A 81-year-old man presented with corneal ulceration. The patient's clinical history showed that he had keratoplasy after ocular trauma for about 10 years ago. He was using topical dexamethasone sodium phosphate 0.1% and topical diclofenac sodium 0.1% for one year. Diclofenac sodium and dexamethasone sodium phosphate were discontinued, and amniotic membrane transplantation and bandage contact lens application were performed. *Results*: After the amniotic membrane transplantation; at the first month, melting area disappeared, increase in corneal transparency and improvement in visual acuity was recorded. *Conclusion*: Use of long-term diclofenac sodium may be responsible for the corneal ulceration in our patient, and we suggest that amniotic membrane transplantation may be a good choice in similar cases.

Keywords: Diclofenac sodium, Corneal ulcer, Keratoplasty, Amniotic membrane.

INTRODUCTION

Topical nonsteroidal anti-inflammatory drugs (NSAIDs) are important in ophthalmology for the treatment of a wide range of conditions including ocular inflammation, allergic conjunctivitis, pain following ocular surgery, and cystoid macular edema following intraocular surgery [1]. Doubtless the most serious side effects that has occurred with topical NSAID use is corneal ulceration, which were reported following use of diclofenac sodium [1]. Other agents which causes corneal melting have been reported as ketorolac and bromofenac [2-6]. We report a case of corneal ulcer in a one eyed patient with keratoplasty following instillation of topical diclofenac sodium 0.1% twice-daily regimen for a long time.

CASE

An 81-year-old man was using topical diclofenac 0.1% two times daily to the right eye after uneventful keratoplasty surgery due to ocular trauma. His left eye was eviscered due to the same ocular trauma for about ten years ago. The patient have been using topical diclofenac 0.1% and dexamethasone sodium phosphate 0.1% twice daily on the right for one years. Biomicroscopic examination showed that central corneal ulceration in the right eye and the anterior chamber could not be seen (Figure **1**). Visual acuity level was perception (+), projection (+). Cultures of corneal scrapings and conjunctival swabs were negative. There was no history of systemic disease and no laboratory evidence of autoimmune disease. The

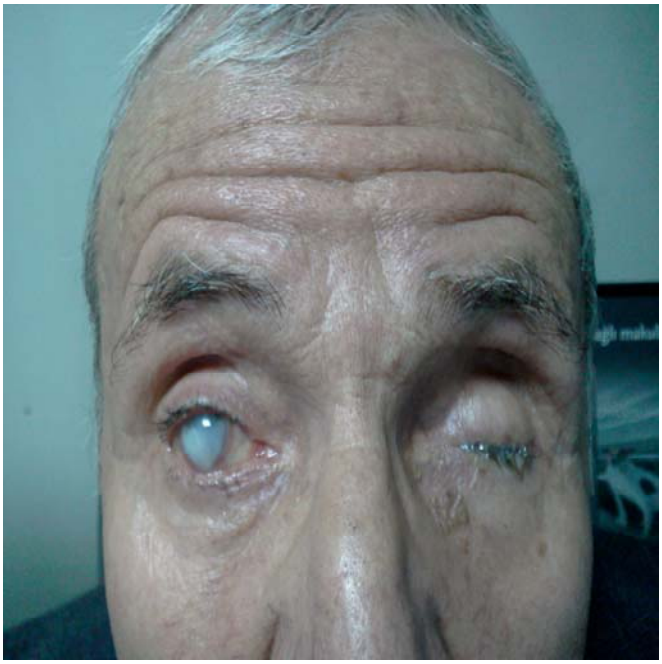

Figure 1: Corneal ulceration in the right eye. Anterior chamber details were not shown.

topical diclofenac 0.1% and dexamethasone sodium phosphate 0.1% was immediately discontinued, and amniotic membrane transplantation was performed. Meanwhile therapeutic contact lens was administrated. Topical moxifloxacin and artificial tears 4 times daily were started as medication to the right eye postoperatively first day. In addition, 1 gr vitamin C was started orally. In the first week, slit lamb examination was revealed marked recovery in the corneal ulcer and increased corneal transparency was observed. Visual acuity increased from perception (+), projection (+) to one meter (Figure **2**). In the first month, the anterior chamber can be seen clearly, and slit lamb

*Address correspondence to this author at the Inonu University, School of Medicine, Malatya, Turkey; Tel: 90-422-342 06 60/4003; Fax: 90-422-3410728; E-mail: tongabay@superonline.com

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examination showed that the patient is aphakic. The anterior chamber was formed and anterior chamber depth was normal. Visual acuity was 20/400 in the right eye (Figure **3**).

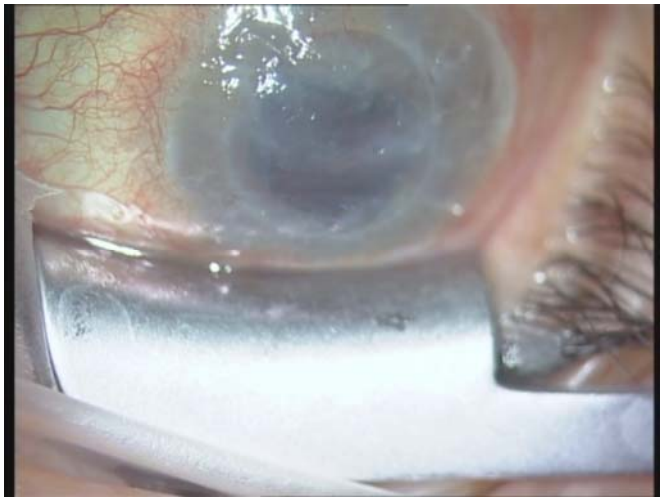

Figure 2: Postoperative first week; regression in corneal ulceration. Increasing in corneal transparency.

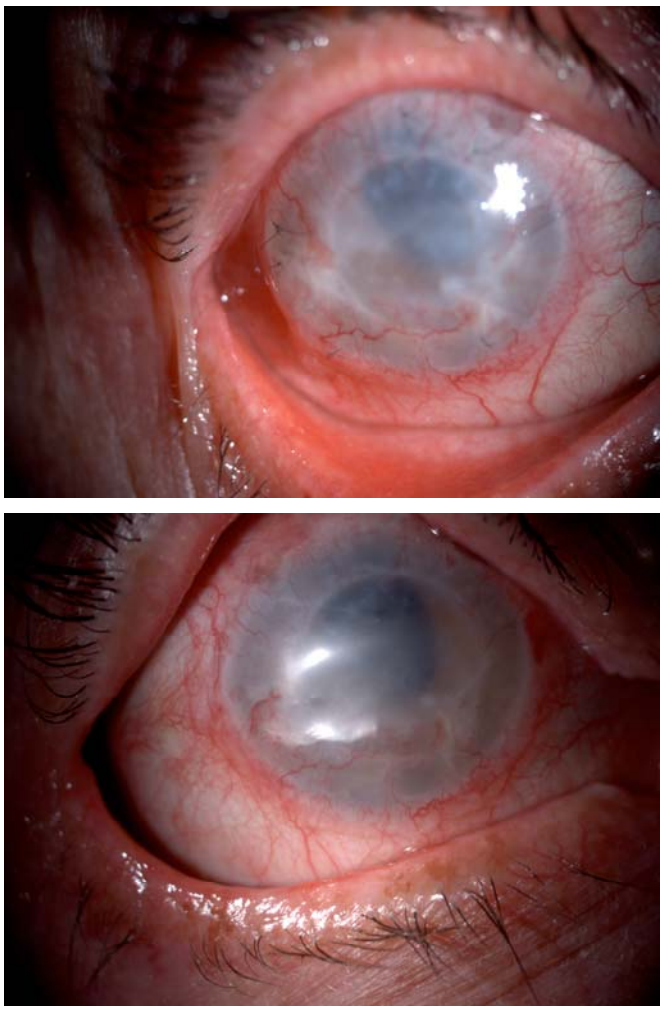

Figure 3: Postoperative first month; anterior chamber details were shown.

DISCUSSION

Previous reports associated with adverse effects of NSAIDs such as keratitis, ulceration, and perforation have focused on older formulations such as ketorolac and diclofenac, as well as a newer NSAID bromofenac. In these studies systemic inflammatory diseases, concurrent use of topical steroids, and epithelial keratopathy showed as a risk factor for corneal adverse effects of NSAIDs [4-6]. In our patient there were no systemic disease, concurrent topical steroid use and epithelial keratopathy.

To our knowledge, only one case reported with persistent epithelial defect following penetrating keratoplasty as a result of an adverse effect of diclofenac eye drops [7]. Therefore our case is the first report corneal melting due to adverse effect of diclofenac eye drops after penetrant keratoplasty. And also it may results from an additive effect of diclofenac and dexamethasone eye drops.

Acute or late corneal toxic effects of topical diclofenac sodium were reported in the literature. Recently Demirel *et al.* [8] have reported late corneal perforation with topical diclofenac sodium use after radiotherapy as in our case. Furthermore Prasher [9] has reported acute corneal melt associated with topical bromofenac use.

The animal models have demonstrated NSAIDs cause delay in wound healing and decreasing in the migration of corneal epithelium. A study by O'Brien *et al.* [10] demonstrated that MMP-8 staining in corneal epithelial cells following ulcerative keratolysis associated with diclofenac use. These studies highlight the importance that proteases play an important role in corneal degradation and NSAID use may be implicated in their over expression [11].

This case highlights the importance of being selective when prescribing topical NSAIDs, and amniotic membrane transplantation may be a good choice in the similar cases.

NOTE

The authors have no proprietary or financial interest in any products used in this study.

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