Therapeutic Contact Lens as the Primary Treatment for Traumatic Corneal Erosions

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Abstract

Background: Corneal erosions, a common and very painful ailment, are traditionally treated with pressure patches and antibiotic ointment but the healing is slow.

Objectives: To report our experience with the use of therapeutic contact lenses for the primary treatment of traumatic corneal erosions.

Methods: During the last 5 years in a single community clinic 65 consecutive patients with traumatic corneal erosions were treated with a corneal contact lens and antibiotic drops as a routine measure. The charts were reviewed for outcome, side effects and complications.

Results: Healing of the corneal erosions occurred within 1 to 3 days in all patients, with minimal or no pain. No corneal infection occurred. One patient had a recurrence that was successfully treated by lens placement.

Conclusions: The therapeutic contact lens with antibiotic drops is a safe and effective method to treat traumatic corneal erosions, and patients can immediately resume their regular activities.

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Traumatic corneal erosions are commonly encountered in ophthalmic practice. The erosions are typically very painful and interrupt daily activities of living for a few days. They are traditionally treated with pressure patches and antibiotic ointment. However, the patch often loosens with time, permitting movement of the upper eyelid, which prevents epithelialization of the cornea and prolongs the healing process. Several recent studies have suggested treating affected patients without using patches [1,2] or with the addition of non-steroidal anti-inflammatory drugs [3,4]. The use of the therapeutic contact lens as a routine treatment modality for traumatic corneal erosions has rarely been discussed [5].

Although the therapeutic contact lens is also a patching method, its placement on the wounded cornea prevents direct contact of the erosion with the moving upper eyelid, so that healing is quicker and there is less pain. Antibiotic drops are added to prevent the development of infection under the lens.

Patients and Methods

The Ophthalmology Unit in Eilat, the southern-most city in Israel, serves a small isolated community of 45,000 rural and urban residents. All patients are medically treated and followed by the same doctor (E.G.). The aim of the present study was to review the unit's 5 year experience with therapeutic contact lenses for the primary treatment of traumatic corneal erosions. The disposable contact lens (Soflex, UK) is sterile and hydrophilic (45% falcon 1B, 55% water immersed in buffered 0.9% saline). With a diameter of 14.2 mm, it covers the whole cornea, sclera to sclera, and fits all eyes.

The study group comprised consecutive patients with non-infected, traumatic or foreign body removal-related corneal abrasions of less than 48 hours duration. The main outcome measures were subjective symptoms that were monitored daily (pain, photophobia, foreign body sensation and insomnia), evaluation of corneal abrasion and determination of adverse events.

Results

Our chart review showed that during the preceding 5 years our Unit had treated and followed 65 patients (42 males and 23 females; age range 18–65 years) with traumatic corneal erosions. In 34 patients the treatment was initiated by removal of a corneal foreign body and additional scraping of a rust ring, if needed, within 48 hours. In the remainder, the trauma was induced by a paper cut in 13, a fingernail in 11, and severe rubbing of the eye in 7. All patients were treated within 48 hours of the trauma. The size of the erosion varied from 1 x 1 mm to total erosion of the cornea. A therapeutic contact lens was placed on the cornea covering the epithelial erosion, and antibiotic drops (ciprofloxacin HCl 0.35%) were added 4 times a day. No artificial tear drops or systemic analgesics were registered. The patients were examined after 24 hours and daily thereafter until re-epithelialization was complete. There were no tight lens complications. The lens was removed after 48–72 hours when complete corneal healing was noted. The patients were reexamined 1 week later and the topical treatment was discontinued.

Healing of the laceration occurred within 1–3 days (most within 24 hours). The patients reported only minimal or no discomfort during or following treatment. After 1 week no epithelial defect was observed. There was no evidence of corneal infection or ulcer. One patient had a recurrence after 1 month which was successfully treated with a therapeutic contact lens. No ciprofloxacin-associated precipitates were observed on the corneal erosion or the contact lens.

Discussion

Some authors have suggested that a non-steroidal anti-inflammatory drug be added to the treatment for corneal erosion to reduce inflammation and pain [4,5]. However, in our experience this was unnecessary since after placement of the lens the pain subsided significantly or disappeared altogether.

Comparison of the healing time in the literature [1,2] revealed similar rates for the therapeutic contact lens and the traditional patch. However, very low levels of pain and discomfort were reported by patients in our study. Another major advantage of this treatment is the rapid rehabilitation and short time to resumption of normal activities. In addition, binocularity level is preserved.

We did not record any cases of corneal infection. It is important to note that patient compliance is necessary since the treatment involves topical antibiotic drops and follow-up examination until removal of the lens.

Review of the literature on infectious keratitis associated with therapeutic contact lens wear in traumatic corneal abrasion revealed that only 1 of the 13 patients studied by Salz et al. [5] developed this complication, which cleared with topical antibiotic treatment and without visual loss. Vandorselaer et al. [6] reported no complications during treatment for traumatic corneal abrasion in 176 patients, as also demonstrated in our series.

Our data suggest that the therapeutic contact lens is a safe and effective modality for treating traumatic corneal erosions. We recommend that the lens be considered as the first-line approach to corneal erosion.

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