Dear Sir,

Bullous keratopathy (BK) entails an irreversible corneal edema secondary to the failure of the endothelial pump. Its poor response to medical treatment and its disabling clinical symptomatology has given rise to the appearance of a range of medical treatments, although the majority of patients end up requiring a corneal or endothelial transplant. Recently, cross-linking has begun to be hailed as a new treatment for BK.1

This paper presents the experience in a 76-year-old patient with severe bilateral BK after phacoemulsification. The exploration revealed corneal edema with sub-epithelial bullae, intraocular pressure within the normal range and visual acuity (VA) of finger counting in both eyes, with greater involvement of the RE which exhibited an inferior trophic ulcer and pain (Figs. 1 and 2). The central corneal thickness (CCT) was of 900\(\mu m\) in RE and 570\(\mu m\) in OS. Due to the generally poor condition of the patient due to recent oncological history, cross-linking was suggested as a temporary alternative to keratoplasty because the symptoms persisted despite the topical treatment consisting of corticoids, hyperosmotic eyedrops, timolole 0.5, antibiotic prophylaxis and therapeutic contact lenses. After one session in the RE the stromal edema exhibited improvement as well as corneal transparency and edema in BK. This is due to the hyperosmolar effect of topical riboflavin, to the increase of the stromal rigidity and the resistance to the passage of fluid, and also to the reduction of the beam dispersion.1 However, the improvements and reduction of subepithelial micro- and macro-bullae seems temporary (6 months) and diminish with time.1 However, our patient remained stable at least 8 months. As patients remain for months in waiting lists for corneal transplants, cross-linking could involve a temporary window to improve their quality of life and become an optional treatment for those who, due to their general condition, are not candidates for keratoplasty.

The protocol utilized in these patient is the most frequently used protocol in the few papers that applied cross-linking as a treatment for corneal edema1,2: de-epithelization and 30 min with prior instillation and every 5 min of 0.1% riboflavin. Krueger et al. modified that technique with good results in vitro and in the patient, performing 2 corneal pockets with a thickness of 350\(\mu m\) and 150\(\mu m\) with femtosecond laser (Intralase®), injecting riboflavin in said spaces to achieve greater penetration of the UVA radiation.3

After cross-linking the pain initially improves as well as transparency and edema in BK. This is due to the hyperosmolar effect of topical riboflavin, to the increase of the stromal rigidity and the resistance to the passage of fluid, and also to the reduction of the beam dispersion.1 However, the improvements and reduction of subepithelial micro- and macro-bullae seems temporary (6 months) and diminish with time.1 However, our patient remained stable at least 8 months. As patients remain for months in waiting lists for corneal transplants, cross-linking could involve a temporary window to improve their quality of life and become an optional treatment for those who, due to their general condition, are not candidates for keratoplasty.

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Fig. 2 – Right eye: (a and b) Biomicroscopy prior to treatment with cross-linking: intense conjunctival hyperemia, diffuse corneal edema with loss of corneal transparency together with nasal inferior trophic ulcer. (c and d) Biomicroscopy 1 month after treatment with cross-linking. Improvement of edema, corneal transparency and hyperemia and reduction of the inferior nasal trophic ulcer, showing the lens in the angle support anterior chamber that could not be seen in the previous image.

REFERENCES


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