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Treatment of grade IV Diffuse Lamellar Keratitis (DLK) with oral Doxycycline and topical 10% sodium citrate

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Purpose: The purpose of the study is to report a new treatment strategy of grade IV diffuse lamellar keratitis (DLK) based on topical 10% sodium citrate and oral Doxycycline.

Methods: Six eyes of 3 patients with stage IV DLK after LASIK, were treated with the same treatment protocol of 10% topical sodium citrate 6 times a day for 4 weeks and 100 mg oral Doxycycline twice daily for 2 weeks then once daily for three months, along with topical steroid drops for one week then tapered gradually over one month. Assessment of response to treatment was done in terms of visual acuity, anatomical and keratometric recovery for the period of follow up ranging from 1 to 8 years.

Results: Follow-up visits showed improvement in all eyes, starting at 2 weeks, with an improvement in UCVA, a decrease in hyperopia and in the central corneal infiltrates. Progressive improvement was documented during the follow up. At 1 year, the outcome regarding UCVA, hyperopia and clinical findings was excellent reaching 20/30 to 20/20 OU, with residual hyperopia of +0.25 D to +1.25 D and a complete resolution of the central infiltrates.

Conclusion: This is the first report of successful treatment of stage IV DLK. Topical sodium citrate 10% and oral Doxycycline seem to target the main pathophysiology of the disease through their mechanism of anti-collagenolytic activities. This new treatment strategy might be considered in the treatment of corneal inflammatory conditions characterized by increased collagenolytic activities after LASIK.

Precis: In stage IV DLK, stromal collagen is digested by collagenolytic enzymes. We report a new treatment strategy of grade IV DLK, based on topical sodium citrate and oral Doxycycline with good anatomical and functional outcomes.

Biography

Jarade Elias is a graduate of Harvard Medical School with 2 certificates of fellowship in Cornea and Refractive Surgery from the Eye Center and Eye Foundation for Research, and The Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, USA and Head of the Cornea and Refractive Surgery Department at Beirut Eye Specialist Hospital. He is heavily involved in the practice and research of cornea, cataract, refractive surgery and cornea transplant and has to his record more than 50 peer reviewed scientific papers, chapters and reviews, also Presenter and Invited Faculty in the field of cornea and refractive surgery at international meetings. He has been serving as an Editorial Board Member of the Journal of Refractive Surgery, Expert Board Member of the International Journal of Ophthalmology, Guest Editor of the Journal of Ophthalmology (current concept in corneal collagen crosslinking), Lead Guest Editor for a special issue of Bio Med Journal, International Advisory Board for the Saudi Journal of Ophthalmology and a County Liaison and Regional Representative of "Tear film and Ocular Surface Society (TFOS)". His research interest includes refractive surgery, corneal transplant, ocular surface disease, keratoconus, and retinal degenerative disease. He is leading a registered clinical trial for the treatment of retinitis pigmentosa, new treatment modalities of keratoectasia and new glaucoma filtering procedure.

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