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Bacterial keratitis following corneal crosslinking in a patient with atopic dermatitis

Presenting Author : Dr. Vishal Vohra Co- Authors: Dr. Harshika Chawla, Prof .Francisco Figueiredo

Royal Victoria Infirmary ,Newcastle Upon Tyne,UK

NHS
The Newcastle upon Tyne Hospitals
NHS Foundation Trust

Introduction

Collagen crosslinking has come up as an effective tool in halting the progression of keratoconus and has an excellent safety profile . We report a rare case of corneal ulceration post collagen crosslinking and analyse the underlying risk factors responsible for the complication.

Aim

To highlight the importance of the control of any systemic risk factors like active eczema or active ocular
inflammation as a potential risk factor for corneal ulceration following collagen crosslinking.

Case Report

23 yr.-male patient presented to our cornea service with evidence of progressive keratoconus from Leicester.
BCVA of 6/9 Both eyes with RGP lenses
No active papillae at presentation with, no corneal scarring.
Past Medical History: Atopic dermatitis (not on any treatment)
Family history: Mother had eczema
The left eye was documented to have progression of keratoconus. The patient underwent epithelium off Collagen cross-linking with hypotonic riboflavin using 9 MW for 10 min protocol, BCL was placed at the end of the procedure.
2 day Post Crosslinking
Left eye: BCVA CF 1 metre
Right eye Vision 6/6
Slit Lamp exam (Fig.1) LE Central corneal ulcer measuring 2x1.8mm visible centrally ,multifocal white infiltrate and elevated. 2 visible infiltrates peripheral 4 o'clock and 1 o'clock close to periphery.

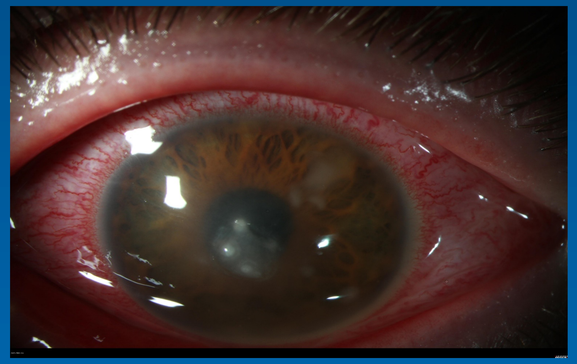


Figure 1 : Diffuse slit lamp photograph at presentation.

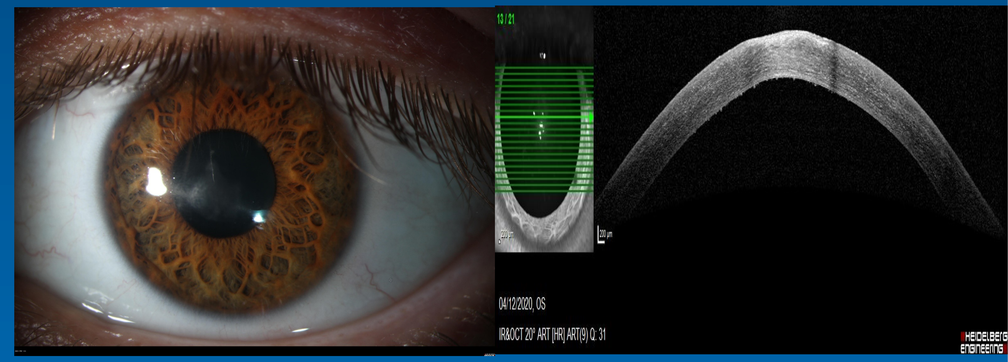


Figure 2. 1 month resolved Post CXL related keratitis on Slit Lamp and AS-OCT

Results

Day 1
Steroids stopped, No contact lens both eye .
Empirical Treatment
G. Cefuroxime and G.Ofloxacin 0.3%
Corneal scrapes sent from RE for Gram Stain and Culture and sensitivity S/O Staph Aureus ,Sensitive to cefuroxime.
Final BCVA at 3 month : 6/9 with RGP lens fit

Discussion

Hafezi et al have recently described the effectiveness and safety of collagen crosslinking as a new modality in the management of corneal infection in an RCT (1). The flipside to collagen crosslinking is that multiple studies and case reports have shown collagen crosslinking leading to infectious keratitis. Multiple reports have identified herpes virus, acanthamoeba, microbial and even poly-microbes as the offending organisms for microbial keratitis following CXL. In a retrospective study done by Shetty et al common risk factors implicated in all patients that developed bacterial keratitis post crosslinking included history of immunosuppression and active ocular inflammation (2).

Conclusion

Although crosslinking has come up as an immensely efficacious modality to manage keratoconus and infectious keratitis, one should keep in mind the risk factors like epithelial removal, immune status, care of bandage contact lens and any trauma in the patient before giving this CXL therapy in keratoconus patients.

REFERENCES

1) Hafezi, F., Hosny, M., Shetty, R. *et al.* PACK-CXL vs. antimicrobial therapy for bacterial, fungal, and mixed infectious keratitis: a prospective randomized phase 3 trial. *Eye and Vis* 9, 2 (2022).
2) Shetty R, Kaweri L, Nuijts RM, Nagaraja H, Arora V, Kumar RS. Profile of microbial keratitis after corneal collagen cross-linking. Biomed Res Int. 2014;2014:340509. doi: 10.1155/2014/340509. Epub 2014 Sep 11. PMID: 25302296; PMCID: PMC4180902.