Herpetic stromal keratitis after collagen cross-linking for keratoconus: A unique presentation

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Key words: Collagen cross-linking, corneal fluorescein angiography, deep corneal neovascularization, herpetic stromal keratitis, keratoconus

A 22-year-old male who underwent collagen cross-linking (CXL) in both eyes elsewhere 3 years ago for keratoconus presented with symptomatic blurring of vision and redness in the left eye. On examination, the best-corrected visual acuity (BCVA) was 20/80, N6 in the left eye. Cornea showed a $4 \times 3$ mm deep corneal neovascularization in an arborizing pattern and stromal edema with feeder vessels from 5 o’clock limbus [Fig. 1]. Corneal sensations were reduced. Anterior segment Optical Coherence Tomography (AS-OCT) showed hyper reflectivity involving almost full thickness of stroma without the involvement of other corneal layers [Fig. 2a]. Corneal fluorescein angiography (FA) was performed by injecting 5 ml of 10% fluorescein intravenously, which showed an arborizing network of vessels with subsequent leakage [Fig. 3].

Figure 1: Cornea of left eye showing $4 \times 3$ mm deep corneal neovascularization with feeder vessels from 5 o’clock limbus

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Figure 2: (a) Pre treatment AS-OCT showing the involvement of stroma. (b) Posttreatment AS-OCT showing decreased hyperreflectivity

Figure 3: Cornea of left eye showing a decrease in neovascularization with the appearance of ghost vessels and stromal scarring after treatment

A presumptive diagnosis of a chronic herpetic stromal keratitis was made. The patient was treated with oral acyclovir 400 mg twice a day and 0.5% loteprednol eye drops in tapering doses over the course of 6 months. This resulted in a BCVA of 20/40, N6 and patient was symptom-free. On examination, there was a partial regression of neovascularization with development of ghost vessels and stromal scarring [Fig. 4]. AS-OCT demonstrated that the area of hyper reflectivity was reduced as compared to before treatment [Fig. 2b]. Corneal FA showed capillary filling defects, patchy staining, and decreased leakage [Fig. 5].

Corneal collagen cross-linking (CXL) is commonly used in keratoconus to arrest the progression of the ectatic process.\textsuperscript{[1]} The mechanism involves an increase in strength and integrity of cornea by polymerization of the stromal fibers with the combined action of riboflavin and UV-A rays.\textsuperscript{[1,2]} Kymionis et al.,\textsuperscript{[3]} and Yuksel et al.,\textsuperscript{[4]} reported cases of epithelial viral keratitis after CXL in patients with no previous history of viral keratitis. They postulated that UVA light, epithelial/stromal trauma, or actual damage to corneal nerves during CXL could trigger reactivation of latent Herpes infections. We report a unique case of chronic low-grade herpetic stromal keratitis after CXL with deep stromal neovascularization, which resolved with appropriate therapy.
A 48-year-old female presented to us with sudden onset dimness of vision in her right eye (RE). There was no history of trauma. Her best corrected visual acuity (BCVA) was 6/9 (partial) (Snellen’s) in her RE and 6/6 in her left eye (LE). There was no history of ocular surgery. A diagnosis of spontaneous unilateral hyphema was made. Her RE showed strands of persistent pupillary membrane crossing the pupil. There was active bleeding seen from a point source on one of the strands of the PPM resulting in hyphema formation, was active bleeding seen from a strand of persistent pupillary membrane.

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1 month she was asymptomatic with no recurrence of bleeding. It was an invasive procedure. At her next follow-up visit after 1 week her BCVA was 6/6 in both eyes and there were no signs of trauma. A diagnosis of spontaneous unilateral hyphema was made. Her RE showed strands of persistent pupillary membrane crossing the pupil. There was active bleeding seen from a strand of persistent pupillary membrane.

Our case presented with active bleeding from such a PPM which allows others to remix, tweak, and build upon the work non-commercially, the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, This is an open access journal, and articles are distributed under the terms of the identical terms.

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