BACKGROUND

Chemical burns of all types require immediate treatment and daily follow-up. While alkaline materials typically penetrate more deeply than acidic substances, all burns require similar management. Thorough rinsing of the globe in order to reach a neutral pH (7.0-7.4) is required in order to facilitate healing. In cases of limbal blanching, Prokera Cryopreserved Amniotic Membrane (PCAM) may be used in order to preserve stem cell structure and function. If left untreated, pathological effects, including conjunctival and corneal necrosis, loss of limbal vasculature and stem cells, and damage to internal ocular tissues are an absolute certainty.

CLINICAL PRESENTATION

A 24-year-old black male presented to clinic with severe bilateral alkaline chemical burns. Initial pH was measured to be 8.4 OU. Five hours of rinsing with non-preserved saline was performed in-office.

CLINICAL TESTING

At the initial visit, visual acuity was reduced; 360 limbal blanching OU; 4+ diffuse hyperemia; and adnexal and conjunctival chemosis OU. The patient was prescribed a topical antibiotic 1gtt OU QID; a topical steroid 1gtt OU QID; and Preservative Free Artificial Tears 1gtt OU every 2 hours. While alkaline materials typically penetrate more deeply than acidic materials, typical rinse times vary. The initial aim is to neutralize the pH and remove as much of the material as possible.

TREATMENT

After removal of the Prokera, 8 mm bandage contact lenses were placed on both eyes. Daily patient follow-up was initiated until corneal epithelial tissue was completely healed. The medication schedule remained unchanged.

DISCUSSION

Prokera Cryopreserved Amniotic Membrane use as the sole treatment of ocular burns is off-label and is not indicated or suggested. However, due to their ability to speed healing and promote regeneration of ocular tissue by encouraging re-epithelization, reducing inflammation and scarring, preventing neovascularization, and improving patient comfort4, PCAMs may be a strong addition to the ocular burn “gold-standard” of treatment.

Composed of three layers - a single layer of epithelium, a thick basement membrane, and an avascular stroma4- PCAMs have a variety of unique inherent properties which give them their specialized treatment profile.

Amniotic Membranes have a variety of unique inherent properties which give them their specialized treatment profile. 4, 5 In addition, studies have shown that PCAM promotes the presence of inflammatory complexes that can lead to scarring. In addition, specialized fibroblast inhibition provides an anti-scarring effect as well. Furthermore, the tissue is naturally avascular, making it inherently anti-vascular endothelial growth factor (VEGF), preventing growth of neovascular vessels into the cornea, the inhibition of VEGF migration allows the cornea to undergo to receive the same antiangiogenic properties as the PCAM.4, 5 In addition, studies have shown that PCAM promotes expansion of limbal stem cells, even in cases of cellular degeneration. Clinical uses for PCAM include any condition causing damage to the surface cells or underlying stromal inflammation or scarring. 4 There is a select group of patients in which the PCAM would be contraindicated: patients with glaucoma drainage devices or filtering blebs and/or patients with an allergy to ciprofloxacin or amphotericin B4, 5 as the PCAMs are stored in a medium which contains both pharmacologic agents.

REFERENCES
2. patient left the office with a pH of 7.4 OU.
3. 4+ diffuse hyperemia; and adnexal and conjunctival chemosis OU.
4. Our patient continues to display signs of limbal blanching nasally and temporally in both eyes; however, his epithelium has remained intact and visual acuity returned to 20/15 OU. We continue to monitor closely.
5. Key Words: Chemical Burn; Limbal Blanching; Prokera Cryopreserved Amniotic Membrane.

CONCLUSION

The stromal layer is thought to be the mediator of inflammation, reducing the prevalence of inflammatory complexes that can lead to scarring. In addition, specialized fibroblast inhibition provides an anti-scarring effect as well. Furthermore, the tissue is naturally avascular, making it inherently anti-vascular endothelial growth factor (VEGF), preventing growth of neovascular vessels into the cornea, the inhibition of VEGF migration allows the cornea to undergo to receive the same antiangiogenic properties as the PCAM. In addition, studies have shown that PCAM promotes expansion of limbal stem cells, even in cases of cellular degeneration. Clinical uses for PCAM include any condition causing damage to the surface cells or underlying stromal inflammation or scarring. There is a select group of patients in which the PCAM would be contraindicated: patients with glaucoma drainage devices or filtering blebs and/or patients with an allergy to ciprofloxacin or amphotericin B as the PCAMs are stored in a medium which contains both pharmacologic agents.

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REFERENCES

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