Self-Retained Amniotic Membrane for Post-PRK Keratitis

Hosam Sheha, MD, PhD
Scheffer Tseng, MD, PhD

Ocular Surface Center, Miami, Florida

ASCRS Symposium & Congress
April 25-29, 2014
Boston, MA

Financial Disclosure: The first author is a consultant for Bio-Tissue, Inc. that produces and distributes amniotic membrane grafts. He received a research support from the National Eye Institute and TissueTech, Inc. not related to this poster. The 2nd author is the founder and a shareholder of Tissue Tech Inc. that holds patents on the methods of preservation and clinical uses of amniotic membrane grafts.
• Visual outcome after refractive surgery is significantly influenced by postoperative corneal wound healing.
• The wound healing process after PRK is more intense due to disruption of the corneal epithelial basement membrane and exposure of the anterior stroma.
• Therefore PRK carries a significant risk of postoperative corneal inflammation, delayed healing, haze, and infection.
• Post-PRK keratitis is mostly non-infectious and the empirical use of topical fortified antibiotics are toxic to the corneal epithelium.
• In post-PRK infectious keratitis, steroid use is controversial.
• Cryopreserved amniotic membrane has been successfully used to control inflammation and promote healing. It also counteracts the toxic effect of topical antibiotics and allows the use of steroids.

Purpose

To demonstrate the efficacy of self-retained cryopreserved amniotic membrane in treating post-PRK keratitis
Case Presentation

• A 40 year-old male developed severe painful loss of vision in his right eye 2 days following bilateral PRK for myopia.
• Despite negative culture, his physician suspected infectious keratitis and tried several fortified topical antibiotics.
• Two weeks later, his condition got worse and was referred to us.
• Examination revealed severe right ocular pain, photophobia (Fig 1A), conjunctival inflammation, diffuse corneal ulcer, stromal edema, hypopyon (Fig 1B, 1C) and loss of vision (LP).
After stopping the antibiotics for 24 hours, repeated culture came out negative. We then placed a self-retained amniotic membrane (ProKera®, Bio-Tissue, Miami, FL) and added topical preservative free steroids qid.

Two days after treatment, ocular pain was decreased (Fig 2A), inflammation was markedly reduced and epithelialization had started.

After one week, the amniotic membrane had dissolved (Fig 2B) and ~60% epithelial healing had been achieved (Fig 2C).
Results (cont.)

- A second ProKera was placed which resulted in complete epithelial healing after two weeks.
- The patient had no pain nor photophobia (Fig 3A) and his visual acuity improved to 20/40.
- ProKera was replaced with a bandage contact lens (Fig 3B) and the topical steroids were tapered off.
- After two months, the corneal surface remained stable (Fig 3C) and the patient was referred back to his physician.
Summary of the Results

Before 1 Week 3 weeks

1A 1B 1C

2A 2B 2C

3A 3B 3C
Conclusions

- Placement of self-retained cryopreserved amniotic membrane appears effective in treating post-PRK keratitis.
- Early intervention is recommended to control inflammation, prevent further damage, restore corneal integrity and reduce the potential of scarring.