



# Using a Custom Prosthetic Tinted Lens to Improve Cosmesis in a Patient with a Boston Keratoprosthesis

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## INTRODUCTION

The Boston Keratoprosthesis (KPro) is an artificial cornea developed at the Massachusetts Eye and Ear Infirmary and is the most frequently implanted keratoprosthesis worldwide. <sup>1</sup> Typically, this surgical treatment option is saved for patients with guarded prognoses, or for patients with compromised host tissue. In these cases, repeating traditional corneal transplant surgery would either be too challenging or likely to result in transplant rejection. <sup>2</sup>

There are numerous complications with the KPro procedure with the majority related to evaporative drying and surface inflammation. For this reason, soft contact lenses are used to maintain hydration, increase comfort, and enhance cosmesis. <sup>2</sup>

## CASE DESCRIPTION

A 35-year-old Caucasian female with a Boston Keratoprosthesis in her right eye presented for a custom prosthetic tinted lens fitting to improve cosmesis.

**Chief Complaint:** Patient reports that current custom prosthetic tinted lens is uncomfortable and is “too red” compared to the left eye.

### Ocular History:

- Acanthameoba keratitis OD secondary to showering with soft contact lenses
- Three rejected traditional corneal grafts OD
- Cataract extraction and glaucoma shunt OD
- Retinal detachment with scleral buckle OD
- Boston Keratoprosthesis OD

### Current Medications:

- Ciprofloxacin 0.3% BID OD
- Combigan 0.2%-0.5% BID OD
- Prednisolone acetate 1.0% BID OD

**Medical History:** Unremarkable

## PERTINENT CLINICAL FINDINGS

### Entering VA with current contact lenses:

OD: HM  
OS: 20/20-1

### Slit lamp examination:

OD: See figure 1  
OS: unremarkable

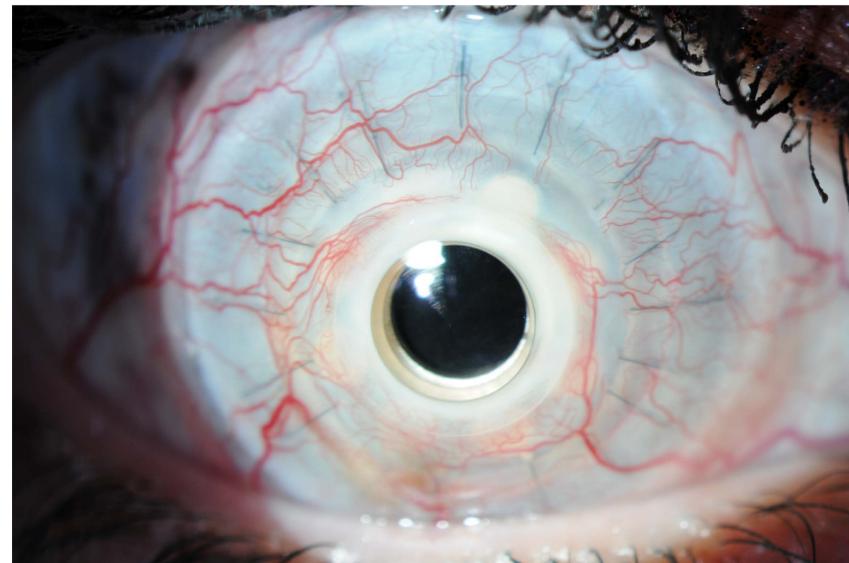


Figure 1. Anterior segment photography of the patient’s right eye.

## TREATMENT AND MANAGEMENT

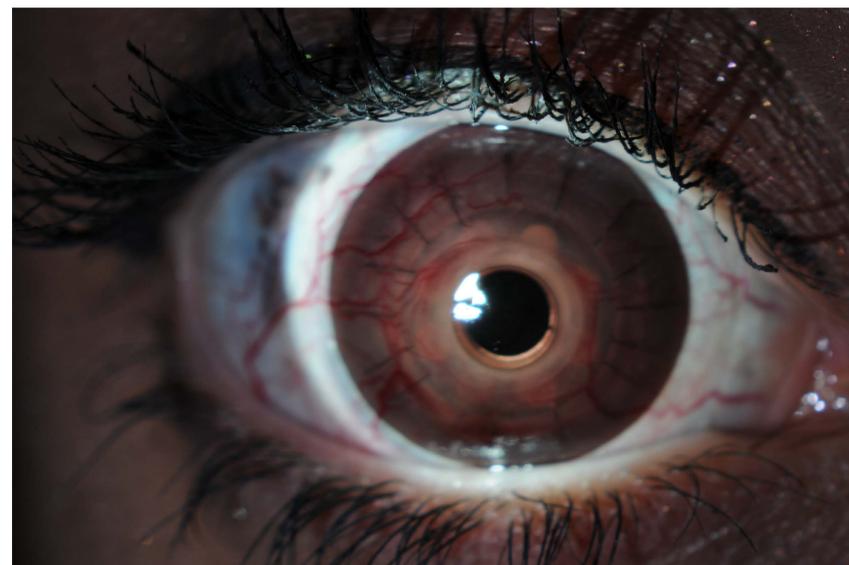


Figure 2. Anterior segment photography of the patient’s right eye wearing the custom prosthetic tinted lens .

Trial	Power	Base Curve	Diameter	Brand	Material	Tint	Comments
1	-4.25sph	8.3mm	15.0mm	Alden	49% water 51% Hioxifilcon	Adventures in Color: 12.5mm md/drkr #2	No pupil

- **Contact Lens Fitting:** Adequate coverage and centration with 0.25mm of movement after 8 hours of wear.
- **Instructions:** The patient was instructed to wear the custom tinted lens during waking hours and disinfect the lens with ClearCare overnight. The patient is to continue wearing a Kontur, clear, bandage contact lens dispensed by her corneal specialist overnight.

## RESULTS

The patient was successfully fit with an Alden HP 49% soft contact lens that was tinted by Adventures in Color. In addition, this new prosthetic was tinted without a clear pupil, reducing reflected glare from the pupil of the KPro, providing improved cosmesis, and no effect upon visual acuity.

## DISCUSSION

Custom prosthetic tinted lenses are a viable option to improve cosmesis in patients with the Boston Keratoprosthesis. It is important to emphasize proper lens care and hygiene and regular follow-up appointments with a corneal specialist in an effort to minimize the possible adverse events of having a KPro system.

## REFERENCES

1. Thomas M., Shorter E., Joslin C.E., McMahan TJ, Cortina MS. Contact lens use in patients with Boston Keratoprosthesis type 1: fitting, management, and complications. *Eye & Contact Lens*. 2015 Nov; 41(6): 334–340.
2. Aravena, C., Yu, F., & Aldave, A. J. Long-Term Visual Outcomes, Complications, and Retention of the Boston Type I Keratoprosthesis. *Cornea*. 2018 Jan; 37(1): 3-10.