Placement of a permanent keratoprosthesis (KPro), as a solution to otherwise untreatable corneal blindness, is becoming increasingly commonplace. But approximately 20% of KPro eyes suffer either rhegmatogenous, tractional or combined retinal detachment within seven years postoperatively. The dominant KPro model (Boston type 1 KPro) provides only a 3mm diameter optical stem, so that the retinal periphery remains largely obscured to clinical examination postoperatively. Partially as a consequence, repair of retinal detachment in KPro eyes is successful in less than 50% of cases, with most such eyes losing even ambulatory vision. This can be especially important because the fellow eye of most KPro patients, if it is even present, is also severely diseased.

To present a new method of effective retinal detachment prophylaxis for high-risk/monocular KPro eyes that can be performed intraoperatively, immediately prior to KPro placement, in a single operation.

We removed an opaque central cornea with an 8.75mm trephine, in order to accept a 9.00 mm graft with a pre-installed, 3mm optical stem, permanent KPro device, installed in the 9.00mm graft, into the same trephination (TKP/VIT/OSC/TKP).

Fourteen months after regaining useful vision in the right eye by KPro instillation, a 29-year-old man with bilateral failed penetrating keratoplasty* suffered phthisis and loss of all useful vision in this right eye, due to spontaneous retinal detachment with irreparable proliferative vitreoretinopathy. The fellow left eye then underwent the TKP/VIT/OSC/KPro procedure described above. Thirty-six months postoperatively, the retina remained completely attached in the left eye, with visual acuity of 20/100 at distance, and 20/25 at near with a low vision aid.

- Congenital cataract, aniridia, and glaucoma; extreme myopia; aphakia; status post glaucoma shunt; nystagmus; and opaque cornea, O.U.

Use of a wide-field, temporary keratoprosthesis, enabling both vitrectomy and retinal detachment prophylaxis by encircling laser, prior to permanent KPro instillation, should be considered for high-risk and/or monocular KPro recipients, pending a prospective clinical trial of this technique.

REFERENCES

Illustration courtesy of Stephen Gordon
See Video at: helenkellerfoundation.org
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