UCLA Keratoprosthesis Study: 1978-1990

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BACKGROUND: A study on keratoprosthesis was designed and initiated by the author at the Jules Stein Eye Institute, UCLA Department of Ophthalmology in 1979. The study was conducted under the auspices of the Human Subject Protection Committee from 1978-1990. The purpose of the study was to assess the efficacy of the keratoprosthesis in the restoration of vision in those eyes that were blinded because of severe corneal scarring and that were unsuitable for conventional keratoplasty. The first patient was entered into the study in 1979 and the last patient was entered in 1989.

METHODS: All candidates for prosthokeratoplasty had to meet the following selection criteria[1] as determined by of a majority of the Keratoprosthesis Study Committee:

1. Blindness in both eyes caused in part by opacification of one or both corneas.
2. Minimum vision of light perception with projection in at least two quadrants.
3. Associated disease which would probably render an unsuccessful result with conventional keratoplasty, eg, dry eye, cicatricial pemphigoid.
4. At least one previously failed graft in which the reason for failure was believed to be due to anterior segment disease rather than due to donor material or postoperative complications.
5. No keratoprosthesis in the opposite eye.

The Cardona through and through keratoprosthesis[2] was used for all subjects, including many of Cardona's original surgical techniques. All surgeries were performed by the author.

RESULTS: A total of 10 keratoprostheses were performed in 9 eyes of 9 patients between 1979 and 1989. One patient (1) underwent removal and insertion of a second keratoprosthesis in the same eye. Of the 10 insertions, 8 eyes experienced an improvement in vision for more than 2 years (Table).

Two eyes experienced no improvement, but in one case the optical cylinder was never exteriorized due to the patient being transferred to a nursing home out of the area. In the other case, the lack of visual improvement was due to severe glaucomatous optic atrophy discovered postoperatively.

Table
UCLA Keratoprosthesis Study (Bath)

Case No.	Preoperative Visual Acuity	Best Postoperative Visual Acuity
1A	LP	20/20
1B	LP	20/20
2	LP	20/20
3	LP	LP
4	LP	20/20
5	LP	20/40
6	LP	LP
7	LP	20/400
8	LP	5/400
9	LP	FC

Regarding major complications, there was one case of presumed endophthalmitis. No extrusions occurred. Following blunt trauma, one case each of retinal detachment and intravitreal hemorrhage occurred.

Severe and progressive glaucomatous optic atrophy resulted in eventual loss of vision in two eyes.

CONCLUSION: The UCLA Keratoprosthesis Study was formally concluded in 1990 when it was reported to the Human Subject Protection Committee that the procedure should no longer be considered experimental, based on our institutional results. We think that prosthokeratoplasty represents acceptable medical practice. Our experience was published in 1990 in a textbook of ophthalmic surgery.[3]

REFERENCES

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3. Bath PE. *Atlas of Contemporary Ophthalmic Surgery.* Clayman HC, ed. St Louis, Mo: CV Mosby; 1990 (chapter 6):125-158.