Graft Survival, Graft Rejection, and Visual Outcomes after Descemet Stripping Endothelial Keratoplasty for Graft Failure

Sanjay V. Patel MD FRCOphth, Timothy T. Xu MD, David O. Hodge MS, Leo J. Maguire MD, Keith H. Baratz MD
Department of Ophthalmology, Mayo Clinic, Rochester, MN, USA

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patel.sanjay@mayo.edu

INTRODUCTION

- Descemet stripping endothelial keratoplasty (DSEK) remains an important surgical option for cases with abnormal or complex anatomy, and for previous graft failure, including failure after penetrating keratoplasty (PK)[1,2]
- Few studies report long-term outcomes of DSEK after PK graft failure

PURPOSE

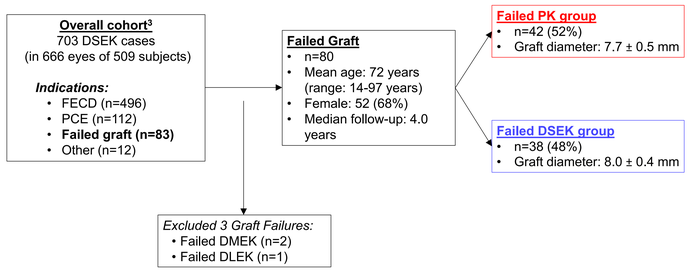
To investigate the outcomes of DSEK in eyes that were re-grafted for failed PK and failed DSEK.

METHODS

- Study design: Retrospective review of all DSEK cases at one institution by 3 surgeons
- Study period: 4/1/2006 to 11/30/2015 (which included each surgeon's learning curve)
- Study population: Eyes that were re-grafted with DSEK for PK or DSEK graft failure
- Main outcome measures
  - Graft survival
  - Graft rejection
  - Re-bubble rate
  - Best spectacle-corrected visual acuity (BSCVA)
- Statistical analysis
  - Re-bubble rate and BSCVA were compared by using generalized estimating equation models
  - Graft survival and rejection risk were estimated by using Kaplan-Meier survival analysis

RESULTS

Subjects and Demographics



FECD, Fuchs endothelial corneal dystrophy; PCE, pseudophakic corneal edema; DMEK, Descemet membrane endothelial keratoplasty; DLEK, deep lamellar endothelial keratoplasty

Cases of FECD without glaucoma were used as an "ideal" low-risk DSEK group for reference for survival analyses

Data are mean ± standard deviation (unless specified)

Re-bubble Rate and Visual Acuity after DSEK for Failed PK and Failed DSEK

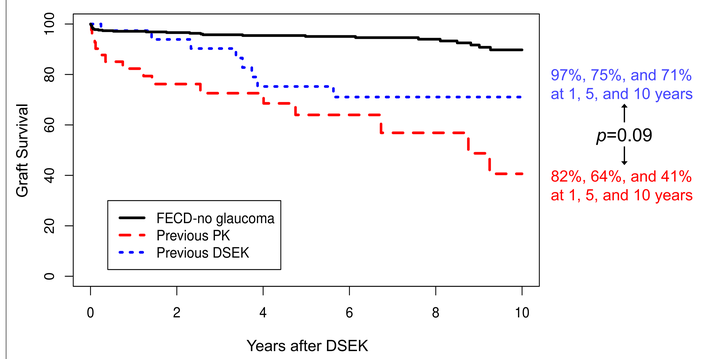
	Failed PK n=42 (%)	Failed DSEK n=38, (%)	P
Re-bubble required	13 (31)	4 (10)	0.03

Mean BSCVA	Failed PK n=23	Failed DSEK n=20	P
Before DSEK	20/100	20/60	0.03
At last follow-up after DSEK*	20/50	20/30	0.009

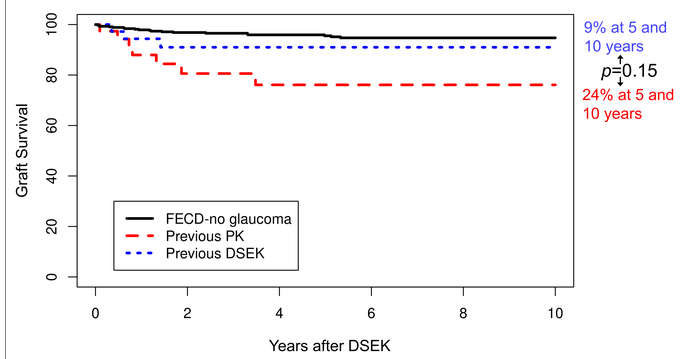
Eyes with vision-limiting comorbidities were excluded from BSCVA analysis (e.g., AMD, glaucoma, amblyopia, uveitis, optic neuropathy, etc.)

*Median last follow-up for BSCVA was:
PK group: 3.6 years
DSEK group: 6.7 years

Graft Survival after DSEK for Failed PK and Failed DSEK



Graft Rejection after DSEK for Failed PK and Failed DSEK



CONCLUSIONS

- Compared to repeat DSEK for failed DSEK, DSEK for failed PK is associated with worse BSCVA, higher re-bubble rates, and non-significant trends towards worse graft survival and higher risk of rejection.
- The difference in outcomes can be explained by different initial indications for the original DSEK or PK, in addition to irregular astigmatism, irregular posterior corneal contour, and higher antigenic load with PK.
- DSEK for failed PK can provide acceptable vision.

REFERENCES

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3. Patel SV, Hodge DO, Winkler NS, et al. Graft Survival, Graft Rejection, and Glaucoma in a Consecutive Series of Descemet Stripping Endothelial Keratoplasty. Cornea 2023;42:549-56.

SUPPORT

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DISCLOSURE

Consultant to Santen Inc., Design Therapeutics Inc., Emmecell, and Thea.

Developer of the V-FUCHS questionnaire, which Mayo Clinic licenses to Santen Inc., Design Therapeutics Inc., Iris Medicine Inc., and Kowa Research Institute.

All activities are unrelated to the presented topic.

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