

Optical and Tectonic Corneal Transplant Outcomes in a Tertiary Hospital in Singapore within the Singapore Corneal Transplant Registry

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Abstract

Introduction: This study aimed to describe and compare corneal graft survival and optical outcomes following deep anterior lamellar keratoplasty (DALK) and Descemet's stripping automated endothelial keratoplasty (DSAEK) with penetrating keratoplasty (PK), and to document tectonic success of patch grafts. **Materials and Methods:** This was a retrospective, non-randomised, comparative and descriptive cohort study. A total of 139 eyes that underwent primary keratoplasty between 2000 and 2016 were included, and the following data was extracted: demographics, clinical diagnosis and primary indication, pre- and intraoperative risk factors, postkeratoplasty outcomes, and complications. Optical success was defined as good graft clarity and best corrected visual acuity (BCVA) of 6/12 or better. Graft failure was defined as irreversible corneal oedema and loss of clarity. Tectonic success in patch grafts was defined as tectonic integrity with no repeat tectonic surgical procedure required in the postoperative period. **Results:** The mean follow-up duration was 3.24 ± 3.47 years in the PK group ($n = 16$), 1.89 ± 0.86 years in the DALK group ($n = 37$), 2.36 ± 1.24 years in the DSAEK group ($n = 53$), and 2.17 ± 1.09 years in the patch graft group ($n = 33$). The 3-year probabilities of survival for PK, DALK, DSAEK and patch graft were 60.9%, 94.1%, 89.9%, and 67.1%, respectively. The overall percentage of complications was significantly higher for PK (81.3%), compared to DALK (48.6%), DSAEK (49.1%), and patch graft (21.2%). In the PK and DALK groups, 100% achieved BCVA of 6/12 or better, while in the DSAEK group, 96.43% achieved BCVA of 6/12 or better. **Conclusion:** From a similar study cohort of Asian eyes, graft survival was superior and complications were reduced for DALK and DSAEK compared to PK, but optical outcomes were comparable. Graft survival for patch graft was expectedly lower, but the incidence of complications was low.

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