

Methods and Analysis A case report. A 32-year-old male with previous hydrops developed severe corneal scarring with a break in DM visible on OCT scanning. A modified DALK procedure was performed consisting of a 400µm, 8.5mm Anterior lamellar cap with a 4.5mm posterior lamellar disc, denuded of endothelial cells and containing a DM skirt.

Initially, manual dissection of the and anterior 400µm of corneal stroma was performed using a modified Melles technique. The residual posterior lamellar was assessed and found to have significant residual scarring. A central 4mm optical window was performed through the posterior lamellar over the visual axis.

The donor tissue was cut using a 350µm microkeratome head. The anterior cap was trephined to 8.5mm and set aside. The posterior lamellar was placed in a punch block, and the endothelial was removed using a silicone tipped cannula. The removal of endothelial cells was confirmed using trypan blue dye. A posterior lamellar graft with a 4.0mm stromal bed and a 4.5mm DM skirt was fashioned using a peeling and double punch technique. The posterior lamellar graft was inserted into the optical window such that the DM skirt provided a bridge to the donor corneal endothelium. The anterior cap was sutured with a double continuous suture of 10-0 monofilament nylon. An inferior peripheral iridotomy was created, and an air bubble filling the anterior chamber was left at the end of the case.

Results The preoperative visual acuity (VA) was hand movements. Full attachment of the posterior lamellar was seen at all time-points from week one onwards. Central corneal pachymetry continued to reduce for 12 weeks. One year after the operation, with sutures in, the best spectacle-corrected VA was 6/12. The corneal graft was clear, and no rejection episodes occurred. Endothelial cell repopulation of the donor DM could be observed with specular microscopy.

Conclusion The presence of DM promotes endothelial migration and healing. Modifications to traditional DALK surgery, in which DM is used to promote endothelial healing, are a viable alternative to penetrating keratoplasty. This method eliminates the risk of allograft endothelial rejection and allows a 'regenerative' for DALK to be used, offering a new modality of treatment in patients with healthy reserves of endothelial cells and deep posterior lamellar scarring.

P-16 PREDICTING ABLATION SPHERICAL EQUIVALENT OF PRIOR LASIK TREATMENT FROM CORNEAL PACHYMETRY MAP

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Purpose To provide a metric to differentiate between hyperopic and myopic ablation of a prior LASIK treatment based on the corneal pachymetry profile after laser vision correction.
Methods Pachymetry data were recovered retrospectively from patients who had previous LASIK for refractive purposes between 2019 and 2020. Patients with any corneal disorder were excluded. Ablation spherical equivalent was predicted from central to semi-peripheral corneal thickness (CPT) ratio,

both for values provided by Pentacam, and values computed from extracted raw pachymetry data.

Results Data were analysed for 140 eyes of 73 patients (42% female, mean age 40.9, SD 12.8). CPT-ratio cut-off for distinction between myopic and hyperopic LASIK was 0.86 for pentacam-provided values. Sensitivity and specificity were 0.7 and 0.95, respectively. Accuracy increased with computation of CPT ratio based on extracted raw data. Sensitivity and specificity were 0.87 and 0.99, respectively. There was a marked linear correlation between CPT-ratio and ablation spherical equivalent ($R^2=0.93$).

Conclusions CPT ratio cut-offs can correctly classify hyperopic versus myopic spherical equivalent of previous LASIK ablation. This could prove useful for increased accuracy of intraocular lens (IOL) calculations for patients with no historical data of their prior LASIK surgery at the time of cataract surgery planning.

P-17 CORNEA GUTTATA IN TRANSPLANTED DONOR TISSUE, IS THERE A NEED OF IMPROVEMENT IN THE EYE BANK SCREENING?

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Purpose We describe 2 cases who underwent uneventful DMEK surgery but presented delayed recovery and had confirmed cornea guttata in the donor tissues. Both patients received a cornea from the same donor.

Cases A 78-year-old man with Fuchs' dystrophy underwent triple procedure (phaco + IOL + DMEK) in his right eye and presented persistent central corneal oedema despite fully attached graft. Early rejection was suspected, and the oedema took 6 weeks to resolve completely at which point we confirmed central guttata in the donor tissue. His contralateral eye underwent DMEK surgery six months before and had clear cornea with no guttata. A 74-year-old man with corneal scarring and aphakic bullous keratopathy underwent DMEK surgery and had a persistent corneal oedema postoperatively even after initial rebubbling for a partially peripherally detached graft. Corneal oedema persisted for two months postoperatively despite full attachment and guttata identified. Both donor corneas were reported to have endothelial cell counts of 2600 cells/mm² preoperatively. In both cases confocal microscopy confirmed the presence of guttata in the donor graft. An imaging assessment from the donor tissues was performed with the eye bank and review from the literature is discussed.

Conclusion Fuchs' dystrophy appears relatively common in the general population (4% in the USA); thus, a proportion of this condition might be expected in donor corneas. Identification of guttae in donor corneas with early stages of Fuchs' dystrophy appears challenging. Current modalities of graft material screening (which appears to be standardised across Europe) are more orientated toward measuring the endothelial cell density and morphology and less toward detection of guttae. However, we believe this challenging case may not be isolated and thus improvement of eye bank screening would be of critical value to detect early Fuchs' dystrophy in donor tissues and therefore improve graft survival.