

creation of customised simulation models for cornea surgical practice with a short lead time and reduced waste.

**OP-7** PREDICTING CORNEAL OEDEMA FROM SCHEIMPFLUG IMAGES OF FUCHS' ENDOTHELIAL CORNEAL DYSTROPHY (FECD)

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**Introduction** We previously developed a model to predict improvement in central corneal thickness (CCT) after Descemet's membrane endothelial keratoplasty (DMEK) for FECD from Scheimpflug images. The model incorporated parameters of pachymetry map isopach regularity and posterior corneal radius. In this study we assessed if adding corneal backscatter and pachymetric progression indices improved the predictive power of the existing model.

**Methods** The additional 37 parameters of interest were exported from the Scheimpflug camera software for images of eyes undergoing DMEK and were combined with all previous 180 parameters originally considered for the predictive model. Gradient boosting machine (GBM) models were used to determine the 5 parameters with highest relative influence. A regression model was derived from the 5 highest relative influencers and goodness-of-fit of predicted vs. observed improvement in CCT was assessed in derivation and validation groups.

**Results** Anterior and mid-corneal backscatter were high influencers along with isopach regularity parameters whereas pachymetric progression indices were not. After incorporating corneal backscatter, the predictive power (from R<sup>2</sup>) of the model in the derivation group was 79% (n=48). When the derivation model coefficients were applied to the validation group, the predictive power in the validation group was 72% (n=45).

**Conclusions** Combining anterior and mid-corneal backscatter with isopach regularity parameters creates a strong predictive model of CCT improvement after DMEK. However, the predictive power of this model did not improve the predictive power of the original model (derivation group, 80%; validation group, 78%). The predictive model could provide important ancillary test information to help inform clinical decision-making for FECD.

**OP-8** ABSTRACT WITHDRAWN

## Poster abstract presentation

**P-9** EPIMAX-RELATED OCULAR SURFACE TOXICITY (EROST): THE GLASGOW EXPERIENCE

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**Introduction** In September 2021, NHS Greater Glasgow and Clyde's formulary committee changed the first-line emollient management of atopic eczema to Epimax cream/ointment (Aspire Pharma). In early 2022 we realised some dermatology patients were presenting to ophthalmology with unexplained ocular surface toxicity, possibly related to their changed dermatological preparations.

**Methods** A retrospective case-note review of emergency eye clinic attendance involving such clinical presentations was undertaken to investigate this phenomenon.

**Results** We identified 37 patients with atopic eczema between January to October 2022 who attended with novel ocular surface toxicity, related in time-period to Epimax initiation (12

male, 25 female; median age 42 years (range 8–95)). Most reported subjectively reduced VA, frequently associated with photophobia (89.2%). Clinical findings included bilateral involvement (67.6%), with conjunctival injection (97.3%), corneal staining (97.3%), and corneal oedema (27%).

Following diagnosis, most patients received topical lubricants (86.5%), topical antibiotics (73%) and topical steroids (64.9%). Mean visual acuity improvement in affected eyes was 15.8 EDTRS letters by first follow-up appointment (average 7.3 days (range 2–34)). No geographic clustering was identified on postcode analysis.

**Conclusions** We report the first large case-series of patients with eczema experiencing novel ocular surface toxicity, related to periocular Epimax application following changing formulary recommendations. These mild ocular chemical injuries resolved with cessation of use and topical lubricants and steroids. Dermatology patients should be strongly advised to avoid periocular application of Epimax, and primary care physicians, ophthalmologists and dermatologists made aware of this potential complication.

**P-10 WHY IS THE CORNEA OFTEN MUCH THINNER THAN EXPECTED AFTER DMEK? A RETROSPECTIVE REVIEW AND DISCUSSION OF THE CLINICAL IMPLICATIONS**

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**Introduction** DMEK is effective in surgically treating endothelial dysfunction, with visual improvement following oedema resolution. It has been our observation that postoperative DMEK corneas are often much thinner than anticipated. We wished to review our recent cases and discuss potential explanations and implications.

**Methods** Retrospective case-note review of 50 consecutive DMEK patients, including demographics and serial ultrasound central corneal thickness (CCT) measurements.

**Results** 63 eyes (33 combined phaco/DMEK; 30 DMEK alone) from 50 patients were identified (29 male, 21 female; median age 75 (34–87)). 87.3% (55/63) had Fuchs' endothelial corneal dystrophy. Mean preoperative CCT was 680 µm (median 663 µm, range 582–934 µm), significantly reduced at 3 months postoperatively by 23.4% (520 µm; median 522 µm; 404–611 µm) and maintained by 6 months (22.6% reduction). Mean CCT was significantly lower than expected (523 µm vs 540 µm;  $p < 0.001$  (one sided t-test)), with 61.9% under 540 µm and 31.7% less than 500 µm. No association was found between 3-month CCT and donor endothelial cell count (median 2600 cells/mm<sup>2</sup> (2200–3600);  $p = 0.29$ ), or median donor age (71 years (49–88);  $p = 0.22$ ). 15.9% (10/63) of eyes required topical ocular hypotensives at 6 months.

**Conclusion** Approximately one-third of our cases resulted in sub-500 µm corneal thickness following DMEK. This phenomenon is not explainable solely due to a normalisation of anatomy (new functioning Descemet's membrane/endothelial pump, corneal dehydration and epithelial re-modelling), but likely related to stromal atrophy and keratocyte death. While further research is required to confirm these findings, this awareness

has clinical implications for IOP measurements and subsequent glaucoma management in DMEK patients.

**P-11 DMEK IN CASES WITH APHAKIA & ANIRIDIA. THREE-YEAR EXPERIENCE WITH THE SAFETY NET TECHNIQUE**

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**Objective** To present the results of an innovative DMEK technique for bullous keratopathy in cases with aphakia & aniridia, traditionally considered suitable only for DSAEK.

**Method** Review of 11 consecutive cases affected with aphakia & aniridia who received DMEK using the safety net technique over the last three years. Patients were followed between 6 to 30 months.

**Results** Graft unfolding over the prolene net was found undemanding and was successfully achieved in all cases. Visual acuity improved in 10 cases (91%). Nine cases (82%) had clear cornea and well-functioning DMEK at the end of the study. In one case the surgery was not completed due to choroidal haemorrhage and in one case the graft failed after one year following rejection and repeat PK was performed. One case required re-do DMEK due to early failure. Re-bubbling was required for 4 cases (36%) and there were no cases with posterior graft dislocation.

**Conclusions** The safety net DMEK technique is a simple, low-cost method for DMEK in eyes with aphakia & aniridia. Increased re-bubbling rate is expected in the aphakic unicameral eyes.

**P-12 NECROTISING BLEPHAROCONJUNCTIVITIS AND KERATITIS IN HUMAN MONKEYPOX**

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**Importance** Ophthalmic manifestations occur in less than 5% of cases in human monkeypox, most commonly presenting with self-limiting conjunctivitis and keratitis. We herein present a case of severe ophthalmic complication.

**Objective** To present a case of human monkeypox with sight threatening necrotising blepharoconjunctivitis.

**Method** This is a report of a patient who developed necrotising conjunctivitis due to monkeypox at a large University hospital.

**Main Outcome and Measures** Description of the progression and clinical evaluation of the ocular condition and the management.

**Results** A 63-year-old male HIV positive presented initially with conjunctivitis and eyelid swelling and developed skin lesions from monkeypox virus two days later. Despite remaining stable systemically, after four days his ophthalmic condition evolves to necrotising blepharoconjunctivitis for which systemic antiviral treatment with tecovirimat was given along with topical trifluoridine 1% eye drops. In addition, he