The predictability of visual outcome of epiretinal membrane peeling by pre-operative OCT images

average flare at 1 month was higher than in healthy controls ($p < 0.001$). Long term flare levels after DMEK (Group II) measured 9.6 (±4.2) ph/ms and was higher in eyes associated with allograft rejection ($n = 6$) vs those without rejection (16.7 (±7.8) vs 9.3 (±3.8) ph/ms, respectively, $p < 0.001$). All rejection eyes had flare values above 10 ph/ms.

Conclusions: Aqueous flare after DMEK quickly decreased within the first postoperative month indicating a fast recovery of the blood-aqueous barrier. Long-term flare levels was higher in eyes associated with rejection, suggesting persistent subclinical inflammation. A flare level above 10 ph/ms may be used as a threshold for identifying eyes associated with or at risk of allograft rejection after DMEK.

Financial disclosures: Drs Baydoun and Dapena are consultants for DORC International/ Dutch Ophthalmic USA. Dr. Melles is a consultant for DORC International/ Dutch Ophthalmic USA and SurgiCube International. All other authors have no potential interest to disclose.

iOCT assisted DMEK: towards more efficient and safe surgery

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Introduction: Intra-operative optical coherence tomography (iOCT) is a novel and promising imaging method in ocular surgery, where conventional OCT technology is integrated in the ophthalmic microscope (Zeiss Lumera 700 RESCAN). Proper imaging of the thin graft in Descemet Membrane Endothelial Keratoplasty (DMEK) surgery is a particular advantage, and this study reports on our experiences of iOCT in DMEK surgery.

Patient and method: DMEK surgery was conducted by one surgeon in an standardized manner and cases were retrospectively clustered in three equally sized groups: the first underwent DMEK surgery without iOCT, the second group with iOCT first experiences, and the third group with standardized iOCT use. iOCT was used in particular for assessment of graft orientation, interface and apposition. The surgeons first 10 DMEK cases were excluded from analysis.

Results: During May 2016 and November 2017 48 cases with 3 month follow-up were included for analysis. Surgery time decreased significantly between different groups (ANOVA; $p < 0.001$) with mean surgery times of 68 min ± 16, 58 min ± 12, resp. 46 min ± 14. iOCT enabled the surgeon to refrain from post-insertion pressurizing of the globe. Corrected distance visual acuity appeared comparable (ANOVA; $p > 0.171$). The incidence of adverse events remained equal. 3/33.3%, 5/25% resp. 3/15.8% graft detachments needed rebubbling in the three treatment groups (Fisher exact; $p = 0.809$)

Conclusion: iOCT enables the surgeon to better assess graft orientation, interface and adherence during corneal transplant surgery. A better visualization potentially leads to a shorter surgery time without compromising the safety of the procedure.

Combined phacovitrectomy or sequential cataract surgery in macula-off retinal detachment

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Purpose: Compare refractive outcomes between cataract surgery combined with pars plana vitrectomy (PPV) and sequential cataract surgery after PPV, in macula-off rhegmatogenous retinal detachment (RRD).

Methods: Multi-surgeon, retrospective case series. Consecutive cases of PPV for macula-off RRD, in 12 months, with combined (combined group) or sequential (sequential group) phacoemulsification cataract surgery.

Results: There were 73 eyes in the combined and 77 eyes in the sequential group. Axial length (AL) measurement was not possible in 26/73 eyes in the combined group. Contralateral eye biometry was used in 17 eyes and contralateral AL in 9 eyes. Four eyes with silicone oil in situ at follow-up (3 in the combined and 1 in the sequential group), were excluded from refractive outcome analysis. The combined group compared as follows to the sequential group: prediction error: −0.50 ± 0.91 vs −0.32 ± 0.68 D ($p = 0.21$); absolute biometry prediction error: 0.74 ± 0.72 D vs 0.58 ± 0.47 D ($p = 0.33$); refractive outcome within ± 0.5 D of target: 27/70 (39%) vs 40/76 (53%); within ±1 D of target: 55/70 (79%) vs 64/76 (84%); outside 2 D of target: 7/70 (10%) vs 2/76 (2.6%). In cases where AL measurement was possible in the combined group (45/70), refractive outcome within ±0.5 D, within ±1 D and outside 2D of target, were 17/45 (38%), 37/45 (82%) and 2/45 (4.4%).

Conclusion: Cataract surgery combined with PPV had worse refractive outcome and more refractive surprises, than PPV and sequential cataract surgery in macula-off RRD.

Proprietary interest declaration: None of the authors have any proprietary interests in relation to this study.

The predictability of visual outcome of epiretinal membrane peeling by pre-operative OCT images

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Purpose: To determine the predictability of the visual acuity (VA) outcome of inner limiting membrane (ILM) peeling for epiretinal membrane (ERM), as estimated by vitreoretinal surgeons based on pre-operative OCT scans.

Patients and methods: All patients who underwent pars plana vitrectomy (PPV) for ERM peeling in the University Eye Clinic Maastricht between 01-01-2015 and 01-01-2016 were included in this retrospective study. Pre-operative OCT images were collected and were anonymously reviewed by 3 vitreoretinal surgeons and a fellow vitreoretinal surgery, after which pre- and postoperative VA was estimated by them and compared to the real postoperative VA.

Results: 136 eyes underwent surgery, 12 eyes were excluded: 7 due to incomplete VA-data, 5 because of retinal detachment within 3 months after surgery. The mean age of the remaining 124 patients, 69 men and 55 women, was 72.2 ± 6.8 years. The mean post-operative LogMAR VA, 0.27 ± 0.27, was significantly better than the pre-operative VA: 0.42 ± 0.24 ($p < 001$). We found a significant correlation between the predicted postoperative VA and the actual post-operative VA in 3 of the 4 vitreoretinal surgeons, however rather low (range 0.17–0.44). Moreover, we found significant differences in the estimates of the post-operative VA between the different surgeons and in comparison with the actual post-operative VA ($p < 0.001$).

Conclusions: Generally, results from PPV ILM peeling are good. In this study, vitreoretinal surgeons could not reliably predict post-operative VA by reviewing pre-operative OCT images.

Posterior vitreous detachment, its characteristics and the risk of developing retinal tears: a systematic review

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Introduction: Flashes and floaters are the main symptoms of posterior vitreous detachment, which is shown to be associated with increased risks of developing retinal tears, retinal detachment or vitreous