Communications libres I
Freie Mitteilungen I

Orbit/Lids, Lacrimal System, External Disease
Uveitis, Pathology, Ocular Oncology
Neuroophthalmology/Strabology
Imaging, Others

Jeudi I Donnerstag 31.08.2023
08:30 – 10:00

0001 National Consensus on the assessment of visual function for the fitness to drive in Switzerland

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Purpose To establish a national consensus on assessing visual function for the fitness to drive in Switzerland.

Methods The minimum medical requirements for visual function regarding fitness to drive are regulated in Swiss Federal Law, namely in the Traffic Licensing Ordinance (VZV). The medical examination techniques relevant in this context and their assessment are not further specified therein, which leads to legal inequality among drivers and uncertainty among examiners. We established a study group of representatives of the Traffic Medicine Section of the Swiss Society of Forensic Medicine and the Traffic Commission of the Swiss Society of Ophthalmology to develop a national consensus on assessing visual function for the fitness to drive in Switzerland. In structured meetings, the authors discussed medical examination techniques and available international and local recommendations on this topic, considering Swiss legislation. In the event of a contrary opinion, the topic was discussed again in a follow-up session until we reached an agreement. We defined a consensus as complete agreement on the subject under discussion.

Results The study group held five in-person meetings between March 2019 and January 2023. The authors developed recommendations intended for all professional groups assessing driving fitness. We prepared an aid for daily practice on how to examine the minimum medical requirements for visual function listed in the VZV Annex 1 using standardized test procedures and how to interpret the findings obtained, accounting for aspects of traffic medicine and ophthalmology.

Conclusions A consensus on the assessment of visual function for the fitness to drive in Switzerland is crucial to ensure legal equality for drivers and legal certainty for examiners. Regularly reviewing the consensus is imperative to consider future legal developments and new scientific evidence in assessing the fitness to drive.

Financial Interest: None: No commercial relationship
Grants: None

0002 The ocular surface microbiome: what is the state of knowledge?

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Purpose The ocular surface harbors a microbial community whose role and importance is increasingly recognized. Recent research suggests that the ocular surface microbiome (OSM) may play a role in shaping immune responses and be involved in defense against pathogenic invaders through competition for resources, among other things. It also appears that an OSM disbalance, called dysbiosis, is associated with a variety of ocular surface and systemic disorders. This raises the important question of how our environment shapes our OSM and, more interestingly, to what extent interventions such as long-term use of eye drops, contact lens wear, etc., influence this supposed symbiotic microbial community. Today, we are in the early stages of OSM research and these questions are being actively investigated.

Methods We present a review of the literature, also including results from our experiments, summarizing the current knowledge of OSM composition, with emphasis on bacterial, viral, and fungal diversity at the conjunctiva as well as the encountered technical challenges. Topics arising from the new findings on the OSM and their potential implications in clinical practice will be discussed.

Results In short, bacteria are the primary colonizers of the healthy ocular surface, with three predominant phyla: Proteobacteria, Actinobacteria, and Firmicutes, regardless of the host, environment, and sequencing method used. Refining the microbial classification to the genus level reveals a highly variable distribution from one individual and study to another. Factors accounting for this variability are intriguing - it is currently unknown to what extent this is attributable to the individuals and their environment and how much is artifactual. Clearly, it is technically challenging to accurately describe the microorganisms of the ocular surface because their abundance is relatively low, thus, permitting substantial contaminations.

Conclusions There seems to be a resident OSM composed of remarkably similar phylum abundances among individuals of different ethnic and environmental backgrounds. Further research

is needed to investigate the role of the OSM in a spectrum from healthy to pathologic conditions. Outcomes from such research include the opportunity for therapeutic interventions targeting the microbiome.

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Grants: VGP: grant from Peter Mayor Gedächtnis-Stiftung. MSZ: grants from Foundation Bertarelli Catalyst Fund, EPFL (Ecole Polytechnique Fédérale de Lausanne), Lausanne (CF10000044 – EPFL SCR0237812). DCZ: grants from OPOS foundation, St. Gallen, and Foundation Bertarelli Catalyst Fund, EPFL Lausanne (CF10000044 – EPFL SCR0237812).

0003 Evaluation von ChatGPT als Tool zum präklinischen Management von Patienten einer universitären augenheilkundlichen Notaufnahme

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Hintergrund Aufgrund der großen Popularität des auf künstlicher Intelligenz (KI) basierten Sprachmodells ChatGPT ist anzunehmen, dass ChatGPT von Patienten mit akuten ophthalmologischen Symptomen als Informationsquelle genutzt werden könnte. Bisher haben theoretische Analysen anhand fiktiver Fallvignetten aus dem Bereich nichtophthalmologischer Notfälle ermutigende Ergebnisse mit einer hohen diagnostischen und Triagegenauigkeit gezeigt. Ziel der Studie ist es, die Genauigkeit von ChatGPT bezüglich Diagnose, Triage und präklinischem Management erstmals an Patienten einer universitären augenärztlichen Notaufnahme zu beurteilen.

Methoden Patienten, welche sich ohne augenärztliche Zuweisung mit akuten Beschwerden in der augenheilkundlichen Notaufnahme vorstellten, wurden anhand eines prospektiven Fragebogens nach ihrem Vorstellungsgrund und ihren Beschwerden sowie nach der im Rahmen der ärztlichen Untersuchung festgestellten Diagnose und der empfohlenen oder durchgeführten Therapie befragt. Die Beschreibung von Vorstellungsgrund und Beschwerden in deutscher Sprache wurde nach einem standardisiertem Schema in ChatGPT eingegeben mit der Frage nach Diagnose(n), Therapie, Dringlichkeit und präklinischen Maßnahmen. Es erfolgte eine strukturierte Auswertung der Antworten anhand von 21 Parametern. Primäre Zielgrößen waren Diagnosegenauigkeit, Triagegenauigkeit, Angemessenheit der empfohlenen präklinischen Maßnahmen sowie das Vorliegen eines potentiellen Risikos durch Befolgen der Empfehlungen.

Ergebnisse Es wurden n=14 Patienten eingeschlossen. Die von ChatGPT generierte Liste der Differentialdiagnosen enthielt in 6 von 14 Fällen die korrekte Diagnose (42.9%). Der von ChatGPT empfohlene Zeitrahmen bis zur Konsultation eines Arztes war in 7 von 13 Fällen angemessen, die Triagegenauigkeit betrug somit 53,8%. Die empfohlenen präklinischen Maßnahmen waren überwiegend angemessen, in einem Fall wurden potentiell schädliche Maßnahmen empfohlen (7.7%). Insgesamt könnten die Empfehlungen in 7 von 14 Fällen (50%) schädlich sein.

Schlussfolgerung Für ein nicht fachspezifisches Sprachmodell erreicht ChatGPT eine erstaunliche diagnostische Genauigkeit. Wir raten dennoch aktuell davon ab, ChatGPT als primäre Informationsquelle bei augenärztlichen Notfällen zu verwenden. Angesichts der dynamischen Entwicklung könnten spezifisch trainierte KI-basierte Sprachmodelle in Zukunft jedoch eine grössere Rolle in der präklinischen Versorgung augenärztlicher Notfälle spielen

Financial Interest: None: No commercial relationship. **Grants:** None

0004 First Swiss data of transcanalicular endoscopic microdrill dacryoplasty

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Purpose Transcanalicular microdrill dacryoplasty (MDP) is a minimally invasive surgical approach for nasolacrimal duct obstruction (NLDO). To our best knowledge, we are the first center in Switzerland to present MDP application results.

Methods Medical records of consecutive patients that underwent MDP in a tertiary center in Switzerland since June 2021 were retrospectively analysed. All patients had MUNK IV epiphora and presaccal-only or combined pre- and postsaccal stenosis. Surgery was performed by two experienced oculoplastic surgeons in general anesthesia using a single-channelled microendoscope (outside diameter 1.1 mm, Vitr-Optik/Polydiagnost) including microdrill, optic fibre and access for irrigation for pre- and postsaccal stenosis. Evaluation included following parameters: age, gender, type of stenosis, prior lacrimal duct surgery, short- and long term subjective and objective success rate and complication rate.

Results Twenty patients were evaluated, 6 patients treated bilaterally, 58% of all eyes had combined pre- and postsaccal stenosis, MDP treatment focused on the canalicular part. Follow up time was 6–24 months. Success rate after three months was 72%, three patients underwent further surgery (dacryocystorhinostomy). No complications occurred.

Conclusion MDP is a promising minimal invasive approach to visualize and treat NLDO with a very low complication rate.

Financial Interest: None: No commercial relationship. **Grants:** None

0005 Intraarterial chemotherapy for retinoblastoma: 15 years of experience

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Purpose To report 15 years of experience with intra-arterial chemotherapy (IAC) given as first line or salvage treatment for retinoblastoma (rb) in a single center.

Methods Retrospective review of all rb patients (n=339) treated with IAC in Lausanne from November 2008 to March 2023.

Results Overall 371 eyes received a mean of 3 injections (rang 1-9) of melphalan with or without topotecan given as first line (n=100), bridge (n=66) or rescue treatment (n=205). Mean age at date of the first IAC was 27 months (range 3-203 months). According to the International Intraocular Retinoblastoma Classification, eyes at diagnosis were classified as Group A (n=2), B (n=32), C (n=29), D (n=227), E (n=55) or undetermined (n=26). Catheterization of the ophthalmic artery (OA) via the internal carotid artery or via collaterals was successful in more than 99.5% of the cases. Three injections were complicated with periprocedural intracerebral adverse events. All resolved without sequelae. The procedure contributed to a 85% eye preservation rate (n=316/371) at a 45-month mean follow-up since the first injection (range 1-169 months). Fifty-four eyes (all Group D or E) were enucleated after a 14-month mean retention time from the first IAC. Twelve patients had histopathologic high-risk factor (HRF) for metastasis and received adjuvant chemotherapy (n=11) and irradiation (n=2). One patient who underwent secondary enucleation elsewhere was lost to follow-up. Four patients died: one of pinealoblastoma, one from metastatic rhabdomyosarcoma, and two from metastatic disease (one after loss of follow-up before advised enucleation and one with unilateral rb after secondary enucleation showing no HRF). One patient is currently under chemotherapy for relapsing bone metastatic disease developing 16 months after IAC given for massive choroidal recurrence in his only seeing eye. In a multivariate analysis, occlusive catheterization of OA with the placement of the catheter tip entering the OA was found to be a risk factor for acute choroidal ischemia ($P < 0.001$), the most frequent not treatable intraocular complication seen after IAC.

Conclusion Intraarterial chemotherapy is effective and safe as both primary and secondary treatment even in advanced intraocular retinoblastoma. Occurrence of irreversible vision threatening IAC-related complications can be reduced when performing the catheterization of the OA from an ostial position or an external carotid approach.

Financial Interest: None: No commercial relationship.
Grants: None

0006 Efficacy of TNF-alpha inhibitors to control inflammation and prevent secondary complications in non-infectious uveitis: real-life experience from Switzerland

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Purpose To evaluate the efficacy of systemic tumor necrosis factor-alpha inhibitors (TNFi) in the routine treatment of inadequately controlled endogenous non-infectious uveitis (NIU) and to report on uveitis complications before and after treatment initiation.

Methods This multicenter retrospective study included 71 patients with inadequately controlled NIU requiring TNFi. The course of uveitis activity as well as pre-existing and new complications under TNFi therapy were evaluated for the years 2001 to 2018.

Results A total of 71 patients with NIU (mean age 40.6±14.4 years, mean duration of uveitis before TNFi 46.0±61.8 months) were included. The mean follow-up under TNFi was 40.2±17.3 months. Adalimumab (ADA) was used in 33.8% of the patients, infliximab (IFX) in 47.9%, and 18.3% of the patients were switched from ADA to IFX or vice versa. A significant improvement in visual acuity was observed with TNFi (baseline 0.2±0.3 logMAR, end of follow-up 0.1±0.3 logMAR; $p < 0.0001$). The rate of patients treated with systemic corticosteroids decreased from 81.7% at baseline to 25.4% at the end of follow-up, while the rate of patients treated with conventional synthetic disease-modifying anti-rheumatic drugs decreased from 63.4% to 47.9%. Complications at baseline were present in 80.2% of eyes, with epiretinal gliosis (39.7%), cataract (41.3%) and macular edema (ME; 27.8%) being the most common. New complications under TNFi were observed in 48.4% of eyes (56.3% of patients), with ME being the most common (32.5% of eyes). There was one patient with new secondary glaucoma. In total 13.5% of the included eyes developed cataract.

Conclusion Although the efficacy of TNFi is generally favorable, treatment is initiated in a real-life setting after more than 80% of eyes have already developed secondary complications. Even with TNFi, new complications could not always be avoided. This may at least partially be owed to late initiation of TNFi therapy.

Financial Interest: None: No commercial relationship
Grants: None

0007 Time-resolved dynamic optical coherence tomography for retinal blood flow analysis

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Purpose To demonstrate the potential of time-resolved dynamic optical coherence tomography (OCT) by analysing retinal blood flow dynamics and exploring the use of fringe washout analysis for assessing blood flow velocities with a commercially available OCT device.

Background In clinical practice, OCT as well as OCT angiography (OCTA) representations are static and do not allow for a visualisation and quantification of blood flow dynamics. However, the OCT signals are known to change over time. Such changes can be due to phase alterations in the reflected light waves when the sample moves during image acquisition. These phase changes

create a modulation of the interference pattern of the reflected light and can cause the OCT signal to fade - a phenomenon called fringe washout.

Methods We developed a novel imaging protocol to acquire time-resolved structural OCT B-scans (1024 x 496 pixels, 10° field of view) at four different nominal A-scan rates (20 kHz, 40 kHz, 85 kHz, 125 kHz). The images were acquired at different eccentricities within five optic disc diameters of the optic disc rim. We aligned the acquired image stacks with rigid body transformations and matched them to a time-axis with timestamps. The vessel centres were annotated for each B-scan and surrounding subvolumes were extracted. Fringe washout analysis was performed and used to calculate blood flow velocities based on the relative signal-to-noise ratio (SNR) drop within the vessel subvolumes.

Results Time-resolved dynamic OCT revealed pulsatile SNR changes in the analysed vessels. Fringe washout analysis showed higher signal differences in acquisitions with lower nominal A-scan rates. Fringe washout analysis enabled to calculate the axial components of the blood flow velocity. The analysis at different eccentricities showed a decrease of the flow velocities along the vessel arch. The pulsatile nature of the fringe washout indicates a correlation with the cardiac cycle and a representation of the pulse propagation at the optic nerve head.

Conclusions Time-resolved dynamic OCT holds promising blood flow information to be uncovered in clinical settings. In this study, we demonstrated the feasibility of calculating blood flow profiles, showing pulsatile dynamics, in vessels close to the optic nerve head using structural OCT. In addition to existing techniques, fringe washout analysis can be investigated as a new clinically applicable parameter for the assessment of blood flow velocities.

Financial Interest: Support from a for-profit company or competing company
Grants: Swiss National Science Foundation, AlumniMedizin Basel

0008 Artificial Intelligence (AI) Based Retinal Vessel Analysis in Post-COVID-19 Patients Compared to a Control Group

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Purpose This prospective follow-up single-center study aimed to compare fundus photo based retinal vessel parameters of young patients after SARS-CoV-2 (COVID-19) infection to those of healthy young probands.

Methods The study was conducted at the University Hospital of Zurich, Switzerland, between May and November 2021. True-color fundus photographs were captured with the Visionix SOLIX device centered on the macula and the optic disc, respectively. Automated retinal vessel analysis was performed using the artificial intelligence (AI) open-source software Automorph developed by Moorfields Eye Hospital, London, UK. The data obtained from the right eye and left eye were averaged for the statistical analysis. The software IBM SPSS was used for statistical analysis. As the dataset was not completely normally distributed (Kolmogorov-Smirnov test), a pairwise Kruskal Wallis test was used to evaluate the existence of statistically significant differences between the four groups.

Results A total of 466 participants were screened in the study. After exclusion of 103 participants with low image quality or unmeasurable images, 363 participants were included in the automated image analysis by the Automorph software. The study consisted of 4 groups: (1) 188 healthy probands with a negative RT-PCR test for SARS-CoV-2, (2) 123 patients who had a SARS-CoV-2 infection at least 180 days prior, (3) 13 patients who had a SARS-CoV-2 infection less than 180 days prior, (4) 39 patients who had an asymptomatic COVID-19 infection (i.e. serologically positive but with no symptoms). Statistical analysis did not show any significant differences between the groups (all $p > 0.067$), except for Distance Tortuosity in the macular region of the recent Post-COVID-19 group (all $p < 0.037$). The disc-centered tortuosity was not statistically significant for any of the groups (all $p > 0.191$).

Conclusion
The findings of this study suggest that young, otherwise healthy predominantly male individuals, seem to recover without retinal vascular residues from mild COVID-19 infections. Vessel tortuosity in the macular region seems to be temporary altered recently after a COVID-19 infection (< 180 days) but appears to recover to a statistically non-detectable level long-term after a COVID-19 Infection (≥ 180 days).

Financial Interest: None: No commercial relationship
Grants: This study was funded by the Swiss Armed Forces.

0009 Adaptive Optics Transscleral Flood Illumination in Patients with AMD

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Purpose Adaptive Optics Transscleral Flood Illumination (AO-TFI) is a novel microscopy technique that enables in-vivo assessment of retinal structures in humans. The purpose of this study was to qualitatively assess differences in retinal layers on cellular images acquired with AO-TFI in age-related macular degeneration (AMD).

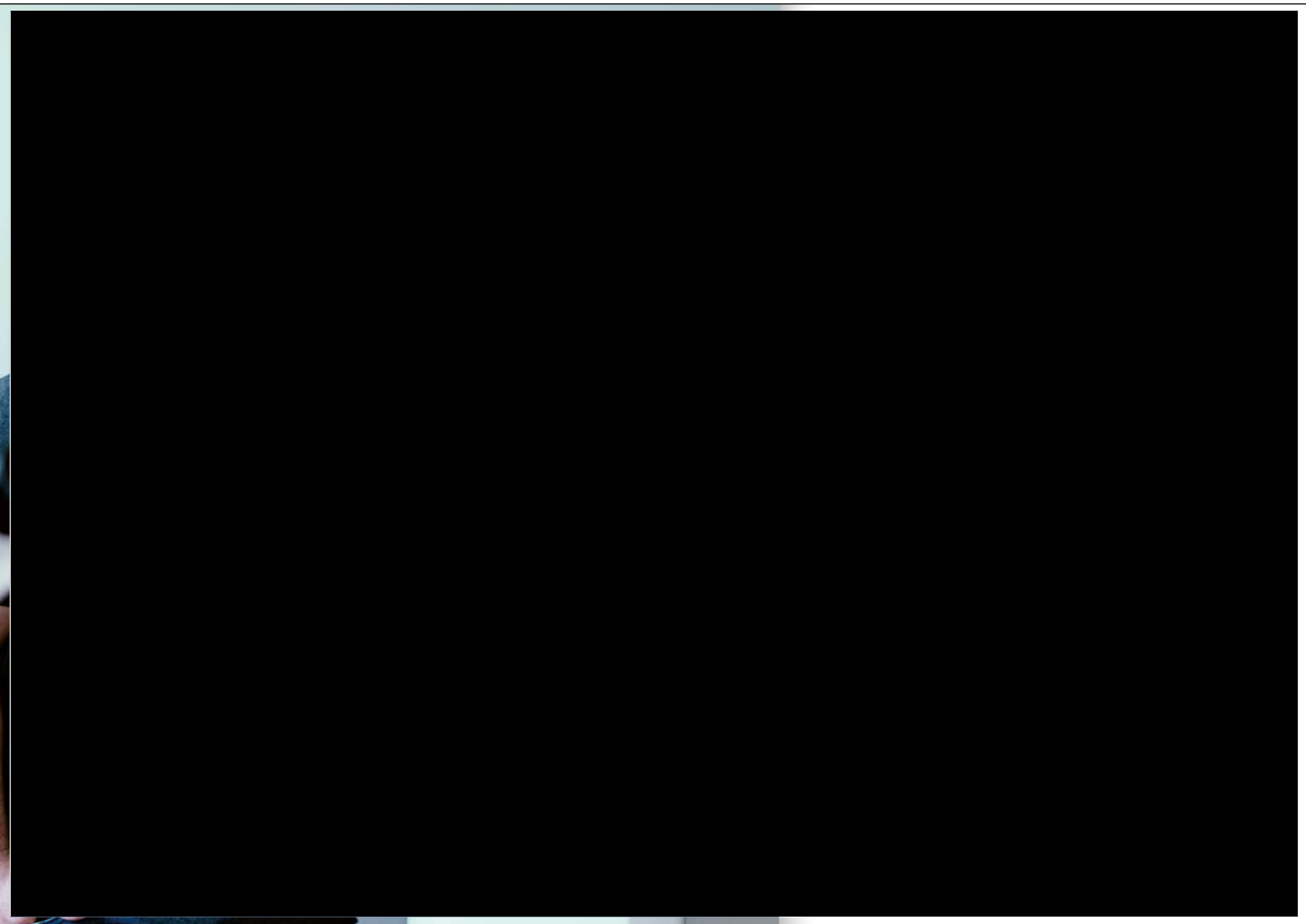
Methods The study was a single center prospective study conducted at the Eye Clinic of the Cantonal Hospital Lucerne, Switzerland. The protocol is registered on ClinicalTrials.gov (NCT04912622). Patients with both wet and/or dry AMD were analyzed. Participants underwent clinical ophthalmological examination, followed by optical coherence tomography (OCT),

autofluorescence (AF), and optical biometry examinations, ahead of AO-TFI imaging. AO-TFI image acquisition was conducted using the novel retinal camera Cellularis® (prototype version 2.0). Both RPE and PR layer images were acquired across five macular zones of 6.7° x 6.7°.

Results 120 eyes of 70 participants (59% women; mean age 78±8 years) were analyzed. Across AMD diagnosis, the emergence of five recurring patterns was observed on AO-TFI images and confronted to OCT images acquired at the same location. The first pattern, "Blob," was characterized by a clearly delineated zone of circular shape composed of extracellular mass between RPE-cells, corresponding to atrophy. The second pattern observed, "Spots," was a homogeneous motif of small hyperreflective clusters, typically formed of numerous small clusters. This corresponds to a pre-atrophic zone. The third pattern, "Clumps," was a salient pattern below RPE-cells, associated with early stages of AMD and corresponding to soft drusen. The fourth pattern, "Drops," was composed of few homogeneously sized distanced hyporeflective clusters surrounded by hyperreflective lines below and sometimes between RPE cells. OCT images show reticular pseudodrusen at the same location. Finally, the fifth pattern, "Dark Spot," was composed of unique isolated hypo-reflective cluster of circular shape composed of RPE-cells, corresponding to hyperreflective foci.

Conclusion The results highlight the promising potential of AO-TFI in the clinical setup, particularly by adding further value to existing multimodal imaging in disease monitoring. This initial qualitative classification represents a basis for future comparison to clinical and morphological features. Further research is needed to explore the clinical applications of AO-TFI in AMD patients.

Financial Interest: None: No commercial relationship.
Grants: None



SOG SSO Schweizerische Ophthalmologische Gesellschaft
Société Suisse d'Ophtalmologie
Società Svizzera di Oftalmologia
Swiss Society of Ophthalmology

Communications libres II
Freie Mitteilungen II

Retina, Vitreous

Vendredi I Freitag, 01.09.2023
08:00 – 10:00

0010 Two-year results from the Swiss cohort of a non-interventional study investigating real-world proactive dosing regimens with intravitreal aflibercept in patients with nAMD: XTEND study

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Purpose The 48-month (including one year of enrollment), multicenter, observational, prospective, XTEND (NCT03939767) study examines the effectiveness of real-world proactive treatment regimens of intravitreal aflibercept (IVT-AFL) in treatment-naïve patients with neovascular age-related macular degeneration (nAMD) in 17 countries globally. Here we present 2-year results from the Swiss cohort of the ongoing XTEND study.

Methods Patients aged ≥50 years with nAMD were eligible if planned to receive 2 mg IVT-AFL (according to the approved label) following a treat-and-extend regimen (T&E) in routine clinical practice. The label-specified regimen was non-EMA aligned: minimum treatment interval of 4 weeks (wks) in Year 1 after 3 initial monthly IVT-AFL injections. The T&E regimen could be extended to a maximum of 16 wks. The primary endpoint was mean change from baseline (BL) in Early Treatment Diabetes Retinopathy Study (ETDRS) best-corrected visual acuity (BCVA) at Month (M)12 (letters) and statistics were descriptive. Here we present 24-month results from the Swiss cohort of the XTEND study.

Results The analysis included 51 patients (mean age: 79 years; female: 61%). From BL (mean±SD: 64.9±17.9 letters), mean (95% CI) change in BCVA was +5.5 (2.7, 8.8) letters by M12 and +5.6 (1.3, 9.8) letters by M24. In patients with a high BL BCVA (≥70 letters, n=28; mean±SD: 77.5±4.8 letters), change in BCVA was +1.0 (–15.0, 11.0) letters by M12 and +1.1 (–20.0, 14.0) letters by M24. BCVA was largely maintained by M24, with only 3.9% of patients losing ≥15 letters. Mean (95% CI) change from BL in central retinal thickness was –125 (–161, –90) µm by M12 and –127 (–162, –93) µm by M24. Patients received a mean±SD of 6.5±1.6, 9.5±3.2, 13.7±6.0 IVT-AFL injections by M6, M12 and M24, respectively. The last completed injection interval was ≥12 wks for 13.7% of patients by M12, and ≥16 wks for 19.6% of patients by M24. No new safety concerns were identified. There were no cases of vitreous hemorrhage.

Conclusions The XTEND study assesses the performance of IVT-AFL for the treatment of nAMD in routine clinical practice by reporting patient outcomes following extension of treatment intervals in a real-world setting. After 2 years, BCVA and anatomic outcomes are comparable to those observed in randomized clinical trials. Robust functional and anatomic outcomes were achieved and maintained by M24, despite high BL BCVA, and potential influence of the COVID-19 pandemic.

Financial Interest: Support from a for-profit company or competing company; Employment by a company or competing company with business interest in the topic; Being a consultant of a company or competing company with business interest in the topic; Travel reimbursement, gifts or honoraria of over $5000 in the last twelve months by a company or competing company involved
Grants: The XTEND study was sponsored by Bayer AG, Germany. Medical writing support, under the direction of the authors, was provided by ApotheCom and funded by Bayer Consumer Care AG, Basel, Switzerland, in accordance with Good Publication Practice (GPP) guidelines (Ann Intern Med 2022;175:1298–1304).

Disclosures:
KH: Bayer, Novartis, Roche
AA: Apellis, Bayer, Novartis, and Roche
MS: Oculocare Inc (P, PS), Luzerner Spitalbetriebe AG (E)
CP: Apellis, Bayer, Novartis, Opharmic, and Roche
DB: Consultant for Bayer, Novartis and Alcon
TM: Employee of Bayer AG, Berlin, Germany
HA: Employee of Bayer Consumer Care AG, Basel, Switzerland.
GS: Apellis, AbbVie, Bayer, Novartis, Roche, Carl Zeiss Meditec (C)

0011 Fundus-Controlled Dark Adaptometry: Development and Validation of a Novel Method

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Purpose This study aimed to assess the retest reliability and the validity of dark adaptation measurements with a modified S-MAIA (iCare, Padova) perimeter compared to the established gold standard (MonCvONE).

Methods For evaluating the retest reliability of the new method, a 50% rod bleach followed by fundus-controlled dark adaptometry using the modified S-MAIA device was performed twice (stimulus size: Goldmann III; stimulus duration: 200 ms; colors: cyan and red; position: 2°, 4°, 6°). Next, we conducted a 50% rod bleach and dark adaptation testing using the MonCvONE (stimulus size: Goldmann V) to determine validity. Subsequently, the

bleach was repeated, and fundus-controlled dark adaptometry was performed using the modified S-MAIA device. The cone-rod-break, the rod intercept time (RIT), and the S2 slope were extracted from the dark adaptation curves. We performed a Bland-Altman analysis to evaluate the validity. The Bland-Altman 95% repeatability coefficient was used to assess retest reliability.

Results For the retest arm, the median age IQR of the currently enrolled six subjects was 42 years 26.5, 56.75 |. Retest reliability for the new measurement method was excellent, with a 95% repeatability coefficient of 3.3 min for the cone-rod-break, 3.1 min for the rod intercept time, and 0.065 decades/min for the S2 slope.

For the validity arm, 16 subjects with a median age IQR of 29.5 years 25, 56 were enrolled. Between-method agreement for the S2 slope was (mean bias 95% limits of agreement |) 0.05 decades/min -0.14, 0.24 at 2°, 0.04 decades/min -0.06, 0.15 at 4°, and 0.04 decades/min -0.10, 0.19 at 6°. For the cone-rod-break, the mean bias 95% limits of agreement was -1.21 min -6.57, 4.15 at 2°, -0.63 min -3.61, 2.36 at 4°, and -0.80 min -3.37, 1.76 at 6°.

Conclusion The newly developed method produced results consistent with the established method, but the cone-rod-break estimates were slightly higher (i.e., later). This difference can be attributed to the larger stimulus used in the older method, stimulating slightly more eccentric photoreceptors. The newly established fundus-tracked approach will allow for examining patients with unstable fixation, which addresses a critical unmet need for studying inherited retinal diseases.

Financial Interest: None: No commercial relationship
Grants: None

0012 Subthreshold micropulse laser for central serous chorioretinopathy

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Purpose To evaluate structural and functional effect of subthreshold micropulse laser in patients with central serous chorioretinopathy (CSC).after 3 months.

Methods Retrospective case series on consecutive patients with diagnosed CSC on multimodal imaging and nonresolving subretinal fluid (SRF). Patients were treated with Navilas subthreshold microsecond laser. Treatment plan was fluorescein- and indocyanine green angiography guided and the laser protocol by Chablani was used (confluent 100µm laser spots, 5% duty cycle laser with 30% of titrated energy of a barely visible laser burn at the arcades). Primary outcome was reduction of subretinal fluid and complete resolution of subretinal fluid after 3 months. Secondary outcomes were reduction in central macular thickness (CMT) and visual acuity (VA) change after three months. Paired two sample t-test was used to analyse differences in means and a p-value < 0.05 was considered statistically significant.

Results Seventeen eyes of 16 patients (3 female, mean age 48 +/-11years) were analysed. Mean baseline best corrected decimal VA was 0.8+/-0.4, mean maximal SRF was 149.1+/-54.3µm at baseline, and mean CMT was 324.1+/-67.8 µm. SRF had been persistent for 29.2+/-19.1 weeks before laser treatment.Three months after micropulse subthreshold laser, SRF had decreased to 97.0+/-78.2 µm (p=0.047), CMT had decreased to 276+/-42.3 µm (p=0.002), whereas VA was not significantly different (0.7, p=0.127). Four eyes (20%) had a complete resolution of SRF. Nine eyes with nonresolving SRF (50%) were scheduled for a second laser treatment.

Conclusion Laser treatment is the only readily available treatment for CSC since the persistent shortage of visudyne for photodynamic therapy (PDT). Limited evidence exists for using subthreshold micropulse laser, but it has been shown to be inferior to PDT in the prospective PLACE trial. In clinical practice, our data shows a similarly low percentage of complete resolution of SRF after subthreshold micropulse laser as the place trial (29%), whereas there was no effect on VA. In conclusion, subthreshold micropulse laser does not seem to be a game changing therapeutic option for CSC so far.

Financial Interest: None: No commercial relationship
Grants: None

0013 The Natural History of G1961E-associated Stargardt Disease: Design and Baseline Characteristics of the FirstOrbit-Study

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Purpose This study aims to evaluate the reliability and ability to detect changes over time of function and imaging assessments in Stargardt disease associated with the ABCA4 (c.5882G>A) G1961E gene variant.

Methods At a tertiary referral center for inherited retinal diseases, patients with G1961E-associated STGD1 underwent prospective function and imaging assessments (ClinicalTrials.gov Identifier: NCT05674058). This included best-corrected visual acuity (BCVA), contrast sensitivity function (CSF), mesopic and dark-adapted microperimetry testing, patient-reported outcomes (VFQ 25), and standardized multimodal imaging. An AI-based algorithm measured the ellipsoid zone (EZ) loss using spectral-domain optical coherence tomography (SD-OCT). Progression rates were estimated from square-root transformed data using linear mixed models.

Results So far, eleven patients have been enrolled in the study, with a median age of 33.5 years 29.8, 44.4 |. The baseline BCVA in the better eye was 0.66 LogMAR 0.51, 0.79 |; in the worse eye,

it was 0.78 LogMAR 0.64, 0.81 |. The area under the logCSF was 0.56 0.44, 0.68 logCS*logCPD in the better eye and 0.51 logCS*logCPD 0.38, 0.56 in the worse eye (lower normal limit: 1.1 logCS*logCPD). The (square-root transformed) EZ loss was 2.1 mm 1.5, 2.5 in the better eye and 2.2 mm 1.6, 2.7 in the worse eye. Data before baseline were available for eight patients, and their average EZ loss progression rate (mixed model estimate 95% CI |) was 0.07 mm/year 0.05 – 0.09 |.

Conclusion This study establishes the range of disease stages associated with the ABCA4 p.G196E variant. In anticipation of a treatment trial, the study will provide pre-treatment natural history data and a precise ranking of outcome measure performance.

Financial Interest: None: No commercial relationship
Grants: None

0014 Retinal pigment epithelium tears after intravitreal faricimab for neovascular age-related macular degeneration

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Introduction Retinal pigment epithelium (RPE) tears are a well-known complication of neovascular age-related macular degeneration (nAMD) with pigment epithelium detachment (PED) and may occur with or without anti-vascular endothelial growth factor (anti-VEGF) treatment. We report our early clinical experience with RPE tears under faricimab for nAMD.

Methods Four cases of RPE tears were identified. The clinical characteristics were collected, including the pre-treatment situation, the timing of the tear, its extent with respect to the fovea, the visual acuity change, and the fluid amount.
History and Signs All 4 patients were treatment-naïve before receiving their first injection of faricimab. They presented with vascularized PED, ranging from 500 um to 1200 um in height. The tear was identified after the first injection in 2 patients, and after the second in 1 patient, all three complaining about severe visual loss. A fourth case was identified after three loading doses, as the patient was not seen in between. Logarithmic visual acuity before injection ranged from 0.6 to 0 on the ETDRS chart and dropped after the tear to between 0.4 to 2.0. Foveal inclusion was seen in 2 cases. One patient presented with massive hemorrhagic tear and large serous retinal detachment. In the three other situations, the amount of fluid decreased after intravitreal injection despite the tear. All of them continued with anti-VEGF treatment according to their fluid amount.
In our center and counting from August 2022 to March 2023, the proportion of RPE tears of all injection-naïve eyes with PED in nAMD treated with faricimab was 26.6% (4 of 15 cases).

Conclusion Although RPE tears may happen with any anti-VEGF treatment and even spontaneously, little is known about the incidence of RPE tears following faricimab injections compared to other anti-VEGF agents. This case series includes very severe RPE tears after faricimab which is known for its strong treatment effect, warranting further investigations.

Financial Interest: None: No commercial relationship
Grants: None

0015 AI-based retinal fluid monitoring correlated with automated photoreceptor loss quantification in neovascular AMD in the Fight Retinal Blindness! registry

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Purpose To quantify photoreceptor integrity loss during anti-VEGF therapy for nAMD and correlate these findings with disease activity using precise AI fluid quantifications in a real world data set.

Methods This was a post hoc analysis of data contributed to the Fight Retinal Blindness! Project. Patients with neovascular age-related treated with intravitreal anti-vascular endothelial growth factor agents for macular degeneration, with at least 36 months of follow-up, were included. An artificial intelligence (AI) based algorithm to automatically identify intraretinal fluid volumes (subretinal fluid SRF, intraretinal fluid IRF, pigmented epithelium detachment PED), photoreceptor (PR) layer thickness and PR loss was used. Wilcoxon rank-sum tests with bootstrapped confidence intervals to calculate the effect of fluid volumes on change of photoreceptor thickness at different timepoints. Linear mixed model for correlation between decrease of visual acuity with increase in photoreceptor loss.

Results Overall, 211 eyes from 158 patients were included. At 36 months after baseline, mean PR thickness decreased from 26.9±4.67 dB to 17.9±8.63dB, SRF decreased from 336±557nl to 4±11nl, IRF decreased from 106±280nl to 4±15nl and PED decreased from 599±1364nl to 42±62nl. Higher fluid volumes (top 25%) of IRF and PED in the central macula were associated with more advanced photoreceptor thinning and loss of PR integrity since baseline compared to the low fluid volume group (low 75%).

Conclusions Artificial intelligence is well suited to model disease progression utilizing clinical and subclinical biomarker quantification in the real world. The identification of early signs of atrophy in clinical practice is an important step towards a precise and personalized care, minimizing the risk of undertreatment. Detection of photoreceptor thinning and early loss of integrity dependent on retinal fluid behaviour have to be evaluated in a prospective manner.

Financial Interest: None: No commercial relationship
Grants: None

0016 RP1 p.Arg872Thrfs*2-Associated Retinitis Pigmentosa: Phenotype and Progression

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Purpose Our objective was to investigate the phenotype and progression rate of autosomal dominant retinitis pigmentosa (RP) caused by the RP1 p.Arg872Thrfs*2 variant.

Methods This study included patients with genetically confirmed RP1 p.Arg872Thrfs*2-associated RP and RHO-associated RP. Best-corrected visual acuity was evaluated using ETDRS charts. Longitudinal spectral-domain optical coherence tomography (SD-OCT) data were used to quantify the loss of the ellipsoidal zone (EZ). Additionally, prospective light- and dark-adapted two-color perimetry was performed in five patients. Linear mixed models were used to assess the EZ loss progression rate.

Results Eleven RP1-associated patients (median [IQR] age 58.8 of years [54.9, 75.25]) and eight RHO-associated RP patients (38.4 years [32.1, 43.0]) were included in this study. The median follow-up of the patients was 2.9 years [1.0, 4.0].
The decay for the horizontal EZ loss diameter was -0.10 Log10(µm) per decade [-0.15, -0.05], corresponding to a loss of -20.6% per decade. There was no significant difference in the decay rate between RP1-associated patients and RHO-associated patients. However, RP1-associated patients had a slightly higher intercept of +0.27 Log10(µm).
Prospective light- and dark-adapted visual field measurements in five RP1-associated RP patients revealed residual cone function in the superior retina. These regions were associated with a preserved – but very thin – outer nuclear layer in SD-OCT scans.
Conclusions RP1 p.Arg872Thrfs*2-associated RP patients appear to have a slightly later disease onset than RHO-associated RP patients based on the higher intercept for the exponential decay model. Both rates of disease progression after disease onset were comparable. The phenotype of RP1 p.Arg872Thrfs*2-associated RP is similar to the previously described phenotype of other RP1 variants.

Financial Interest: None: No commercial relationship. **Grants:** None

0017 Short-term outcomes of switching to intravitreal faricimab in patients with treatment-resistant neovascular age-related macular degeneration

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Purpose To report the short-term anatomical and visual outcomes of switching to faricimab intravitreal injections (IVI) in patients with neovascular age-related macular degeneration (nAMD) resistant to aflibercept.

Methods An observational, retro- and prospective, single-arm, monocentric consecutive cohort study conducted at Swiss Visio Montchoisi, Lausanne, Switzerland. nAMD patients , with BCVA ≥ 25 and ≤ 85 ETDRS letters, previously treated with aflibercept IVI (4-, 6 or 8 weeks intervals), and switched to faricimab due to intra- (IRF) or subretinal (SRF) or sub-retinal pigment epithelium (RPE) fluid recurrence/persistence and/or to achieve longer treatment intervals, were included in the study.
Patients were started on a loading phase of 4 monthly faricimab IVI , followed by a treat-and-extend regimen. Monthly OCT and fundoscopy were performed before each IVI during the loading dose. Prospective data will be collected up to 2 years. Outcomes measures include mean changes in BCVA, central retinal thickness (CRT), maximal PED height and the presence of IRF, SRF or sub-RPE fluid on SD-OCT at month 4,12,24.

Results Data from 36 eyes of 28 patients receiving at least one faricimab IVI were included in this analysis. Mean age was 80.2 ± 8.4 years. Mean duration of aflibercept IVI therapy was 19.9 ± 14,9 months. 77% of the eyes were type 1 MNV with a further 35 % displaying aneurysmal type 1 neovascularization, 11% type 2 MNV and 11% type 3 MNV.
At baseline, mean BCVA was 71,8 ± 13,9 ETDRS letters, mean CRT was 363,2 ± 117,6 µm. Mean baseline maximal PED height was 244,1 ± 127,4 µm. At one month, mean CRT decreased to 326,7 ± 110,5 µm (- 36.5 µm). In a subset of 14 eyes (36%) achieving the loading dose, mean BCVA change was -1,4 ± 5 ETDRS letters. Mean CRT and maximal PED height decreased of 52.4 ± 85,4 µm and 58,1 ± 90,6 µm. The proportion of these patients with IRF, SRF and sub-RPE fluid was 43%, 64%, and 86% prior to the switch and 29%, 43% and 50% at 4 months. 4 patients (28%) had a complete resolution of fluid. No ocular or systemic adverse event was observed.

Conclusion In patients with recurrent nAMD under aflibercept IVI, faricimab demonstrated rapid anatomical effects, including the reduction of retinal fluid activity and the improvement in quantitative biomarkers such as CRT and PED height. Faricimab seems to be an effective alternative when considering switching therapy. However, longer follow-up is needed to determine its long-term efficacy.

Financial Interest: None: No commercial relationship. **Grants:** None

0018 Predictive factors of good versus poor response to intravitreal aflibercept or ranibizumab in patients with neovascular age-related macular degeneration

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Purpose To investigate predictive factors of response to intravitreal (IVT) treatment with aflibercept or ranibizumab in patients with neovascular Age-related Macular Degeneration (nAMD).

Methods This single-center, retrospective, observational case series included patients with nAMD undergoing IVT treatment with aflibercept or ranibizumab attending the Ophthalmology department of the Ospedale Regionale of Lugano between March 2022 and March 2023. Patients were classified on the basis of the maximum interval free of recurrences between the last two injections of aflibercept or ranibizumab. Thirty-one eyes reached a maximum interval between 4 and 8 weeks and were classified as "poor responders", whereas 28 eyes reached an interval of 9 weeks or higher and were classified as "good responders". Medical records and multimodal imaging acquired before starting the IVT treatment were reviewed to analyze potential predictive factors of response, including demographic factors (age, sex) and imaging biomarkers as the presence of sub-retinal fluid (SRF), intraretinal fluid (IRF), macular hemorrhage (MH), hyperreflective foci (HRF), subretinal hyperreflective material (SHRM), the type of macular neovascularization (MNV) and maximum Pigment Epithelial Detachment height on macular spectral-domain optical coherence tomography (SD-OCT). Outcomes measured were compared between the two groups. Non-paired T-test was used to compare continuous data, two-samples Z-test was used to compare categorical data and Pearson chi-square test was used to compare prevalence of MNV types.

Results Before the start of IVT treatment, maximum PED height on macular SD-OCT was significantly smaller in good responders (96.11um; 95%CI 63.16; 129.06 |) than in poor responders (202.68um; 95%CI 150.55; 254.69 |). No statistically significant difference was found between the two study groups in age (p=0.899), sex (p=0.596), IRF presence (p=0.267), SRF presence (p= 0.234), MH presence (p=0.857), HRF presence (p=0.667) and SHRM presence (p=0.810) at baseline. The two groups did not differ in terms of MNV type distribution (X2 (3, N=59) =7.27, p=0.063).

Conclusions Retrospective data analysis from a limited sample of nAMD patients treated with IVT aflibercept or ranibizumab seems to suggest that maximum PED height on macular SD-OCT could serve as a helpful biomarker in predicting response to aflibercept and ranibizumab at baseline. Larger studies are needed to confirm these preliminary result.

Financial Interest: None: No commercial relationship. **Grants:** None

0019 Silicone Oil in Surgery of uncomplicated Retinal Detachment

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Background Uncomplicated rhegmatogenous retinal detachment (RRD) are mainly treated with gas tamponade or alternatively scleral buckling surgery. Though gas tamponades are expanded in high altitudes that can cause significant complications.
Silicone oil (SO) tamponade volume is unaffected by atmospheric pressure, so it may be used in patients who live or must undertake travel in high altitude.

Purpose To determine the anatomical and functional outcomes after pars plana vitrectomy (PPV) with silicone oil (SO) tamponade in primary uncomplicated RRD

Methods 51 consecutive cases of patients operated between January 2015 and December 2019 in Jules Gonin University Eye Hospital in Lausanne were included in this study. All patients were unqualified for scleral buckling surgery for various reasons.

Results Primary reattachment was achieved in all 51 eyes. Mean follow-up was 19.5 months (range, 8- 45 months). Mean age at the time of intervention was 64 years (range, 57-82 years). Vision was stabilized or improved in 49 eyes (96%). Mean age at the time of intervention was 64 years (range, 57-82 years). All patients had removal of silicone oil 2 to 3 months after primary repair. In all phakic patients concomitant cataract surgery was performed. No surgical complications were encountered. Postoperatively, 3 patients had ocular hypertension presumably steroid related that successfully controlled with topical treatment.

Conclusions Pars plana vitrectomy with SO injection seems to be a safe and efficient surgical approach in the treatment of primary uncomplicated RRD in patients living in high altitude and was associated with good anatomical and functional outcome in our series. Though, the need for a second surgery to remove SO should be weighed in these cases.
Financial Interest: None: No commercial relationship. **Grants:** None

0020 Port Delivery System mit Ranibizumab bei diabetischem Makulaödem: Ergebnisse der Primäranalyse der Phase-3-Studie Pagoda

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Fragestellung Die notwendigen häufigen intravitrealen Injektionen bei der Therapie des diabetischen Makulaödems (DMÖ) können für Patienten eine hohe Belastung darstellen. Das Port Delivery System mit Ranibizumab (PDS) ist ein nachfüllbares okuläres Implantat, das die kontinuierliche Verabreichung einer angepassten Ranibizumab-Formulierung in den Glaskörper ermöglicht. Die Phase-3-Studie Pagoda untersucht die Wirksamkeit, Sicherheit und Pharmakokinetik des PDS mit fixen 100 mg/ml Nachfüll-Austauschverfahren alle 24 Wochen (Q24W) im Vergleich zu monatlichen intravitrealen Ranibizumab 0,5mg-Injektionen (RBZ Q4W) bei DMÖ-Patienten.

Methodik Die multizentrische, randomisierte Phase-3-Studie Pagoda (NCT04108156) schliesst DMÖ-Patienten (≥18 Jahre) ein, die noch nicht therapiert wurden oder in den letzten 6 Monaten keine Behandlung für diabetische Retinopathie oder DMÖ erhalten hatten. Patienten wurden im Verhältnis 3:2 zu PDS Q24W oder RBZ Q4W randomisiert. Bei Patienten, die PDS Q24W erhielten, wurde die Notwendigkeit einer ergänzenden Behandlung mit intravitrealem RBZ 0,5 mg bei beiden Visiten

vor jedem Nachfüllen geprüft. Der primäre Endpunkt ist die BCVA-Veränderung gegenüber Baseline, gemittelt über die Wochen 60 und 64 (Nicht-Unterlegenheitsgrenze von -4,5 ETDRS-Buchstaben).

Ergebnisse Demographische Baseline-Charakteristika waren zwischen beiden Behandlungsarmen PDS Q24W (N=381) und RBZ Q4W (N=253) ausgeglichen. Der primäre Endpunkt wurde erreicht: PDS Q24W führte bis Woche 64 zu robusten Sehverbesserungen und war RNZ Q4W hinsichtlich der BCVA-Veränderung vs. Baseline (in ETDRS-Buchstaben) nicht unterlegen (9,6 vs. 9,4, gemittelt über die Wochen 60 und 64). Der Anteil an Patienten, die eine Visusverbesserung von ≥10 und ≥15 ETDRS-Buchstaben in Woche 64 erzielten, war zwischen den Armen vergleichbar. Zudem waren die mit dem PDS Q24W bis Woche 64 beobachteten CST-Reduktionen ähnlich denen mit RNZ Q4W (-203,5 µm vs. -199,7 µm). Über 2 Nachfüllintervalle hinweg erhielten 95,9 % bzw. 97,4 % der untersuchten PDS-Patienten keine zusätzliche Behandlung. Das PDS war im Allgemeinen gut verträglich. Nach der Implantation traten bis Woche 64 keine Fälle von Endophthalmitis auf.

Schlussfolgerungen Pagoda erreichte ihren primären Endpunkte und zeigte, dass PDS Q24W zu funktionellen und anatomischen Verbesserungen führte, die RBZ Q4W nicht unterlegen waren. Das PDS wurde im Allgemeinen gut vertragen, und es wurden keine neuen Sicherheitssignale beobachtet.

Financial Interest: Employment by a company or competing company with business interest in the topic; consultant of a company or competing company with business interest in the topic.
Grants: None

0021 First Real-Life Experience with Faricimab in DME

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Background DME is beyond the frequent causes of bilateral vision loss in working-age patients and associated with significant morbidity and social problems. Therefore, long-term treatment aims to minimize the treatment burden for the patient and the caregivers. Patients with incomplete response to anti-VEGF treatment and a high treatment demand may benefit from switching therapy if treatment intervals cannot be extended beyond 8 weeks. The approval of Faricimab for the treatment of DME provided a new and possibly more durable option for the treatment of DME than previously approved anti-VEGF drugs. The present analysis presents first personal experience with switching to Faricimab in longstanding DME.

Patients and methods In this descriptive consecutive case series, 23 patients with longstanding DME pre-treated with anti-VEGF and/or corticosteroid drugs who were switched to Faricimab between August 2022 and march 2023 were included in this retrospective analysis. Visual acuity, OCT data, treatment history and reasons for switch were collected at baseline and during the course after treatment switch.

Results Until March 15, 2023, 66 injections were performed over a total follow up time of 325 weeks with a mean of 2 injections per eye. In 6 of the 23 patients, treatment was switched in both eyes, while Faricimab was given in one eye in 17 instances. The major reason for switch in these highly diseased eyes was insufficient response to other anti-VEGF therapies (n=18) or intravitreal corticosteroids (n=2). The last median treatment interval after switch was six weeks. In one case, treatment had to be switched back due to the development of a mild anterior uveitis.

Conclusions After first clinical experience, Faricimab represents a well tolerated and in a majority of instances effective alternative to previous anti-VEGF therapy. Currently, the potential of Faricimab in terms of treatment interval extension cannot readily predicted, first own results regarding anatomic response and durability of effect are expected in August 2023.

Financial Interest: Being a consultant of a company or competing company with business interest in the topic.
Grants: None

Communications libres III
Freie Mitteilungen III

Cornea, Cataract
Cataract / Refractive Surgery / Contact Lens
Glaucoma

Vendredi I Freitag 01.09.2023
16:00 – 17:00

0022 Assessing PCR-positive Acanthamoeba Keratitis – a Retrospective Chart Review

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Background To present a retrospective review of polymerase chain reaction (PCR)-positive acanthamoeba keratitis at our tertiary care facility in Switzerland.

Methods This investigator-initiated, retrospective, single-center chart review examined the electronic patient files regarding PCR-positive Acanthamoeba keratitis. We included corneal as well as contact lens assessments and further reviewed the patient medical history, corneal scraping results regarding viral or fungal co-infections and duration after symptom onset to final diagnosis.

Results We identified 57 eyes of 53 patients from February 2010 to February 2023, with 32 of 53 (60.4%) patients being female. Across the investigated period, we did not observe an increasing trend of PCR-positive Acanthamoeba keratitis at our study site. The median (IQR, range) patient age was 34 (26 to 47 13 to 90|) years and the mean (SD, range) time to diagnosis after symptom onset was 23 (16.8 3 to 70|) days. Overall, 4 of 53 patients (7.6%) displayed a bilateral Acanthamoeba infection and 48 of 53 (90.6%) patients used contact lenses at symptom onset. Reviewing the microbiological examinations, we identified coinfection with herpesvirus by PCR in 3 of 57 (5.3%) samples and fungal detection in cultures in 1 of 57 (1.8%).

Discussion Acanthamoeba keratitis remains a severe cause of infectious keratitis and poses a significant diagnostic challenge to clinicians. As most of affected patients used contact lenses, patient education regarding correct lens hygiene behavior is of great importance. Furthermore, new diagnostic modalities with high specificity and sensitivity for early Acanthamoeba detection are still demanded.

Financial Interest: None: No commercial relationship
Grants: None

0023 Safety of Autologous Serum Eye Drops

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Purpose To evaluate a safety of autologous serum eye drop therapy in a single centre in a period of 8 years.

Methods This retrospective study involved all patients, who visited our clinic for autologous serum therapy between July 2014 and February 2022. Since July 2014 an electronic patient record system has been used in our clinic. We searched in the electronic record system for patients who had been hospitalized for a keratitis or an infectious corneal ulcer within 3 months after an initiation of autologous serum eye drop therapy.

Results In total 1´159 patients were treated in our clinic with autologous serum eye drops between July 2014 and February 2022. In summary 8´584 production cycles have been done in this period. Of all patients, we found 392 records with a combinations of autologous serum therapy and keratitis. In almost all cases the time period between the initiation of autologous serum therapy and keratitis/infectious was longer than 3 months, thus concluded as not directly related. After a detailed review of the patient´s medical records, only 2 patients developed a keratitis within 3 months. The first case was a Moraxella non-liquefaciens keratitis 2 months after a begin of autologous serum therapy for a neurotrophic corneal ulcer. Under topical antibiotics the infection healed quickly. Autologous serum therapy was continued without interruption for another 42 months without any further corneal infection. The second case was a Staphylococcus epidermidis associated keratitis due to a loose keratoplasty suture 5 weeks after begin with autologous serum therapy for a neurotrophic keratopathy after a penetrating keratoplasty. The same patient was hospitalized again 5 months later for another episode of a Staphylococcus epidermidis keratitis due to an another loose keratoplasty suture, this occurred 2 months after the discontinuance of the previous autologous serum therapy.

Conclusion In this study no direct risk of infectious keratitis has been found in patients treated with autologous serum eye drops. Autologous serum is a safe therapy even by a compromitted ocular surface.

Financial Interest: None: No commercial relationship. **Grants:** None

0024 Patient reported outcomes for unaided near range vision satisfaction and halos with two types of Extended depth of Focus (EDOF) intraocular lenses

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Purpose In cataract surgery Extended Depth of Focus (EDOF) intraocular lenses aim to improve unaided mid-range visual activities and have thus gained rapid popularity among cataract patients and surgeons alike. Depending on the lens design even mid to near range vision is possible but may increase night glare or halos leading to decreased patient satisfaction. This study investigates patient reported outcome measures (PROM) regarding midrange and near vision activities after implantation of diffractive compared to refractive EDOF intraocular lenses.

Methods Three surgeons used diffractive EDOF lenses (Zeiss, LARA) while four surgeons used refractive EDOF lenses (Johnson&Johnson, Tecnis Eyhance) resulting in an indirect randomization to a specific lens type. Patients bilaterally operated with EDOF lenses from 2021 till 2022 at our institution were interviewed with a structured questionnaire six months after cataract surgery to investigate their spectacle usage during daily activities and their experience with night glare or halos. Inclusion criteria were a bilateral EDOF implantation with a refractive target for emmetropia, a normal postoperative visual potential and completion of a questionnaire regarding postoperative visual experience.

Results 331 patients were included into the study (45 with LARA lenses, 286 with Tecnis Eyhance lenses). Comparison of the two patient groups LARA vs. Tecnis Eyhance lenses resulted in 77% vs. 56% of patients being able to perform most of their daily activities without spectacles and 17.78% vs. 8.04% reporting not being dependent on spectacles at all. 44.44% vs. 44.76% of pa-

tients reported needing only standardized reading glasses and 51% vs 35% reported using their smartphones without spectacles. 8.89% patients with LARA and 1.75% patients with Tecnis Eyhance lenses reported disturbing glares or halos. Overall mean patient satisfaction was 4.76 and 4.62 out of 5 points with LARA and Tecnis Eyhance lenses respectively.

Conclusion With both types of EDOF lenses majority of patients can perform most of their daily activities without spectacles and are satisfied with their lenses. Patients with Zeiss LARA EDOF lenses are more likely to perform unaided near range visual tasks, however this benefit is associated with a higher risk for glares or halos.

Financial Interest: None: No commercial relationship
Grants: None

0025 Combined cataract and stand-alone supraciliary drainage device surgery: Short-term results

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Purpose To evaluate the reduction of the intraocular pressure (IOP) and the number of anti-glaucomatous medications (AGM) after supraciliary drainage device surgery in patients with uncontrolled open-angle glaucoma.

Methods This is a single-center, prospective, interventional, single-arm study. 44 eyes of 36 patients with primary open-angle glaucoma (POAG) or pseudoexfoliative glaucoma (GPEX) who successfully underwent MINIject® (iSTAR Medical, Wavre, Belgium) implantation were included (stand-alone MINIject: n=31; Phaco+MINIject: n=13). The primary outcome was IOP reduction at 1, 3 and 6 months. Complete success was defined as more than 20% IOP reduction from baseline, absolute IOP measurements below 21 mmHg at all time points, and no AGMs. Relative success corresponded to a reduction in IOP of less than 20% without AGMs.

Results Mean baseline IOP was 22.4±8.6 mmHg on 2.3±1.0 AGMs. At 1, 3 and 6 months after surgery, mean IOP was at 11.4±4.6 mmHg, 11.9±5.4 mmHg and 13.6±5.7 mmHg, respectively, corresponding to a reduction of 49.1% (p < 0,001), 46.9% (p < 0,001) and 34.3% (p=0,003) from baseline. At 1, 3 and 6 months after surgery, in the stand-alone MINIject implantation group, mean IOP was at 11.5±5.2 mmHg, 10.4±4.8 mmHg and 11.9±6.0 mmHg, while in the combined surgery group, mean IOP in the was at 11.7±4.2 mmHg, 13.6±3.0 mmHg and 12.5±4.2 mmHg. The difference of mean IOP between the two group was not significant. At 6 months, no patients were on AGMs. At 1, 3 and 6 months after surgery, complete success was obtained in 79.5%, 77.4% and 76.0% of patients, respectively. Mean visual acuity before surgery was 0.8±0.2. At 1, 3 and 6 month, mean visual acuity was 0.8±0.3, 0.9±0.3 and 0.9±0.2, respectively. The main postoperative complication was a self-limiting hematic tyndall.

One case of corneal edema was noted which resolved spontaneously within a week. No serious adverse effects were observed.

Conclusion The implantation of MINIject, a new minimally invasive supraciliary glaucoma drainage device, with or without combined cataract surgery provides a significant reduction of IOP and IOP-lowering medications with an excellent safety profile.

Financial Interest: None: No commercial relationship
Grants: None

0026 Case series after deep sclerectomy revision: allograft vs conventional techniques

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Swiss Visio Montchoisi, Lausanne

Deep sclerectomy surgery remains a reference treatment for glaucoma patients. It is nevertheless at risk of complications and may require reoperations. In these cases, the revision of the filtering bleb may require an additional iridectomy or the placement of an allograft pericardium (Tutoplast©) compared to a classic revision, or both at the same time. The aim of this study was to compare the intraocular pressure of patients who had undergone allograft pericardium placement with that of conventional revision techniques and to follow their evolution over 1 year. The occurrence of complications and their analysis will allow to highlight the safest procedure in the short-medium term. For this purpose, we collected data from 30 patients operated on in our center over a period of one year.

The **results** show a preoperative intraocular pressure of 18mmHg +/-3SD on average for the "standard techniques" group and 32mmHg +/-8SD for the "allograft" group. Subsequently, mean pressures at 1 month, 6 months, and 1 year postoperatively were 13mmHg +/-5SD, 13mmHg +/-4SD, and 12mmHg +/-3SD for the "standard technique" group, respectively, and 10mmHg +/-2SD, 10mmHg +/-1SD, and 11mmHg +/-1SD for the "allograft" group, respectively. The "standard technique" group required 12 reinterventions (needling, goniopuncture, visqueous injection, drainage of choroidal detachment, etc.) and the "allograft" group 8 reinterventions. We also note the persistence of the use of anti-glaucoma drops in some patients in both groups at 1 year.

In **conclusion**, the use of an allograft shows us to be a safe and effective alternative in the case of revision of a filtration bleb, associated with a more marked drop in intraocular pressure compared to standard techniques.

Financial Interest: None: No commercial relationship
Grants: None

0027 Individualized Corneal Cross-Linking (CXL) in ultrathin corneas: The "sub400" protocol, 2 year follow-up data

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Purpose The original Dresden protocol for epi-off CXL relies on a minimal stromal thickness of 400 µm. However, advanced keratoconi show thicknesses of less than 400 µm and may still achieve useful vision with contact lenses. The first protocols to treat thin corneas were either unpredictable in thickness modification (swelling with hypo-osmolar riboflavin) or showed a reduction of at least 30 % efficacy due to limited oxygen supply (contact lens-assisted CXL). In 2021, we published the sub400 protocol, an epi-off CXL for ultrathin corneas that adapt the fluence based on the patient's individual stromal thickness with a 1-year follow-up. Here, we investigated the success rate of the original sub400 study population with a 2-year follow-up.

Settings ELZA Institute, Dietikon, Switzerland.

Methods Patients from the original sub400 study with progressive keratoconus and corneal stromal thicknesses below 400 µm were enrolled for the 2-year follow-up. After epithelium removal, UV irradiation was individualized to the patient's individual stromal thickness using a published algorithm (Kling et al., JRS, 2017). Pre- and postoperative examinations included CDVA, refraction, Scheimpflug, and AS-OCT imaging up to 24 months after CXL. The primary outcome measure was the arrest of keratoconus progression at 24 months postoperatively.

Results From the original study population (39 eyes), we examined 34 eyes for the 2-year follow-up. Stromal thicknesses ranged from 214-398 µm and the mean age was 31.62 ± 10.82 years.
Scheimpflug data showed no significant change from baseline at 24 months in minimal thickness and in Kmax, nor in ARC 3mm. No significant changes were found in CDVA, sphere, and cylinder from baseline to 2 years postoperatively. No eyes showed signs of endothelial decompensation. Mean Kmax was 59.60 ± 7.75 D at baseline and 57.89 ± 7.52 D at 2 years postoperatively ($p = 0.361$). Overall, the sub400 protocol successfully halted progression in 94.12% of the follow-up eyes from this series. After performing a survival analysis, the final success rate was 82.1%.

Conclusions The "sub400" individualized fluence CXL protocol standardizes the treatment in ultrathin corneas and halts KC progression with a success rate of 90% at 12 and 82% at 24 months. The sub400 protocol allows to treat corneas as thin as 200 mm of stroma with Kmax readings of up to 90D, markedly extending the treatment range. No signs of endothelial damage were observed.

Financial Interest: Being a consultant of a company or competing company with business interest in the topic; Inventor/Developer of the topic or a competing topic; **Grants:** None

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P001 The linear more-ground-truth effect revealed by reproducible deep learning in OCT image segmentation

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Purpose This study quantified the strength of non-deterministic effect in neural network training thereby increasing explainability and trust in AI in medicine.

Methods This study applied the T-REX methodology to quantify the uncertainty in AI-generated predictions arising from the non-deterministic nature of the deep learning process. In this study, convolutional neural networks (CNNs) were trained for the semantic segmentation of OCT data. Thirty CNNs were trained on the same ground truth data and the variability of those CNNs' predictions was measured in terms of average Hamming distances (HD).

Results This study found that the uncertainty in neural network-generated predictions arising from non-deterministic neural network training is in average 0.0062 HD (6.2 of 1000 pixel labeled differently). This variability is 3.5 times smaller than the average variability present among human expert-generated annotations (22.9 of 1000 pixel labeled differently). Moreover, the revealed variability in CNN-generated predictions does not depend on ground truth size. In contrast, the overall predictive performance of CNNs depend on ground truth size and ground truth ambiguity.

Conclusion The uncertainty in neural network-generated predictions arising from non-deterministic neural network training is smaller than the average difference between two human expert-generated annotations. Thus, CNNs trained on the same ground truth make consistent predictions that don't need to be mistrusted because of the non-random nature of the neural network learning process in OCT image segmentation.

Financial Interest: Support from a for-profit company or competing company
Grants: This study was financially supported by Roche, Basel, Switzerland

P002 Inference of OCTA flow information from structural OCT imagery in Cynomolgus monkeys using deep learning

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Purpose Automatical detection of the flow signal within the OCT scans using deep learning.

Methods An adapted U-Net Architecture with an additional max-pooling layer to account for the large spatial input format was used. The net was trained with an Adam Optimizer and a Mean Squared Error loss function until the loss on the validation set reached a plateau (21,000 steps).The following metrics were calculated for each OCT and OCTA B-scan pair in the test set: mean-squared error (MSE), structural similarity index (SSI), and peak signal to noise ratio (PSNR).

Results The developed deep learning method allowed to automatically detect the flow signal within the native structural OCT scans. The average MSE over all test set image pairs was 0.00370368 with a standard deviation of 0.000825. Average SSI was 0.88339 with a standard deviation of 0.02167 and the average PSNR was 24.43170 with a standard deviation of 1.08154. No large difference in the distribution of MSE, SSI, and PSNR were found among eyes and among individual animal.

Conclusion Deep learning based detection of the retinal vasculatur was made possible without the need for advanced OCTA devices or the injection of dye.

Financial Interest: Support from a for-profit company or competing company
Grants: This study was supported by Roche, Basel, Switzerland

P003 Recombinant human nerve growth factor for the management of corneal melt

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Purpose To describe corneal melt as a potential new indication for the topical use of recombinant human nerve growth factor and to discuss possible mechanisms of action.
Methods: Following toxic epidermal necrolysis, a 63-year-old female patient developed cicatrizing conjunctivitis with repeated corneal melts. The melts required repeated emergency keratoplasties and could not be prevented by systemic immunosuppression, topical steroids and autologous serum drops. A topical treatment with the recombinant human nerve growth factor Cenegermin (Oxervate®) was started on a trial basis in one eye and then repeated in the second eye.

Results The simultaneous use of Cenegermin with penetrating keratoplasty accelerated the clinical healing of the corneal graft and extended the time between melting episodes from a few weeks to several months.

Conclusion Cenegermin appears to support corneal integrity not only in neurotrophic keratitis but also in cases of chronic ocular surface inflammation with repeated corneal melts. Possible mechanisms include restoration of corneal innervation, promotion of tear secretion, and stimulation of corneal epithelial cells to proliferation and to autocrine secretion of human nerve growth factor.

Financial Interest: None: No commercial relationship
Grants: None

P004 Validation of collaborative cyber space virtual reality retinometry

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Purpose To validate collaborative cyber space based virtual reality (VR) retinometry

Methods Three independent graders performed simultaneous retinal optical coherence tomography (OCT) measurements at three distant locations (Lucerne, Switzerland, Barcelona, Spain, London, UK) using a cyber space based virtual reality solution. Each diameter measurement was repeated three times and the results were compared with each other.

Results Graders measured the length of 109 diameters in the VR cyber space. Over all objects measured, only a variation of 4 micrometers was found which corresponds to a slight deviation of only 0.3 % of the mean object size.

Conclusion The measurements showed reproducible values which were less than the axial resolution of a standard OCT device. Complex VR experiments can be reliably conducted from remote locations worldwide. A precise navigation that is also quantifiable and reproducible in VR was enabled to increase trust and confidence in this novel digital medical technology.

Financial Interest: None: No commercial relationship
Grants: None

P005 Erfolgreiche Behandlung einer therapierefraktären Akanthamöben-Keratitis mit systemischem Miltefosin und topischem Voriconazol

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Hintergrund Akanthamöben-Keratitiden sind potenziell zur Erblindung führende Infektionen mit einer Infektionsrate von 2-10 pro 1'000 Kontaktlinsenträgern. Schwere Fälle können durch eine intraokulare Ausbreitung bis zur Enukleation führen. Es existieren verschiedene Therapieansätze bei unzureichendem Ansprechen auf eine topische Behandlung mit Brolene und Polyhexanid. Einer davon ist Miltefosin (Impavido®), ein eigentlich für die Therapie der Leishmaniose eingesetzter Wirkstoff; ein anderer die Therapie mit dem antimykotischen Wirkstoff Voriconazol.

Anamnese und Befund Eine 57-jährige Patientin mit schwerer Akanthamöben-Keratitis mit Hypopyon wurde aufgrund einer verzögerten Diagnose erst 4 Wochen nach Beschwerdebeginn topisch mit Brolene 0,1% und Polyhexanid 0,02% Augentropfen intensiv gegen Akanthamöben behandelt. Aufgrund einer Druckentgleisung wurden eine Cyclophotokoagulation sowie eine topische und systemische Drucksenkung notwendig. Der Visus zeigte sich auf Lichtprojektion reduziert bei trüber Hornhaut und sekundärer Katarakt.

Therapie und Verlauf Eine systemische Therapie mit Miltefosin 50 mg 3x täglich per os wurde nach erfolgloser 14-monatiger Therapie mit Brolene und Polyhexanid gestartet. Unter dieser Therapie erfolgte eine Phakoemulsifikation, auf eine primäre Intraokularlinsenimplantation wurde bei schlechtem Einblick verzichtet. Topisch wurden Voriconazol 2% Augentropfen 6x täglich ergänzt, welche nach 9 Wochen gestoppt werden konnten ebenso wie Miltefosin nach einer insgesamt 3-monatigen Einnahme. Bei limbaler Stammzellinsuffizienz erfolgte 2 Monate nach Stopp sämtlicher Therapie eine limbale Stammzelltransplantation (Simple Limbal Epithelial Transplantation, SLET). Im entnommenen Material liessen sich histopathologisch nur noch avitale Erreger nachweisen. Zweieinhalb Jahre nach Erkrankungsbeginn besteht Schmerz- sowie Reizfreiheit. Der Visus liegt bei Handbewegungen.

Schlussfolgerungen Bei fortgeschrittener schwerer Akanthamöben-Keratitis konnte mit der Kombination von systemischem Miltefosin und topischem Voriconazol die Infektion kontrolliert und eine weitere intraokulare Ausbreitung verhindert werden. Eine verstärkte Entzündungsreaktion unter der Therapie konnte nicht beobachtet werden. Systemische Nebenwirkungen müssen in Relation zum potentiellen Erhalt des Auges abgewogen werden.

Financial Interest: None: No commercial relationship
Grants: None

P006 Multimodal Retinal Imaging in A Case of Acute Idiopathic Maculopathy

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Purpose To report a case of acute idiopathic maculopathy and present multimodal retinal imaging results in the diagnosis of this condition.

Case report A 36-year-old man presented to our emergency service with a sudden onset of painless reduced vision on his left eye after previously suffering from flu-like symptoms.
The best corrected visual acuity was 1.00 on his right eye (OD) and 0.50 on his left eye (OS). The intraocular pressure was normal in both eyes.
The examination of the anterior segments of both eyes revealed no signs of inflammation.
The funduscopic exam of OD showed no abnormalities, whereas in OS we saw a single yellowish central lesion at the posterior pole without any other pathological changes in the peripheral retina or a vitreous inflammation.
The OCT of OS revealed a heterogeneous neurosensory detachment accompanied by a hyperreflective thickening at the level of the outer retina and RPE in the foveal region.
The patient was prescribed Nevanac 1mg/ml eyedrops t.i.d. and scheduled for further investigations.
After performing multimodal retinal imaging (fundus autofluorescence, fluorescein angiography, indocyanine green angiography, OCT-angiography) and a basic uveitis workup the diagnosis of an acute idiopathic maculopathy (AIM) was made. No additional therapy was prescribed.
Upon follow-up 6 weeks after the initial presentation the visual acuity had improved to 1.00 and the OCT revealed a near complete resolution of the subretinal fluid with stippled retinal pigment epithelium and outer retinal layers. A "bull´s eye" appearance in the macula was observed in the near-infrared reflectance imaging. The patient was asymptomatic and remained as such until the last check-up 7 months after the initial presentation. No recurrence of the AIM was noted.

Conclusions Acute idiopathic maculopathy (AIM) is an uncommon disease of the RPE affecting otherwise healthy young adults and resulting in moderate to severe, most commonly unilateral visual loss. Patients often describe preceding flu-like symptoms. Multimodal retinal imaging is crucial in differentiating this benign self-limiting disease from several white dot syndromes (e.g. APMPPE, MEWDS, PIC) also presenting with a flu-like prodrome, the central serous chorioretinopathy and other inflammatory diseases with less favourable prognosis such as Vogt-Koyanagi-Harada disease.

Financial Interest: None: No commercial relationship
Grants: None

P007 Playing the bagpipes – a risk factor for glaucoma progression?

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Purpose To evaluate the effect of playing the bagpipes on intraocular pressure in a 64-year-old female patient with primary open-angle glaucoma.

Methods Intraocular pressure was measured using iCare and Goldmann applanation tonometry three times prior to playing the bagpipes, during practice pipe play, during a Valsalva maneuver, and every 20 seconds for five minutes while playing the bagpipes and after stopping until baseline intraocular pressure was reached. Measurements were taken on the right eye first, followed by the left eye. Additional measurements of blood pressure, subfoveal choroidal thickness, anterior chamber angle width by anterior segment optical coherence tomography as well as minimal rim width and retinal nerve fiber layer thickness were obtained before and after playing the bagpipes, while playing the practice pipe und while performing a Valsalva maneuver. Intraocular pressure was also measured at three different time points throughout the day.

Results Baseline intraocular pressure under treatment with timolol/dorzolamide b.i.d. ranged between 10 and 11 mmHg (mean right eye 10.7; left eye 10.3 mmHg) as measured by iCare and Goldmann applanation tonometer. The maximum increase in intraocular pressure during bagpipe play was observed in the initial phase while inflation, with a +12.7 mmHg increase in the right and a +7.0 mmHg increase in the left eye from baseline values. After stopping play, intraocular pressure returned to baseline or lower levels within four minutes on the right and one minute on the left eye. Only minimal changes in intraocular pressure were seen during practice pipe play or during the Valsalva maneuver (mean right eye +1.1 and +0.9 mmHg, respectively; left eye +0.2 and +1.6 mmHg, respectively). Intraocular pressure varied during the day between 12 and 13 mmHg on the right and 11 and 13 mmHg on the left eye. There were no significant changes in subfoveal choroidal thickness, anterior chamber angle width, minimal rim width and retinal nerve fiber layer thickness.

Conclusion An increase in intraocular pressure while playing wind instruments is well-known. We could show a short time increase especially in the early phase of playing the bagpipes. These changes in intraocular pressure could potentially lead to glaucoma progression. It may be recommended to spend more time playing the practice pipe or to use electronic instead of the common bagpipes in glaucoma patients with suspected progression of the disease.

Financial Interest: None: No commercial relationship
Grants: None

P008 Which glaucoma drainage device is more efficient and safe in uveitic glaucoma: Ahmed valve or Baerveldt tube?

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Glaucoma is a complication in up to 20% of patients with uveitis. Surgical treatment is necessary to control intraocular pressure (IOP) in 4-30% of uveitic glaucomas. Glaucoma surgery in patients with uveitis can be challenging due to inflammation-induced fibrosis and scarring. In patients with uveitic glaucoma, glaucoma drainage device (GDD) is more efficient in lowering IOP in the long term than trabeculectomy with an antifibriotic agent due to the high incidence of failure (bleb fibrosis), especially when uveitis is poorly controled. GDD includes several implants of which valved Ahmed implant (AI) and non-valved Baerveldt implant (BI) are commonly used in uveitic glaucoma surgery. The goal of this study is to see which of these two implants is the most efficient and safe as a surgical treatment in uveitic glaucoma.
This study is a retrospective comparative study including patients with uveitic glaucoma who underwent AI or BI implantation between 2007 and 2020 at a single tertiary academic referral centre in Québec. Inclusion criteria were uveitic glaucoma, IOP > 21mmHg on maximum tolerated therapy, implantation of AI or BI, and a minimum follow-up of one year. Exclusion criteria were glaucoma that were not secondary to uveitis and a follow-up under one year. Principal outcome was the post-op IOP at one and two years. Secondary outcomes were the necessity of a second surgery and post-op complications. We recruited 59 AI and 37 BI. Mean initial IOP was 29.93 mmHg (SD = 9.91, 95% CI = 27.35;32.51) in the AI group and 26.62 mmHg (SD = 9.68, 95%CI = 23.39;29.85) in the BI group (P = 0.0843). Mean IOP at one year post-op was 13.5 mmHg and 11 mmHg respectively (P-value = 0.0341). Mean IOP at two years post-op was 13.11mmHg in the AI group and 9.89mmHg in the BI group (P-value = 0.0117). Among the failure procedures in the AI group, 46.2% needed another GDD, 15.4% a diode, 15.4% a GDD exchange, 15.4% still had hypertonia, and 7.7% needed a GDD explantation. In the BI failure group, 28.6% needed another GDD, 14.3% a GDD exchange, 28.5% had hypotonia and 28.6% needed a GDD explantation (P = 0.2166).
In conclusion we found that the BI resulted in a greater reduction in IOP than the AI at one and two years in uveitic patients with glaucoma, and these results were statistically significant. However, complications such as the frequency of hypotony and explantation of the device in the BI group was much higher than in AI group.

Financial Interest: None: No commercial relationship
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P009 Morbus Morbihan: A rare cause of recurrent edematous eyelid swelling and its challenging therapeutic management

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Purpose Morbus Morbihan, also known as solid persistent lymphedema or Rosaceous lymphedema, is a chronic facial skin disease, that predominantly involves the eyelids, nose and forehead and is commonly associated with rosacea. Recurrent edema and persistent erythema due to an altered dermal morphology leads to disfigurement and functional impairment of the affected tissues. Up to date, neither the cause nor the clinical course of Morbus Morbihan are clearly understood and there is no standardized therapeutic approach in the literature yet.

Methods We present a 51-year-old man with confirmed Morbus Morbihan as a presumably late complication of rosacea and describe the ophthalmological, dermatological and histological findings as well as the effect of multimodal therapy on the course of the disease over a follow-up period of 3 years. To our knowledge, this is the first published case of Morbus Morbihan in Switzerland.

Results Progressive erythematous and edematous eyelid swelling causing visual field defects and psychosocial distress were the main complaints. Prior to referral, systemic therapy with steroids, tetracyclines and isotretinoin have led to no significant improvement. Medical history reveals laser-refractive treatment of bilateral keratoconus, unilateral crosslinking and centro-facial rosacea. Four bilateral intralesional triamcinolone injections in a monthly fashion were administered with clear symptom improvement after the second injection. Due to increased visual field limitations

bilateral upper lid blepharoplasty was performed. Histologically, dermal edema, angiectasia and the presence of perivascular and lympho-histiocytic infiltration were found. Consecutively, regular decongestive therapy with manual lymphatic drainage was applied. With this regimen we have achieved good clinical outcomes and disease control.

Conclusion Morbus Morbihan is a rare chronic disease and the clinical appearance and histological findings will lead to the diagnosis. However, other differential ophthalmological and dermatological diagnoses have to be actively excluded. Its treatment is challenging and many various interventions are currently discussed in the literature.

Financial Interest: None: No commercial relationship
Grants: None

P010 Periocular basal cell- and squamous cell carcinoma - when surgery would have been the best option

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Purpose Basal cell- (BCC) and squamous cell cancer (SCC) are the most frequent malignant tumors in the periocular area. Treatment options include surgery, radio- and immunotherapy. As tempting a non-surgical approach might be, the long term results show disasters recurrences when treated first with radiotherapy or immunotherapy. We present several patients with non-operable recurrences and discuss the chosen options including the pros and cons.

Method We review the history of patients with recurrences of BCC/SS and compare a primary surgical approach with the chosen non-surgical approach.

Results Nine patients (six male, three female, aged 58-81y) in a 12 months period present with non-operable non-curative recurrences after primary non-surgical treatments of periocular.

Conclusion A non-surgical approach is tempting for the patient. However, recurrences might be inoperable and finally untreatable. The primary surgical approach in operable cases should be prioritized. Radio- and immunotherapy should be kept for non-operable patients.

Financial Interest: None: No commercial relationship
Grants: None

P011 Outcome of pediatric cataract removal without primary intraocular lens implantation via pars plana versus via clear corneal incision

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Purpose To compare the postoperative outcomes of pediatric cataract removal without primary intraocular lens (IOL) implantation via pars plana (PPL) versus via clear corneal incision (CCI).

Setting Department of Ophthalmology at the University Hospital of Ludwig-Maximilians-University (LMU) in DE-Munich.

Methods Retrospective chart review of n=28 eyes. PPL was performed in 15 eyes, CCI in 13 eyes. Surgery included lens removal, posterior capsulotomy and anterior vitrectomy in all cases. The PPL and CCI groups were compared with regard to age at surgery, ocular comorbidities, intra- and postoperative complications and postoperative corrected distance visual acuity (CDVA).

Results Median age at surgery was 46 days in the PPL group and 54 days in the CCI group. Ocular comorbidities were present in 20% of eyes in the PPL group and 53.8% in the CCI group. Median follow-up was 3.3 years in the PPL group and 3.0 years in the CCI group. In the PPL group, 20% had intraoperative complications, compared to none (0%) in the CCI group (p=0.110). Visual axis obscuration (VAO) occurred in 40% of eyes in the PPL group and in 38.5% in the CCI group (p=0.914). Secondary glaucoma occurred in 7 of 15 eyes (46.7%) in the PPL group compared to 2 of 9 eyes (22.2%) without preoperatively diagnosed glaucoma in the CCI group (p=0.161). Median postoperative logMAR equivalent CDVA was 0.5 in the PPL group and 0.3 in the CCI group (p=0.087).

Conclusions Secondary VAO occurred at equal rates in both groups. Although statistical significance was not reached for any of the comparisons, several other complications were observed less frequent in the CCI group compared to the PPL group, most notably intraoperative complications and secondary glaucoma. Postoperative CDVA was also better in the CCI group. However, interpretation of the data is limited by the retrospective design of our study and the small cohort. Large scale prospective evaluations are needed to compare the available surgical techniques of paediatric cataract removal in different age groups.

Financial Interest: None: No commercial relationship
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P012 Ein Jahrhundert nach dem Werk von Alfred Vogt – Vorstellung eines modernen Spaltlampenatlas

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Hintergrund Alfred Vogts grundlegender Atlas zur Spaltlampenmikroskopie erschien in der ersten Ausgabe 1921, dann deutlich erweitert in drei Bänden in den Jahren 1930 bis 1942. Zu den bahnbrechenden Leistungen dieses Atlasses gehört die frühe minutiöse Beschreibung vieler Augenveränderungen mit der damals ganz jungen Spaltlampe sowie deren ästhetische und exakte zeichnerische Darstellung. Bis heute allerdings folgte diesem Frühwerk der Spaltlampenbiomikroskopie keines, das nur annähernd vergleichbar wäre, obwohl sich unser Fach so stark gewandelt hat und Methoden der digitalen Bildbearbeitung überall verfügbar sind.

Methoden Es wird ein im Jahr 2023 vom Autor herausgegebener Atlas vorgestellt, der Anleitung und Beispiel für die Bilddokumen-

tation nahezu sämtlicher Augenbefunde mit einer Video-Spaltlampe gibt. Zur okuloplastischen und strabologischen Dokumentation ist es erforderlich, die Schnittweite der Spaltlampe durch eine vor das Objektiv gehaltene Minuslinse zu verlängern bei entsprechend vergrössertem Untersuchungsabstand für Binokularübersichten. Die Bilddokumentation des Fundus profitiert wesentlich davon, wenn man die durch eine Konvexlinse sichtbaren Fundusabschnitte mit Bildverarbeitung zu Panoramen zusammenfügt. Befunde der «neueren» Augenheilkunde im Vorderabschnittsbereich wie die Hornhaut nach Lasik, Kontaktlinsen und IOL-Eigenschaften können zudem durch Analyse ihrer Purkinjebilder insbesondere in ihren refraktiven Wirkungen charakterisiert werden.

Ergebnisse Es wird ein Werk mit über 4.000 Bildern vorgestellt, das für Nutzer von Video-Spaltlampen Vorschläge zur Befunddokumentation an Hand von 750 Fällen macht – gegliedert in 20 Kapitel der gesamten Augenheilkunde. Ein Schwerpunkt liegt dabei auf der Darstellung von Befunden im Verlauf, teils bis zu 20 Jahren, ein anderer im Vergleich zu moderner Diagnostik wie digitale Fundusfotografie, OCT und Hornhauttomographie.

Schlussfolgerung Vogts gewaltige Schaffenskraft hat der Spaltlampe schon früh ein - auch in der Zukunft – wertvolles Referenzwerk beschert. Lebte er noch heute, hätte er es sich niemals entgehen lassen, dem wichtigsten Untersuchungsgerät des Augenarztes die angemessene zeitgemäße Geltung zu verschaffen. Dazu stellt dieser Atlas einen Versuch dar.

Financial Interest: None: No commercial relationship
Grants: None

P013 Macular corneal dystrophy – molecular genetics as the key in treatment-refractory keratopathy

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Purpose To demonstrate the diagnostic hurdles in childhood keratopathy unresponsive to treatment and to illustrate the phenotype of macular corneal dystrophy (MCD) caused by mutations in the CHST6 gene.

Methods This case report depicts an 8-year-old patient with a long history of glare sensitivity and visual impairment. Detailed slit lamp examination and anterior segment optical coherence tomography were performed. Based on suspected MCD whole exome sequencing (WES) was carried out and corneal dystrophy associated genes were analyzed in detail. Available family members were examined.

Results Bilateral superficial, diffuse, subepithelial paracentral to central corneal opacities were present without responsiveness to topical anti-allergic, anti-inflammatory, or antibiotic medication. Medical history reported recurrent allergic rhinoconjunctivitis for several years. Corrected visual acuity deteriorated from 0.7 to 0.4 and from 0.63 to 0.2 Snellen decimal in the right and left eye, respectively, within 15 months. WES revealed a homozygous sequence variant c.997T>C (p.(Trp333Arg)) in the CHST6 gene (NM_021615.5), classified as likely pathogenic (ACMG, class 4). Both parents were clinically non-affected. The available mother carried the identified variant in a heterozygous state, the father was not available for genetic testing.

Conclusions The onset of structural alterations in MCD usually begins in the first decade of life. First features are central superficial and irregular whitish corneal opacities which progressively expand to the corneal periphery, and deeper into the entire stroma, resulting in severe vision impairment in middle age. Diagnosis may be delayed based on the rare incidence of this disease entity and limited clinical examination in young children. Mutations in the CHST6 gene are associated with autosomal recessive MCD. Numerous mutations in MCD patients have been reported without clear genotype phenotype correlation. The detected sequence variant relates to an evolutionarily highly conserved nucleotide position and is located in functionally relevant protein domains. Thus, the molecular genetic results of this specific CHST6 gene variant likely support the diagnosis of macular corneal dystrophy. An underlying genetic disease should be included in the differential diagnosis in children with therapy-refractory keratopathy.

Financial Interest: None: No commercial relationship
Grants: None

P014 Prognostic Factors for Long-Term Visual Outcome of Retinal Pigment Epithelium (RPE) Tears in Patients with wet Age-Related Macular Degeneration (AMD)

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Purpose A frequent finding that is connected to wet AMD (age-related macular degeneration) is pigment epithelial detachment (PED). PED may result in tears in the retinal pigment epithelium (RPE), which can cause further vision loss. Our research's objective was to find clinical and morphological factors that might predict the visual long-term outcome of patients with RPE tears.

Methods All patients identified as having RPE tears in SD-OCT and with a follow-up period of at least 12 months in the database of Vista Augenklinik Binningen, Switzerland, were included. 23 eyes from 23 patients were eligible for the study. A retrospective analysis of the visual outcome, anti-VEGF therapy history, and morphological imaging characteristics (SD-OCT, FAF) was conducted.

Results The mean age was 80.5±6.13 years at the time of the RPE tear. After the rupture, the mean follow-up period was 39.4±13.1 months. The mean PED height was 302.4±237.3 µm at the first consultation and 537.9±249.7 µm at the consultation before the rupture occurred. A higher risk of RPE rupture is implied as a result of an increase in PED height (p=0.025).
Before rupture the mean visual accuity was 63.2±21.2 letters. At the first consultation after the rupture there was no significant decrease in vision (mean: 56.8±22.5 letters; p=0.37). However,

a statistically non-significant decrease in vision could be noted in the follow-up period up to 1.5 years. After 2 years, the decrease has proven to be statistically significant (p=0.03).
In average patients received 5.61±12.45 anti-VEGF injections before the rupture and 18.6±12.70 injections after the RPE tear occurred. Pearson correlation analysis did not show any significant positive or negative effect on the visual outcome after 2 and 3 years.

Conclusion A significant decrease in vision due to RPE tears could be proven after a follow-up period of 2 years. A non-significant deterioration could be noted in the period after the rupture up to 1.5 years. PED height is a known risk factor for RPE ruptures and its statistical significance could be reproduced with our data. We suggest further studies to be conducted with a larger study population to analyse specific contributing factors for visual loss in RPE tears with more advanced statistical methods such as multivariate regression analysis.

Financial Interest: None: No commercial relationship
Grants: None

P015 Solar Eclipse Maculopathy in an 11-year-old Boy

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Introduction Solar maculopathy is a rare but serious retinal injury caused by direct exposure to sunlight without proper eye protection. We present a case of an 11-year-old boy who developed solar maculopathy after viewing the partial solar eclipse in Switzerland on the 25th of October 2022. The patient reported observing the eclipse without protective eyewear for several minutes.

Case presentation The patient presented with a sudden onset of blurred central vision and grey dots in the central visual field one day after the incident. A detailed examination of both eyes revealed the presence of a whitish blurred spot in the macular region. Optical coherence tomography confirmed the presence of retinal pigment epithelium changes and disruption of the ellipsoid zone with focal hyper-reflectivity above the lesion.
The patient was advised to avoid any further exposure to direct sunlight and received oral corticosteroids for three days and topical NSAID treatment. At a follow-up visit one week later, the patient's visual acuity had fully recovered in the right eye but remained impaired in the left eye. The OCT changes improved slightly. The topical NSAID treatment was discontinued due to poor adherence. Two months later, the visual acuity in the left eye also improved to 20/20 with further OCT changes decrease in both eyes.

Conclusion This case highlights the importance of proper eye protection during solar eclipses and the potential for long-term retinal damage. A broad education of the Swiss population on the risks of unprotected viewing would be essential and desirable in advance of the next eclipse, which will take place on the 29th of March 2025. Early detection and management of the disease can help to prevent long-term visual impairment.

Financial Interest: None: No commercial relationship
Grants: None.

P016 Faricimab führt zu einer schnellen und anhaltenden intraokularen Suppression von Angiopoietin-2 und VEGF-A für bis zu 16 Wochen bei neovaskulärer altersbedingter Makuladegeneration und diabetischem Makulaödem

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Zielsetzung Faricimab (FAR) ist ein bispezifischer Antikörper, der Angiopoetin-2 (Ang-2) und VEGF-A inhibiert. VEGF-A spielt eine zentrale Rolle bei der Neovaskularisation und interagiert u.a. mit Ang-2, welches primär Gefässstabilität und Inflammation reguliert. Die duale Inhibition führt zu einem synergistischen Effekt, welcher den Krankheitsverlauf bei neovaskulärer altersbedingter Makuladegeneration (nAMD) und diabetischem Makulaödem (DMÖ) positiv beeinflussen kann. Ziel dieser Analyse war es, die intraokulare Pharmakodynamik von FAR bei Patienten mit nAMD und DMÖ zu untersuchen.

Methodik Zu verschiedenen Zeitpunkten wurden Kammerwasser-Proben von nAMD- oder DMÖ-Patienten entnommen, die in unterschiedlichen Phase-2/3-Studien mit FAR behandelt wurden. Die Konzentrationen von freiem Ang-2 und VEGF-A wurden mit validierten Assays gemessen. Auf der Grundlage der gepoolten Phase-2/3 Kammerwasser-Daten von zirka 300 Patienten mit insgesamt 1025 Ang-2-, 1345 VEGF-A- sowie 1095 gemessenen Faricimab-Konzentrationen, wurde ein populationsbezogenes pharmakokinetisches/pharmakodynamisches Modell entwickelt, um dynamische Veränderungen zu beschreiben. In die PopPK-PD-Analyse wurden nur Patienten aufgenommen, bei denen ≥ 1 Probe nicht unterhalb der Bestimmungsgrenze lag.

Ergebnisse Der mittlere Ausgangswert von VEGF-A lag bei 135 bzw. 58 pg/ml bei Patienten mit DMÖ und nAMD. Der durchschnittliche Ausgangswert von Ang-2 betrug 13,4 bzw. 8,1 pg/ml bei Patienten mit DMÖ und nAMD. Ungefähr 75 % der Ang-2-Werte nach FAR-Dosis waren BLQ. Die aus dem Modell abgeleiteten Konzentrations-Zeit-Profile von Ang-2 und VEGF-A zeigten, dass unmittelbar nach der Injektion von FAR die Kammerwasser-Konzentrationen von Ang-2 und VEGF-A schnell auf nahezu nicht quantifizierbare Werte gesenkt wurden. 8 Wochen nach der FAR-Injektion waren die medianen Ang-2-Konzentrationen weiterhin um ~80 % reduziert. 16 Wochen nach der FAR-Injektion erreichten die medianen VEGF-A-Konzentrationen wieder den Ausgangswert, während die medianen Ang-2-Konzentrationen unterhalb des Ausgangswerts blieben.

Schlussfolgerung Mittels PopPKPD-Analysen konnte gezeigt werden, dass die intravitreale Injektion von FAR zu einer schnel-

len und anhaltenden Suppression der Ang-2- und VEGF-A-Konzentrationen im Kammerwasser führt, wobei die Ang-2-Suppression bis zu 16 Wochen nach der Injektion anhält, was die in den Phase-3-Studien nachgewiesene längere Wirkdauer bestätigt.

Financial Interest: Employment: Employment by a company or competing company with business interest in the topic; Being a consultant of a company or competing company with business interest in the topic
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P017 Schwere konjunktivale und corneale epitheliale Dysplasie. Eine Fallserie

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Hintergrund/Ziele Die Gruppe der Ocular Surface Squamous Neoplasia (OSSN) zählt zu den häufigsten nicht-pigmentierten Malignomen der Augenoberfläche. Histologisch zeigt sich dabei eine große Spanne von einer milden epithelialen Dysplasie bis hin zum invasiven Plattenepithelkarzinom.
Weiterhin lässt sich zudem zwischen einer reinen Bindehaut- und zusätzlichen Hornhaut-Beteiligung unterscheiden.
Bei Patienten, die sich nicht in regelmäßiger augenärztlicher Behandlung befinden, wird die Diagnose aufgrund von fehlenden Leitsymptomen in Frühstadien meist sehr spät gestellt.
Die vorliegende Fallserie mit klinischen und histologischen Daten zum OSSN soll auf mögliche klinische Erscheinungsbilder, relevante Risikofaktoren, histologischen Besonderheiten und Therapieoptionen aufmerksam machen.

Methoden Retrospektive Fallserie von Patienten mit histologisch gesicherter schwerer epithelialer Dysplasie der Bindehaut und Hornhaut im Sinne einer OSSN (Ocular Surface Squamous Neoplasia) an der Augenklinik des Universitätsspitals Basel. Demographische Daten, Symptome, Diagnostik (Fotodokumenationen, Bürstenbiosie), Behandlung sowie zytologisches und/oder histologisches Material und Befunde wurden analysiert.

Ergebnisse Wir berichten über fünf Patienten Alter zwischen 41 bis 92 Jahren zum Zeitpunkt der Diagnosestellung. Bei allen Patienten stellt sich im histologischen Befund eine schwere epitheliale Dysplasie dar, die sich in einem heterogenen klinischen Bild präsentiert. Es zeigt sich in allen Fällen eine von der Konjunktiva ausgehende Läsion, jeweils mit Limbusüberschreitung und einhergehender Hornhautbeteiligung. Die jeweilige primäre Behandlung umfasste eine operative Exzision. In einem Fall wurde diese aufgrund von Rezidivierenden Metaplasien mehrfach notwendig und durch eine anschließende Mitomycin C-Therapie ergänzt. Im klinischen Outcome ergaben sich grosse Unterschiede von einer vollständige Restitutio ad integrum bis hin zur Notwendigkeit einer Enukleation.

Schlussfolgerung Das klinische Bild der OSSN präsentiert sich als sehr heterogen, was die initiale Diagnosestellung erschwert. Offizielle Behandlungsleitlinien bestehen dabei nicht, sodass sich die Therapie der Wahl zwischen den einzelnen Kliniken unterscheidet. Regelmäßige ophthalmologische Nachkontrollen sind auch nach vollständiger chirurgischer Exzision empfohlen. Mögliche relevante Begleiterkrankungen und Risikofaktoren sollten im Vorfeld der Therapie erfasst werden.

Financial Interest: Employment: Employment by a company or competing company with business interest in the topic; Being a consultant of a company or competing company with business interest in the topic
Grants: None

P018 Persistent and poor-responsive cystoid macular edema after stereotactic radiotherapy in nAMD: a case report of three patients

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Purpose Low-dose stereotactic radiotherapy (SRT) was used as a promising adjuvant therapeutic option in treatment of neovascular age-related macular degeneration (nAMD). A single session of SRT, combined with anti-VEGF antivitreal therapy with T&E protocol, showed a marked reduction in the frequency of anti-vitreal injections over 2-3 years, but it is known that a few cases show retinal microvascular abnormalities (MAVs) over the long-term. Here,we report 3 cases, previously treated with adjunct SRT for nAMD, which developed a severe cystoid macular edema outside the primary nAMD lesion.

Methods All 3 anti-VEGF pretreated patients with neovascular AMD underwent single low-dose stereotactic radioterapy (SRT) in combination with continued intravitreal anti-VEGF treatment according to a T&E protocol. A 16-Gy single dose to an area of 4 mm in diameter centered to the fovea was applied using the IRAy System (Carl Zeiss Meditec AG, Jena, Germany). Consequent follow-up including Spectral-domain Optical Coherence Tomography (SD-OCT) and fluoresceine angiography was performed.

Results A clinical follow-up of about 10 years was conducted in all 3 patients. After adjunct stereotactic radiotherapy all 3 patients showed an initial reduction in retinal exsudative fluid up to complete abscence of sub- and intraretinal fluid; in all cases there was a concomitant reduction in frequency of intravitreal anti-VEGF treatments during the first years after SRT. The 3 patients showed retinal microvascular abnormalities (MVAs) such as small nerve fiber infarcts, retinal hemorrhages, microaneurysms, luminal irregularities, focal areas of capillary closure, distended arteriolar and venular tips, telangiectasic segments, and late staining of vessel walls approximately 3-4 years after SRT treatment. Further, our three reported cases developed a severe, persistent and poor anti-VEGF-responsive cystoid macular edema about 8 years after adjuvant SRT-radiotherapy treatments. Hereby, all 3 patients showed a prominent involvement of the parafoveal inferior and nasal region of the SRT treatment area while the primary nAMD lesion itsself seemed inactive.

Conclusion Our cases demostrate a possible sight treathing long-term complication of adjunctive SRT therapy to the standard

anti-VEGF treatment in patients with nAMD. Ophthalmologists should be aware of the retinal changes related to SRT and the potential risks of this procedure over the years.

Financial Interest: None: No commercial relationship
Grants: None

P019 May a post-radiation ocular surface disorder compromise penetrating keratoplasty surgery?

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Background Ocular surface disorder after ocular radiation therapy, even commonly reported, remains overlooked. Any delay in diagnosis may lead to vision threatening complications. The presented case highlights the clinical outcome of a severe post-radiation ocular surface disorder, the importance of intense therapy and the limitations of further surgical interventions.

Case presentation A 34-year-old woman was referred with complains of painful and reddish right eye since years. Her medical history revealed an iris melanoma excision at the age of 29 years. Due to recurrence, a proton beam treatment has been performed thereafter. Consequently, the patient developed post-radiation retinopathy with macula edema, secondary glaucoma, cataract, as well as a severe ocular surface disorder with corneal decompensation and band keratopathy. Several surgical treatments have been attempted among which: phacoemulsification with IOL implantation, trabeculectomy with mitomycin C. Due to refractory glaucoma a Baerveldt glaucoma drainage was necessitated, thereafter. Despite these various therapeutic approaches, there was no improvement of the ocular surface problem. With increasing deterioration of the corneal situation, a penetrating keratoplasty, has been discussed.

Conclusion The continuous worsening of clinical symptomatology of the proton beam radiotherapy ocular surface disorder can be the result of a post-radiation syndrome. An ischaemic retinopathy and anterior segment disorder lead to engorgement of posterior and anterior segment tissues. Gradual expansion of ischemia, vasculitis and inflammatory mediators compresses the retinal tissue leading to recurrent macular oedema; as well as to secondary glaucoma and corneal decompensation. The band keratopathy, occasionally noted, may be representative of the effect of persistent post-radiation vasculopathy and inflammatory syndrome. Due to the worsening of the clinical presentation of ocular surface disorder a penetrated keratoplastic surgery has been discussed. It remains however still questionable whether such patients would make profit from penetrated keratoplastic surgery, as the resulting corneal stromal lymphangiogenesis and hemangiogenesis, in the presence of post-radiation keratopathy, are essential conditions for allograft rejection.

Financial Interest: None: No commercial relationship
Grants: None

P020 Blunt trauma associated choroidal neovascularization: A case series Report

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Purpose To report a case series of 4 patients with secondary choroidal neovascularization (CNV) after chorioretinal rupture due to blunt ocular trauma and present an exemplary case with exceptionally rapid CNV development

Methods Retrospective case series

Results Four consecutive Patients were seen after blunt trauma to the eye with choroidal ruptures at presentation, the trauma to the eye in two cases being caused by an object and the last one following a gunshot wound. Over time, all eyes developed a secondary CNV that warranted treatment.

Exemplary case A 65-year-old female patient presented herself to the emergency department, after she had a blunt trauma to her right eye including the periocular region. Ocular history included known early age-related macular degeneration in both eyes. The initial corrected visual acuity (VA) was 0.6 decimal in the right eye and 1.0 in the left eye. On fundus examination, as well as optical coherence tomography (OCT), a partial choroidal rupture and a subretinal haemorrhage was diagnosed. At the scheduled follow-up examination 5 days after the initial trauma, the OCT revealed an increase in thickness of the temporal border of the tear with subretinal hyperreflective material (SHRM) without signs of a choroidal neovascular membrane (CNV) on OCT angiography (OCTA). Twelve days after initial trauma, further increase in SHRM and new subretinal and intraretinal fluid was seen and OCTA showed a secondary type 2 neovascular lesion. Until then, the VA in the right eye has dropped to 0.4. Treatment with anti vascular endothelial growth factor (VEGF) with ranibizumab was initiated. Follow-up examination at xx showed a good response to the anti-VEGF therapy with a reduction of intraretinal and subretinal fluid,subretinal hyper-reflective material (SHRM), and regression of the neovascular lesion.

Conclusion Secondary CNV, usually type 2, can be a complication after blunt ocular trauma. Our cases show examples of developing CNV secondary to blunt trauma responding well to anti VEGF therapy. Choroidal ruptures warrant close follow-up for early detection of visually threatening neovascular lesions.

Financial Interest: None: No commercial relationship
Grants: None

P021 Central retinal vein occlusion in a 28-year old female patient: A case Report

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Intro Several risk factors have been identified for central retinal vein occlusion (CRVO) in older patients. CRVO in young adults remains still uncommon, and the risk factors unclear.

Case Report A healthy 28-year-old female patient presented with blurred vision OD, that usually resolved during the day. No ocular diseases were known. Oral contraceptives were taken.Clinical Findings:Best corrected visual acuity (BCVA-mild myopia) was OU 1.0. There were no pathologies in the anterior segment. The IOP was OU 16 mmHg. Funduscopic examination OS was normal, and OD presented mild venous dilatation and tortuosity with few flame-shaped hemorrhages in all quadrants,OCT presented no macular edema but slightly faded retinal layers. The central retinal thickness (CRT) was 262 micros. FA displayed delayed filling of the central retinal vein and prolonged AV filling time, without capillary nonperfusion.A systemic workup revealed none underlying disease. An empirical IOP-lowering treatment with Alphagan drops was initiated and a follow up scheduled.5 weeks later the patient presented as emergency with BCVA OD 0.1. Funduscopy revealed OD CRVO.OCT presented subretinal fluid and intense macular edema with complete faded retinal layers. The CRT was 725 micrometer.FA was not performed. An anti–VEGF therapy with Aflibercept was initiated and after 1 week the BCVA was 0.6.OCT presented resolution of the subretinal and intraretinal fluid. CRT was 276 micrometer.Citicoline 500 mg/d was prescribed as dietary supplement. After a 3-injections course the BCVA was 1.0 ,no impairment of vision was noticed. Anatomically the retinal layers were almost completely restored.The retinal bleedings and the juvenile foveal reflex disappeared. CRT was 254 micrometer. Nasally the optic disc was slightly edematous.Therapy was continued in a treat & extend mode, further a follow-up FA was scheduled. Treatment interval is extended to 16 weeks and terminationis considered. Discussion:A conversion from an impeding to a CRVO with macular edema was described.Traditional risk factors as hypertension and diabetes are not significant in young patients..The response to anti-VEGF and prognosis in young patients seems excellent. Retinal architecture and BCVA could be restored quickly. Macular edema could be stabilized with a low number of anti-VEGF injections. Anti-platelet agents and hemodilution are of no proven benefit, IOD-lowering drops and dietary supplement as Citicoline may be considered in some cases.

Financial Interest: None: No commercial relationship
Grants: None

P022 Corneal Enzymatic Resistance To Digestion Following Corneal Cross-Linking Combining Riboflavin/UV-A Light And Rose Bengal/Green Light

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Purpose Photoactivated chromophore for keratitis corneal cross-linking (PACK-CXL) is an emerging treatment modality for infectious keratitis. In PACK-CXL, both riboflavin(RI)/UV-A and rose bengal (RB)/green light chromophore/light combinations are used to treat infectious keratitis. Each combination results in different penetration depths and clinical outcomes, and both approaches increase corneal enzymatic resistance to digestion. The absorption spectra of both chromophores barely overlap, so we investigated if PACK-CXL with RI/UV-A and RB/green light performed sequentially in the same setting further increases the cornea's resistance to digestion, when compared to PACK-CXL using a single chromophore.

Setting Laboratory study. ELZA Institute, Dietikon, Switzerland and Laboratory for Ocular Cell Biology, CABMM, University of Zurich.

Methods Porcine corneas (n=58) were assigned to 3 groups. Group 1 received PACK-CXL with RI/UV-A using a fluence of 10 J/cm2 and group 2 received PACK-CXL with RB/green light using a fluence of 10 J/cm2. Experimental Group 3 received PACK-CXL with RI/UV-A using 10 J/cm2, immediately followed by RB/green light irradiation using 10 J/cm2 in the same setting. All corneas were digested in 0.3% collagenase A solution. Time until complete dissolution was assessed.

Results The mean times to digestion in Groups 1 to 3 were: 30.61 ± 1.79 h, 33.7 ± 2.38 h and 39.82 ± 2.16 h, respectively.
Combining PACK-CXL with RI/UV-A and RB/green light in the same setting showed a greater resistance to digestion than RI/UV-A or RB/green light alone (both $P < 0.001$); While Group 2 achieved a significantly increased resistance compared to Group 1 ($P = 0.048$).

Conclusions Combining RI/UV-A and RB/green light photoactivation in the same setting significantly increases corneal resistance to enzymatic digestion and is superior to photoactivation using a single chromophore/light combination. We recently showed that the combination of both chromophore/wavelengths was able to successfully treat a patient suffering from therapy-resistant acanthamoeba keratitis. Combining RI/UV-A and RB/green light PACK-CXL in the same setting might represent a novel PACK-CXL approach.

Financial Interest: Being a consultant of a company or competing company with business interest in the topic
Grants: None

P023 The Enzymatic Resistance Effect Of High-Fluence Accelerated Corneal Cross-Linking With Rose Bengal/Green Light Is Oxygen- Independent

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Purpose Corneal cross-linking (CXL) with rose Bengal and green light induces several effects in the cornea, including 1) biomechanical stiffening, 2) increased resistance to enzymatic digestion and 3) generation of reactive oxygen species (ROS). Little is known about the effect of oxygen on the resistance to enzymatic digestion in rose Bengal-mediated CXL. Here, we examined rose Bengal CXL-induced enzymatic resistance in the absence of oxygen.

Setting Laboratory study. ELZA Institute, Dietikon, Switzerland and Laboratory for Ocular Cell Biology, CABMM, University of Zurich.

Methods 106 ex vivo porcine corneas were assigned to 5 groups. Group 1 served as control (abrasion/Rose Bengal application).

Group 2 and 3 received rose bengal CXL treatment at 522 nm in a normal room atmosphere at 21% of oxygen (10 J/cm2, 11 min 7 sec @ 15mW/cm2 and 15 J/cm2, 8 min @ 30 mW/cm2, respectively), whereas groups 4 and 5 were treated in the absence of oxygen (nitrogen chamber). All corneas were digested in 0.3% collagenase A solution. Time to total dissolution was assessed.

Results The mean times to digestion in Groups 1 through 5 were: 31.21 ± 3.84 h, 33.7 ± 2.38 h, 33.74 ± 1.37 h, 34.39 ± 1.85 h and 33.86 ± 2.01 h, respectively.
All groups had significantly higher digestion resistance than the non-irradiated rose bengal control group (Group 1) (groups 2 to 5: P = 0.012, P = 0.017, P < 0.001, P = 0.008, respectively). However, there was no significant difference in the mean time to digestion across all the experimental groups, irrespective of fluence delivered or the presence of oxygen.

Conclusions High-fluence accelerated rose bengal/green light CXL protocols (10 J/cm2 and 15 J/cm2) render ex vivo porcine corneas significantly more resistant to enzymatic digestion when compared to non-irradiated control corneas. This effect seems to be oxygen-independent.

Financial Interest: Being a consultant of a company or competing company with business interest in the topic
Grants: None

P024 Scleritis following oral and intravenous bisphosphonates in a 66-year-old man

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Introduction We present a 66-year-old man who developed scleritis following bisphosphonate treatment for osteoporosis.

Case presentation The patient presented with increasing pain on eye movements and swelling of the right more than the left orbit. Visual acuity with glasses was 0.4 on the right eye and 1.0 on the left. A red desaturation in the right eye was not accompanied by a pupillary afferent deficit. The right eyelids were swollen and red, with an inability to open spontaneously. Right eye movement was painful and impaired in all directions, but without manifest strabismus in primary position. Binocular function was present. The right conjunctiva was chemotic, otherwise slit lamp examination was unremarkable OU. Retinoscopy was normal.
History revealed that the patient had been treated bi-weekly for osteoporosis with bisphosphonates. Two days following this oral treatment he had noted constant ocular pain which increased in intensity with every treatment. Three days prior to referral bisphosphonates were given intravenously for the first time, causing pain and worsened swelling. He also reported that Ibuprofen 400 mg had been given to him twice a day as an add-on treatment two weeks earlier.
Under the working diagnosis of a scleritis induced by bisphosphonates the patient was started on Ibuprofen 600 mg three times per day. An MRI showed binocular swelling of the temporal sclera and swelling of the right eyelids. Three hours after taking 600 mg Ibuprofen orbital swelling improved and the patient was able to open the right eyelids spontaneously. Eleven days later only a slight swelling of the eyelids and minimal irritation of the conjunctiva remained. Vision in the right eye had improved to 1.0. Systemic Ibuprofen was discontinued and switched to topical nonsteroidal anti-inflammatory medication and the patient was referred to his primary care ophthalmologist.

Conclusion Oral bisphosphonates are known to increase the relative risk of uveitis to 1.5 and scleritis to 1.53. In our patient, the immediate response to 600 mg but not to 400 mg Ibuprofen suggests that this be given in severe cases, and also that a lower dose appears inefficient. Rechallenge is not recommended as this has been reported to result in recurrence, and as in our patient symptoms had become more severe with each exposure.

Financial Interest: None: No commercial relationship
Grants: None

P025 Influence of preoperative and intraoperative local anesthetic in strabismus surgery under general anesthesia

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Purpose Studies have shown additional topical pain medication pre and during strabismus-surgery performed under general anesthesia to reduce the oculo-cardiac reflex and result in faster postoperative recovery. Thus we incorporated this into our surgical regimen in 2017. The aim here is to analyse this effect in the clinical routine.
compare general anesthesia with or without pre- and intra-operative administration of Tetracain eyedrops and 1ml Rapidocain/Chirocain injected parabulbär, as local anesthesia in patients undergoing strabismus surgery in the clinical routine.

Methods Following approval by the local ethics committee, data was extracted retrospectively from the files of patients who underwent strabismus surgery in the University Hospital Basel 1 year before the change of procedure until one year thereafter. Study group 1: patients with surgery under general anesthesia alone was compared to group 2: patients with additional preoperative application of Tetracain eyedrops and intra-operative parabulbär Rapidocain/Chirocain (1:1, 1ml) using Mann-Whitney U-tests for ordinal or metric variables. Comparisons between categorical variables were done using Fisher's exact tests. A P-value < 0.05 is considered as significant.

Results Strabismus surgery was comparable as each group contained 2 patients with reoperations and 7 patients with systemic illness. In group 1 (n=20, mean age: 53 years) an oculo-cardiac reflex during surgery was seen in 9 patients who were stable after one dose of Atropin (average amount of Atropin over all patients: 0.275mg). This differed significantly from group 2 (n=20, mean age: 46 years) where additional local anesthesia reduced the incidence of an oculo-cardiac reflex to 1 patient who recovered with 0.04mg of Atropin, p=0.0036. After the recovery room, 5 patients in Group 1 but only one patient in Group 2 needed analgetic medication.

Conclusion In this initial analysis, topical anesthesia accompanying general anesthesia in strabismus surgery appears to reduce the rate of oculo-cardial reflex significantly during surgery. In addition fewer patients appear to require additional pain medication after the recovery room. These initial findings warrant further analysis with more patients.

Financial Interest: None: No commercial relationship
Grants: None

P026 Early-stage clinical outcomes and patient satisfaction of TECNIS Eyhance Toric IOL implantation in patients with cataract

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Purpose The aim of this analysis was to report real-life experience related to the implantation of the monofocal toric enhanced depth of focus (EDOF) intraocular lens (IOL) TECNIS Eyhance Toric Model DIU (Johnson&Johnson) in patients undergoing cataract surgery.

Methods We have retrospectively analyzed 63 eyes (41 patients) with a mean preoperative corneal astigmatism of -1,72D ± 0.86D (range -0.61D to -4.69D) undergoing cataract surgery with a TECNIS Eyhance Toric DIU00 implantation. Preoperative biometry included measurements of axial length, anterior chamber depth, lens thickness, sulcus-to-sulcus and averaged anterior and posterior corneal keratometric values. One month postoperatively, a clinical assessment was performed in all patients including determination of monocular and binocular visual acuities for postoperative uncorrected distance (UDVA), corrected distance (CDVA), uncorrected intermediate (UIVA), corrected intermediate (CIVA), uncorrected near (UNVA) and corrected near (CNVA) as well as manifest refraction and keratometry values. Furthermore, patient satisfaction was assessed by direct questioning.

Results Monocular UDVA, CDVA, UIVA, CIVA, UNVA, CNVA visual acuities were 0.1, 0.1, 0.0, 0.0, 0.3, and 0.3 logMar respectively. The binocular UDVA, UIVA and UNVA were 0.1, 0.0, and 0.2, logMar respectively. The BCVA increased from 0.3 to 0.1 logMar and the residual refractive astigmatism decreased from mean -1.59 ±1.13D preoperatively to -0.33D ±0.22D (range 0.00D to -1.00D) at the 1-month follow-up visit. No secondary IOL rotation was needed postoperatively. None of the patients reported relevant disturbance by dysphotopsia (halos or glare), whereas all patients were satisfied with distance, intermediate, and near visual outcomes one month after IOL implantation.

Conclusion In patients with corneal astigmatism undergoing cataract surgery, the TECNIS Eyhance Toric IOL Model DIU00 provided good clinical outcomes regarding UDVA and UIVA and patient satisfaction one month after implantation.

Financial Interest: None: No commercial relationship.
Grants: None

P027 Is it demyelinating disease?

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Purpose To describe the case of a patient diagnosed with myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD).

Method Observational case Report

Results We describe the case of a 32-year-old army officer in general good health. He presented intermittent left periorbital pain for two weeks . The pain was severe with intensity of 7/10 and exacerbating with eye movements. He had travelled to the Dominican Republic two months earlier where he had diarrhea for two days. His ophthalmic examination showed a 20/20 vision with a left RAPD and left optic disc edema. Visual fields showed bilateral arciform scotomes. The ocular motility was normal. Cerebral and orbit MRI showed an abnormal enhancement of the left retrobulbar optic nerve and the nerve sheath. Extensive blood tests were carried out including CBC, ESR, CRP, ACE, lysozyme, ANA, Anti-NMO, anti-MOG, VDRL, FTA, Quantiferon, Dengue, Zika and Chikungunya. Anti-MOG returned positive (titer > 1000) and all other markers were negative. The diagnosis of left optic perineuritis associated with atypical optic neuritis with myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) was confirmed and the patient was initially treated with 500 mg IV Solumedrol q.d. for 3 days and then 80 mg PO Prednisone q.d. which was tapered slowly. After the start of the treatment, the patient had a reduction of symptoms.

Conclusion A periorbital pain exacerbated by eye movement is often thought to be caused by optic neuritis. However, orbital inflammatory diseases such as perineuritis must not be forgotten in the differential diagnosis of such a symptom, particularly when visual loss is not severe.

Financial Interest: None: No commercial relationship
Grants: None

P028 (Withdrawn)

P029 Langzeitwirksamkeit und -sicherheit des Port Delivery Systems mit Ranibizumab (PDS) bei Patienten mit neovaskulärer altersbedingter Makuladegeneration (nAMD): Ergebnisse der 5-Jahres-Subgruppenanalyse der Studie PORTAL

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Fragestellung Das innovative Port Delivery System ermöglicht die kontinuierliche Verabreichung einer angepassten Ranibizumab-Formulierung in den Glaskörper. Die andauernde PORTAL-Extensionsstudie untersucht die Langzeitsicherheit und -verträglichkeit des PDS mit Ranibizumab 100 mg/ml (PDS 100 mg/ml) bei Patienten mit nAMD. Hier wird die Subgruppenanalyse zur Wirksamkeit und Sicherheit bei nAMD-Patienten vorgestellt, die nach der Studie LADDER in PORTAL wechselten und seit mindestens 5 Jahren mit PDS behandelt werden.

Methodik In die multizentrische, offene Extensionsstudie PORTAL werden Patienten aufgenommen, die an den Studien LADDER (NCT02510794) oder ARCHWAY (NCT03677934) teilgenommen haben bzw. in die Velodrome-Studie (NCT04657289) eingeschlossen werden. Patienten erhielten in LADDER das PDS (10, 40 oder 100 mg/ml) mit pro re nata (PRN) Wiederbefüllungen, oder monatliche intravitreale Injektionen mit Ranibizumab 0,5 mg. Nach dem Wechsel in die PORTAL-Studie erhielten die Patienten ab Tag 1 PDS 100 mg/ml mit festen Wiederbefüllungen alle 24 Wochen. Die Untersuchung der Wirksamkeit erfolgte bei den LADDER-zu-PORTAL-Patienten, die eine Therapie mit PDS 100 mg/ml über mindestens 5 Jahre erhielten. Daten zur Langzeitsicherheit wurden gepoolt, um alle Patienten der vorherigen PDS-Arme in LADDER (10, 40 und 100 mg/ml) mit mindestens 5-jähriger PDS-Therapie einzuschliessen.

Ergebnisse Bei den LADDER-zu-PORTAL-Patienten blieb die bestkorrigierte Sehschärfe (BCVA) ab Beginn der LADDER-Studie (n=46, Patienten hatten zu diesem Zeitpunkt durchschnittlich 2,9 intravitreale Injektionen erhalten) bis zu 60 Monate lang stabil: Die mittlere BCVA-Veränderung gegenüber dem Ausgangswert im Monat 60 betrug -1,8 ETDRS-Buchstaben (95% KI: -8,1; 4,4; n = 17). Die zentrale Netzhautdicke (CPT) sowie die Netzhautdicke im zentralen Teilfeld (CST) blieben ebenfalls insgesamt stabil, mit mittleren Veränderungen in Monat 60 gegenüber dem Ausgangswert von -17,5 µm (95% KI: -52,1; 17,0) bzw. -7,8 µm (95% KI: -32,9; 17,3).

Schlussfolgerungen Die Ergebnisse der Extensionsstudie PORTAL bei Patienten, die zuvor in LADDER das PDS 100 mg/ml mit Wiederbefüllungen nach Bedarf erhielten, deuten darauf hin, dass Visus- und anatomische Ergebnisse mit PDS 100 mg/ml über 60 Monate im Allgemeinen stabil bleiben. 5-Jahres-Daten zur Langzeitsicherheit des PDS werden zeitnah zur Verfügung stehen und ebenso präsentiert werden.

Financial Interest: Employment by a company or competing company with business interest in the topic; consultant of a company or competing company with business interest in the topic
Grants: None

P030 VOYAGER – eine globale Real-World-Studie zu Faricimab und zum Port-Delivery-System mit Ranibizumab (PDS) bei Patienten mit nAMD und DMÖ in der Schweiz

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Zielsetzung Die Visusoutcomes mit anti-VEGF-Wirkstoffen sind in der klinischen Praxis häufig schlechter als in klinischen Studien. Die globale Real-World-Studie VOYAGER soll umfassende Erkenntnisse zur Langzeitanwendung von Faricimab oder des Port Delivery Systems mit Ranibizumab (PDS) bei Patienten mit neovaskulärer altersabhängiger Makuladegeneration (nAMD) oder diabetischem Makulaödem (DMÖ) im klinischen Praxisalltag liefern.

Methode In der prospektiven Real-World-Studie VOYAGER (NCT05476926) werden nAMD- und DMÖ-Patienten eingeschlossen, die Faricimab oder das PDS für ihre zugelassene(n) Indikation(en) in der routinemässigen lokalen klinischen Praxis erhalten. Geplant ist der Einschluss von mindestens 5000 Patienten in etwa 500 Zentren in 31 Ländern in Europa, dem Nahen Osten, Afrika, Nord- und Südamerika und dem asiatisch-pazifischen Raum. Über einen Zeitraum von maximal 5 Jahren werden Daten gemäss der klinischen Routine zu festgelegten Zeitpunkten über eCRFs und EMR (falls zutreffend) sowie Bildgebungsdaten erhoben.

Ergebnisse Der primäre Endpunkt ist die Visusveränderung gegenüber dem Ausgangswert in Monat 12 je Auge, Indikation und Wirkstoff. Die wichtigsten sekundären Ziele umfassen Behandlungsschemata und -muster im Praxisalltag, Flüssigkeitstoleranz sowie Korrelationen mit Visusveränderungen im Zeitverlauf. Weitere Ziele sind die Bewertung der Wirksamkeit von Faricimab oder des PDS auf die Verringerung der zentralen Netzhautdicke und die Bewertung nAMD- und DMÖ-spezifischer Krankheitsmerkmale (z. B. Krankheitsaktivität, Vorhandensein/Lokalisation von Atrophie und Fibrose bei nAMD, Schweregrad der diabetischen Retinopathie bei DMÖ). Zu den sicherheitsrelevanten Endpunkten gehören Inzidenz, Schweregrad, Dauer und Outcome von okulären und nicht-okulären unerwünschten Ereignissen. In der Schweiz nehmen 9 Zentren teil, die voraussichtlich 400 Patienten einschliessen werden. Der Einschluss des ersten Patienten ist im Mai 2023 geplant.

Schlussfolgerung Durch die Erhebung realer klinischer Langzeitdaten von Patienten, die mit Faricimab oder dem PDS für die zugelassenen Indikationen behandelt werden, wird VOYAGER auf globaler und regionaler Ebene neue Erkenntnisse zu Therapieschemata, Einflussfaktoren für Therapieentscheidungen sowie zur Wirksamkeit und Sicherheit ermöglichen.

Financial Interest: Employment: Employment by a company or competing company with business interest in the topic; Being a consultant of a company or competing company with business interest in the topic. **Grants:** None

P031 High-Fluence Accelerated PACK-CXL using riboflavin/UV-A or rose Bengal/green light to Treat Bacterial Keratitis: An Ex-Vivo Porcine Corneal Infectious Model

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Purpose To investigate the effectiveness of high-fluence accelerated photoactivated chromophore for keratitis cross-linking (PACK-CXL) in treating Staphylococcus aureus and Pseudomonas aeruginosa infections in porcine corneas.

Setting ELZA Institute, Dietikon/Zurich, Switzerland; University of Zurich, CABMM

Methods Ex vivo porcine corneas were assigned to one of 8 groups. 6 groups inoculated with ~104 CFU of S. aureus or P. aeruginosa and incubated for 24 h. One of two PACK-CXL protocols was applied these groups: riboflavin/UV-A light (30 mW/cm², 8m20s, 15 J/cm²) or rose bengal/green light (15 mW/cm², 16m40s, 15 J/cm²). 2 unirradiated groups and 2 unirradiated infected groups acted as controls. All corneas were incubated at 37°C for another 24 hours. The corneas were excised and vortexed to release the bacterial cells, which were plated and incubated on agar plates. The amount of colony forming units was then quantified and the bacterial killing ratios (BKR) resulting from different PACK-CXL protocols relative to non-treated controls were calculated.

Results One hundred and seventeen porcine corneas were included. UV-A light/riboflavin PACK-CXL resulted in median BKRs of 52.8% and 45.8% in S. aureus and P. aeruginosa, respectively, whereas green light/rose bengal PACK-CXL resulted in significantly greater BKRs of 76.7% and 81.0%, respectively (both p-values < 0.01).

Conclusion Both riboflavin/UV-A and rose bengal/green light high-fluence accelerated PACK-CXL protocols significantly decrease S. aureus and P. aeruginosa bacterial loads. Our data may help develop strain-specific PACK-CXL approaches that could be used alongside the current standard of care.

Financial Interest: None: No commercial relationship
Grants: None

P032 Epithelium-on CXL Provides a Similar Biomechanical Effect as Accelerated Epithelium-off CXL

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Purpose Epithelium-on corneal cross-linking (epi-on CXL) comes with several apparent advantages including a reduced risk of infection and rapid recovery. Until recently, epi-on CXL protocols either showed insufficient efficacy or required additional technology such as iontophoresis or additional oxygen. Here, we present the results of a new epi-on CXL protocol without iontophoresis and without additional oxygen, with a stiffening effect similar to the broadly used 10 min 9 mW/cm² epi-off CXL.

Methods 150 porcine eyes were assigned equally into 3 study groups: epi-on, epi-off, and untreated controls. A manual abrasion was performed in the epi-off CXL group. Epi-on and control groups: a penetration enhancer solution was applied to the corneal surface before soaking with 0.1% hypo-osmolar riboflavin solution without a carrier. In the epi-off group, the same riboflavin solution was applied directly. Epi-on and epi-off groups were irradiated at 365 nm UV-A light using. In the epi-on group, 18 mW/cm² pulsed UV-A light was applied for 15 min (fluence 8.1 J/cm²); in the epi-off group, 9 mW/cm² continuous UV-A light for 10 min was applied (5.4 J/cm²). Stress-strain extensiometry was performed to assess changes in corneal biomechanics.

Results The mean elastic modulus as a function between 5% and 10% of strain was 5.21 ± 1.58 N/mm, 4.95 ± 1.50 N/mm, and 4.01 ± 1.41 N/mm in epi-on, epi-off, and controls, respectively. There were no significant differences in the elastic modulus between epi-on and epi-off groups (P = 0.45), but significant differences were found between the two cross-linked groups and controls (P < 0.001 and = 0.001, respectively).

Conclusion Our new epi-on CXL protocol provides a stiffening effect similar to the most commonly used epi-off CXL protocol and has the potential to clinically replace the latter. Since it does not require additional technology such as iontophoresis or oxygen application, our epi-on CXL protocol may be particularly suited for slit lamp CXL applications.

Financial Interest: None: No commercial relationship
Grants: None

P033 An Assessment of the Impact of Disease Activity Criteria on Dosing Interval Assignment in Clinical Trial Patients With nAMD

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Purpose Clinical treatment decisions for patients with neovascular age-related macular degeneration (nAMD) are based on assessment of disease activity. Likewise, in clinical trials, disease activity criteria guide dosing regimen allocation and dosing interval adjustment. Criteria may differ between trials, complicating comparison of durability outcomes. In the TENAYA/LUCERNE nAMD trials, faricimab (Vabysmo), a dual angiopoietin-2/vascular endothelial growth factor-A inhibitor, maintained vision over 2 years with extended treatment durability and fewer injections compared with aflibercept. This analysis evaluated how applying different disease activity criteria may have impacted faricimab dosing interval assignment in TENAYA/LUCERNE.

Methods In TENAYA/LUCERNE (NCT03823287/NCT03823300), patients (N=1329) were randomized 1:1 to faricimab 6.0 mg or

aflibercept every 8 weeks (Q8W). In the faricimab arm, patients were assigned to treatment intervals up to Q16W (n=665) based on protocol-defined disease activity designed to reflect clinical practice, defined as: best-corrected visual acuity (BCVA) loss of ≥5 (vs mean over 2 previous visits) or ≥10 letters (vs highest BCVA over 2 previous visits); or central subfield thickness (CST) >50 µm (vs mean over 2 previous visits) or ≥75 µm (vs lowest CST over 2 previous visits); or new macular hemorrhage. Application of these criteria at week 20 was compared with application of vision and anatomic disease criteria (adapted from dose regimen modification criteria used in PULSAR; NCT04423718) at week 20, defined as: BCVA loss >5 letters (vs week 16 BCVA) and CST increase >25 µm (vs week 16 CST), or new macular hemorrhage.

Results When disease activity was based on vision or anatomic criteria (TENAYA/LUCERNE), 78% of faricimab patients were assigned to ≥Q12W dosing at week 20. In contrast, in a hypothetical scenario where disease activity was based on vision and anatomic criteria, 96% of faricimab patients would have been assigned to ≥Q12W dosing at week 20.

Conclusions Application of disease activity criteria in clinical trials can have a significant impact on dosing interval adjustment/determination. Attention should be paid to which criteria best reflect real-world practice to understand the likelihood of trial results translating to treatment burden reductions.

Financial Interest: Employment: Employment by a company or competing company with business interest in the topic; Being a consultant of a company or competing company with business interest in the topic
Grants: None

P034 Hypopyon and vision loss after initially complication free cataract surgery

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Purpose We want to share this challenging case of an initially complication free cataract surgery with a painless decrease of vision and anterior chamber inflammation.

Methods After the cataract surgery we had a close follow-up of the patient with best-corrected visual acuity, slit lamp examination of the anterior and posterior segment and B-sound echography.

Results One week postoperatively examination showed severe anterior chamber inflammation and vitreous inflammation. The patient underwent vitrectomy with cefuroxime irrigation. The vitreous biopsy revealed positivity for Serratia marcescens, which should have been sensitive to cefuroxime. The composition of clinical findings leads to the diagnosis of a toxic anterior segment syndrome (TASS). It is defined as a rare postoperative anterior segment inflammation, which develops often after uncomplicated anterior segment surgery. It resembles the signs of early postoperative endophthalmitis but does not respond to antibiotics.

Conclusion The diagnosis of a TASS was challenging as initial findings were also compatible with a bacterial endophthalmitis. Diagnostic vitrectomy is important to specify the antibiogram.

Financial Interest: None: No commercial relationship
Grants: None

P035 Successfully combining Riboflavin/UV-A and Rose Bengal/Green Light PACK-Cross-Linking in Acanthamoeba Keratitis

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Purpose PACK-Crosslinking (CXL) with riboflavin (RB)/UV-A is in clinical use for infectious keratitis of bacterial and fungal origin. More recently, PACK-CXL with Rose Bengal (RB)/Green Light showed promise in fungal keratitis. However, neither approach was effective in treating acanthamoeba keratitis (AK). Here, we successfully treated a patient suffering from confirmed acanthamoeba keratitis using a combined approach, irradiating with both RB/UV-A and RB/Green Light in the same procedure.

Methods A 44-year-old patient had been referred to us with active acanthamoeba keratitis in his left cornea after extended contact lens wear. Acanthamoeba cysts had been identified from fluid from the contact lens container via PCR and in the corneal stroma using confocal microscopy. Prior to the referral, the patient had been treated unsuccessfully for 10 months according to the AAO guidelines. Upon presentation, the patient presented with intense ocular pain, excessive epiphora, photophobia, and blepharospasm of the left eye. CDVA was 20/200. The conjunctiva showed diffuse hyperemia and the cornea presented with diffuse full-thickness infiltrates in the absence of a ring infiltrate. The remainder of the slit lamp exam was normal.

Results Following the initial combined PACK-CXL treatment (June 14, 2021), the cornea showed less, but persistent signs of inflammation and infection. We re-performed the combined procedure twice (July 15 and October 4, 2021). Each PACK-CXL treatment comprised sequential RB/UV-A (365 nm) irradiation with 10 J/cm² (C-eye and Ribo-Ker, EMAGine, Switzerland) and RB/Green Light (522 nm) irradiation (0.1% Rose Bengal) with 5.4 J/cm² in a single setting. In April 2022, the patient showed a conversion to a quiescent scar. His previous symptoms of ocular pain, photophobia, epiphora, and blepharospasm had vanished. Confocal microscopy was unable to detect acanthamoeba cysts. Currently, the patient is awaiting penetrating keratoplasty.

Conclusions The combination of subsequent Riboflavin/UV-A and Rose Bengal/Green Light PACK-CXL successfully treated a patient suffering from confirmed AK, which was resistant to conventional medical treatment prior to our treatment attempt. PACK-Cross-Linking using two chromophores in the same procedure (riboflavin and rose bengal) might be a potential treatment alternative for acanthamoeba keratitis.

SOG SSO Schweizerische Ophthalmologische Gesellschaft
Société Suisse d'Ophtalmologie
Società Svizzera di Oftalmologia
Swiss Society of Ophthalmology

Financial Interest: Being a consultant of a company or competing company with business interest in the topic; Inventor/Developer of the topic or a competing topic
Grants: None

P036 Grey filters are preferred for relief of photosensitivity in patients with posterior segment pathology

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Purpose Photophobia is associated with a variety of ocular, cerebral and systemic disorders. Regardless of its origin, use of coloured filters is used for photophobia relief but there are no scientifically based guidelines concerning the selection process. Ultimately, the patient subjectively chooses the filter. We examined the choice of filters from patients with posterior segment pathology to better understand if disease pathophysiology might influence their choice.

Methods Randomly selected records of adult patients evaluated in the Low Vision Service at the Jules Gonin Eye Hospital between 2020 to 2022 were reviewed as part of an internal quality control of coloured filters. From the information available, we identified 41 patients for whom a posterior segment pathology was mentioned in relation to photophobia and noted their filter choice.

Results The mean age of patients was 65.8 years (range 20 to 91 years). Visual acuity (VA) in the better eye was ≥0.5 or better in 17 patients (41%) while 24 (59%) of them had a VA of 0.49 to counting fingers. 61% had strictly posterior segment pathology whereas 39% had anterior and posterior segment disease. The most common posterior segment pathology was ARMD (11 patients). Others included retinal dystrophy, diabetic retinopathy, central serous chorioretinopathy, ischemic optic neuropathy, retinal artery occlusion and glaucoma. The most popular choice of filter color was grey, especially among patients with macular lesions and patients with better VA. Brown filters were also frequently selected by patients with macular lesions. Pink, yellow, orange or a mix of colors were often chosen by patients with other posterior segment lesions.

Conclusion In patients with posterior segment pathology, particularly those with macular lesions, the most popular filter was grey. These filters significantly block green light (500-550 nm), suggesting a possible role of rods in light tolerance. Prospective studies with well-characterized ocular pathologies will be helpful for understanding and optimizing filter choice for photophobia.

Financial Interest: None: No commercial relationship
Grants: None

P037 Faricimab führt zu einer schnellen Reduktion der retinalen Flüssigkeiten bei Patienten mit nAMD

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Fragestellung Die im 2. Jahr der Phase-3-Studien TENAYA/LUCERNE gewonnenen Daten zeigen, dass Faricimab, ein dualer Angiopoietin-2 (Ang-2)/vaskulärer endothelialer Wachstumsfaktor-A (VEGF-A) Inhibitor im Vergleich zu Aflibercept einen vergleichbaren Visus trotz längerer Behandlungsintervalle und somit weniger Injektionen erreicht. Ziel dieser Analyse bei Patienten mit neu diagnostizierter neovaskulärer altersbedingter Makuladegeneration (nAMD) war es, die Reduktion der retinalen Flüssigkeiten in den ersten 12 Behandlungswochen zu bewerten, insbesondere der Zeit bis zur erstmaligen Absenz von zentraler Flüssigkeit.

Methodik Bei TENAYA/LUCERNE handelt es sich um doppel-maskierte, Komparator-kontrollierte, 112-wöchige Studien. Behandlungsnaive Patienten (n=1329, gepoolt) wurden im Verhältnis 1:1 randomisiert und erhielten entweder 4 monatliche Faricimab-Injektionen (6.0 mg; n=665), danach im 1. Jahr eine fixe Dosierung von bis zu alle 16 Wochen (Q16W, basierend auf Protokoll-definierten Krankheitsaktivitätskriterien) und im 2. Jahr ein Treat-and-Extend-Regime (T&E, personalisierte Behandlungsintervalle bis zu Q16W), oder 3 monatliche Aflibercept-Injektionen (2.0 mg; n=664), danach fix Q8W. In dieser Post-hoc-Analyse wurde die Veränderung der zentralen Netzhautdicke (CST), die Absenz subretinaler und intraretinaler Flüssigkeit (SRF/IRF) sowie die Zeit bis zur Absenz von SRF/IRF in den Faricimab- und Aflibercept-Armen während der initialen Phase monatlicher Injektionen in beiden Armen (Wochen 0-12) untersucht.

Ergebnisse Am Ende des „matched-dosing"-Zeitraums führte Faricimab im Vergleich zu Aflibercept zu einer signifikant stärkeren CST-Reduktion (Woche 12: -145 vs. -133 µm; $p \leq 0{,}0001$). Zudem war der Anteil der Patienten ohne SRF/IRF unter Faricimab signifikant höher als unter Aflibercept (Woche 12: 77% vs. 67%; $p \leq 0{,}0001$). Bei Patienten mit SRF/IRF zu Studienbeginn wurde eine vollständige Rückbildung von SRF/IRF mit Faricimab schneller und mit weniger Injektionen erreicht als mit Aflibercept: Das 75. Perzentil der erstmaligen Absenz von SRF/IRF wurde unter Faricimab in Woche 8 erreicht, unter Aflibercept in Woche 12 (entsprechende mediane Anzahl von Injektionen: 2 gegenüber 3).

Schlussfolgerungen Die duale Ang-2/VEGF-A-Hemmung mit Faricimab führte im Vergleich zu Aflibercept zu einer schnelleren Erholung der anatomischen Ergebnisse – einschliesslich Abwesenheit retinaler Flüssigkeit – während des „matched-dosing"-Zeitraums in den Studien TENAYA/LUCERNE.

Financial Interest: Employment: Employment by a company or competing company with business interest in the topic; Being a consultant of a company or competing company with business interest in the topic.
Grants: None

P038 Stärkere Reduktion von Makulaleckagen mit Faricimab vs. Aflibercept bei DMÖ-Patienten

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Fragestellung Eine erhöhte Gefässpermeabilität stellt ein charakteristisches Merkmal des diabetischen Makulaödems (DMÖ) dar. In präklinischen Mausmodellen war die duale Ang-2/VEGF-A-Hemmung mit einer stärkeren Reduktion der Gefässleckagen verbunden als die alleinige Hemmung von Ang-2 oder VEGF-A, was auf eine synergistische Wirkung von Ang-2 und VEGF-A hindeutet. Im Rahmen dieser Analyse wurde untersucht, ob die duale Ang-2/VEGF-A-Hemmung mit Faricimab im Vergleich zur alleinigen VEGF-A-Hemmung mit Aflibercept die Makulaleckagen bei Patienten mit DMÖ verbessert.

Methodik YOSEMITE (NCT03622580) und RHINE (NCT03622593) untersuchten die Wirksamkeit und Sicherheit von 6,0 mg Faricimab vs. 2,0 mg Aflibercept bei DMÖ-Patienten mit fovealer Beteiligung. Die Patienten wurden im Verhältnis 1:1:1 zu Faricimab alle 8 Wochen (Q8W), Faricimab mit personalisiertem „treat-and-extend"-Regime (T&E) oder Aflibercept Q8W randomisiert. Diese Analyse umfasst Daten aus den ersten 16 Studienwochen ("Matched Dosing"-Phase), in denen alle Patienten das zugewiesene Studienpräparat Q4W erhielten. Die Studienarme Faricimab Q8W und T&E wurden gepoolt, da die Patienten in diesem Zeitraum das gleiche Therapieregime erhielten. Untersucht wurde die Fläche der Makulaleckage sowie der Patientenanteil mit minimaler oder keiner Makulaleckage (0-1 mm²).

Ergebnisse Die zusammengefassten Daten aus den YOSEMITE/RHINE-Studien umfassten 1216 Patienten in den gepoolten Faricimab-Armen und 593 Patienten im Aflibercept-Arm. Die mediane Fläche der Makulaleckage war zu Beginn in der Faricimab- (24,58 mm²) und der Aflibercept-Gruppe (25,64 mm²) vergleichbar. In Woche 16 war die mediane makuläre Leckagefläche mit Faricimab signifikant kleiner vs. Aflibercept (3,59 vs. 7,62 mm²; p < 0,0001). Ein signifikant grösserer Anteil der mit Faricimab behandelten Patienten (28,4 %) wies in Woche 16 eine minimale oder gar keine Leckage auf als die mit Aflibercept behandelten Patienten (15,2 %; p < 0,0001).

Fazit Bei Patienten mit DMÖ führte die duale Ang-2/VEGF-A-Hemmung mit Faricimab im Vergleich zu Aflibercept zu einer stärkeren Reduktion der Makulaleckagen und zu einem grösseren Patientenanteil mit minimalen oder keinen Leckagen nach 16 Wochen. Diese Ergebnisse deuten darauf hin, dass die duale Hemmung zu einer erhöhten Gefässstabilität führt, was vermutlich zu der schnelleren Auflösung der Flüssigkeit und der längeren Wirkdauer beiträgt, die mit Faricimab vs. Aflibercept in YOSEMITE/RHINE beobachtet wurde.

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P039 Meilleur assèchement du liquide intrarétinien avec faricimab par rapport à aflibercept chez les patients diabétiques atteints d'OMD dans les études de phase 3 YOSEMITE/RHINE

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Objectif Les données à 2 ans des études de phase 3 YOSEMITE/RHINE dans l'oedème maculaire diabétique (OMD) ont montré des résultats comparables sur la récupération visuelle entre faricimab (FAR), un inhibiteur double de l'angiopoïétine-2 (Ang-2) et du facteur de croissance de l'endothélium vasculaire de type A (VEGF-A), et aflibercept (AFL), mais obtenus avec des intervalles prolongés, moins d'injections et des avantages anatomiques par rapport à aflibercept. L'objectif de l'analyse était d'évaluer le délai jusqu'à disparition du liquide intrarétinien.

Méthodes YOSEMITE/RHINE a évalué l'efficacité, la sécurité et la durabilité de FAR 6,0 mg par rapport à l'AFL 2,0 mg chez des patients atteints d'OMD. 1891 patients ont été randomisés 1:1:1 pour recevoir soit FAR toutes les 8 semaines (Q8S) avec 6 doses mensuelles initiales, soit FAR jusqu'à Q16S avec un schéma posologique personnalisé de traitement et d'extension (T&E) et 4 doses mensuelles initiales, soit AFL Q8S avec 5 doses mensuelles initiales jusqu'à la semaine 96. Cette analyse post hoc a comparé le délai jusqu'à l'absence d'OMD (épaisseur de la rétine dans le sous-champ central [ESC] < 325 µm) et jusqu'à l'absence de liquide intrarétinien (LIR) entre les patients traités par FAR et AFL.

Résultats Les gains visuels non inférieur obtenus à 1 an, se sont maintenus à 2 ans dans tous les bras de traitement. Près de 80% des patients FAR T&E ayant atteint un intervalle Q16S à la semaine 52 sont restés à Q16S sans réduction d'intervalle jusqu'à la fin de l'étude. À la semaine 96, 62% des patients du bras FAR T&E atteignaient un intervalle Q16S et 78% un intervalle Q12S ou plus. AFL Q8S a atteint 75% de patients sans OMD pour la première fois après un délai de 36 semaines, soit une médiane de 7 injections contre 20 semaines pour le FAR Q8S (rapport de risques [HR] 1,37; IC 95%: 1,20-1,56; P < 0,0001) et le FAR T&E (HR 1,47 [IC 95%: 1,29-1,68]; P < 0,0001), soit une médiane de 4 à 5 injections respectivement. Le délai pour atteindre 50% sans LIR était de 84 semaines pour AFL Q8S après une médiane de 12 injections vs 48 semaines pour FAR Q8S (HR 1,63 [IC 95%: 1,41-1,88]; P < 0,0001) et T&E (HR 1,67 [IC 95%: 1,45-1,93]; P < 0,0001) après une médiane de 9 et 7 injections respectivement.

Conclusion Ces données démontrent que la double inhibition de l'Ang-2/VEGF-A avec faricimab permet aux patients souffrant

d'OMD d'atteindre l'absence d'OMD/LIR plus rapidement et avec moins d'injections par rapport à aflibercept.

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P040 Anterior segment optical coherence tomography (AS-OCT) imaging following supraciliary miniject implantation in open-angle glaucoma

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Aim To evaluate the MINIject (MJ) position, cleft size, presence and size of supraciliary and suprachoroidal space (SC) on anterior segment optical coherence tomography (AS-OCT).

Methods The operated eyes were imaged post-operatively at 1 day, 1 week, 1 month, 3 months, and 6 months by AS-OCT (ANTERION, Heidelberg Engineering, Germany) according to a pre-defined protocol. Implant depth (ID) which determines the position of the MJ with reference to Schwalbe's line and implant position (IP) in the anterior chamber, were graded from 1 to 3. Cleft width (CW) and presence and extent of posterior suprachoroidal fluid (SCF) were graded from 0 to 4. The cleft size (CS) was further measured in clock hours and angle degrees.

Results MINIject implantation was performed successfully in 29 eyes with a mean baseline IOP of 23.1±8.4 mmHg and 15±2.0 at 6 months. Post-operatively, the mean grade for SCF was 2.9±0.9 on day 1 and 1.6±0.5 at 6 months, and 2.8±0.4 on day 1 and 3.3±0.9 at 6 months for CW. On average, 3.6±0.5 quadrants displayed SCF at 1 day versus 2.5±1.7 at 6 months.
For the ID with respect to Schwalbe's line , 25% were located anterior to it, 31.3% were found at the same level, and 43.8% were behind it. Furthermore, 18.2% of the implants were directed close to the cornea, 71.7% toward the anterior chamber, and 9.1% close to the iris. The implant's depth and position did not change during the 6 months follow-up. The average cleft size was 41.6±3 degrees (1.4 clock hours) on day 1 and decreased to 27.1±4.6 degrees (0.92 clock hours) at 6 months.

Conclusion AS-OCT is a non-invasive tool to image the supraciliary and suprachoroidal space after MINIject implantation. Establishing a grading system will allow to quantify and further understand the dynamics around SC devices and correlate them with IOP and surgical success.

Financial Interest: None: No commercial relationship.
Grants: None

P041 Analysis of Achromatopsia in Multimodal Diagnostics

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Background Achromatopsia (ACH) as a hereditary cone disease might manifest as a stationary and progressive disorder. The proper clinical and genetic diagnosis may allow an individual prognosis, accurate genetic counselling, and the optimal choice of low vision aids. The primary aim of the study was to determine the spectrum of ophthalmological diagnostics in characterising the phenotype related to the genetic condition of ACH.

Methods A retrospective analysis was performed in 8 patients from non-related families (5 ♀,3 ♂); age at diagnosis: 5-56 y, mean 18.13 (SD±18.22). Clinical phenotyping, supported by color vision test, fundus photography-, autofluorescence- (FAF), infra-red- (IR), OCT imaging and electroretinography provided information on the current status and the course of the disease over the years. In addition, genetic examinations were performed with ACH relevant testing (CNGA3, CNGB3, GNAT2 and PDE6C).

Results All patients suffered photophobia and reduced visual acuity (mean: 0.16 (SD ± 0.08). Nystagmus was identified in 7 from 8 subjects and in one patient a head-turn right helped to reduce the nystagmus amplitude. Colour vision testing confirmed complete achromatopsia in 7 out of 8 patients. Electrophysiology found severely reduced photopic- but also scotopic responses. Thinning and interruption of the inner segment ellipsoid (ISe) line within the macula but also FAF- and IR abnormalities in the fovea and/or parafovea were characteristic in all ACH patients.
Identification of pathogenic mutations in 6 patients helped to confirm the diagnosis of ACH (2 adults, 4 children; 3 ♀ and 3 ♂). Achromatopsia was linked to CNGA3- (2 ♀, 1 ♂) and CNGB3-variants (2 ♀, 2 ♂). The youngest patient (♀,10y) had 3 different CNGB3-variants on different alleles. One male (29y) had CNGA3- and CNGB3-variants. The oldest female (67y) showed CNGA3-, CNGB3- and a GUCY2D-variant. The destruction of her ISe line was significantly enlarged and represented a progressive phenotype in comparison to other ACH patients. In a patient (♂,29y) carrying 2 pathogenic CNGA3- and CNGB3-mutations, a severe progression of ISe discontinuity to coloboma-like macular atrophy was observed during the 12-year follow-up.

Conclusion Combining multimodal ophthalmological diagnostics and molecular genetics when evaluating patients with ACH helps in characterizing the disease and associated modifications, and is therefore strongly recommended for such patients.

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Grants: None

P042 Customized Corneal Endotamponade – A Sutureless Technique to Treat Sterile Perforating Corneal Ulcers

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Methods Single-center descriptive case at the Department of Ophthalmology at the University Hospital Zurich, Switzerland. Purpose: To present a customized sutureless ab-interno surgical approach for the treatment of sterile corneal perforations.

Results We present a 99-year old male who was referred to our emergency ambulance with a perforated corneal ulcer on the left eye. The patient had a history of retinal detachment in right eye. At first presentation, he showed a corrected visual acuity (VA) of 0.25 decimal in both eyes. He presented with a fibrotic ectropion of the left lower lid after multiple surgeries due to recurrent basal cell carcinomas. Lid closure was complete without trichiasis. We found a localized perforation (3x1mm) of a trophic corneal ulcer in the left eye. To close the defect an emergency amnion inlay-onlay-sandwich was performed in topical anesthesia. In a second step, the treatment options included (1) tectonic patch perforating keratoplasty, (2) complete perforating keratoplasty, (3) posterior endotamponade of the defect using a customized stromal lamellar graft, (4) laisser-faire scarring reaction. To keep postoperative astigmatism to a minimum, we decided for the posterior approach via endotamponade. The corneal lamella was trimmed to overlap the perforation site. No descemetorhexis or -peeling was done prior to transplantation. The lamella was implanted into the anterior chamber via a separate tunnel and positioned beneath the corneal perforation site with the aid of a 20% sulfur hexafluoride gas bubble. Postoperatively, the patient received topical ofloxacin and autologous serum eye drops and kept a supine position for 24 hours to keep the lamella in place. At the 2 month follow-up, the patient showed an uncorrected VA of 0.16 decimal (0.25 pin hole) on the left eye, a clear corneal patch and a fully re-epithelialized cornea.

Conclusion Corneal endotamponade is a sutureless alternative within the surgical armamentarium to treat localized sterile perforating corneal defects with the aim of minimal surgically induced astigmatism, facilitated postoperative care and a maximal VA rehabilitation. First described for this indication by Graue-Hernandez et al.[1] and Nahum et al.[2] our case shows that this sutureless technique also works with a minimally-invasive, customized trimmed corneal lamella without descemetorhexis. Surgical experience and good patient compliance are essential for a successful outcome with this technique.

Financial Interest: None: No commercial relationship
Grants: None

P043 Bilateral tunnel vision due to posterior microphtalmia

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Background Nanophtlamia in presence of normal anterior segment is described as posterior microphthalmos. It is associated with crowded discs, retinal folds, scleral effusion syndrome and pigmentary retinopathy.

History & Signs We report a case of a 52 year old patient who was referred with suspect of bilateral, severe glaucoma. BCVA was 0.3 in both eyes. The patient was known for nanophthalmos and underwent uneventful bilateral cataract surgery a few years before. Goldman applanation tonometry was never above 20mmHg but the patient was currently treated by Latanoprost drops in both eyes ones a day.

Therapy and Outcome Due to young age and unconventional low pressure for severe glaucomatous damage, the patient underwent extensive, multimodal imagery and electrophysiologic investigations. A full field ERG was performed revealing extinguished responses. Colour Fundus and Autofluorescence showed RPE degenerative alterations characterised by spiculae, RPE atrophy and hypoautofluorescence. OCT of the ONH and macula were performed revealing thickening of the retina, macular folds, atrophy of ellipsoid layer and a crowding of the disc.

Conclusion Posterior micro-ophtalmia is a rare form of posterior globe dysgenesis. Pigmentary retinal dystrophy can affect visual fields and thus mimic glaucoma. The clinician should recognise key ocular features related to this diagnostic. Multimodal imagery and electrophysiology investigations are useful to differentiate optic nerve from retinal dysfunction.
In fact, crowded discs and pathological visual fields may mislead to diagnose glaucoma. Further advise by genetician is necessary to determine underlying genetic changes.

Financial Interest: None: No commercial relationship
Grants: None

P044 Semi-automated correlation of Adaptive-Optics Trans-scleral Flood Illumination images of the retinal pigment epithelium with clinical images

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Purpose To develop a semi-automated method in Fiji (Image J) to register Adaptive-Optics Trans-scleral Flood Illumination (AO-TFI) mosaic on infrared (IR) fundus and correlate it with optical coherence tomography (OCT) b-scan, in order to identify features imaged at the retinal pigment epithelium (RPE) level in patients with central serous chorioretinopathy (CSCR).

Methods Included were 24 eyes (6 active CSCR, 15 resolved CSCR, 3 healthy contralateral) from 14 patients (age: 47±5 years; 11 men, 3 women). Multimodal retinal images, including blue-autofluorescence (BAF), IR fundus and OCT, axial length and refractive error measurements were collected at baseline. For each eye, 5 to 6 macular 5°x5° AO-TFI images were acquired with the retinal camera Cellularis (EarlySight, Geneva, Switzerland). After contrast and brightness adjustment, the presented method

consisted in two manual steps using Fiji plugins: mosaic stitching using mosaicJ/TurboReg, and mosaic linear transformations with translation, rotation, and one scale parameter using Bigwarp, and then in one automatic step using a custom plugin to register AO-TFI mosaic on IR fundus and correlate it with OCT b-scan stacks.

Results The method was successfully applied to the 124 images acquired, allowing the analysis of 24 AO-TFI mosaics. Each image was graded depending on changes observed on BAF fundus, IR fundus and AO-TFI images. 6% of the images were acquired in neurosensory detachment. Major RPE contrast changes on AO-TFI images revealed abnormalities where changes were observed in BAF and IR fundus (31% of the images) or in IR fundus only (18% of the images). Where no change was noticed on BAF and IR fundus, AO-TFI revealed normal mosaic (26% of the images) but also altered pattern of the RPE (16% of the images), such as hypo-reflective foci surrounded by hyper-reflective structures.

Conclusions AO-TFI summarizes RPE changes detected using standard multimodal imaging in severe cases and resolved CSCR. It also allowed to detect subclinical signs of RPE abnormalities not visible on BAF and IR fundus. A better understanding of these qualitative signs is needed to explore the role of this new imaging modality in the diagnosis and treatment of CSCR.

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P045 Intravitreal Aflibercept Injection 8 mg for Diabetic Macular Edema: 48-Week Results From the Phase 2/3 PHOTON Trial

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Purpose To evaluate the efficacy and safety of intravitreal aflibercept injection 8 mg versus 2 mg in patients with diabetic macular edema (DME).

Methods PHOTON (NCT04429503) is an ongoing, double-masked, 96-week, non-inferiority trial that randomized patients with DME to receive aflibercept 8 mg every 12 or 16 weeks after 3 monthly doses (8q12 [n=328] or 8q16 [n=163]) or aflibercept 2 mg every 8 weeks after 5 monthly doses (2q8; n=167). During Weeks 16-48, patients in the 8q12 or 8q16 arms received aflibercept 8 mg in shorter intervals if they met prespecified dose regimen modification criteria denoting disease activity. The primary endpoint was the mean change from baseline in best-corrected visual acuity (BCVA) at Week 48 (non-inferiority margin at 4 letters); the key secondary endpoint was the proportion of patients with ≥ 2-step improvement in Diabetic Retinopathy Severity Scale (DRSS) score at Week 48 (non-inferiority margin at 15%).

Results Mean BCVA change from baseline at Week 48 was +9.2, +8.8, and +7.9 letters with 2q8, 8q12, and 8q16, respectively (least squares mean difference: non-inferiority P < 0.0001 for 8q12 vs 2q8 [95% CI: -2.26, 1.13]; non-inferiority P=0.0031 for 8q16 vs 2q8 [95% CI: -3.27, 0.39]). The proportion of patients with ≥ 2-step improvement from baseline in DRSS score was 27%, 29%, and 20% with 2q8, 8q12, and 8q16, respectively (8q12 group met the non-inferiority margin of 15% [95% CI vs 2q8: -6.61, 10.57] whereas the 8q16 group did not [95% CI vs 2q8: -16.88, 1.84]). Through Week 48, 91% (8q12) and 89% (8q16) of patients maintained their original randomized dosing interval with no shortening, and in the 8-mg combined group, 93% of patients maintained a dosing interval ≥ 12 weeks. Safety outcomes for aflibercept 8 mg and 2 mg were similar through Week 48.

Conclusions Aflibercept 8 mg met the primary efficacy endpoint in DME, demonstrating non-inferiority in BCVA versus aflibercept 2 mg, with no new safety signals through 48 weeks. The vast majority of patients maintained extended ≥ 12-week dosing (93% in 8-mg combined) and 16-week dosing (89% in 8q16). Overall, aflibercept 8 mg provides greater therapeutic benefit, an expanded injection interval, and equivalent safety versus aflibercept 2 mg.

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P046 Intravitreal Aflibercept 8 mg Injection in Patients With Neovascular Age-Related Macular Degeneration: 48-Week Results From the Phase 3 PULSAR Trial

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Purpose To evaluate the efficacy and safety of intravitreal aflibercept 8 mg injection administered every 12 (8q12) or 16 weeks (8q16) versus aflibercept 2 mg every 8 weeks (2q8), each after three initial monthly injections in patients with treatment-naïve neovascular age-related macular degeneration (nAMD).

Methods PULSAR (NCT04423718) is an ongoing, double-masked, 96-week, Phase 3 trial: patients aged ≥50 years with nAMD were randomly assigned 1:1:1 to receive 8q12, 8q16, or 2q8. Primary endpoint was best-corrected visual acuity (BCVA) change from baseline at Week 48 (non-inferiority margin at 4 letters). The key secondary endpoint was proportion of patients with no intrareti-

nal/subretinal fluid (IRF/SRF) in the central subfield at Week 16 and other secondary endpoints included safety. Exploratory endpoints included the proportion of patients with ≥ 12-week and 16-week treatment intervals through Week 48.

Results Overall, 1009 patients (8q12: n=335; 8q16: n=338; 2q8: n=336) were evaluated (mean ± SD age, 74.5±8.4 years; 54.5% female). The primary endpoint was met with aflibercept 8 mg (8q12 vs 2q8: P=0.0009; 8q16 vs. 2q8: p=0.0011). Observed mean (± SD) change from baseline (± SD) in BCVA at Week 48 was +6.7±12.6 (baseline: 59.9±13.4), +6.2±11.7 (baseline: 60.0±12.4), and +7.6±12.2 letters (baseline: 58.9±14.0) with 8q12, 8q16, and 2q8, respectively. In the 8q12 group, 79% of patients (n=316) maintained 12-week treatment intervals and 77% of patients (n=312) in the 8q16 group maintained 16-week treatment intervals in Year 1. Overall, 83% of patients (n=628) receiving aflibercept 8 mg maintained ≥ 12-week treatment intervals in Year 1. Aflibercept 8 mg demonstrated superior drying versus aflibercept 2 mg at Week 16; 63% versus 52% of patients, respectively, had no IRF/SRF in the central subfield (p=0.0002). The safety of aflibercept 8 mg was similar to the safety profile of aflibercept 2 mg.

Conclusions Aflibercept 8 mg met the primary efficacy endpoint in nAMD, demonstrating non-inferiority in BCVA versus aflibercept 2 mg, with no new safety signals through 48 weeks. The vast majority of patients maintained extended ≥12-week dosing (83% in the 8-mg combined group) and 16-week dosing (77% in 8q16). Overall, aflibercept 8 mg provides greater therapeutic benefit, an expanded injection interval, and equivalent safety versus aflibercept 2 mg.

Financial Interest: Support from a for-profit company or competing company; Being a consultant of a company or competing company with business interest in the topic
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P047 Beneficial physicochemical effects of the combination of mallow extract and hyaluronic acid for treatment of dry eye disease

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Symptoms of dry eye disease (DED) include itching, foreign body sensation, redness and pain. The hyperosmolar environment due to loss of tear volume triggers the release of pro-inflammatory mediators and oxidative stress due to the release of oxygen radicals. First line treatment for mild to severe DED is mostly based on eye drops containing hyaluronic acid (HA) whose rheological profile provides ideal properties for lubrication of the corneal surface and stabilization of the tear film. However, treatment with HA alone neglects oxidative stress and the rheology of HA-based eye drops is often negatively influenced by concentration-dependent increase of viscosity and thus often leading to blurry vision.
Here we report about in vitro investigations exploring the potential of herbal Malva sylvestris L. flos (MS) extract to efficiently treat symptoms of DED including the reduction of oxidative stress. Furthermore, we show that a combination of HA and MS offers ideal physicochemical properties for tear film stabilization and advanced corneal surface lubrication compared to a common HA-only treatment. Notably, using HA-containing eye drops plus MS extract, surface tension was significantly reduced compared to a HA-only product by determination of the rheological profile with concentration-dependent effects of MS extract. Additionally, the MS extract and HA demonstrated potent mucoadhesion. In a cellular antioxidant assay MS showed antioxidant activity at a concentration of 300 µg/ml, indicating its antioxidant capacity and cellular uptake in vitro. In the lipid peroxidation assay the MS extract demonstrated significant concentration-dependent antioxidant activity in this specialised cell model.
These data suggest that the MS plant extract might exert an effective contribution to common HA treatments in DED therapy by its beneficial physicochemical properties. Further investigations are performed to assess modes of action and efficacy in vivo.

Financial Interest: Employment: Employment by a company or competing company with business interest in the topic
Grants: None

P048 An ethanolic extract of Euphrasia planta tota displayed effective anti-inflammatory properties

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Euphrasia officinalis is used as traditional herbal medicine in the treatment of irritated eyes for indications like allergic or non-infectious conjunctivitis and catarrhal inflammation accompanied by symptoms such as redness, swelling, pain and increased lacrimation. Detailed investigations of pharmaceutical mode of actions for Euphrasia are scarce. Here we present a variety of pathways, effectively targeted by the treatment of Euphrasia planta tota (EPT), demonstrating its anti-inflammatory properties in vitro.
Dry extracts from EPT were prepared according to V.3c HAB. Anti-oxidative effects were investigated by the Oxygen Radical Absorbance Capacity (ORAC) assay. Activation of nuclear factor kappa B (NF-kB) was analyzed in a reporter assay with the human Jurkat T-cell line. Cyclooxygenase-2 (COX-2) and 5-lipoxygenase (5-LO) was analyzed by enzyme inhibition assays. Alpha1A adrenergic receptor activity was tested in a cell-based cAMP assay.
We investigated EPT, showing its capability of protecting from tissue damage by reduction of oxidative radicals. EPT showed a concentration-dependent inhibition of NF-kB, translocation (IC50: 50.7 µg/ml), generally involved in regulation of immune response and inflammation. Furthermore, we demonstrated ef-

fective enzyme inhibition of the inflammatory mediators COX-2 (IC50: 7.6 µg/ml) and 5-LO (IC50: 27.9 µg/ml), which play a major role in pain and inflammation. We also revealed selective agonistic activity on the alpha1A adrenoceptor (EC50: 102.8µg/ml), which could support vasoconstriction by narrowing swollen blood vessels in the eyes to reduce eye redness.
Altogether, these mechanisms targeted by EPT are contributing to a general anti-inflammatory response and preventing oxidative damage, which ultimately reduces symptoms and promotes the healing process of the affected tissue in irritated eyes.
Additional studies are performed to further characterise the anti-inflammatory effects of EPT.

Financial Interest: Employment: Employment by a company or competing company with business interest in the topic
Grants: None

P049 The Progression of Retinal and Choroidal Degeneration in Pseudoxanthoma Elasticum: Design and Baseline Characteristics of the ProPXE Study

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Purpose To describe the design and current baseline results of the ProPXE study. The aim of the study is to longitudinally analyze morphologic and functional alterations due to an impaired Bruch's membrane in Pseudoxanthoma elasticum (PXE) and identify reliable and sensitive outcome measures for future interventional trials.

Methods In this prospective natural history study (clinicaltrials.gov, NCT05662085), patients with genetically and clinically confirmed PXE are recruited and will be examined at baseline (month 0), at a retest visit (week 8), after 12 months and 24 months from baseline. Assessments include demographic details regarding the age of onset, age at diagnosis and multisystemic involvement (Phenodex score). Functional assessments included best-corrected visual acuity (BCVA), contrast sensitivity function (CSF) and dark adaptometry (DA). DA was performed in the study eye at 8°, 15°, 30° and 46° using a Goldmann V stimulus after a 50% rod bleach. The time to reach a criterion threshold was evaluate as outcome (rod-intercept time [RIT]). Structural measures include wide-field color fundus photography and infrared reflectance imaging as well as optical coherence tomography (OCT) and OCT angiography.

Results To date, 12 eyes from 6 patients with PXE (median [IQR] age 53.1 years [44.6 – 60.6]) underwent the baseline exam. Median age of onset was 21 years [14 – 25], while the age of diagnosis was 33 years [25 – 43].
Median BCVA was 0.05 LogMAR [-0.04 – 0.31] for right eyes and -0.01 [-0.06 – 0.28] for left eyes. The median area under the logCSF curve was 15.6 [12.9 – 23.7] logCS*log(cpd) for right eyes and 23.2 [13.1 – 30.8] logCS*log(cpd) in left eyes.
DA was drastically prolonged in the study eyes. The longest RITs were recorded for the 8° locus (35.4 min [34.2 – 36.7]), while more peripheral loci showed milder slowing of DA with RITs of 21.27 min [17.6–27.5] at 15°, 19.0 min [14.7 –21.1] at 30° and 17.9 min [12.1 – 27.5] at 46°. Steady-state rod thresholds for loci at 15° and further peripheral were within normal limits.

Conclusions An impaired Bruch's membrane in PXE leads to marked slowing of dark adaptation. The kinetic dysfunction is pronounced centrally, in line with the characteristic centrifugal pattern of calcification, spreading from the optic nerve head towards the periphery throughout life. Therefore, dark adaptation is a promising candidate to monitor progression over two years in future interventional trials.

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P050 Validity and reliability of mobile OCT scanning in healthy subjects and patients with ocular diseases

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Objective Currently, the Huvitz HOCT-1 is the only OCT device that is potentially suitable for mobile applications due to its size and weight. Recently, Visotec announced a handheld OCT device for home use (SELFF-OCT). We evaluated the classification performance and agreement of structural findings of these two devices with the Heidelberg Spectralis OCT (Spectralis).

Methods Diagnostic two-gate design with healthy eyes and patient eyes with predominantly retinal disease. All participants underwent a complete eye examination followed by a scan with the three OCT devices. We calculated the sensitivity and specificity of the two scanners to detect scans with pathology. In addition, we evaluated the extent of agreement with respect to specific morphologic features of the scans acquired with the two scanners and the Spectralis. Finally, we evaluated the ease of use and user satisfaction with the SELFF-OCT.

Results Mean age of the patients (n=15, 30 eyes) was 85.3 years (SD 4.81), 97% were pseudophakic and had a mean decimal visual acuity of 0.57 (SD 0.33). Mean age of the healthy subjects (n=11, 22 eyes) was 32.8 years (SD 12.9), and the mean visual acuity was 1.00 (SD 0.06). Sensitivity of the SELFF OCT scanner to detect an abnormal OCT scan was 73.3% (95% CI: 54.1 to 87.7). Excluding 6 scans that could not be analyzed, Sensitivity was 91.7% (95% CI: 73.0 to 99.0). Specificity was 100.0% (97.5% CI: 85.2 to 100.0). Sensitivity of the Huvitz scanner to detect an abnormal OCT scan was 93.3% (95% CI: 77.9 to 99.2). In one eye, examination was not possible. Excluding this case, sensitivity was 96.6% (95% CI: 82.2 to 99.9). Specificity was 100.0% (97.5% CI: 85.2 to 100.0). In 27/52 scans (51.9%), the scan interpretation

was in complete agreement between the SELFF-OCT and Spectralis. In 10 scans, classification of specific pathologic features was not possible due to poor image quality. For the Huvitz, 48/52 scans (92.3%) were in complete agreement with the Spectralis. Participants found the SELFF-OCT easy to use and commented positively on the voice guidance during the measurement.

Conclusion Our results show that the Huvitz HOCT-1 is suitable for a mobile ophthalmic OCT practice. The SELFF-OCT prototype scanner showed promising results in detecting pathological scans. However, with its current specifications, its potential for detecting morphological features is limited. Due to its small size and ease of use, the SELFF-OCT has great potential for future mob

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P051 PRESERFLO Microshunt in High Myopia : A case report and review of the literature

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Purpose The PRESERFLO MicroShunt™ (Santen Inc., Japan) is a Minimal Implant Glaucoma Surgery (MIGS) manufactured to treat Primary Open Angle Glaucoma (POAG), with postoperative adverse effects inferior to conventional filtering surgeries. We describe here the case study of a 58-year-old woman who presented a bilateral high myopia with bilateral advanced PAOG and unreached target pressure under quadritherapy, who was successfully managed by PRESERFLO MicroShunt™ surgery.

Methods We articulate our observations with a literature review using PubMed, UpToDate and Embase search engines targeting relevant articles on Glaucoma, High myopia and PRESERFLO MicroShunt™ dating from 2010 to 2023.

Results At presentation, the patient had a BCVA of 1.0 RE and 0.8 LE with a mild nuclear sclerosis, a spherical equivalent of -7.50 RE and -7.75 LE with an IOP of 22 mmHg RLE under quadritherapy, and with bilateral severe visual field loss including scotomas within the central 5°. She complained of severe eye redness and discomfort, altering her capacity to work, with an objective moderate punctate keratitis RLE. The patient presented with systemic hypertension under medical treatment.
The patient was reluctant to undergo any surgery, reason why two SLT, performed 3 months apart, were first tried on the LE without any change on the IOP at 2 months. Considering the high risk of wipe out and the threat on central vision, a PRESERFLO MicroShunt™ surgery was proposed, with a targeted IOP in the mid-fifteens RLE.

The patient's eyes underwent PRESERFLO MicroShunt™ surgery with MMC 0.2mg/ml for 3 minutes without any complications. The LE required 2 consecutive needling with 1ml MMC 0.2mg/ml. At 24 months after surgery, the two eyes achieved success without the need of any additional medical therapy, with well-functioning conjunctival blebs.

Conclusion The PRESERFLO MicroShunt™ can safely and successfully reduce IOP in high myopic patients with advanced POAG and unreached target IOP on maximum tolerable medical therapy, without any complications and with rapid visual recovery. The PRESERFLO MicroShunt™ appears to be an effective alternative to the gold standard trabeculectomy in our high myopic patient. A comparative study between conventional filtering surgeries and this MIGS in highly myopic patients would confirm our observation.

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Grants: None

P052 Persistent placoid maculopathy: a case series

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Purpose to describe clinical, demographic, imaging characteristics and treatment outcome of patients with persistent placoid maculopathy (PPM).

Methods Retrospective case series of patients seen between 2013 and 2023. Inclusion criteria were based on angiographic characteristics: bilateral hypofluorescent central lesion at all time on ICG-angiography and hypofluorescent lesion with late staining on fluorescein angiography. Laboratory investigations were performed to exclude alternative diagnosis.

Results Three male patients (6 eyes) were included in this study (age 59, 69 and 72). Two patients presented a flu-like syndrome prior to visual symptoms. One patient presented concomitant headaches and attention disorders. Systemic investigations revealed an inflammatory syndrome in the two first cases and cerebral vasculitis in the third.

Median initial visual acuity was 0.6 (range 0.02-1.0). They all presented well-circumscribed macular whitish plaquelike lesions, not contiguous with the optic disc. One patient had bilateral papillitis and one patient had mild vitritis. All patients received systemic corticosteroids, one patient as a monotherapy and one received in addition azathioprine. The patient with cerebral vasculitis received also cyclophosphamide pulse therapy, followed by azathioprine. It was then replaced by an anti-TNF alpha and later by mycophenolate mofetil due to drug toxicity.

Patients were respectively followed for 2, 7 and 10 years. The first patient had a monophasic evolution but developed a macular atrophy with final BCVA of 0.125 and 0.2. The second patient presented a recurrence of placoid lesions complicated with CNV 6 years after the initial episode. His final visual acuity was 0.63

bilaterally. The last patient developed bilateral CNV and mild macular atrophy with final visual acuity of 0.8 and 1.0 respectively. CNV were treated with intravitreal injections (IVT); two eyes received 2 anti-VEGF IVT and the third eye received 48 anti-VEGF and one Ozurdex.

Conclusion PPM is a rare disease with features resembling to other inflammatory diseases (serpiginous choroiditis, acute posterior multifocal placoid pigment epitheliopathy, etc). Although recently described, prompt recognition through identification of imaging characteristics is essential as the clinical course is very different of the above cited pathologies. Prognosis is limited by development of CNV and macular atrophy.

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Grants: None

P053 Adaptive Optics Transscleral Flood Illumination in Age-Related Macular Degeneration

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Purpose Adaptive Optics Transscleral Flood Illumination (AO-TFI) is a recent imaging modality which has been developed in order to visualize de retinal pigment epithelium (RPE) in vivo at a cellular level. This study reports AO-TFI results in non-exudative age-related macular degeneration (AMD) patients.

Methods Prospective study including 31 eyes of 25 patients with non-neovascular AMD, clear optic media and good fixation, recruited for AO-TFI in association with conventional retinal imaging (spectral domain optical coherence tomography (OCT), fundus autofluorescence, color and infrared fundus imaging). Five zones of 5x5° were acquired with AO-TFI: one was foveal, four were localized in the macular quadrants at 3.8° eccentricity. The resulting AO-TFI images were adjusted for contrast and brightness and confronted with information from conventional multimodal imaging using a semi-automated correlative method developed in Fiji (Image J).

Results Prominent features on the AO-TFI were clearly related to OCT and the various pathologic changes of dry AMD.
Drusen showed as dark blot with a white ring. These were more numerous on AO-TFI than on OCT. The smaller they were, the more likely they were visible on AO-TFI only.
Numerous dark spots (smaller than for drusen and without white ring) correlated with severely disturbed RPE cells, whether appearing as irregular RPE line on OCT or as residual RPE cells around atrophic zones.
Reticular pseudodrusen could be identified as small white dots. However, due to their small size and the black-white background pattern in AO-TFI, they are difficult to identify.
Atrophic zones manifested on AO-TFI by increased visibility of the deep choroidal vessels and by an attenuation or disappearance of the black-white background pattern.
However, high contrast zones with a strong but irregular black-white mosaic corresponded to areas with disturbed but not yet atrophic RPE, associated with outer retinal atrophy on OCT, seen in eyes with reticular pseudodrusen only.
The typical cellular RPE pattern was seen and gradable in clinically normal areas only.

Conclusions AO-TFI is a new imaging modality revealing detailed complementary information about dry AMD. Due to its high resolution and sensitivity, it may be of particular interest for investigating early changes. In this study, AO-TFI was highly sensitive to reveal very small drusen, RPE changes and early changes towards atrophy.

Financial Interest: None: No commercial relationship
Grants: None

P054 Unusual masquerading infraorbital mass – First case report of human ocular Dirofilariasis found in an Ukrainian patient in Switzerland

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A 78-year-old Ukrainian woman immigrated to Switzerland presented with a rapid growing subcutaneous infraorbital mass. Surgical excision of the mass revealed a well-circumscribed, encapsulated tumor, adherent to the skin. The excision showed a soft tissue inflammation with parts of helminthozoonosis diagnosed as Dirofilaria repens.
The number of cases of human Dirofilariasis reported in the last 50 years has gradually increased. Dirofilaria repens is now endemic in many countries and is currently considered to be one of the fast spreading zoonoses in Central, Eastern and Northern Europe. The first empirical evidence of Swiss spreading of Dirofilaria infections was in a dog from southern Switzerland in 1998. Ours is the first case of human orbital Dirofilariasis reported in Switzerland. Our purpose is to inform the ophthalmologist to consider orbital dirofilariasis in the differential diagnosis of inflammatory masses of the orbit and to warn about the spread of this infection in Switzerland.

Financial Interest: None: No commercial relationship
Grants: None

P055 Spontaneous closure of a lamellar macular hole

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Purpose To describe the spontaneous closure of a lamellar macular hole documented with optical coherence tomography (OCT) over a follow-up time of six years.

Methods This case report investigates a rare case of spontaneous lamellar macular hole closure in a 79-year old patient between June 2016 and July 2022. Regular ophthalmic examination was

carried out at a primary eye care center (Augenklinik Luzerner Kantonsspital) in Lucerne. Basic ophthalmic examination data and multimodal imaging findings were collected and reviewed. Visual acuity was recorded in letters of the logarithm of the minimum angle of resolution (logMAR). Optical coherence tomography was performed.

Results A 79-year old patient initially presented with a visual acuity of 0.20 logMAR and lamellar macular hole in the left eye on ophthalmic examination in June 2016. Optical coherence tomography illustrated anatomical change of lamellar macular hole by retinal cell proliferation over the course of 18 months until the follow-up in December 2017. On the six year follow-up in July 2022 visual acuity improved to 0.10 logMAR with optical coherence tomography suggesting spontaneous closure of the lamellar macular hole and restoration of the outer retinal nerve fibre layer in the absence of any surgical intervention or alternative treatment.

Discussion Spontaneous closure of a lamellar macular hole is rare but has been previously described in literature. This case demonstrates the ability of proliferation of the retinal cell proliferation to the extent of full thickness closure of the lamellar hole without bridging by epiretinal membrane nor the remainder of intraretinal cystic cavities. Furthermore defects in the underlying ellipsoid layer associated with the lamellar macular hole were restored.

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P056 Nekrotisierende rhinocerebrale Mukormykose bei einer 65-jährigen Patientin

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Hintergrund Die rhinocerebrale Mucormykose ist eine seltene aber potenziell letale Erkrankung. Die Mortalitätsrate liegt zwischen 30-70%, in disseminierten Fällen bis zum 90%.
Jede Form der Immunsuppression, aber auch ein schlecht eingestellter Diabetes mellitus, prädisponieren für diese lebensbedrohliche Infektion.

Fallpräsentation Wir berichten über eine 65-jährigen Patientin mit akuter B-Zell-Leukämie, die in Aplasie an einer nekrotisierenden rhinocerebralen Mukormykose (Rhizoporus microsporus) des Sinus sphenoidalis und der posterioren Ethmoidalzellen erkrankte. Aufgrund einer zunehmenden Visusstörung, welche innerhalb von Stunden zum vollständigen Sehverlust rechts mit ausgeprägten RAPD und konfrontatorisch konzentrischen Gesichtsfeldausfall führte, erfolgte notfallmässig eine chirurgische Entlastung mit Ausräumung des Sinus sphenoidales. Nach weiteren chirurgischen Eingriffen und entsprechender antimykotischer Therapie stellte sich schlussendlich eine Stabilisierung der Infektion ohne letalen Ausgang ein.
Der rasch progrediente Funktionsverlust des rechten Sehnerven, sei es durch direkte Pilzinfiltration oder indirekt durch mykogene Gefässverschlüsse mit Ischämie, trugen zur frühen Diagnosestellung und einem positiven Gesamtverlauf der Patientin bei.

Zusammenfassung Rhinocerebrale Mucormykosen stellen bis heute trotz zielgerichteter antimykotischer Therapien und modernster mikrochirurgischer Operationstechniken eine relevante und potenziell lebensbedrohliche Erkrankung dar. Eine rechtzeitige Diagnosestellung ist entscheidend für die Reduktion der Morbidität und Mortalität. Ophthalmologische Symptome, die im Alltag verkannt werden können, verzögern die Einleitung von mitunter lebensrettenden zielgerichteten Therapien.

Financial Interest: None: No commercial relationship
Grants: None

P057 Suspected congenital rubella retinopathy: a spectrum of TORCH syndrome

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Purpose Congenital rubella infection has dramatically decreased since the introduction of routine vaccination of children. It can lead to intracranial calcifications, heart defects, psychomotor retardation, multiorgan disease, but is singular by the combination of an ocular disease and hearing loss.

Methods Case report of a 53-year-old woman followed at Jules-Gonin University Hospital from 2014 to 2023. She was first examined in 2014 when severe arterial hypertension secondary to a Berger's disease was discovered. Kidney transplant was performed in 2016 due to renal insufficiency. Bilateral fundus lesions were present with an asymmetrical distribution LE>RE. They were considered as a consequence of hypertensive retinopathy. She was referred to uveitis clinic in 2022 to rule out an infectious uveitis in the presence of asymmetric distribution of the lesions (predominant in the left eye). Complete ophthalmic examination and additional examinations, thorough research on her (and familial) medical background and on her pre- and postnatal history.

Results Her visual acuity was of (20/20) OU. Salt-and-pepper retinopathy was present with cookie-cutter atrophic regions, hypertrophic regions and hypopigmented areas in the extreme periphery in the LE and just scarce lesions were in the RE. A retinitis pigmentosa could be ruled out by Goldman automated perimetry, full-field ERG, OCTs and optos ultra-widefield auto fluorescence retinal imaging.
Past medical history revealed a bilateral sensorineural hearing loss, more pronounced on the left side, investigated when she was 6 years old. An ophthalmic examination by her ophthalmologist who noticed: visual acuity (20/20) OU, no lesions were noticed in the RE, but salt-and-pepper retinopathy was present in the LE. Family history highlighted her mother's rubella infection during the third month of the pregnancy (clinical diagnosis), treated with iv gammaglobulins. 54 years after presumed congenital infection, the patient tested negative for rubella infection. This could be explained by high doses of cyclophosphamide therapy before her kidney transplant and immunosuppression.

Conclusion The combination of congenital hearing loss and ophthalmologic disorders is highly suggestive of congenital rubella, which was confirmed by her pediatrician.

Financial Interest: None: No commercial relationship
Grants: None

P058 Sequential implantation of two Xen 45 Gel Stents in primary open-angle glaucoma: a pilot study

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Purpose To describe the outcomes of double implantation of Xen 45 Gel Stent (Xen) using an ab externo approach with closed conjunctiva.

Methods Retrospective single-centre case series of primary open-angle glaucoma patients with at least six months of follow-up after implantation of a second Xen in the same eye via ab externo technique without conjunctival opening.

Results Eight pseudophakic eyes of 8 patients were included. Intraocular pressure (IOP) dropped from 30±2.6 to 22.4±2.3 mmHg one month after the first Xen implant (p= 0.0092). The second Xen was implanted 30 ± 5 days after the first one, without significant intraoperative or postoperative complications. The IOP dropped to 16.1±2.7 mmHg six months following the second implant; however, 3 patients needed medical therapy to further reduce the IOP towards the target value.

Conclusion Sequential implantation of two Xen 45 Gel Stents using an ab externo approach with closed conjunctiva is a feasible procedure that showed a favorable safety profile and achieved a further reduction in IOP. Further studies are needed to evaluate the safety and efficacy of the procedure on a larger sample and with long-term follow-up.

Financial Interest: None: No commercial relationship
Grants: None

P059 High resolution OCT Elastography: clinical evaluation of normal and keratoconus corneas

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Purpose Optical coherence elastography (OCE) is a new technology that aims at detecting localized biomechanical changes using local tissue deformation and image capture via optical coherence tomography (OCT). Here, we asssesed the abitily of OCE based on ambient pressure modulation in differentiating normal and keratoconus corneas in vivo.

Setting University of Zurich, CABMM; OPTIC team, Computer Vision Laboratory, ETH Zurich; ELZA Institute, Dietikon/ Zurich, Switzerland

Methods Nine healthy individuals and 15 patients with progressive keratoconus (KC) underwent OCE measurements. Participants wore customized swimming goggles connected to an external pressure modulation unit. A total of 128 consecutive, repetitive B-scans were recorded during a ~2.6 s period. After 0.55 s, goggle pressure dropped by 10 mmHg. Resulting corneal deformation was quantified using a phase-based displacement and strain computation approach.

Results Overall corneal strain was positive in KC and negative in healthy corneas. At the end of the measurement, KC and healthy corneas had accumulated a posterior strain of 1.80±0.77‰ and -2.22±0.62‰ (p=0.001), respectively. Anterior strain showed no significant difference (p=0.62). Regarding the central cornea, anterior KC corneas tended to move forward further on average than healthy corneas (84±37nm versus -55±58nm, p=0.054).

Conclusions Optical coherence elastography is capable of clinically differentiating normal and keratoconic corneas by analyzing in-depth corneal strain. This technology localizes biomechanical changes in the cornea and may open new horizons for keratoconus diagnosis and monitoring ectasia progression.

Financial Interest: Inventor/Developer of the topic or a competing topic
Grants: Swiss National Science Foundation

P060 Induction of cross-links in corneal tissue by sunlight exposure and oral riboflavin administration in rabbits: the biomechanical impact using extensometry and high-resolution OCT elastography

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Purpose The range of sunlight extends from the UV-C spectrum to the infrared, including UV-A at 365 nm. Previous experiments have shown that ex vivo exposure of isolated porcine corneas soaked in riboflavin leads to a stiffening effect similar to the one observed in classic corneal cross-linking. Here, we assessed whether long-term administration of oral riboflavin, combined with extended exposure to natural sunlight may lead to a stiffening effect in the corneas of free-moving rabbits. Biomechanical changes were analyzed using OCT elastography and stress-strain extensometry.

Setting University of Zurich, CABMM; OPTIC team, Computer Vision Laboratory, ETH Zurich; ELZA Institute, Dietikon/ Zurich, Switzerland

Methods 16 Male New Zealand White rabbits were used. First, 4 rabbits received riboflavin orally and stromal riboflavin concentration was estimated. 12 additional rabbits were divided into two groups: the riboflavin group received vitamin B2 and sunlight

exposure while the control group was exposed to sunlight only. Similar to a recent in vivo case report, a total light dosage of 2700 klux*h was targeted. To account for the light energy absorbed by the stroma, the spectral absorbance of riboflavin and the emission spectrum of sunlight were considered. OCT elastography was conducted by applying a 5 mmHg change in ambient pressure. The cornea was analyzed using stress-strain extensometry.

Results After relaxation, control, and riboflavin conditions had a stress of 152±11.5kPa and 146±7.0kPa (p=0.57). The mean elastic modulus between 0.1 and 0.2 strain was 4.1 and 4.0 MPa (p=0.870). In elastography, the posterior half of the riboflavin cornea presented a higher strain amplitude compared to the control cornea (8.1‰ versus 3.8‰, p=0.03) suggesting a lower stiffness in the former.

Conclusions Oral riboflavin and reduced sunlight exposure in vivo did not significantly improve the corneal stiffness of rabbit corneas. Interestingly, animals that received riboflavin and were exposed to sunlight showed a trend toward softening in the posterior corneal stroma.

Financial Interest: None: No commercial relationship
Grants: None

P061 Evaluation of the visual outcome after implantation of the TECNIS Eyhance, a monofocal intraocular lens with enhanced intermediate function

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Purpose To evaluate the visual outcome, especially regarding intermediate and distance visual acuity, after cataract surgery with implantation of a TECNIS EyhanceTM IOL.

Methods Retrospective analysis of patients with cataract surgery and implantation of a TECNIS EyhanceTM IOL at the Pallas Kliniken in Olten. Monocular and binocular uncorrected and corrected distance (UDVA and CDVA), intermediate (UIVA and CIVA) and near visual acuity (UNVA and CNVA) were evaluated at the 1-month follow up after surgery.

Results A total of 88 eyes of 45 patients (mean age 70.5±8.5 years) were included in the analysis. Mean monocular UDVA, CDVA, UIVA, CIVA, UNVA, CNVA were 0.1±0.1, 0.0±0.05, 0.1±0.1, 0.0±0.05, 0.3±0.1, 0.3±0.04 logMar, respectively. A total of 21.1% and 50.9% of eyes achieved an UDVA and UIVA of ≥20/20 and a total of 88.2% and 94.7% achieved an UDVA and UIVA of ≥20/32, respectively. The binocular UDVA, UIVA and UNVA were 0.1±0.07, 0.0±0.06, 0.2±0.08 logMar, respectively.

Conclusion Implantation of the TECNIS EyhanceTM IOL achieved good clinical outcomes regarding UDVA and UIVA one month after implantation in a real-life setting.

Financial Interest: None: No commercial relationship
Grants: None

P062 Visual outcome and patient satisfaction with the Hoya Vivinex Impress IOL

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Purpose To evaluate visual outcomes and patient satisfaction after cataract surgery with implantation of the Hoya Vivinex Impress IOL, which is an IOL with partial pseudoaccommodation capability designed to improve intermediate and to some degree near vision.

Methods Patients, who underwent cataract surgery with implantation of a Hoya Vivinex Impress IOL, at the Pallas Klinik in Olten were included in this retrospective analysis. Preoperative biometry included measurement of axial length, anterior chamber depth, lens thickness, as well as anterior and posterior keratometry. Patients with anatomical pathologies, previous refractive surgery, astigmatism >0.75D, pupil diameter < 2.30 mm or reduced stereo vision were excluded. Monocular and binocular visual acuity were evaluated 5 weeks postoperatively: corrected distance (CDVA) and uncorrected distance (UDVA) visual acuity, corrected intermediate (CIVA) and uncorrected intermediate visual acuity (UIVA) as well as corrected near (CNVA) and uncorrected near visual acuity (UNVA). Patient satisfaction was assessed by direct questioning of the patients.

Results A total of 17 eyes of 9 patients with a mean age of 64.0±7.00 years were included. The mean preoperative corneal astigmatism was 0.45±0.37 Diopters. At the 5-week follow-up UDVA and CDVA were 0.2±0.12 and 0.0±0.04 logMar, respectively. UIVA was 0.0± 0.02 logMar, whereas CIVA was 0.1±0.14 logMar. UNVA and CNVA were 0.2±0.13 and 0.3± 0.09 logMar. Binocular UDVA, UIVA and UNVA were 0.1±0.05, 0.0±0.02 and 0.2±0.07 logMar, respectively. Only 22.2% of patients (2/9) reported that they always needed glasses to read in near distance. A further 44.4% (4/9) of patients only used a reading aid occasionally when they needed to read very small print. All patients reported that they don't need glasses to read in intermediate distance. Patient satisfaction was high, with all patients expressing satisfaction with the result achieved. No visual disturbances as halos or glare have been reported.

Conclusion Cataract surgery with Hoya Vivinex Impress IOL implantation revealed good distance, intermediate and near vision results as well as a high patient satisfaction..

Financial Interest: None: No commercial relationship
Grants: None

P063 Vitamin A Deficiency as a Cause of Progressive Visual Field Loss in a Patient with chronic Diarrhoea and Food Allergies: a Case Report on the Beneficial Effects of Vitamin A Supplementation

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Purpose To present a case of progressive visual field loss in a patient with chronic diarrhoea and suspected vitamin A deficiency, which improved with peroral vitamin A supplementation.

Methods An 81-year-old woman presented to the eye clinic complaining of visual disturbances in dim light for several months. Her visual acuity and intraocular pressure (IOP) were normal. Fundus examination showed signs of pallor of the temporal optic nerve, and an OCT scan revealed incipient retinal nerve fibre loss. Visual field examination showed progressive deterioration leading to tunnel vision in both eyes. After a detailed history, the patient was found to suffer from chronic diarrhoea and a number of food allergies, including an allergy to carrots. Vitamin A deficiency was suspected and the patient was prescribed peroral vitamin A supplements. The visual field was controlled during the course of treatment.

Results After starting peroral vitamin A supplementation, follow-up examinations with perimetry after 2 and 5 months showed a significant improvement in visual field.

Conclusion Vitamin A deficiency should be considered as a possible cause of progressive visual field loss in patients with chronic diarrhoea and polyallergies. Control of vitamin A levels and administration of supplements may lead to improvement of visual field defects.

Financial Interest: None: No commercial relationship
Grants: None

P064 Oxygen metabolic retinal function in chorioderemia compared to retinitis pigmentosa and controls

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Purpose The aim of our study was to measure the retinal oxygen metabolic function with retinal oximetry (RO) in patients with chorioderemia (CMH) and compare these findings with retinitis pigmentosa (RP) and controls.

Method In this prospective observational study (BASEC 2020-00122), RO measurements were performed on 16 CHM eyes compared to 40 eyes with RP and 20 control eyes (38 subjects, 10♀ 28♂) aged between 18 and 76 years (mean 42.5y). Main outcome parameters were the mean arterial (A-SO2; %), venular (V-SO2; %) oxygen saturation, their difference (A-V SO2; %), and the corresponding mean diameters of the peripapillary retinal arterioles (D-A; µm) and venules (D-V; µm) recorded with the oxygen saturation tool of the Retinal Vessel Analyser (RVA; IMEDOS Systems UG, Jena, Germany). Statistics were performed with linear mixed-effects models analysis calculated with SPSS®.

Results In general, eyes suffering from CHM differed significantly from both, RP and control eyes, when the retinal oxygen metabolic parameters were taken into account: While RP is known to show significantly higher A-SO2 and V-SO2 values when compared to controls, CHM showed opposite findings with significantly lower values when compared to RP and controls ($p < 0.001$). The A-V SO2, which represents the retinal oxygen metabolic consumption, showed significantly lower values compared to both, RP and controls ($p < 0.04$), indicating an even more pronounced impact of the oxygen metabolic function in CHM than in RP. The diameters of the retinal arterioles and venules (D-A and D-V) presented with significant narrowing in both, RP and CHM when compared to controls , however did not differ significantly between both disease groups.

Conclusion RO revealed differences in retinal oxygen metabolic function in CMH when compared to RP and controls by not only showing significantly different oxygen metabolic parameters when compared to controls but also opposing findings to those that were so far known for RP. Thus, by providing new insights into the retinal oxygen metabolic mechanisms RO helps to understand the underlying pathophysiology in CHM.

Financial Interest: Support from a for-profit company or competing company; Personal investment in a company or competing company (other than through a mutual or retirement fund); Employment by a company or competing company with business interest in the topic; Being a consultant of a company or competing company with business interest in the topic; Inventor/Developer of the topic or a competing topic; Travel Reimbursement, gifts or honoraria of over $5000 in the last twelve months by a company or competing company involved
Grants: None

P065 Management of an Accidental Corneal Wound Burn During Phacoemulsification. A case Report

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Purpose To report successful management of an accidental corneal wound burn that occurred during a phacoemulsification procedure.

Methods A 61-year-old patient was addressed at our hospital for a phacoemulsification procedure in both eyes. During the operation, at the beginning of the nucleus disassembly phase, a corneal thermal burn became apparent at the primary incision site as soon as the surgeon applied pressure to the phacoemulsification pedal. The surgeon immediately stopped the procedure, and checked the functionality of the phacoemulsification handpiece, and a blockage of the irrigation was noted. After replacing the phacoemulsification handpiece as well as the irrigation and aspiration line attachments connecting to the phacoemulsification machine and ensuring their proper function proceeded to perform the phacoemulsification procedure. At the end of the intervention, a persistent Seidel was visible at the primary incision site. The surgeon applied three continuous corneal sutures to the primary incision site to manage the wound leak and no leakage was visible.

Results One day after the intervention, the affected eye presented a BCVA of FC at 2 meters, the IOP was measured at 10 mm Hg, and during the clinical exam, the cornea was diffusely edematous with a superior opacification at the site of the corneal wound burn and a small leak was visible. A therapeutic contact lens was put in place and treatment with topical antibiotics, anti-inflammatory

medication, and hyperosmotic saline drops was initiated. A week after the operation the BCVA on the affected eye was 0.4 with a correction of +1.25 -6.00/ 180. On clinical examination an improvement of the corneal edema and a reduction of corneal opacification superiorly was visible and no leakage was visible. Three weeks after the operation the sutures were removed and a minimal wound leak was observed and a therapeutic contact lens was again put in place. Five weeks after the procedure the BCVA with a correction of +0.25 -1.75 /75 improved to 1.0 while the corneal opacification was significantly reduced and no wound leak was visible.

Conclusion Corneal wound burn is a very rare but potentially serious complication that may occur during the phacoemulsification procedure. Early recognition, close follow-up, and appropriate management are essential to minimize the risk of long-term consequences. Early suture removal even 3 weeks after the surgery can be connected with early vision recuperation and dec

Financial Interest: None: No commercial relationship.
Grants: None

P066 Long-term Follow-up of Optic Disc Pit Maculopathy Treated with Pars plana vitrectomy: A Case Report

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Purpose This report describes a case of optic disc pit maculopathy with macular detachment treated with Pars plana vitrectomy.

Methods and Observation Long-term Follow-up (11 years) of a 64 years old female patient with optic disc pit maculopathy with macular detachment treated with Pars plana vitrectomy. Optical coherence tomography (OCT) and Fluorescein angiography was used among others to assess the optic nerve and the macular area.

Results Pre-operative corrected visual acuity (CVA) on the eye with optic disc pit maculopathy was 0.05, the OCT shows macular detachment (5432µm x 5234 µm). Post-operative best CVA after 6 weeks was 0.20. Up to about 1 year was necessary for the macular detachment to resolve completely after Pars plana vitrectomy. After cataract-Surgery 2 years later the best CVA was 0.50. During Long-term Follow-up the area of previous macular detachment flattened and developed an increasing geographic atrophy corresponding to the previous area of macular detachment. Despite the scotoma resulting to the geographic atrophy the best CVA of 0.50 could be maintained.

Conclusion The Pars plana vitrectomy is a surgical treatment option for patients with optic disc pit maculopathy with macular detachment. This case report shows a Long-term Follow-up of Optic Disc Pit Maculopathy Treated with Pars plana vitrectomy developing a geographic atrophy.

Financial Interest: None: No commercial relationship
Grants: None

P067 Intraoperative Anterior Segment OCT-assisted Removal of Intracorneal Viscoelastic Substance in Iatrogenic Descemetolysis

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Purpose We present a case of iatrogenic Descemet membrane detachment caused by inadvertent injection of viscoelastic substance in the cornea during complicated cataract surgery.

Setting/Venue University Hospital of Basel, Eye Clinic

Methods We describe a case of a 68-year-old woman, who was admitted to our emergency clinic with traumatic Descemet membrane detachment after complicated cataract surgery elsewhere. Visual acuity was at the time of admission counting fingers. Anterior segment ocular coherence tomography (OCT) showed the presence of viscoelastic material between the corneal stroma and the underneath detached Descemet membrane. On the following day, viscoelastic material removal was performed with the aid of intraoperative OCT, together with SF6 gas 20% bubbling.

Results On follow-up examination four days postoperatively, we observed complete re-attachment of the Descemet membrane with significant visual improvement.

Conclusions Inadvertent intracorneal injection of viscoelastic material represents a rare complication in anterior segment surgery. The use of intraoperative anterior segment OCT can contribute enormously to the efficient and safe surgical management of this condition.

Financial Interest: None: No commercial relationship
Grants: None

P068 New-Onset Bilateral Corneal Opacity of Unknown Origin

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Purpose To present a case of bilateral corneal opacity of unknown origin, which turned out be Monoclonal Gammopathy of Undetermined Significance (MGUS).

Setting/Venue University Hospital of Basel, Eye Clinic

Methods We report a case of a 72-year-old patient, who presented in our clinic with bilateral decrease in visual acuity since almost 6 months. Best corrected visual acuity (BCVA) was 0,4 in the right eye and 0,5 in the left eye. On slit lamp examination we observed a central corneal opacification in both eyes. All other findings were normal. Due to the unremarkable medical history and on strong clinical suspicion of mgUS, blood test and serum protein electrophoresis were performed.

Results Laboratory test confirmed the presence of mgUS, leading us to the diagnosis of mgUS-keratopathy or paraproteinemic keratopathy. Superficial keratectomy and excimer-laser photother-

apeutic keratectomy were performed, providing satisfying postoperative outcomes with BCVA of 0,8.

Conclusions MGUS-keratopathy can be the first clinical manifestation of mgUS, causing severe visual loss. Approximately 1% of patients with mgUS develop annually blood cancer, such multiple myeloma and lymphoma or serious diseases, such as amyloidosis and Waldenstrom macroglobulinemia. Early diagnosis is of paramount importance, since it could be live-saving in certain cases.

Financial Interest: None: No commercial relationship.
Grants: None

P069 Comparison of Quality of Vision Between Two New Extended Depth-Of-Focus Intraocular Lenses: Isopure® Versus Vivity®

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Purpose To assess differences in photopic and mesopic contrast sensitivity, mesopic visual acuity, and photic phenomena after a same-day bilateral cataract surgery with implantation of Isopure® or Vivity®, combined with mini-monovision.

Methods This is a single-centre, double-blind, randomised, prospective study of 136 operated eyes of 68 patients, implanted bilaterally with Isopure® or Vivity®, two new non-diffractive presbyopia-correcting IOL. Mini-monovision (-0.5D) was used in all patients. Mesopic binocular uncorrected distance visual acuity (UDVA), contrast sensitivity in photopic and mesopic conditions (CSV-1000 test, Vector Vision) and subjective ratings of picture-referenced photic phenomena are assessed four to six months after surgery. Patient enrolment is now completed (68 patients, 136 eyes).

Results The current pre-programmed interim analysis is based on 4-to-6-month data from 31 patients, 62 eyes. Mesopic binocular uncorrected distance visual acuity (UDVA) was +0.14±0.09D and +0.25±0.13D for Isopure® and Vivity®, respectively (p = 0.01). Contrast sensitivity scores at a spatial frequency of 6 cycles per degree were slightly better in patients implanted with Isopure®: 1.94 log vs. 1.84 log under photopic, 1.58 log vs. 1.44 log under mesopic conditions, for Isopure® and Vivity® respectively. Overall 84%, 90% and 84% of patients reported only very mild or no symptoms at all of glare, halos and starburst, respectively, with no significant differences between the two study groups.

Conclusion According to this interim analysis, mesopic binocular UDVA and photopic as well as mesopic contrast vision are better with Isopure®. The rate of patient-reported photic phenomena was low and comparable between the two lenses.

Financial Interest: None: No commercial relationship
Grants: None

P070 ICROP3: Ein neuer Blick auf die Frühgeborenenretinopathie

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Background Die Aktualisierung der internationalen Klassifikation der Frühgeborenenretinopathie (Retinopathy of Prematurity, ROP; International Classification of ROP, ICROP3 2021) berücksichtigt neue Aspekte in der Entwicklung, dem Verlauf und der Behandlung der potentiell zur Erblindung führenden Erkrankung des frühgeborenen Kindes.

Methodik Es werden die bisherigen und neuen Klassifikationen anhand aktueller eigener Fallbeispiele und Behandlungsstrategien dargelegt und diskutiert und ein entsprechender Dokumentationsbogen vorgelegt.

Ergebnisse In der ICROP3 werden folgende Modifikationen empfohlen: (1) die posteriore Zone II wird definiert vom Rand der Zone I/II bis zu 2 Papillendurchmesser in Zone II, (2) die Definition eines ‚notches' / Einziehung in Zone I wird berücksichtigt, (3) die plus / präplus definition erfolgt neu in Zone I, (3) die aggressive ROP wird definiert (formals aggressiv posteriore ROP), (4) das Stadium 5 wird unterteilt je nach Ausprägung, (5) es werden Regression/ Reaktivierung/ langfristiger Verlauf diskutiert.

Schlussfolgerung In der Schweiz liegt eine geringe Inzidenz der ROP vor, um so bedeutender ist das Wissen um diese seltene, schwere, jedoch behandelbare Erkrankung bei entsprechendem sorgfältigen Screening und follow up.

Financial Interest: None: No commercial relationship
Grants: None

P071 (Withdrawn)

P072 Retinal vessel flicker light responsitiviness and its relation to analysis protocols, static and metabolic data in helathy subjects

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Purpose To assess agreement between different analysis protocols for determination of retinal vessel dilation response to flicker light (FL) and its relation to static- and metabolic parameters of retinal vessels in healthy subjects.

Methods 24 right eyes of 24 healthy controls (mean age: 35.87 ±SD 14.20 years), who underwent dynamic- and static retinal diameter- and oxygen saturation measurements on Retinal Vessel Analyser were included (RVA, Imedos, Jena, Germany). Using repeated video analyses, responses to FL were measured within the superior-temporal (ST) area. Taking the length and the location into account, the FL data were evaluated in 3 groups: length < 1 optic disc (OD) (group 1); length > 1OD: close to the OD (group 2) and within the VesselMap area (group 3).

For comparability, the static- (CRA, CRV, AVR) and oxygen saturation parameters (A-V SO2, V-SO2, A-V SO2) were calculated in the ST peripapillary area using the VesselMap tool of RVA and were evaluated in relation to the corresponding dynamic ones (group 3).

Results In all groups, vascular FL response of arteries was less pronounced compared to venules (p=0.023). Event thought, FL responses (mean ±SD: FL-A; FL-V, %) in group 1 to be more pronounced (mean 3.36 ±2.31; 4.42 ±1.69) compared to those in groups 2 (mean: 2.97 ±2.40; 4.08 ±1.55) and 3 (2.84 ±2.29; 4.21± 2.03) they did not reach statistically significant values (p>0.44). The mean flicker response of venules showed negative correlations to the corresponding static- and metabolic parameters: CRV (r= -0.489; p=0.015) and V-SO2 (r= -0.375; p=0.001).

Conclusion Our study confirms, that flicker light response, even showing slight difference about its length and location, allows agreeable measurements. However, even in healthy subjects, the effect of the static- and metabolic retinal vessel measurements on retinal venular flicker response should be taken in consideration.

Financial Interest: None: No commercial relationship
Grants: None

P073 A case of congenital stationary night blindness in a 7-month-old girl: emphasis on electroretinography

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Background Congenital stationary night blindness (CSNB) is a rare, non-progressive retinal disorder characterized by impaired night vision. Full-field electroretinography (full-field ERG) is a useful tool in diagnosing CSNB and helps in distinguishing from other retinal dystrophies or clinical entities.

History and signs A term born, healthy 7-month-old girl was referred for suspected divergent strabismus of the right eye. Her family history revealed a myopic refractive error of the mother, and no ophthalmologic pathology of her siblings. Clinical examination revealed reduced visual acuity, myopia, divergent strabismus, left sided nystagmus and a pale fundus, of both eyes. The follow-up assessments showed progression of her myopia (spherical equivalent: -3.75d (age: 7 months) to -7.25d (age: 11 months)). Electrophysiology revealed severely attenuated photopic responses and a scotopic-negative response configuration. In addition, an absence of on-responses on on-/off ERG and severely attenuated s-cone responses were documented.

Discussion In this small girl, we were able to confirm a post-photoreseptoral functional alteration as part of congenital stationary night blindness. Applying additional full-field ERG stimuli (on-/off ERG and S-cone ERG) and supported by the clinical presentation (progressive myopia, nystagmus, strabismus and pale fundus), the diagnosis of incomplete CSNB, Schubert-Bornschein form, could be stayed. Thus, the electroretinoghtaphy could help us to recognise that no further neuro-imaging procedures were necessitated.

Financial Interest: None: No commercial relationship. **Grants:** None

P074 Autologous serum eye drops as an adjunct treatment after autologous limbal stem cell transplant

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Purpose To describe a case of severe chemical injury with the need of limbal stem cell transplant (LSCT) in combination with autologous serum eye drops to establish a stable ocular surface before performing penetrating keratoplasty (PK).

Methods Observational case Report

Results A 55-year-old man presented with severe liquid mortar chemical injury (Dua classification grade VI) on his left eye. After rinsing the eyes according to established protocol as well as surgical removal of the remaining mortar in the fornices, an amniotic tissue transplant was performed the day after the injury as a result of the extent of the chemical burn. Due to the clinical partial limbal stem cell deficiency, a persistent corneal erosion induced a severe stromal scarring and reduction of best corrected visual acuity (BCVA) of 0.01 (Snellen Visus), which impeded us from performing a penetrating keratoplasty (PK). Ten months after the injury, an autologous ex vivo LSCT was therefore performed, but five months after LSCT, epithelial defect reoccurred and the autologous LSCT was pronounced as failed. After initiating a conservative topical eyedrop therapy consisting of autologous plasma eyedrops hourly, the ocular surface was stabilized during the following four months. Nine months following LSCT, a PK could be performed. The corneal transplant improved BCVA to 0.25 and has not been rejected until now, two years after performing PK.

Conclusion We presented a case of severe, work-related chemical injury with liquid mortar resulting in partial limbal stem cell deficiency with persistent epithelial defect. The consecutive LSCT had to be supported by adjunct autologous serum eye drops in order to stabilize the ocular surface.

Financial Interest: None: No commercial relationship
Grants: None

P075 Criteria to ensure Retest Reliability of the Open-Source ML Algorithm Automorph: Automated Retinal Vascular Morphology Quantification

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Purpose Automated feature extraction of fundus photography could become an easily accessible tool to extract and interpret biomarkers for ocular and systemic disease. Our aim was to examine the retest-reliability of the open-source Automorph algorithm on macula-centered fundus photography images. We propose a priori verifiable quality standards for images based on retest quality in our dataset.

Methods Following informed consent, fundus photography was performed at two sessions within 14 days in both eyes and on a total of 28 healthy subjects (mean age: 54.8 years [range 45-64]) with no ocular disease using a Zeiss Visucam Pro NM camera (Carl Zeiss Meditec AG) in miosis. Using Automorph, we extracted 74 variables from each fundus image, and evaluated retest-reliability for each variable by calculating their Intraclass Correlation Coefficient (ICC) and R-squared metric. Using fractal dimension as a surrogate marker for image quality, we assessed the impact of differences in image quality on retest reliability.

Results A total of 21 eyes had to be excluded due to insufficient image quality as graded by the Automorph algorithm. Therefore, a total of 35 image pairs (70 fundus images) remained for analysis. The analyzed images had a mean retest difference of 12% (range: 3%-54%). The five variables with the best retest-reliability, in descending order, according to R-squared, were: Disc- and Cup-Width, Disc- and Cup-Height, and CDR-Horizontal. The R-squared metric had a range from 0.133 to 0.974, and the ICC had a range from 0.314 to 0.987. We found that a fractal dimension difference above 2.5% between test and retest was indicative of poor performance on median retest quality (above 4%). Using a binomial test, we found that variables examining Zone C of the fundus had better retest-reliability than those of Zone B ($p < 0.001$), which, in turn, had better retest-reliability than those variables examining the entire fundus photo ($p < 0.001$).

Conclusion Our results draw attention to the limited suitability of some of the derived variables as potential oculomics biomarkers using Automorph. A low difference in fractal dimension is necessary but not sufficient to guarantee good retest reliability results. The search for criteria on sufficient image quality warrants further studies.

Financial Interest: Being a consultant of a company or competing company with business interest in the topic
Grants: None

P076 Electrodiagnostic biomarkers in paraneoplastic retinopathy

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Background Paraneoplastic retinopathy (PNR) is a rapid-onset photoreceptor and post-photoreceptor respectively dysfunction triggered by a cross-reaction between antigens expressed by the underlying tumor and retinal proteins. The present study aims to determine the electrodiagnostic biomarkers that support the diagnosis of PNR and evaluate the effect of treatment.

Methods A retrospective observational case-controlled study included 11 patients diagnosed with PNR (2 with pre-existing retinitis pigmentosa). Clinical ophthalmologic data of all patients were recorded at diagnosis and during follow-up. The presence of PNR was assessed by clinical examination, supported by color fundus photography, fundus autofluorescence imaging, optical coherence tomography, retinal vessel oximetry, panel D-15, full-field electroretinogram (ERG), on-/off ERG, S-cone ERG and multifocal ERG (mfERG). The relationships between the clinical symptomatology, systemic disease activity and the effect of therapy were evaluated.

Results All isolated PNR patients presented with subjective symptoms of newly reported central vision or visual field deterioration. Posterior segment findings showed a severe patchy-like retinal atrophy, attenuation of the retinal vessels, and a pale optic disc. Optical coherence tomography (OCT) imaging revealed a discontinued inner segment/ outer segment (IS/OS) junction line, multiple hyperreflective foci. Retinal vessel oxygen saturation was increased. Multifocal ERG revealed centrally and paracentrally reduced amplitudes and full-field ERG severely attenuated scotopic-, photopic-, on-/off- and S-cone responces. Panel D-15 desaturated color test revealed deterioration in the color vision discrimination of the tritan-tetratan axis. Two of the patients underwent rituximab therapy with no further progression and even recovery of clinical and electrodiagnostic findings.

Conclusion Careful evaluation for electrodiagnostic biomarkers in suspected PNR may help promptly to implement therapeutic strategies in order to inhibit the cross-reaction against retinal proteins, thereby improving visual prognosis.

Financial Interest: None: No commercial relationship
Grants: None

P077 Hunter Syndrome and Bull's Eye Maculopathy – a Case Report

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Background To report retinal findings in a patient with mucopolysaccharidosis type 2 (MPS2, Hunter syndrome).

History and signs A 31-year-old man was referred to a tertiary hospital in Switzerland for a routine eye examination in the context of his underlying condition. The patient was ophthalmologically asymptomatic and presented with a bilateral, corrected visual acuity (CVA) of 1.0 decimal. Fundoscopic examination and retinal imaging with optical coherence tomography (OCT) and fundus autofluorescence revealed a bilateral bull's eye maculopathy with paracentral outer retina and retinal pigment epithelium (RPE) alterations. The anatomical findings correlated with visual field and multifocal electroretinography (mf-ERG) results. Full field ERG (ff-ERG) showed reduced responses.

Therapy and Outcome Since there is currently no therapy for bull's eye maculopathy, we adopted an active surveillance approach. We scheduled a follow-up consultation after eight months, where the patient remained asymptomatic and showed stable retinal findings with no detectable progress of the outer retinal and RPE alterations.

Discussion Bull's eye maculopathy is a rare condition, best known as a toxic adverse reaction following hydroxychloroquine use.

Patients with Hunter syndrome undergoing enzyme replacement therapy may present with bull's eye maculopathy. It is unclear whether the findings occur in the natural history of the lysosomal storage disease or are due to the mandatory enzyme replacement therapy. Future observational studies and a pathohistological chorioretinal examination after biopsy or postmortem may reveal the underlying cause.

Financial Interest: None: No commercial relationship
Grants: None

P078 Monoclonal Gammopathy of Ocular Significance – a Case Report

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Background To report a case of paraproteinemic keratopathy (PPK) with changing clinical presentation at different time intervals.

History and signs A 59-year-old man with smoldering multiple myeloma (SMM) was referred because of bilateral corneal opacities that had been refractory to treatment for eight years. Topical treatment by the ophthalmologist in private practice included antibiotics, corticosteroid-containing eye drops, and lubrication. With an initial corrected visual acuity (CVA) of 1.0 decimal on the right eye (OD) and 0.8 on the left one (OS), we found bilateral, patchy, gray-white, anterior and posterior stromal crystalline corneal opacities with local endothelial protrusion in the absence of conjunctival injection or intraocular inflammation.

Therapy and Outcome Considering the corneal findings as a non-infectious crystalline keratopathy in an asymptomatic patient, we opted for an active surveillance approach. At the regular four-monthly follow-ups, we noted a change in clinical presentation, with complete regression of the crystalline lesions in certain areas and appearance in others. The SMM, which was followed by the Department of Medical Oncology and Haematology, showed a stable course over time.

Discussion PPK is difficult to diagnose and requires a multidisciplinary patient management. Hemato-oncologists should consider ophthalmological evaluation in patients diagnosed with plasma cell dyscrasias as the true disease prevalence may be underestimated. In ophthalmologically severely symptomatic patients, systemic plasma cell-directed therapy should be evaluated.

Financial Interest: None: No commercial relationship
Grants: None

P079 ANCA-associated vasculitis suspect with eye involvement including choroidal effusion and posterior scleritis: A case Report

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Purpose To report a rare case of ANCA-associated vasculitis suspect with eye involvement, including choroidal effusion and posterior scleritis.

Methods Retrospective case report conducted at the Department of Ophthalmology of the University Hospital Zurich, University Zurich, Switzerland.

Results A 73-year-old female was referred for suspected exudative scleritis and elevated intraocular pressure in the left eye. The patient presented with a history of a recent pneumonia and gradually decreasing vision one the left, accompanied by swelling around the eye and headaches. The patient had an extensive medical history including chronic renal failure, monoclonal gammopathy of unclear significance, arterial hypertension, and previous atypical miller-fisher syndrome.
Clinical examination showed a visual acuity (VA, decimal) of 0.8 in the right and hand movement in the left eye, and intraocular pressures (IOP) of 17 and 39 mmHg in the right and left eye respectively. Anterior segment was unremarkable on the right eye, but there was angle closure with shallow anterior chamber on the left. Fundoscopy revealed bilateral circular choroidal detachments, more extensive on the left with center-involving subretinal fluid. After a prompt left iridotomy as well as systemic and topical therapy, IOP on the left eye could be lowered to normal values. Sonography showed bilateral choroidal thickening as well as a t-sign.
Main differential diagnosis was autoimmune/infectious scleritis, Vogt-Koyanagi-Harada (VKH) disease, or paraneoplastic origin. Extensive clinical, laboratory, and imaging work-up excluded VKH, but showed evidence of ANCA-associated vasculitis.
Systemic and local steroid therapy, as well as steroid-sparing immunomodulatory therapy, was started, and within 3 weeks, the choroidal effusions resolved completely with extensive residual subretinal deposits in both eyes and atrophy of the outer retina centrally on the left eye. VA recovered to 1.0 on the right, but stayed hand movements on the left because of retinal atrophy.

Conclusion Our case shows a rare manifestation of scleritis with extensive choroidal effusion with significant residual retinal changes despite good response to therapy.

Financial Interest: None: No commercial relationship
Grants: None

P080 Assessment of central visual function by two-colour scotopic fundus microperimetry in patients with malattia leventinese

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Purpose To evaluate central retinal sensitivity in patients with EFEMP1 associated macular dystrophy (malattia leventinese, ML) using mesopic and two-colour scotopic microperimetry and to correlate function with morphology as assessed by multimodal imaging.

Methods Subjects with confirmed EFEMP1 R345W variant and varying disease stages were assessed. Mesopic and two-colour scotopic MAIA microperimetry were performed. Mesopic testing included a 68 points grid using a white Goldmann size III stimulus, while scotopic tests were done with blue and red stimuli on a 37 points grid. Mean retinal sensitivity (MRS), and cone- and

rod-mediated sensitivity (CMS; RMS) for the central 10° degrees were obtained. Multi-modal imaging included SDOCT and fundus autofluorescence. Mean drusen volume (MDV) and mean geographic atrophy (MGA) size were calculated. All subjects underwent a comprehensive ophthalmic exam, including assessment of best-corrected visual acuity.

Results Thirteen patients (8 females, 5 males) with a mean age of 57 ± 15 years were included. In mild severity cases (mean BCVA 75 ± 55 letters ETDRS) MDV was 1.8 ±0.6 mm2, while mgA was 0.9 ±0.4 mm2. Among these patients MRS was 14.6 ±10.9 dB, while CMS and RMS were 7.1±9.0 and 5.7±8.9 dB, respectively. Absolute scotomas were observed in atrophic areas, while relative scotomas were proportionally related to the MDV. Patients with advanced disease (mean BCVA 49 ± 51 letters) showed an MDV of 4.9 ±1.1 mm2 and mgA of 77.9 ±13.2 mm2. Junctional zone microperimetry revealed significantly reduced mesopic and scotopic retinal sensitivities (MRS=6.1 ±4.9 dB, CMS=3.0 ±3.2 dB; RMS=3.4 ±2.6 dB).

Conclusion Two-color scotopic microperimetry showed an early loss of rod and cone function preceding the onset of atrophy and being proportional to drusen volume. Rod function appears to be affected to a greater extent and at an earlier stage than cone function. Scotopic microperimetry allows detailed assessment of functional impairment in patients with malattia leventinese, and should be considered as surrogate clinical marker in future clinical trials.

Financial Interest: None: No commercial relationship.
Grants: None

P081 Bilateral Diffuse External Retinitis Following Cataract Surgery: A Case Report

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Purpose To report a case of rapidly progressive bilateral acute diffuse retinitis that developed four and three weeks after bilateral refractive cataract surgery in a mid-age patient.

Methods This report is based on a case study.

Results A 55-year-old male patient with no significant medical history developed rapid bilateral vision loss, four and three weeks after bilateral refractive cataract surgery, which were performed nine days apart in the right and left eye, respectively. During the surgeries, the patient was administered intracameral anesthesia with xylocaine and cefuroxime antibiotic prophylaxis (Aprokam®). Four days after the onset of symptoms, the patient was examined in our center and presented with a visual acuity of 0.32 in the right eye, hand movements in the left eye, and a tubular visual field bilaterally. The biomicroscopy showed 1+ of anterior chamber cells, 1+ Tyndall and 0.5+ of anterior vitreous cells in both eyes. The fundoscopy showed a predominantly posterior diffuse retinal whitening with a perivascular pattern, which was highlighted on the autofluorescence frames. The OCT showed a perifoveal outer retinal disorganization/inflammation, with outer retinal atrophy further in the periphery. The fluorescein/ICG angiography showed a mild perfusion delay and no vasculitis. The full-field ERG showed a loss of amplitude of the B wave in both eyes. The patient was treated with 4 intravenous boli of methylprednisolone, twice 250mg, then twice 500 mg over 4 consecutive days. Oral prednisone (60mg/day) was then prescribed, with a gradual tapering. Despite the therapy, serial OCTs showed a rapid disappearance of the foveal IS/OS junction layer, followed by a complete outer retinal atrophy, resulting in bilateral absence of light perception.
A neoplasia was ruled out by extensive sytemic medical examination (thoracoabdominal CT and PET scans) and the anti-retinal antigens tested were negative (anti-recoverin and anti-MOG).

Conclusion In the absence of a neoplasia, which could have suggested a cancer-associated retinopathy, we raised the possibility of a toxic posterior segment syndrome, which could have been caused by the intracameral anesthesia or prophylactic antibiotherapy. The blood-retina barrier rupture induced by the surgery could also be at the origin of an autoimmune reaction towards retinal antigens. Repeated systemic examinations will be performed to rule out a cancerous tumor.

Financial Interest: None: No commercial relationship
Grants: None

P082 Bilateral Spontaneous Suprachoroidal Haemorrhage induced by Valsalva Manoeuvre: A Challenging Diagnosis

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Purpose The aim of this report is to describe the characteristics of a patient presenting a bilateral spontaneous suprachoroidal haemorrhage induced by Valsalva manoeuvre and the procedures needed to rule out the differential diagnosis.

Background Spontaneous suprachoroidal haemorrhage (SSCH) following a Valsalva manoeuvre, in eyes with no history of ocular surgery or trauma, is a rare condition which has been associated with advanced age, cardiovascular disease and anticoagulation. In the literature, SSCH is usually described as monolateral. Most cases present a good visual outcome without any interventions.

Case description We describe the case of a 75-year-old Caucasian female patient, who was referred to our clinic with subjective blurred vision to her right eye since the day before, following a Valsalva manoeuvre because of intense vomiting due to alcohol consumption. The patient, with no history of ocular pathologies, was known for bilateral cataract surgery 5 years before. General history revealed the presence of treated hypertension. Best-corrected visual acuity was 1.0 decimals for both eyes. Anterior segment examination was unremarkable, while dilated fundoscopy revealed a bilateral posterior red-brown choroidal mass in the upper-temporal quadrant, not involving the macular region. At the B-scan ultrasonography those masses appeared to be isoechogenic to the choroid structure, with a thickness of 3.5 mm for the

right eye and 1.5 mm for the left eye. The lesions were not hyperfluorescent on fluorescein or indocyanine green angiography. Thanks to spectral-domain optical coherence tomography (SD-OCT) scans the lesions were located in the suprachoroidal space. The clinical presentation, the aspect of the B-scan ultrasonography and SD-OCT, as well as the absence of any identifiable systemic aetiology lay for the diagnosis of Valsalva-induced bilateral SSCH. A strict follow-up was then initiated.

Conclusion This case report shows a rare finding of bilateral SSCH induced by Valsalva manoeuvre. This atypical presentation has an important clinical relevance in order to acknowledge clinicians of the possibility of these findings, with the goal to prevent erroneous diagnosis and unnecessary treatments.

Financial Interest: None: No commercial relationship
Grants: None

P083 Comparison of corneal measurements in keratoconus eyes with the Eyestar device to the Pentacam and IOL-Master

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Purpose To assess the feasibility and reliability of biometric measurements taken with the Eyestar 900 device in keratoconus eyes in comparison with those taken with the Pentacam HR and IOLMaster 700.

Methods Seventy-five eyes of 75 patients with keratoconus were included. The central corneal thickness (CCT), thinnest point of corneal thickness (TCT), axial length (AL), flat (K1) and steep (K2) anterior and posterior (Kp1, Kp2) keratometry, maximal keratometry (KMax) and anterior chamber depth (ACD) were compared between the Eyestar 900, Pentacam HR and IOLMaster 700. Reliability parameters such as the coefficient of variation (CoV) and intraclass correlation coefficient (ICC) were calculated. Pearson's r was determined to assess the correlation between devices.

Results A high repeatability (CoV < 1%) and perfect intraclass correlation (ICC > 0.9)was found for all devices, led by AL, TCT, K1 and K2 (CoV 0.01–0.36%; ICC 0.994–1.00). The largest correlation between devices was found for AL (Eyestar vs. IOLMaster, r= 1.0), K1 (Eyestar vs. IOLMaster, r= 0.997) and ACD (Eyestar vs. IOLMaster, r= 0.995; Pentacam vs. IOLMaster, r= 0.987; Eyestar vs. Pentacam, r= 0.983), but there were significant differences in measured values between devices (p< 0.001), whereas the correlation was only slightly lower (r= 0.947 to 0.994) for KMax, CCT, TCT, K2, Kp1 and Kp2.

Conclusion Keratometric and axial length measurements with the Eyestar 900 were feasible and revealed a high repeatability and a good correlation to the other devices in eyes with keratoconus.

Financial Interest: None: No commercial relationship
Grants: Stiftung Haag Streit

P084 Ergebnisse der Glaskörperlyse mittels YAG-Laser

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In der Bevölkerung sind Mouches volantes verbreitet (in über 76% der Bevölkerung) und können für die Betroffenen sehr störend sein. Die Resultate der Glaskörperlyse mittels Ellex Ultra Q YAG -Laser werden seit 2014 retrospektiv vorgestellt.
386 Behandlungen wurden an 173 Patienten durchgeführt (148x einseitig, 25x beidseitig). Dabei wurden die Glaskörpertrübungen in folgende Kategorien eingeteilt: Kat. 1 mit kleinen Mouches volantes (28x), Kat. 2 mit grossen Mouches volantes und grossen weissen Ringen (101x) sowie Kat. 3 mit Wolken und Schlieren (69x).
Die Behandlungen mussten vor allem in der Kat. 3 wiederholt werden. Doch auch dort konnte eine Patientenzufriedenheit erreicht werden. Hilfreich ist dabei die Zeichnung der Patienten, sodass die störenden grossen Glaskörperveränderungen besser lokalisiert werden können. In 2 Fällen wurden Patienten der Kategorie 3 der Vitrektomie zugewiesen. Eine Kombination mit VitroCap®N Kapseln im Rahmen der Glaskörperlyse brachte keine Verbesserung der Resultate.
Nebenwirkungen wurden folgende beobachtet: In zwei Fällen eine gut therapierbare (mittels Glaukomtropfen) Drucksteigerung, in 5 Fällen kam es durch den YAG-Laser zu einer Verletzung der Linsenkapsel, wobei zwei Patienten wegen der sich bildenden Katarakt operiert werden mussten. In keinem Fall gab es Netzhautprobleme (Formina, Risse, Amotiones, Makulaödeme) trotz der hohen Behandlungsenergien (total 2500mJ) im Vergleich zum YAG-Nachstarlaser (total 50mJ).
Erfolgsversprechend mit wenigen Behandlungen sind die Glaskörperlysen mittels Ellex Ultra Q YAG-Laser bei Patienten mit störenden Mouches volantes vor allem in den Kategorien 1 und 2.

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Grants: None

P085 Tachyphylaxieeffekt bei systemischer Acetazolamidgabe

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Fallpräsentation Wir berichten über den Fall einer 70-jährigen Patientin, die nach einer Langzeittherapie mit systemischem Acetazolamid Tachyphylaxieeffekte zeigte und unter Glaupax 250 mg dreimal täglich einen Glaukomanfall entwickelte. Die Patientin stellte sich erstmals im September 2022 in der unserer

Augenklinik mit bestkorrigertem Visus am rechten Auge von 0.32p sowie am linken Auge mit 0.5 vor. Hierbei bestand bei einem primären Offenwinkelglaukom (ED ca. 2012) eine langstehende Therapie mit systemischen Acetazolamid sowie Cosopt S Augentropfen zweimal täglich und Saflutan Augentropfen zur Nacht. Nebenbefundlich bestand eine altersbedingte Makuladegeneration. Initial lag der Augendruck im September 2022 bei 21 mmHg beidseits. Ein Ausbau der topischen Therapie unter Auslassversuchen von Glaupax verlief frustran. Es zeigten sich rezidivierende Druckentgleisungen bis hin zu einem akuten Glaukomanfall (OD: 56mmHg/OS: 38mmHg) trotz Glaupax 250 mg dreimal täglich. Zur zügigen Drucksenkung wurde eine Cyklophotokoagulation am rechten Auge durchgeführt sowie eine Lokaltherapie mit Cosopt, Saflutan und Brimonidin beidseits etabliert, worunter sich die Druckwerte normalisierten.

Conclusion Dieser klinische Fall lässt mögliche Tachyphylaxieeffekte nach der systemischen Langzeitgabe von Acetazolamid vermuten. Acetazolamid ist ein wirksames Reservemedikament und sollte dabei für eine akute Behandlung eines stark erhöhten Augeninnendrucks vorbehalten bleiben. Eine Langzeittherapie mit Acetazolamid ist aufgrund des Nebenwirkungsprofils nicht zu empfehlen. Darüber hinaus wurden durch die Toleranzentwicklung in diesem Fall potentielle Therapieoptionen für eine akute Situation geschmälert. Daher sollte der Einsatz gezielt und nicht über einen langen Zeitraum erfolgen.

Financial Interest: None: No commercial relationship.
Grants: None

P086 Standard vs total keratometry for intraocular lens power calculation in cataract surgery combined with DMEK

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Purpose To compare the prediction accuracy of standard keratometry (K) and total keratometry (TK) for intraocular lens (IOL) power calculation in eyes undergoing combined cataract surgery and Descemet membrane endothelial keratoplasty (triple DMEK).

Setting/Design Tertiary care academic referral center. Retrospective case series.

Methods Review of 83 eyes (63 patients) that underwent triple DMEK between 2019 and 2021. Biometry measurements were obtained using a swept-source optical biometer (IOLMaster 700). 63 eyes were used for statistical analysis. Mean error, mean absolute error (MAE), SD, median absolute error, maximum absolute error, root mean squared prediction error, and the percentage of eyes within prediction errors of ±0.50 diopters (D) and ±1.00 D were calculated for 9 multivariate and third-generation formulas using K and TK values (Barrett Universal II, Yeo EVO 2.0, Cooke K6, Kane, Pearl-DGS, Haigis, Holladay 1, Hoffer Q, and SRK/T). Formulas were additionally tested by using the prediction for an IOL power 1 D below the IOL used (IOLup1D).

Results For all formulas, MAE was lower for K than for TK by an average of 0.21 D. The lowest MAE value observed was 0.67 D for "adjusted" SRK/T using K, and the highest MAE values observed were 1.24 D and 1.24 D for nonadjusted Hoffer Q and Haigis using TK, respectively. Overall, lower MAE values were observed for multivariate formulas and SRK/T.

Conclusions In triple DMEK eyes, the prediction accuracy of K was higher than that of TK. The most accurate formulas were SRK/T and multivariate formulas using K with the IOLup1D adjustment.

Financial Interest: None: No commercial relationship
Grants: ESCRS Peter Barry Fellowship Price 2022

P087 The CRW1 Index: Identification of Eyes with Previous Myopic Laser Vision Correction Using Only a Swept-Source OCT Biometer

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Purpose To develop and test a novel index (Cooke-Riaz-Wendelstein [CRW1]) that uses swept-source optical coherence tomography (SS-OCT) biometry measurements (IOLMaster700, Zeiss Meditec), including total keratometry, to alert clinicians that previous myopic laser vision correction (M-LVC) was present in a measured eye.

Design Retrospective, multicenter, comparative diagnostic analysis.

Methods The study took place at 6 centers in the United States and Austria. Anonymized SS-OCT biometry datasets acquired between 2018 and 2020 and containing 49,199 eyes were analyzed. The LVC status, as identified by the biometrist, was used to segregate eyes into LVC and non-LVC eyes. Data were split into training (10,780 eyes) and validation (38,419 eyes) sets. Subset analysis was performed for CRW1 Index accuracy compared to posterior/anterior corneal curvature ratio (Rpost/Rant), topography with corneal analysis software (Atlas 9000 with Pathfinder II, Zeiss Meditec), tomography (Pentacam, Oculus), dual Scheimpflug-Placido system (Galilei G6, Ziemer), and a cloud-based platform for cataract surgery planning (Veracity, Zeiss Meditec). A positive predictive value (PPV) of ≥90% was targeted for the CRW1 index. True positives, true negatives, sensitivity, and specificity were recorded.

Results The CRW1 Index compared favorably against Rpost/Rant showing a higher PPV (93% vs 65%), with fewer false-positive results (29 vs 180). CRW1 performed similarly to topography software and better than the corneal imaging devices. The CRW1 cutoff value can be adjusted to increase sensitivity (CRW1-IS) to detect additional M-LVC eyes.

Conclusions The CRW1 and CRW1-IS indices offer surgeons and researchers a readily accessible method to use only SS-OCT biometry measurements to detect eyes with a high probability of previous M-LVC.

Financial Interest: None: No commercial relationship
Grants: None

P088 Evaluation of phakic intraocular lens power calculation using the new Linz-Homburg-Castrop formula and comparison with four conventional Methods

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Purpose To evaluate the accuracy of phakic intraocular lens (pIOL) power calculation in a middle European patient cohort.

Setting EyeLaser Clinic, Linz, Austria.

Design Single-center single-surgeon retrospective consecutive case series.

Methods Patients were included after uneventful pIOL surgery implanting 91 nontoric and toric Visian implantable collamer lens model V4c. Online Calculation and Ordering System (OCOS) software, JPhakic software, Olsen-Feingold formula, Holladay formula, and Linz-Homburg-Castrop (LHC) formula were compared. When possible, lens constants were optimized for the patient cohort. Data of single eye per patient were included. Outcome measures were mean absolute prediction error, median absolute prediction error, mean prediction error with SD, and median prediction error, as well as the percentage of eyes with an absolute prediction error within limits of 0.25 diopters (D), 0.5 D, 0.75 D, and 1.0 D.

Results 91 eyes of 91 patients were assessed. After application of the Cochran Q test, the Olsen-Feingold formula achieved a significantly lower percentage of eyes within an absolute prediction error of 1.0 D than all other methods.

Conclusions In the patient cohort, OCOS software, JPhakic software, and Holladay and LHC formulas showed equal results and can be cross-checked. The LHC formula was not published before. A ready-to-use Excel sheet is available as an addendum.

Financial Interest: None: No commercial relationship
Grants: None

P089 The Effects of Second Eye Refinement Methods on Prediction Error in Hyperopic Eyes

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Purpose The purpose of the study was to evaluate the potential accuracy of different second eye refinement methods in a patient cohort with short axial eye length to assess the performance of intraocular lens (IOL) power calculation schemes in high hyperopes.

Methods The study design was a single-center, single-surgeon retrospective consecutive case series. The setting of the study was in Augen- und Laserklinik, Castrop-Rauxel, Germany. Patients were assessed after uneventful bilateral cataract surgery implanting either spherical (SA60AT) or aspheric (ZCB00) IOLs. Inclusion criteria were an axial eye length of ≤21.5 mm and/or emmetropizing IOL power of >28.5 dpt. Outcome measures were the mean absolute prediction error (MAE), median absolute prediction error, mean prediction error with standard deviation, median prediction error, and the percentage of eyes with an absolute prediction error (absPE) within 0.25 dpt, 0.5 dpt, 0.75 dpt, or 1.0 dpt. Second eye refinement was performed using the first eye prediction error, either with a correction coefficient of 0.50 (SER1), or an individual coefficient optimized for MAE.

Results A total of 55 patients were assessed. A statistically significant reduction in the absPE after the application of SER1 was observed in 9 of 13 formulae. The SER1 refined Hoffer Q, refined Holladay I, refined Holladay II, refined Kane, refined Okulix, and refined PEARL-DGS provided a smaller absPE than other methods.

Conclusion In this patient cohort with a short axial eye length, the second eye refinement led to a lower MAE in almost all formulae. The use of refinement in Kane, Okulix, PEARL-DGS, and Castrop formulae exhibited the lowest MAE.

Financial Interest: None: No commercial relationship
Grants: None

P090 The impact of immediate rituximab therapy in a severe case with previously untreated ocular mucous membrane pemphigoid

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Purpose Mucous membrane pemphigoid (MMP, also referred to as "cicatricial pemphigoid") is a rare autoimmune disorder characterized by subepithelial blistering of various mucous membranes including the eyes, mouth, nose, pharynx, larynx, esophagus and genitals. Ocular involvement can cause severe impairment or loss of vision due to scarring and inflammation of the conjunctiva and cornea. Current treatment strategies with immunosuppressive agents aim to reduce inflammation and prevent cicatrization. The efficacy of rituximab (RTX) has been demonstrated in refractory MMP but has very rarely been reported in previously untreated MMP.

Methods We report a 71-year-old man with severe MMP and describe clinical and pathological findings as well as the effect of immediate treatment with RTX as a first-line drug on the course during a follow-up period of one year.

Results At initial presentation the patient complained of dysphagia, skin itching, involuntary weight loss and constipation for five months. He also suffered from vision impairment especially in the right eye, eye reddening and discharge from both eyes. Upon clinical examination he presented scarring, severe fornix shortening, and symblepharon in both eyes as well as an early limbal corneal stem cell deficiency in the right eye. Eroded skin ulcerations and erosions of the oral, pharyngeal and esophageal mucosa were present. Direct immunofluorescence analysis of the

conjunctival and oral mucosa identified linear deposits of IgG, discontinuous granular deposits of complement C3 along the basal membrane zone and non-specific deposits of IgA on the mucosal surface.
After interdisciplinary evaluation, we initiated an intravenous treatment with RTX administered in two cycles, and prednisone during the course, followed by a maintenance RTX six months later as well as topical ocular treatment with lubricating ointments, autologous serum, antibiotic and steroid eye drops. Additionally, a fresh amniotic membrane graft covered with contact lens was used to stabilize the corneal epithelial defect on the right eye. This resulted in marked improvement of the skin lesions and ocular symptoms. Disease progression in the left eye was prevented as well.

Conclusion Immediate therapy with RTX can be effective in the control of previously untreated severe MMP with ocular involvement. Based on our experience, we recommend an interdisciplinary treatment approach to control and monitor this systemic disease.

Financial Interest: None: No commercial relationship
Grants: None

P091 Relentless bilateral occlusive vasculitis in a patient with Crohn's disease treated with adalimumab and with recent vaccination for SARS-CoV2

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Purpose Case report of a bilateral rapidly progressive visual loss in a patient with Crohn's disease (since 2016) treated with adalimumab and who underwent a recent vaccination for SARS-CoV2 (Moderna®).

Methods A 26-year-old female has a past medical history of Crohn's disease treated with adalimumab bimonthly from March 2021 to the end of July 2021. She received a first dose of COVID-19 vaccine (Moderna®) on April 14th 2021 and a second was given on May 18th 2021.
49 days after the second dose (July 6th), she complained of a central scotoma in her right eye. Her ophthalmologist noticed bilateral subretinal fluid associated with mild vasculitis on angiography. She was treated with 50 mg/day of oral prednisone and then replaced by acetazolamide 250mg/d. on July 15th by another ophthalmologist.
Visual acuity worsened and she was hospitalized in Lugano from July 29th to August 4th 2021 for bilateral panuveitis with severe vaso-occlusive vasculitis. She received five days of 500 mg/d. intravenous methylprednisolone, 1200 mg/d. i.v. acyclovir, and adalimumab was switched to infliximab bimonthly. Intravenous therapy was relayed orally by 50mg/d. of prednisone and 400mg/d. of valacyclovir. An Ozurdex® injection was performed in October 2021 in the LE, without any change. When she was first seen at Jules-Gonin Eye Hospital in November 2021, visual acuity was reduced to light perception OU. Fundus examination revealed bilateral honeycomb macular atrophy and multiple peripheral focal lesions. An optic disc atrophy was present OU. Fluorescein angiography showed massive retinal ischemia.

Results The patient had massive bilateral pigmented retinal scars secondary to severe retinal ischemia, macular atrophy and optic disc ischemia despite a two months course of high corticosteroid and biomodulator. Tropical infections (Dengue, Zika virus, Chikungunya, West Nile virus) were ruled out by serologies. Ocular infections could be ruled out by multiple serologies and AC tap puncture. For corticosteroid sparing, weekly injections of tocilizumab were performed during one year from 6th December 2021 and corticosteroids were progressively tapered to 7.5mg/d. in January 2023.

Conclusions This case study depicts a doomed visual fate in a young woman of 26 years old.
Several hypothesis have been raised either an autoimmune process with massive vascular occlusive disease, a reaction to biologic agents (adalimumab) injections or a boost of ocular inflammation after COVID-19.

Financial Interest: None: No commercial relationship
Grants: None

P092 Increase of sensitivity of QuantiFERON-TB gold plus versus QuantiFERON-TB in a patient with tuberculous multifocal choroiditis

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Purpose The diagnosis of ocular tuberculosis still remains a challenge. The timing and the method chosen to diagnose Mycobacterium tuberculosis (Mtb) infection are crucial in the clinical process, QuantiFERON-TB plus test is currently needed in uveitis clinic.

Methods A 16-year-old woman treated in Algeria for a multifocal choroiditis in RE. She complained a blurry vision in RE since June 2022 and 6 round lesions were noticed at the posterior pole. A 2UI Mantoux test using purified protein derivative (PPD) antigens was negative (< 5mm induration). She therefore received IV methylprednisolone (500mg/day) during three days, followed by oral prednisone (1mg/kg/day) with progressive tapering of 5 mg every two weeks. In the interval of 7 months, she relapsed two times. Fluorescein angiography confirmed the increase of the lesions in RE. She received three more doses of IV methylprednisolone, an augmentation of oral dose of prednisone and the introduction of azathioprine (100mg/day) since February 2023. A second 2UI Mantoux test was then performed and remained negative. To confirm this result an IGRA test using purified protein derivative (PPD) antigens (QuantiFERON-TB) was performed in Algeria, after IV methylprednisolone but prior azathioprine therapy initiation, and was negative. A thorax CT scan, an Angio cerebral and orbital MRI were normal.

Results She was referred at Jules-Gonin uveitis clinic in March 2023. Visual acuity was 10/10 OU. Multiples atrophic disseminated lesions were presents in the posterior pole and in the periphery of RE, without vitritis. The fluorescein and ICG angiography showed respectively multiples hyperfluoscent and hypofluorescent lesions. The LE was normal. The presence of two relapse under steroid therapy in a patient coming from an area with upper moderate incidence of TB is highly suggestive of tuberculous multifocal choroiditis. Both ELISpot TB and QuantiFERON-TB Gold Plus using peptides derived from ESAT-6 and CFP-10 antigens were performed and confirmed the primary exposure to Mtb. Immunosuppressive therapy was withdrawn and a quadritherapy against active tuberculosis was proposed.

Conclusion In a patient with clinical suspicion of ocular tuberculosis an IGRA test based on peptides derived from ESAT-6 and CFP-10 antigens should be mandatory to confirm the Mtb infection.

Financial Interest: None: No commercial relationship
Grants: None

P093 Extranodal Natural Killer/ T cell lymphoma, nasal type of the eyelid and orbit in 47 yo female

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Purpose To document an aggressive ENTK lymphoma initially presenting as an eyelid swelling in a 47 yo female.

Methods Retrospective case Report

Results A 47 yo female noticed a progressive swelling and redness of her left superior eyelid, initially treated as a chalazion. The persistence of swelling prompted further investigations and an MRI demonstrated an orbital infiltrate predominating in the superolateral orbit. VA was preserved. There was a limitation of left eye elevation and abduction. Slit lamp examination showed a chemosis. There was no intraocular inflammation and fundus were normal bilaterally. Orbital biopsies were performed with an initial diagnosis of vasculitis due to a perivascular infiltrate (private laboratory). Systemic investigations for infectious or inflammatory diseases were all negative.
High doses of steroids only briefly amended the symptomatology that progressively worsened with proptosis, increased eyelids swelling, redness and painful eye movements. MRI of the orbit showed an increase in the orbital infiltrate with involvement of all the ocular muscles, and partial compression the optic nerve sheath. As the clinical situation worsened despite 4 weeks of high dose corticosteroids, a conjunctival biopsy was further performed. This biopsy demonstrated a lymphoid infiltrate containing intermediate to large atypical cells with irregular nuclei with a perivascular tropism. The cells were expressing CD56, CD3, CD2 and in situ hybridization showed EBV within these cells leading to the diagnosis of Extranodal, Natural Killer/ T cell lymphoma, nasal type. The patient achieved complete remission with an induction treatment using a modified SMILE protocol followed by radiotherapy (39.6 Gy in both orbits) and cisplatin chemotherapy.

Conclusion We document the clinico-pathological findings of a rare ENTK lymphoma, nasal type that more commonly occurs in Asia and South America. Repeated biopsies should be performed in case of progressive orbital infiltrate. Newer chemotherapy regimen, notably without anthracyclines, combined with radiotherapy seem to improve survival of this very aggressive lymphoma.

Financial Interest: None: No commercial relationship.
Grants: None

P094 Progressive visual loss is not always accompanied by neurodegenerative disorder in infantile neuronal ceroid lipofuscinosis: a case Report

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Purpose The neuronal ceroid lipofuscinoses (NCLs) are a group of inherited neurodegenerative lysosomal storage disorders. Cognitive and behavioural impairment are though to appear few years after the onset of visual impairment. This is however not always the cause. The aim of this case report is to describe the phenotypic presentation of infantile NCL3 in a patient of Swiss descent.

Case Report A 6-year-old patient (♂) was referred with a suspicion for bilateral progressive loss of vision. At the age of 4 ½ years visual deterioration and loss of colour discrimination were noticed by the parents. Eccentric fixation, dissociated nystagmus OU and hypertropia OS were newly observed.
Optic disk pallor and yellowish aspect of the macula were documented. OCT examination revealed decreased foveal retinal thickness and destruction of the interdigitation zone (IZ).
Next generation sequencing was performed to exclude an inherited retinal disease. Neurological evaluation was performed thereafter to rule out cognitive or behavioural abnormalities.
Genetic testing revealed mutation compatible with the diagnosis of infantile NCL. A homozygous pathogenic variant of the CLN3 gene was found [c.(460+19_461-104)_(559_728)del; p.?], consistent with the most described homozygote variant of juvenile NCL. Detailed neurological evaluation revealed no cognitive or behavioural abnormalities.

Conclusion Our findings confirm a clear relation between the ophthalmological phenotype and the genetic results. The homozygous pathogenic variant of the CLN3 gene was presented with generalised retinal dysfunction. CLN3 codes for the lysosomal membrane protein CLN3, which promotes cellular homeostasis and neuronal survival. Even though the juvenile NCL to be associated with rapidly occurring neurologic manifestations, these have not been confirmed to date in our young patient. Therefore, careful counselling of subjects with NCL and their relatives is advisable.

Financial Interest: None: No commercial relationship
Grants: None

P095 Ophthalmology and Minimal Invasive Neurosurgery (MIN): Observation Series of Six Cases of Big Cystic Lesions Causing Visual Impairment

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Background and Aims Preservation of visual function can be optimized in selective cases only by close cooperation of Ophthalmology and Minimal Invasive Neurosurgery (MIN). The analysis of the ophthalmological outcomes in this series to prove the effect of functional recovery by minimal invasive neurosurgical procedures (MIN) enclosed 6 cases: 2 supra-sellar cysts, 2 cystic tumors and 2 complex-cystic hydrocephali, in all cases causing disturbance of visual function. Half of the cases were emergency cases.

Methods This concept combined 5 MIN-key techniques to assist microneurosurgery: high-end neuro-sonography with small probes, mouth-tracking of the microscope - both mandatory-, endoscopy and LASER. Sealing technique was always used. Ophthalmological standard techniques were perioperatively used to meticulously document ophthalmological functions. Visual acuity, 30°-visual field, RNFL and fundoscopy were examined as soon as the patients´ condition did allow so.

Results In all cases visual functions were improved or preserved. In all cases endoscopy was used, additional in 2 cases LASER assisted the procedure, in 2 cases ultrasound navigation and in one case 4 micro-surgical technique procedures were needed. The combination was decided individually for each case. MIN techniques and ophthalmological examinations differ in relation to the patients individual conditions.

Conclusions Cooperation of neurosurgery and ophthalmology can preserve visual functions even in emergency cases.
Ophthalmology plays in this context the rule of an emergency indicator.
Ophthalmological techniques may support the outcomes analysis as an excellent model to show functional recovery after MIN procedures.
A close to the patient and an individual management came out to be necessary.
Individual combination of MIN-techniques in each case is a key-concept of MIN (Ref.: KDM Resch; Key Concepts in MIN, Vol I+II, 2020/22; Springer)

Financial Interest: None: No commercial relationship
Grants: None

P096 Acute macular neuroretinopathy and paracentral acute middle maculopathy in giant cell arteritis: A case Report

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Purpose We report a case of bilateral arteritic anterior ischemic optic neuropathy associated with acute macular neuroretinopathy (AMN) and paracentral acute middle maculopathy (PAMM) in a patient with giant cell arteritis (GCA).

Clinical case An 82-year-old man presented with painless visual loss in his left eye . He reported jaw claudication and lateral neck pain. His eye medication consisted in latanoprost in both eyes for open angle glaucoma. His medical history was otherwise unremarkable. His best corrected visual acuity (BCVA) was 20/32 in the right eye (OD) and hand motion in the left eye (OS). Intraocular pressure was 12 mmHg OD and 14 mmHg OS. Anterior segments were calm in both eyes. Fundus examination showed pale atrophic optic disc OD and optic disc edema OS. Macular OCT of OD showed hyperreflectivity in the outer nuclear and plexiform layers, disruption of inner segment/outer segment junction and thinning of the choroid. Macular OCT OS showed a peripapillary placoid hyperreflective band in the inner layers of the retina. Fluorescein and indocyanine angiography confirmed choroidal ischemia, with delayed vessel perfusion, and late diffusion of the optic disc in both eyes. Levels of erythrocyte sedimentation and C-reactive protein were elevated.The patient was diagnosed with bilateral arteritic anterior ischaemic optic neuropathy associated with AMN and PAMM in the setting of giant cell arteritis. The patient was treated with high doses of IV steroids for 3 days, followed by oral steroid taper.
Four months after the beginning of the treatment, fundus examination showed optic nerve atrophy in both eyes. Macular OCT of OD showed thinning of the outer nuclear layer with persistent punctuate hyperreflectivity in the plexiform layer and increased of choroidal thickness due to the reperfusion of choroidal vessels. Macular OCT of OS showed thinning of the plexiform layer adjacent to the optic nerve with persistent punctuate hyperreflectivity. OCT-A revealed reduced density in the deep capillary plexus in both eyes.

Discussion In the setting of ischemic anterior optic neuropathy, the occurrence of AMN or PAMM should raise suspicion of giant cell arteritis. Multimodal imaging allows earlier diagnosis and treatment. In sight of the evolution, we can emit the hypothesis that in our case AMN could be secondary to choroidal ischemia.

Financial Interest: None: No commercial relationship
Grants: None

P097 Keratoconus management by insertion of an allograft corneal ring segment (Keranatural)

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Purpose Reporting the first insertion in Switzerland of a precut sterile allograft corneal ring segment (KeraNatural) for the management of keratoconus and the impact of it on the anatomical and functional parameters of the disease namely topographic parameters and visual acuity.

Methods We present the case of a 40 year old woman suffering from keratoconus that was treated with implantation of a Corneal Allogenic Intrastromal Ring Segment utilizing a precut sterile

Implant (KeraNatural TM, Lions VisionGift)The tunnel was cut with the help of femtosecond laser (Visumax 800, Carl Zeiss).. Corrected Distance Visual Acuity (CDVA), Spherical Equivalent (SE), Astigmatism and topography derived Keratometric Values and pachymetry were compared preoperatively versus postoperatively with Scheimpflug Galilei G6 (Ziemer AG) and anterior segment OCT MS39 (CSO,).

Results There was a marked improvement of CDVA (spectacle) from 0.16 to 0.3, SE was reduced from -14.25D to -12.75D and Astigmatism from -5.25D to -2.50D. Topographic Parameters on the Galilei were as follows: SImK was reduced from 54.88D to 49.55D, flat K from 52.55D to 48.52D Steep K from 57.51D to 50.58D Topographic Astigmatism from 5.26D to 2.07D, Inferior to Superior Steepening from 12.39D to 7.86D. On the MS39 SImK from 56.01D to 49.33D, Flat K from 52.96D to 48.74D, Steep K from 59.96D to 49.94D, Astigmatism from 7.41D to 1.2D Anterior Kmax from 67.66D to 67.47D and Posterior Kmax from -13.03D to -15.23D.

Conclusions An Allograft Corneal ring segment implantation for the management of Keratoconus is an effective modality to improve on the refractive and keratometric aspects of the cornea in eyes suffering from progressive or non-progressive keratoconus, iatrogenic ectasia and pellucid marginal degeneration. This is the first such implantation in Switzerland to our knowledge. A series of more treatments with a longer follow up is required to assess safety, efficacy and long term stability of the outcome and explore the possible combination with stabilization treatments like CXL for progressive disease.

Financial Interest: Travel Reimbursement: Travel reimbursement, gifts or honoraria of over $5000 in the last twelve months by a company or competing company involved
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P098 Automated Retinal Vessel Parameter Measurements in Cardiologic Patients Compared to Healthy Controls

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Purpose To compare fundus photo based retinal vessel parameters of cardiologic patients to healthy controls.

Methods Multi-center, prospective, clinical study conducted at a private cardiologic center and an ophthalmology University clinic in Switzerland. 130 participants (230 eyes) were studied and divided based on their transthoracic echocardiogram (TTE): (1) patients with abnormal TTE (ejection fraction < 50% or otherwise abnormal) (n=74); (2) controls with physiologic TTE (n=56). True-color fundus photos were captured bilaterally in undilated eyes with a Topcon device, centered on the macula and optic disc, respectively. Automated retinal vessel analysis was performed using the artificial intelligence (AI) software Automorph. The software automatically excluded images the algorithm considered insufficient quality (exposure, sharpness, cropping of landmarks). The remaining images were automatically divided into macula- and disc-centered. Vessel parameters fractal dimension (FD), vessel density (VD), average width (AW), distance tortuosity (DT), central retinal arteriolar equivalent (CRAE), central retinal venular equivalent (CRVE), arteriolar-venular ratio (AVR) were evaluated. Multiple measurements per proband and the data from both eyes were averaged for statistical analysis. As the dataset was not completely normally distributed, a Mann-Whitney-U test was used to evaluate differences between the two groups.

Results In total, 1698 fundus photographs were analyzed. 1110 (65%) were excluded due to insufficient quality. The remaining 588 images (including multiple takes of participants) were sorted and averaged. Eventually, the patient group contained 148 macula and 37 disc images; the controls 179 macula and 54 disc images. Statistically significant differences between patients and controls were found for AW, CRVE, CRAE (all $p < 0.032$). All other p were > 0.091.

Conclusions Retinal vessels of cardiologic patients differ from controls. These differences can be automatically detected and quantified using AI. In this dataset with undilated eyes, macula photos showed less dropouts than disc photos. AW, CRAE, CRVE seemed most sensitive to retinal vessel changes. in macular and disc images. The results of this study highlight the importance of the eye as screening window for systemic pathologies. Mydriatic imaging should be preferred to keep dropouts by the algorithm to a minimum. Good image quality remains a prerequisite for reliable AI-based analysis.

Financial Interest: None: No commercial relationship
Grants: None

P099 Surgical treatment options in neovascular AMD

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Introduction Anti-VEGF therapy is the standard of care for treating neovascular AMD allowing stabilization of vision for a majority of patients. Limiting factors for visual improvement include atrophy of the retinal pigment epithelium, fibrosis and submacular hemorrhage. Timely displacement of subretinal hemorrhages to the periphery is considered to improve the prospect of visual acuity gains.

Methods In this case series we evaluated 6 consecutive patients with recent submacular hemorrhages (onset less than 2 weeks) secondary to nAMD that were treated with pars plana vitrectomy, subretinal rTPA injection, gas tamponade and anti-VEGF treatment. We analyzed OCT images, fluorescein and indocyanine green angiograms and surgical videos.

Results Pre-operative visual acuity ranged from handmovements to 0.05 and from handmovements to 0.63 post-operatively. The follow-up period ranged from 3 to 38 months. In all cases the

volume of subretinal blodd could be reduced. Limiting factors for visual recovery were previous hemorrhages and advanced disease before the hemorrhage occured. During follow up, one patient experienced a recurrent subretinal hemorrhage and one patient developed an RPE tear.

Discussion Subretinal hemorrhages release retinotoxic degradation products and can induce fibrosis. Displacing submacular blood to the periphery with a surgical intervention could improve visual acuity in some cases. General recommendations cannot be deduced from this study due to the small case number and limited follow up.

Financial Interest: None: No commercial relationship
Grants: None

P100 Visual outcome in pediatric myelin oligodendrocyte glycoprotein (MOG) anti body associated disease

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Purpose Myelin-oligodendrocyte-glycoprotein-associated disease (MOGAD) is an acute autoimmune disease characterized by high levels of immunoglobulin G (IgG) antibodies, leading to different clinical symptoms of varying severity. Children commonly have optic neuritis (ON), which can cause a decline in visual acuity (VA) and optic disc edema. Few months after the acute inflammation, the thickness of the peripapillary retinal nerve fiber layer (pRNFL) decreases and stabilizes at reduced levels, while the visual acuity improves. This study aims to analyze the progression and impact of MOGAD on the visual system of children.

Methods Our retrospective study included children with (1) MOG-IgG-seropositivity, (2) the acute presentation of a clinical phenotype associated with MOGAD, (3) and general written consent given by the parents or children. Main outcome measures were the global pRNFL and near and distant VA (nVA, dVA), analyzed using descriptive statistics.

Results 10 MOG-IgG-positive patients were identified: 5/10 with ADEM-ON, 3/10 with ON, 1/10 with NMOSD-ON, 1/10 with ADEM. Median age at first event was 72 months (range: 64– 156 months); 7/10 were female. Among ON patients, 3 were affected unilaterally and 6 bilaterally, of whom 4 were initially diagnosed with unilateral ON with subsequent involvement of the fellow eye. During acute ON, severe visual acuity reduction ≤ 0.1 Snellen was seen in 5/9 patients, with a median of 0.5 (range: 0.005-1.0) both at near and in distance. 5 patients demonstrated optic disc edema. Following the 6 months analysis, the nVA and dVA improved in all patients until reaching complete visual recovery, independent of the number of relapses. The pRNFL decreased after optic disc edema subsided and remained stable at reduced levels by the 12-month analysis if no further relapse occurred (median: 62.5, range: 43-110).

Conclusion During the acute ON, pediatric patients demonstrated visual acuity deterioration along with optic disc edema in the majority of our study population. After the edema subsided, the visual acuity improved continuously until all patients reached full visual recovery independent of the number of relapses or severity of initial visual acuity loss. The thickness of the pRNFL decreased and remained stable at reduced levels after 12 months if no further relapses occurred.

Financial Interest: None: No commercial relationship
Grants: None

P101 Torpedo maculopathy: case series presentation of an underdiagnosed rare condition using multimodal imaging

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Purpose Torpedo maculopathy is a rare congenital anomaly of the retinal pigment epithelium (RPE) mostly asymptomatic throughout life. The clinical presentation is very typical displaying an ovoid cleft of the RPE typically located in the temporal zone of the macula. Despite this pathognomonic feature, patients are often referred to retina clinics for secondary opinions. The aim of this case series is to raise awareness of this rare condition among ophthalmologists and to explore the added value of multimodal imaging, in particular OCT angiography (OCTA), to increase its identification.

Observation Spectral domain OCT (SD-OCT) revealed in all cases a thinned RPE combined with hyper-reflectivity of the adjacent choroid on the ovoid lesion while the foveal region remained normal. En face SD-OCT showed a heterogeneous hyperreflective area with a hyporeflective periphery. On fundus blue light autofluorescence (FAF) exam, the lesions appeared hypoautofluorescent with a hyperautofluorescent perimeter. In all cases, OCTA of the torpedo lesions allowed to identify choriocapillaris remodeling with superficial and deep capillary plexus (SCP and DCP) layers comparable to the adjacent retina. OCTA of the macula of the affected eye were normal and comparable to the non-affected healthy eye, except for the case showing parafoveolar torpedo lesion. No differences were found on quantitative analysis of the SCP and DCP vascular density measured in each eye.

Discussion Our case series considered five patients who were addressed to our retina clinic for further evaluation of undefined macula abnormalities that we later identified as torpedo maculopathies. The analysis of our patients highlighted the issue of diagnosing this rare condition and the main importance of the clinical appearance in this specific pathology for such purpose.

Conclusion Torpedo maculopathy is a rare well described clinical condition that displays pathognomonic features on regular fundoscopy examination. Our case series showed that the use of multimodal imaging, including SD-OCT, FAF and OCTA, seems to be of little value in increasing its recognition thus confirming the importance of its typical clinical appearance among ophthalmologists. Interestingly, SD-OCT and OCTA demonstrated no abnormalities of the adjacent macula of the affected

eye, which seems to confirm its isolated local unilateral ophthalmic condition.

Financial Interest: None: No commercial relationship
Grants: None

P102 Ocular manifestations in a context of primary hyperparathyroidism: a report of two cases

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Purpose Ophthalmic diseases may be related to an underlying endocrine disorder. Awareness of possible associations is crucial in the care of these patients. We report here two cases of eye-related conditions associated with a history of primary hyperparathyroidism.

Case Report Case 1: A unilateral choroidal lesion was discovered fortuitously in an asymptomatic 60-year-old man. Fundus examination revealed a flat white nasal lesion without hemorrhages or subretinal fluid. Best-corrected visual acuity was 10/10. Multimodal imaging led to the diagnosis of isolated choroidal calcification. Blood tests revealed increased levels of parathyroid hormone and a parathyroid adenoma was subsequently diagnosed. Resection of the adenoma was performed with normalization of the hormone levels. Regular fundus follows up over 6 months revealed no progression of the calcification.
Case 2: A 56-year-old woman with a history of hypercalcemic hyperparathyroidism and hypertension had a progressive vision loss in the right eye over one year. Best-corrected visual acuity of the right eye was 0.63. Fundus examination revealed a paramacular lesion of the pigment epithelium and OCT exam showed a serous retinal detachment. Diagnosis of central serous chorioretinopathy was established. Biochemical analysis revealed increased serum cortisol. One month later, the patient underwent parathyroid surgery and cortisol levels normalized. Subsequently, a transient regression of subretinal fluid was observed and visual acuity increased to 0.80. 5 months after the operation, a laser of a leakage point permitted resolution of the disease and total visual recovery.

Discussion Despite most cases of choroidal calcifications are idiopathic, they can be associated with systemic diseases, such as hyperparathyroidism and parathyroid adenoma, as in case 1.
Concerning case 2, a relationship between primary hyperparathyroidism and both renin-angiotensin-aldosterone and hypothalamic-pituitary-adrenal axes has been reported. We suggest that a concomitant elevation of cortisol levels and blood pressure in a context of hyperparathyroidism could have contributed to the onset of the disease itself.
Conclusion: It is important for clinicians to be aware of a possible ocular involvement in systemic diseases and rare conditions such as parathyroid disease. Hence, whenever there are ocular signs of parathyroid related diseases, clinicians should always consider screening for phospho-calcium metabolism abnormalities.

Financial Interest: None: No commercial relationship
Grants: None

P103 Functional and anatomical outcomes of patients treated with intravitreal aflibercept for refractory diabetic macular edema switched to faricimab: an interim analysis

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Purpose The purpose of this 4 months interim analysis of a 12-month monocentric (Swiss Visio Montchoisi), retrospective and prospective, observational single-arm study is to determine whether switching refractory DME patients from aflibercept to faricimab IVI improves visual acuity and retinal anatomy.

Methods Following the clinical decision to switch molecule, each patient will receive a loading dose of four monthly intravitreal faricimab injections. OCT is performed before every injection during the loading dose to assess central retinal thickness (CRT) and the presence of intra/subretinal fluid (IRF/SRF). In order to evaluate the therapeutic response to faricimab at the end of the loading dose, patients are seen one month after the last injection and best corrected visual acuity (BVCA) with EDTRS letters score, SD-OCT, slit lamp and fundus examination is performed.

Results 14 eyes from 10 patients (85.7% male, mean age 68.0 years (53-78)) with T1D (21.4%) or T2D (78.6%) and median diabetes duration 15 years (0-23) were included in the study. All patients had non-proliferative retinopathy, graded as severe in 12/14 eyes. They received a median of 10 doses of aflibercept with a mean inter-injection interval of 1.25 months before switching molecule. At baseline, the mean CRT was 322 µm and BCVA was 75 (48-85) letters. All patients had IRF at baseline and showed a progressive continuous decrease after each injection. None of the patients had SRF at baseline. Within the loading period, preliminary results shows that overall, 8 patients maintained CRT (0-25 µm), 1 increased CRT ≥25-50 µm and 1 decreased from ≥50 µm.
In the subgroup of patients (N=5) that reached the 4-months visit after the switch, 3 showed a decrease of CRT from baseline (respectively 13 µm, 15 µm and 71 µm) and all presented decreasing but persistent IRF. BCVA was stable at the end of the loading ranging from -2 to +10 letters compared to baseline.
No ocular or systemic adverse events were observed during the loading dose.

Conclusion Switch from aflibercept to faricimab IVI in patients with refractive DME led to progressive CRT and IRF decrease in the majority of patients within and the end of the loading dose period. None achieved complete disappearance of IRF during the preliminary analysis. BCVA was maintained in all patients and there were no safety issues observed.

Financial Interest: None: No commercial relationship
Grants: None

P104 National consensus on contraindications for ocular tissue donation for transplantation in Switzerland

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Purpose To establish a national consensus on contraindications for ocular tissue donation for transplantation in Switzerland.

Methods Swisstransplant (SWT), the Swiss national foundation coordinating tissue and organ donation, convened a working group consisting of six national corneal surgeons and eye bankers to create a contraindication list for ocular tissue donation. The group reviewed available national and international guidelines and recommendations, while adhering to Swiss law and transplant regulations. In cases of opposing opinions, the group held follow-up meetings until a consensus was reached. A consensus was defined as agreement among all parties present.

Results From March 2021 to June 2021, the study group held six meetings and created a standardized minimal contraindication list for ocular tissue donation in Switzerland. Additionally, the group created a mandatory working and documentation checklist for SWT donor coordinators to use when evaluating multiorgan donors for corneal harvesting. The authors agreed that while the national consensus list provides standardized minimal contraindication criteria, local eye banks may choose to introduce additional, more rigorous criteria.

Conclusion Given that corneal transplantation is the most commonly performed transplantation, establishing a consensus on contraindications is crucial for recipient safety. The creation of a consensus on contraindications for ocular tissue donation in Switzerland is essential to fulfill SWT's legal mandate and provide sufficient high-quality donor tissue within the country. Therefore, periodic review and revision of the consensus is considered critical.

Financial Interest: None: No commercial relationship
Grants: None

P105 A retrospective, single center study showing the 1-year outcome of non-penetrating deep sclerectomy versus penetrating deep sclerectomy in primary glaucoma

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Purpose Comparison between two surgical approaches i.e., the non-penetrating deep sclerectomy (NPDS) and the penetrating deep sclerectomy (PDS), that share most procedural steps, with the exception for a trabecular surgical penetration and a peripheral iridectomy present only in PDS. The study monitored patients attending a single clinical center in Switzerland for 1 year.

Methods This was a longitudinal, retrospective, comparative, interventional study. Sixty-six eyes of fifty-four patients aged 69 ± 9, with medically uncontrolled primary glaucoma were included in two surgical treatment groups (NPDS and PDS). Intraocular pressure (IOP), best-corrected visual acuity (BCVA), frequency of complications, minor surgical interventions and medical treatments were assessed preoperatively at days 0 (baseline), and postoperatively at day 1, 7, 14, 21, 60, 90, 120, 180 and 360. Considering the retrospective nature of the study, an exploratory mixed-effects model (MMRM) was used to assess the intergroup differences among endpoints for IOP and BCVA.

Results At 1-year timepoint, both NPDS and PDS resulted in a similar reduction of IOP from baseline (10,8 mmHg ± 0,9 vs. 11,5 mmHg ± 0,6 respectively) and a similar BCVA recovery (0,9 ± 0,04 vs. 0,8 ± 0,05) from post-operative day 1, the complete success rate being 100% and 97%, respectively. A significant and similar reduction of glaucoma medications was observed for both NPDS and PDS (baseline: 2.74 ± 0,19 vs. 2.71 ± 0,25; at 1 year: 0,07 ± 0,07 vs. 0,04 ± 0,04, respectively), while adverse events and minor surgical interventions were different, being 30 and 34 for NPDS, and 80 and 48 for PDS.

Conclusions The IOP lowering outcome of NPDS and PDS procedures at 1 year was similar. However, a better BCVA recovery profile, no evidence of early post-operate hypotony, fewer adverse events and minor surgical interventions were observed in NPDS vs. PDS, confirming previous observations and tilting the scale for preference towards non-perpetrating interventions in primary glaucoma.

Financial Interest: None: No commercial relationship
Grants: None

P106 Reproducibility assessment of a hand-held ERG device for full-field ERG measurements

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Purpose Electroretinography (ERG) with a hand-held device offers an opportunity for quick and low-cost diagnostics and screening. In our study, we assessed the reproducibility of full-field ERGs recorded with the RetEval device.

Methods The study was conducted at the Department of Ophthalmology, Stadtspital Zurich, Zurich, Switzerland and was approved by the local Institutional Review Board. After informed consent of the subjects, light-adapted (ISCEV standard) full-field ERGs by the RetEval device (LKC Technologies, Gaithersburg, MD, USA) were recorded using non-invasive skin electrodes. Both non-dilated eyes of 27 healthy volunteers aged 45-65 were examined. The examination was performed in a darkened room, first on the right eye, followed by the left eye. A second examination was performed within 1 to 14 days using the same protocols. The

implicit times and the amplitudes of the a- and b-waves and photopic negative response (PhNR) were extracted and assessed using intraclass correlation coefficients (ICCs) and the coefficient of variation (CV).

Results The signal-to-noise ratios were consistently high, and all ERG waveforms were of good quality. The implicit times and the amplitudes of b-waves and of the PhNR showed high reliability scores (ICC > 0.6, p < 0.01), whereas the a-wave amplitudes and implicit times showed higher deviations (ICC < 0.5, p > 0.02). The coefficients of variations were 8.8%/42.1%, 3.7%/31.6% and 15.6%/25.6% for the implicit times/amplitudes of the a-wave, b-wave and PhNR, respectively.

Conclusion Our data showed that highly reproducible components could be observed in control light-adapted ERGs recorded with RetEval and draw attention to the variability of early (cone-driven) ERG components measured by the RetEval device.

Financial Interest: None: No commercial relationship
Grants: None

P107 Accidental parasitism of the lacrimal drainage system by larvae of Oestrus ovis

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Purpose It is the aim of this report to describe accidental human parasitism of the external eye and lacrimal drainage system by larvae of the botfly Oestrus ovis. The natural host are sheep and larvae normally develop in the nasal mucosa, where they are deposited by female flies. So far, no evidence has been provided for descendent invasion of larvae into the human lacrimal drainage system.

Methods This report includes slit lamp anterior segment findings, results of lacrimal irrigation, endoscopic endonasal findings, results of dacryocystography,and microscopic classification of found larvae.

Results The observed 36-year old patient was referred 10 days after a fly had dashed at her left eye during a visit to the Canary Isles. Immediately after the attack her husband had removed several "little worms" from the medial canthus. During the following days a local ophthalmologist removed several larvae from the conjunctiva. Twice the patient found larvae in her hanky. At the first visit the patient presented with mild conjunctivitis in association with epiphora on the left and mild rhinitis. Larvae were neither found on the bulbar or palpebral conjunctiva nor in the fornixes. Initial irrigation of the canaliculi produced reflux from the contralateral punctum. Endonasal endoscopy revealed a mild congestion of the inferior conchal mucosa but no larvae were found. The lacrimal drainage system was irrigated 3 times/day with physiological NaCl. Additionally, 400 µl of pilocarpine (0.25 %) and cocaine solutions (1%) were injected into the lacrimal canaliculi. After two days of treatment two devital stage I larvae of Oestrus ovis were produced by blowing the nose immediately after irrigation of the lacrimal drainage system. No symptoms persisted beyond day 16 after the fly attack.

Conclusion The observations from this case provide for the first time evidence for an invasion of the descending lacrimal drainage system by stage I larvae of Oestrus ovis. This may explain previous descriptions of nasal or nasopharyngeal symptoms after ocular affection by Oestrus ovis.

Financial Interest: None: No commercial relationship
Grants: None

P108 Evaluation of Relative Retinal Thickness Increase (RRTI) as Diagnostic Marker in Central Artery Occlusion in a Swiss Cohort

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Purpose To evaluate the relative retinal thickness increase (RRTI) as diagnostic marker in predicting the onset of central retinal artery occlusions (CRAO) in a Swiss cohort.

Methods Retrospective, clinical study conducted at a Swiss University hospital from 01.01.2007 to 31.03.2023. Electronic health records (EHR) were filtered for patients with a CRAO event. The corresponding optical coherence tomography (OCT) data, including time between the OCT and CRAO (time to OCT; TTO) was reviewed. RRTI was measured, defined as the increase in retinal thickness of the papillomacular bundle of the affected eye compared to the unaffected partner eye. The RRTI was correlated with the TTO. A cut-off value of a RRTI of less than 24.5%, was applied. The results were compared to the TTO gathered from the EHR and sensitivity, specificity, positive predictive value (PPV) as well as negative predictive value (NPV) were calculated.

Results Twelve eyes from 11 patients with CRAO were identified. Five were female. Mean age was 69.0±19.8 years. Initial corrected visual acuity (CVA) was 2±0.88 logMAR. CVA at the last follow-up was 1.88±1.23 logMAR (Mann-Whitney-U: p > 0.05). Eyes with a CVA of counting fingers (n=9) or worse showed no CVA improvement during follow-up, while eyes with a CVA of logMAR 1 or better (n=3) improved. Five eyes (5 patients) presented within 4.5h of the CRAO event, with three receiving imaging within 4.5h, one within 8h and one not receiving initial imaging at all. Three patients received intra-arterial thrombolysis (IAT), with resulting visual recovery in one case. In all three eyes with a TTO < 4.5h, RRTI was below 24.5%. In the remaining nine eyes with TTO > 4.5h, RRTI was below 24.5% in 4 eyes and above 24.5% in 5 eyes. This yielded a sensitivity of 100.0% and a specificity of 56.0% with a PPV of 43.0% and a NPV of 100.0% of a RRTI of 24.5% in detecting a TTO < 4.5h.

Discussion CRAO is associated with severe vision loss. There is no clear evidence for the effectiveness of IAT in patients within 4.5 hours after CRAO, yet. Parameters that objectivize the presence of a therapeutic window for systemic thrombolysis gain importance as patient history is often imprecise. In our cohort, RRTI

proved to be a non-invasive imaging-based parameter, demonstrating adequate performance in detecting patients within the therapeutic window of IAT after CRAO.

Financial Interest: None: No commercial relationship
Grants: None

P109 Long-Term Follow up on Patients with Susac's Syndrome under Therapy

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Purpose To report long-term outcomes and treatment regimen in patients with Susac's syndrome.

Methods This is a retrospective analysis of patients with Susac's syndrome treated between November 2015 and March 2023. Multimodal imaging findings, ophthalmic examination data, information on neurological and sensorineural involvement, and therapeutic regimen were reviewed. Visual acuity was recorded in letters of the logarithm of the minimum angle of resolution (logMAR). Ophthalmological manifestations and disease severity were assessed (regularly) using the previously described clinical activity score (CAS).

Results Ten patients with Susac's syndrome (50% female) were identified. The mean follow-up time was 31.2±23.3 months, range 1 to 78 months. The mean age was 41.4±13.8 years. At baseline, corrected distance visual acuity (CVA) was 83.3±3.7 letters logMAR. At the last follow-up, CVA improved to 85.0±2.4 letters, p=0.029. Three of 20 eyes showed an improvement of 5 letters, while no loss of visual acuity was recorded during the follow-up time. Baseline CAS was 10.65±12.69, CAS at the last follow-up was 5.15±5.49 (p=0.068). Except for one patient, all were initially treated with intravenous (iv) steroids and subsequent oral tapering. Depending on the response to the initial treatment, we additionally administered cyclophosphamide (n=4), iv immunoglobulins (n=4), anti-CD20 antibodies (n=3), or plasmapheresis (n=1). All patients under treatment for more than one month (n=9) showed an improvement in CAS.

Discussion Susac's syndrome is a rare autoimmune endotheliopathy predominantly found in female patients. Reviewing our medical charts, we observed an improvement in the CAS as well as in CDA. The majority of patients, additionally to the systemic steroids, required systemic immunosuppressive agents.

Financial Interest: None: No commercial relationship
Grants: None

P110 An unusal cause of serous detachment of the retina

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Purpose To report a rare case of ocular echinococcosis, its therapeutic management and the diagnostic challenges involved.

Patients and Method A 33 years old female patient of chinese origin presented with mild metamorphopsia in the right eye. Optical coherence tomography revealed a small amount of subretinal fluid (SRF) and a focal hyperreflective subepithelial lesion involving the fovea in the right eye. Optical coherence tomographic angiography (OCTA) did not show abnormal flow suggestive of neovascularisation. Both eyes had a central choroidal thickness of >370µ (pachychoroid), the left eye was otherwise unremarkable. At the time of presentation, the patient was enrolled as a student at a local university with high levels of stress. The clinical diagnosis of acute central serous chorioretinopathy (CSCR) was established and the patient was followed in clinic without intervention. Two years after presentation the subretinal fluid recurred and fluorescein & indocyanine green angiography was performed revealing focal leakage compatible with recurring CSCR. The SRF resolved spontaneously leaving behind a growing hyperreflective, first focal, then elongated subepithelial lesion, somewhat similar to that seen in pattern dystrophy. Due to the atypical morphology, the progressive nature of the subepithelial lesion and the origin and gender of the patient, screening for a potential inflammatory origin was performed, including serology for toxocariasis, echinococcosis and Treponema solium.

Results Serology revealed antibodies against Echinococcus granulosus (2 AE/ml). Systemic parasitological workup including thoracoabdominal computed tomography (CT) and brain magnetic resonance imaging (MRI) was performed with negative results. Following initiation of oral Albendazol treatment (400mg, twice daily), the subretinal fluid successively resolved and the subepithelial lesion started to regress. In view of the absence of inflammatory signs in the vitreous and the isolated focal nature of the lesion, surgical intervention (vitrectomy) was not indicated. Visual acuity improved to 16/10 by the time of reporting.

Conclusions Although ocular involvement of parasitic infections (like echinococcosis) are rarely seen in western european countries, these need to be considered a differential diagnostic entity, especially in patients with a travel history in endemic areas. Correct management of such cases requires an effective multidisciplinary collaboration.

Financial Interest: None: No commercial relationship
Grants: None

P111 Lack of Accommodation – Vergence conflict: an advantage for the presbyops using virtual reality

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Purpose We conducted an experiment investigating the utility of virtual reality for presbyops in a near viewing task.

Methods Forty-six participants ranging in age from 19 to 64 years (M=41 y, SD=12.7y) were included in the study. All participants had normal or corrected to normal visual acuity and did not report any symptoms of fusional convergence. Participants performed a visual search task in virtual reality, which was administered in a head mounted display (HMD, Oculus Quest 2, meta) with a focal distance of 150 cm. The task was presented at two virtual distances, 75 cm and 150 cm, and consisted in searching for a tachistoscopically (300 ms) presented target with a decimal acuity demand of 0.1. The two viewing distances were administered in two separate sessions, each of which included 72 trials. Besides search performance (reaction time, hits, and false alarms), asthenopic symptoms were recorded before the experiment and at the end of each session.

Results Significant (ANOVA) negative effects of age on reaction time and significant interactions of age and viewing distance were found for both, reaction time and number of detected targets. Younger participants indicated higher scores of asthenopic symptoms. Significant interaction effects of age and viewing distance were also present in scores of asthenopic symptoms. A post-hoc t-test revealed a tendency for an increased asthenopic symptoms score in the younger participants when performing the search task at near (75 cm).

Conclusions Due to the focal distance of the HMD (150 cm) and assuming a normal cross-link between accommodation and vergence, the near viewing task (75 cm) could cause a dioptric blur of about 0.8 D. According to a rule of thumb 0.8 D blur will more than halve the acuity. Due to the lack of accommodation, presbyops are not affected by the dioptric blur. Therefore, they report less symptoms of blur at the near task. For the same reason, presbyops are not affected by a trade-off between accommodation and vergence reducing the risk for double vision at a near viewing distance in our virtual reality HMD. Considering the growing popularity and the continuous improvements in optical performance of HMDs, such devices could replace the use of large loupes for near vision tasks, such as visual inspection in industry.

Financial Interest: None: No commercial relationship
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P112 Real-world data on efficacy, safety and durability of intravitreal Faricimab for patients with neovascular age-related macular degeneration previously treated with traditional single-target anti-vascular endothelial growth factor compounds

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Purpose The present study aims to evaluate the efficacy, safety and durability of action of faricimab IVT in a real-world setting of patients with nAMD previously undergoing treatment with traditional, single-target antiVEGF compounds IVT at relatively short dosing interval due to suboptimal treatment response.

Methods Observational, single-centred, prospective case series of all consecutive patients with nAMD who were switched to faricimab IVT from traditional anti-VEGF (ranibizumab or aflibercept) IVT, due to suboptimal treatment response, at the Ophthalmology department of the Ospedale Italiano in Lugano between September 2022 and March 2023. Intravitreal faricimab was administered with a loading dose of four monthly injections, followed by a Treat and Extend (T&E) regimen. The primary end-point of the study is the average dosing interval achieved with intravitreal faricimab, which is compared with the average dosing interval achieved with previous anti-VEGF therapy in the same population before the switch, using the Wilcoxon Signed-Rank test. Multimodal retinal imaging including ultra-wide fundus retinography was performed at all time points to monitor for the development of retinal vasculitis.

Results Thirty-two eyes of 32 patients were included in the study, of whom 59.4% (N=19) were females and 40.6% (N=13) were males. The mean age was 80.8, 95% CI [77.9; 83.8]. At the time of abstract submission, 18 eyes have completed the loading phase and entered the T&E phase. Of these, 66.7% (N=12) eyes underwent a total of 5 injections and 33.3% (N=6) underwent a total of 6 injections. The mean interval reached by the switched eyes is significantly longer (7.30 weeks, 95% CI [6.63; 7.98]) than the mean interval before switching to faricimab (4.50 weeks, 95% CI [4.07; 4.93]), p=0.0006. No case of intraocular inflammation or retinal vasculitis was recorded.

Conclusions Preliminary real-world data seem to show that intravitreal faricimab is a safe and effective treatment option for patients with nAMD switched from intravitreal ranibizumab or aflibercept due to suboptimal treatment response ("switchers"). The results from the present study suggest that intravitreal faricimab may reduce treatment burden in eyes with nAMD which require a high injection frequency with traditional single-agent anti-VEGF compounds. Further studies with longer follow-ups are warranted to further evaluate the durability of action of intravitreal faricimab in switchers.

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P113 Exploring Central Serous Chorioretinopathy using Adaptive Optics Transscleral Flood Illumination

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Purpose Adaptive Optics Transscleral Flood Illumination (AO-TFI) is an advanced microscopy technique that enables in-vivo assessment of retinal structures in humans, with potential clinical applications in multimodal retinal imaging. This study aimed to explore typical Central Serous Chorioretinopathy (CSCR) findings using AO-TFI.

Methods The study was a single-center prospective study conducted at the Eye Clinic of the Cantonal Hospital Lucerne, Switzerland, registered on ClinicalTrials.gov (Identifier: NCT04912622). Patients with chronic and acute CSCR were analyzed. Participants underwent clinical ophthalmological examination, optical coherence tomography (OCT), autofluorescence (AF), and optical biometry examinations, followed by AO-TFI imaging using the novel retinal camera Cellularis® (prototype version 2.0). RPE and PR layer images were acquired across five macular zones of 6.7° x 6.7°.

Results Nine eyes of five participants were analyzed. Using en-face overlay of AO-TFI with OCT, AO-TFI enabled the observation of the typical CSCR findings, i.e., serous detachment of the neurosensory retina in the presence of intraretinal hyperreflective foci. On AO-TFI, the observed pattern shows a clear shift in the focal plane correlating to the elevation of the PR due to serous fluid between the RPE and PR. In addition, the shift in focal plane was observed together with intraretinal hyperreflective dots which correlated to intraretinal hyperreflective foci observed on OCT.

Conclusion The results highlight the potential of AO-TFI in the clinical setup for CSCR patients, particularly by adding a new modality to existing multimodal imaging. Overall, AO-TFI shows promising results as a potential tool for diagnosing and monitoring CSCR in a non-invasive and in vivo manner. Further studies could expand the potential clinical applications of AO-TFI in CSCR.

Financial Interest: None: No commercial relationship
Grants: None

P114 Comparison of duration between robot-assisted and manually performed epiretinal membrane peeling

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Purpose The Preceyes Surgical System (PSS) is a robotic assistive device for vitreoretinal surgery that may enhance surgical precision during delicate procedures such as epiretinal membrane peeling. This study assessed the pre- and intraoperative times of robot-assisted epiretinal membrane peeling (RA-MP) in order to compare to manually performed epiretinal membrane peeling (MP).

Methods Vitrectomy and epiretinal membrane peeling was performed either by robotic assistance or manually by two experienced vitreoretinal surgeons. Three main tasks were defined: preoperative preparation of the PSS for the RA-MP (1), patient preparation in the OR for the RA-MP (2) and surgical intervention – from insertion of the first trocar to removal of the last trocar – for both groups (3) including the sub-task of the peeling itself (3a). Descriptive statistics were used to compare the results of the two groups.

Results RA-MP has been performed in 9 eyes of 9 patients, while 22 eyes of 22 patients received MP surgery. Task (1) in the RA-MP group required a mean of 12.3 ± 3.0 min (range 6 to 15), representing a learning curve of a maximum of 15 min during the first surgery, decreasing to 6 min at the last surgery. Task (2) showed a mean of 47.2 ± 8.9 min (range 36 to 65) for the RA-MP group. The surgical intervention (Task 3) had a mean time of 72.4 ± 15.4 min (range 57 to 100) for the RA-MP group and 19.5 ± 3.2 min (range 13 to 24) for the MP group. A mean time of 27.9 ± 12.9 min (range 9 to 46) was necessary for the peeling procedure (Task 3a) in the RA-MP group, while the peeling in the MP group had a mean duration of 5.5 ± 1.5 min (range 4 to 9). The overall time for Tasks 1-3 for the RA-MP group was 132 ± 19.3 min (range of 115-172).

Conclusions Our data suggest that a comparable peeling time is possible by the RA-MP as by MP. Although the additional tasks required for the RA-MP increase the total OR time for the surgeries by approximately 5-fold, we observed a substantial time reduction for these steps even in our small sample size of 9 patients, thanks to the learning curve of the surgical team. With the implementation of further steps and optimization of Tasks (1) and (2) there could a potential to reduce this time effort. We believe that further, prospective investigations with a larger patient cohort would be pivotal to establish such optimization steps and also to quantitatively assess the morphological and functional benefit for the patients.

Financial Interest: None: No commercial relationship
Grants: Werner H. Spross Foundation for the Advancement of Research and Teaching in Ophthalmology, Zurich

P115 Periocular skin cancer excision with and without safety margin: A retrospective study over 15 years

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Purpose To provide a 15-year overview of patients' clinical outcome with a 5-year follow-up after periocular excision of basal cell carcinoma (BCC) or squamous cell carcinoma (SCC) with and without safety margin.

Method This is a retrospective, single-center, investigator-initiated study including all patients between 2007 and 2017 that were surgically treated for periocular BCC or SCC with a follow-up of at least 5 years. We analyzed the recurrence rate in relation to the primary safety margin.

Results A safety margin of 3mm in BCC and 5mm in SCC showed no recurrence after primary excision. Even in major resection patient's contentment was good. Insufficient excision caused frequent tumor recurrence.

Conclusion A good safety margin and exclusion of perineural invasion should be the goal in each excision of periocular BCC and SCC. Even in big excision, a satisfactory cosmetic result could be achieved.

Financial Interest: None: No commercial relationship
Grants: None

P116 Long-Term Prevalence of Fungal Keratitis at a Swiss University Hospital

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Purpose To assess the prevalence of confirmed cases of fungal keratitis at a university hospital in Switzerland from 2016 until 2022.

Methods This retrospective, observational, single-center study was conducted at the Department of Ophthalmology in collaboration with the Institute of Medical Microbiology at a University Hospital in Switzerland. The electronic patient database was filtered for inpatient cases with diagnosed fungal keratitis. Only patients with a confirmed diagnosis by positive fungal cultures or polymerase chain reaction (PCR) were included. In addition, the included patients were checked for viral, parasitological or bacterial coinfections confirmed by PCR scraping results for herpesviruses and acanthamoeba, by confocal microscopy for acanthamoeba or growth in culture for bacteria.

Results From January 2016 to December 2022, 809 patients hospitalized due to a corneal disease were identified. Thereof, 33 eyes of 31 patients had a confirmed fungal keratitis (prevalence of fungal keratitis in cornea patients: 4.8%). The mean age of these patients was 49.9 ±19.0 years (20 to 88). The mean inpatient stay on the ward was 14.1±8.6 days (1 to 41). The mean incidence was 4.9±3.5 new cases per year, Twenty-one of 31 patients (67.7%) used contact lenses (CL) regularly prior to the infection. Two (6.45%) patients presented with a bilateral fungal keratitis, both after CL wear. The following coinfections could be identified: >=2 different fungus species in five of 31 (16.1%), bacteria in four (12.9%), HSV-1 in three (9.6%), and acanthamoeba in one (3.2%) case.

Conclusions Fungi are a rare cause of infectious keratitis in Switzerland and therefore present a diagnostic challenge to clinicians. Especially cases with coinfections might mask typical clinical signs and therefore delay the diagnosis of fungal keratitis. Regular CL wear seems to be a risk factor for fungal keratitis. Hence, patient education regarding contact lens hygiene remains crucial.

Financial Interest: None: No commercial relationship
Grants: None

P117 Long-term results of acid violet 17 RPE-toxicity after use in macular hole surgery

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Purpose Acid violet 17 (Ala purple) was previously CE approved as a dye for intraocular use during vitreoretinal procedures. Due to safety concerns the product was later withdrawn. It is the aim of this report to describe the long-term results of RPE-toxicity that occurred after use of the dye in 2 cases of macular hole (MH) surgery.

Methods This report describes the functional development and structural aspects (SD-OCT) of the retina in two patients covering a follow-up of 7 years after MH surgery. In both, surgery was performed with peeling of the internal limiting membrane. Approximately 100 µl of dye was applied twice in each patient und was left for 10 seconds before the dye was washed out. Endotamponade with 12% SF6-gas was applied in both eyes and the patients were instructed and controlled to take a face-down position for the first 4 days after surgery.

Results Preoperative visual acuity (Snellen) was 0.2p in patient 1 (P1, male, 73 years) and 0.1p in patient 2 (P2, male, 78 years). The preoperative horizontal basal diameter of photoreceptor detachment (PRD) was 1190 µm (P1) and 638 µm (P2). The minimal horizontal diameter of the holes was 475 µm (P1) and 338 µm (P2). In both cases the MH was successfully closed. Ten days after surgery a central destruction of the RPE and loss of overlying photoreceptors with a horizontal diameter of 1410 µm was seen in P1. The central area of RPE-destruction and photoreceptor degeneration grew up to a horizontal diameter of 1591 µm during follow-up. Similar to P1 a central destruction of the RPE and photoreceptor degeneration was discovered in the first postoperative OCT evaluation 18 days after surgery in P2. In this patient the horizontal diameter of the central degeneration grew up to 1770 µm. In both cases the growth of the central RPE-defect and photoreceptor loss continued through the whole period of postoperative observation. Final visual acuity was 0.05 in P1 and finger counting in 1 meter distance in P2.

Conclusion The cases presented here exemplify the potential severity of acid violet 17 toxicity when used during surgery in eyes with MH. Both cases developed huge central destruction of the RPE and associated photoreceptor loss extending by far the size of the preoperative MH and initial area of PRD(. It seems remarkable that the damaged areas continued to grow until the end of the 7-year follow-up.

Financial Interest: None: No commercial relationship
Grants: None

P118 Early report on a novel treatment for dry AMD – Follow up results of photobiomodulation treatment @ Centre Neuchâtelois d'Ophtalmologie

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Background Photobiomodulation (PBM), also known as low-level (laser) light therapy, is a non-invasive medical treatment that uses red or near-infrared light to stimulate mitochondrial cellular activity to reduce inflammation and promote tissue repair. It has been studied as a potential treatment for dry macular degeneration, which is a common eye condition that causes vision loss due to damage to the light-sensitive cells of the macular region. (Dry macular degeneration, also known as) Dry age-related macular degeneration (AMD), is a progressive condition with no known cure. However, some studies have suggested that PBM may have potential benefits in the treatment of dry macular degeneration.

Material and Methods Retrospective patient chart review of patients currently treated for dry AMD at the Centre Neuchâtelois d'Ophtalmologie (CNO) using the VALEDA®light delivering System (Lumithera, Inc , Washington, USA). Inclusion criteria : diagnosis of dry AMD , visual acuity (0.8-0.1 logMar). Exclusion criteria : hallmarks of active choroidal neovascularisation (CNV), Geographic atrophy (GA) defined as complete retinal pigment epithelium and outer retinal atrophy (cRORA) involving the foveola, concomitant retinal/optical co-morbidities.

Results 21 eyes of 13 patients were audited. Mean age was 79 years. 61% were female and 39 % were male. The whole of the patient group is of caucasian ethnicity. Mean Follow up was 98 days. Baseline BCVA was 0,20 logMar. Mean letter gain was 2 letters. None of the patients treated developped CNV (i.e. wet AMD during follow-up).

Conclusions PBM shows promise as a potential treatment for dry macular degeneration, more research is needed to establish its effectiveness, optimal treatment parameters, and long-term safety. The light used in PBM is typically low-power and does not produce heat, so the risk of ocular damage is considered low. However, as with any medical treatment, there may be risks and individual variations in response, and it's important to consult with a qualified healthcare professional before considering PBM for dry macular degeneration.

Financial Interest: None: No commercial relationship.
Grants: None

P119 A difficult case of optic neuropathy: myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD)

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Background Myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) is a rare inflammatory immune-mediated disorder affecting the optic nerve (ON) and the central nervous system. The diagnosis is based on clinical and MRI criteria that distinguish it from other demyelinating disorders as multiple sclerosis and other antibody-mediated optic neuritis as neuromyelitis optica spectrum disorder. However, this report illustrates the difficulties encountered in making a diagnosis of MOGAD and the need for multidisciplinary management in such cases.

History and signs A 77 year-old male in good health noted progressive painless visual blur and tunnel vision in his right eye (RE) in May 2022.
Examination showed visual acuity (VA) of 0.3, severe dyschromatopsia, reduced visual field to central 10 degrees and normal fundus. However, OCT revealed diminished ganglion cell layer, suggesting a longstanding right optic neuropathy. The left eye was unremarkable. In June, a brain MRI revealed cicatricial white matter ischemia and contrast enhancement of right ON and his inferior sheath evocating neuritis or perineuritis.
In November VA dropped to 0.1 in RE and the patient was hospitalized for intravenous corticotherapy for a presumed inflammation or demyelination. A lumbar puncture was normal. A new MRI showed stable contrast enhancement of the right ON sheath maintaining a possibility of meningeal disease but also suggesting an ON meningioma. Investigations for granulomatous disease were negative. The possibility of MOGAD was evoked with anti-MOG titres negative on fixed cells but positive on live cells.

Therapy and Outcome Following high dose corticotherapy, VA improved to 0.5, and this favorable response felt to be more consistent with an inflammatory or granulomatous disease.
In January, right optic disc pallor was noticed. Compared to previous MRI exams, the diminished contrast enhancement of ON sheath with absence of growth evoked a cicatricial stage of meningeal disease instead of a meningioma.
Anti-MOG live-cell based titres tested an additional two times remained positive, confirming a diagnosis of MOGAD optic neuritis and long-term treatment with azathioprine was initiated.

Conclusion Due to large overlapping features with optic neuropathies of other causes, multidisciplinary collaboration is essential to highlight the clinical and radiological specificities of MOGAD for a prompt diagnosis and appropriate treatment that enable visual recovery.

Financial Interest: None: No commercial relationship
Grants: None

P120 Fleck retina of Kandori associated with a de novo mutation of a heterozygous variant in CAMK2A gene

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Purpose Fleck retina of Kandori (FRK) has been first described in 1958 as a congenital stationary night blindness without decreased visual acuity. It is defined as a possible focal disturbance of the retinal pigment epithelium (RPE) causing focal, irregular, sharply

defined yellow flecks of various sizes on the mid-periphery of the retina sparing the macula, the optic nerve, and the vessels.

Clinical case A seven-year-old girl was referred in the context of global moderate development delay and treated ADHD to exclude visual disorders. The mother spontaneously described night blindness and clumsiness. Visual acuity was 1.0 O.U. with a mild correction of myopia and astigmatism. Oculomotility and binocularity were in order. Anterior segments and ocular tensions were normal. Fundoscopy revealed lesions compatible with FRK distributed primarily in the nasal equatorial region with no vitreous haze nor retinal pigmentary changes. The optic discs, macular area and retinal vessels were normal. The parents funduscopy didn't reveal any fleck-like lesions. Automated visual field was uninterpretable due to low compliance. Fleck lesions were hyperautofluorescent and OCT didn't show obvious changes on the external retina. Photopic and scotopic full-field ERG was normal and dark adaptometry slightly delayed. Six-year follow-up confirmed stability of funduscopy and visual function.

Discussion In parallel with the discovery of FRK, genetic analysis revealed a de novo heterozygous mutation in the CAMK2A gene encoding the Ca2+/calmodulin-dependent protein kinase II enzyme and explaining the patient's neuropediatric pathology. This enzyme is essential in neuron survival, synaptic plasticity, neuromodulation, cortical development, learning and memory processes in the brain. In the eye, it seems to be expressed in the retina (including in retinal ganglion cells and photoreceptors). Faced with this case, the question that arises is whether these are two non-associated entities occurring in parallel or whether there may be a pathophysiological link between these two expressions of a neuropediatric and an ophthalmologic pathology, expressed as a mosaicism in the retina.

Conclusion The association of FRK and a de novo heterozygous CMAK2A mutation causing a global development delay does not appear to have been previously described in the literature and recognition of such an association may have clinical implications and help further diagnosis.

Financial Interest: None: No commercial relationship
Grants: None

P121 Iatrogenic macular haemorrhage after dexamethasone implant injection

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Purpose We present a case of iatrogenic macular haemorrhage associated with an ILM-rupture following intravitreal injection of dexamethasone implant (0.7mg Ozurdex).

Case presentation A 92-year-old gentleman presented for a second opinion in our emergency department due to a sudden central visual loss of two days duration on his left eye. The day beforehand the patient had received an intravitreal dexamethasone implant in a private setting.

At presentation, an apparent loss of visual acuity of finger counting at 50 cm could be documented. Anterior segment findings were unremarkable and revealed pseudophakia and normal intraocular pressure.
On funduscopic examination a macular haemorrhage entering the vitreous cavity was noted in the involved eye. Optical coherence tomography showed a volcano-like subretinal haemorrhage breaking through an ILM-lesion into the vitreous cavity. Any co-existing choroidal neovascularisation could be excluded on OCT- and fluorescein angiography imaging.
According to our medical records a vitrectomy with ERF- peeling have been performed for 2 years. Local administration of Yellox twice daily to counteract the intraocular irritation was initiated. Clinical findings, including closure of the ILM rupture, as well as resorption of the macular- and vitreous haemorrhage, occurred spontaneously two months later. In the presence of consequent atrophy of the interdigitation zone, documented on OCT- and FAF imaging, his visual acuity improved to 0.32.

Conclusions Retinal injury and vitreous haemorrhage occurring following an Ozurdex implant injection, may be described as due to mechanical direct- and/ or indirect tissue injuries. Any pre-existing vitreous and retinal surgeries but also regular administration of oral anticoagulants should be accounted for safer administration techniques of pellet injection.
Due to the higher rate of spontaneous remissions, therapeutic vitrectomy could be postponed, especially in patients receiving oral anticoagulants.

Financial Interest: None: No commercial relationship
Grants: None

P122 Everlasting intralenticular implant of sustained-release dexamethasone implant (ozurdex)

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Unintentional injection of the dexamethasone implant into the lens is a particularly rare event with only very few cases reported in the medical literature. We present a 78-year-old male was referred for a second opinion to Jules Gonin University Eye Hospital 3 months after inadvertent intralenticular injection of sustained-release dexamethasone implant (Ozurdex) for diabetic macular edema on his left eye. On examination, his corrected distance visual acuity was 0.8 in the right eye and 0.6 in the left eye. Early cataractous changes were present in both eyes. Fundus examination showed moderate nonproliferative diabetic retinopathy in both eyes.
Patient refused any surgery and was noncompliant to the suggested follow-ups. He returned for control 6 months later with no change in VA nor the clinical image.
The patient continue to be noncompliant to the suggested follow-ups and returned 9 moths later with vitreous hemorrhage and drop of vision on the left eye. At that stage he accepted surgery. Surprisingly, no significant cataract progression was noted at that stage and the ozurdex implant appeared intact 18 months after its intralenticular injection. The patient underwent combined

vitrectomy panretinal photocoagulation and phacoemulsification of the lens, removal of the Ozurdex, and implant of a three-piece lens. Vision of the left eye improved to 1.0 after surgery. This is probably the longest reported case of an intralenticular ozurdex implant. Immediate surgery might not be necessary for these cases.

Financial Interest: None: No commercial relationship
Grants: None

P123 Imaging Assessment of Peripapillary Vessel Diameters in Post-Mortem Eyes

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Purpose Proof of concept of retinal vessel diameter measurements ex-vivo in post-mortem eyes on en-face near-infrared (IR) images.

Methods En-Face near-infrared (IR) images and optical coherence tomography (OCT) of the optic nerve head (ONH) were captured ex-vivo using a Heidelberg Engineering Spectralis device using a custom-made eye ball holder. Thirty-two human eyes of 16 patients that had been prior fixated with formaldehyde were imaged. Two independent graders measured all detectable peripapillary vessels. The measurement locations were two circles centered on the optic disc with a diameter of 2.0mm and 3.4mm respectively. The intersection of the retinal vessel with the circle defined the exact measurement location for both graders. The anatomically matching measurements of arteries and veins using IR images were statistically analyzed. As the dataset was not normally distributed a Wilcoxon signed rank test was used to evaluate the differences of the two grader groups. Means were calculated for arteries and veins by each grader.

Results A total of 247 matched measurements of both graders were analyzed across all 32 imaged eyes. The measurements showed only statistically significant differences between measurements of the two graders for the diameters of the arteries at 2 mm distance from the ONH. The mean artery diameters were for grader 1: 72.2 ± 3.0 µm at 2.0mm and 61.5 ± 2.3 µm at 3.4mm and for grader 2: 66.4 ± 2.2 µm at 2.0mm and 63.2 ± 2.5 µm at 3.4mm. The mean diameter for veins were for grader 1: 75.5 ± 6.3 µm at 2.0mm and 79.3 ± 3.6 µm at 3.4mm and for grader 2: 67.4 ± 4.9 µm at 2mm and 79.1 ± 3.1 µm at 3.4mm.

Conclusion Our study shows that post-mortem retinal OCT imaging is possible in formaldehyde fixated eyes. Despite the challenges of manual measurement of peripapillary vessel diameters due to post mortem artefacts resulting in lower quality of ex-vivo images compared to in-vivo images, we could show similar measurements between two independent graders for all vessel diameter measurements except for the arteries at 2mm. To our best knowledge, this is the first study to present IR-/OCT-based vessel diameters in post-mortem eyes.

Financial Interest: None: No commercial relationship
Grants: None

P124 A Novel Technique of Aseptic Manufacturing of Autologous Serum Eye Drops (ASED) and Sterility Analysis of the Bottled Ophtioles

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Purpose To introduce a novel technique of aseptic manufacturing of autologous serum eye drops (ASED) with a prefiltered closed system and to analyze sterility of the produced ophtioles between 2018 and 2022.

Methods This is a prospective single-center study conducted at the Department of Ophthalmology at a Swiss University Hospital between 2018 and 2022. For regulatory reasons, closed systems for manufacturing ASED are strongly recommended. We attached an upstream sterile filter (Sterivex PES 0.22 µm) to a commercially available closed system (COL System) for manufacturing ASED. The goal of this novel approach was to reduce the microbiological contamination of the donated autologous blood. Using the presented manufacturing method, we are able to produce, on average, 56 ophtioles per batch, containing either 1.45ml or 2.5ml of autologous serum per ophtiole. For each batch of ASED, we performed a microbiological analysis by automated blood culture testing (BACTEC). This system examines the presence of bacteria and fungi.

Results We analyzed all manufactured batches between 2018 and 2022. None of the 2297 batches and the hereof resulting 129'060 ophtioles showed bacterial or mycotic contamination. During the analyzed period, two batches were discarded: One due to fibrin-lipid aggregations, further microbiological and histological work-up excluded any contamination. Another one due to false-positive HIV in serological testing. Overall, the contamination rate was 0%, and the batch-discharge rate 0.09%.

Conclusions The combination of upstream sterile filtration with a commercial closed system for manufacturing ASED proved to be effective in ensuring sterility without any contamination over the past four years. This becomes crucial as the demand for autologous blood products for treating ocular surface disorders such as refractory dry eyes or non-healing corneal epithelial defects is on the rise.

Financial Interest: None: No commercial relationship
Grants: None

P125 Vision development in a Hallermann-Streiff case with bilateral severe microphtalmia, cataract and fundus abnormalities

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Purpose To report anatomical features, management and functional outcome of a patient with Hallermann-Streiff syndrome and multiple ocular anomalies.

Methods Case report

Results A girl neonate shortly diagnosed with Hallermann-Streiff syndrome after birth at term was seen under general anesthesia for a bilateral cataract at the age of 4 weeks. General examination showed typical features of Hallermann-Streiff syndrome including dyscephaly with frontal bossing, micrognathia, nasal hypoplasia with a thin pointed nose and fetal teeth. Ophthalmic evaluation with portable slit-lamp and ultrasound biomicroscopy as well as anterior segment OCT revealed a severe microphtalmia with an anterior-posterior diameter of 8.7 mm OD and 9.7 mm OS, a shallow anterior chamber, a plateau iris, irido-lental synechiae and a white cataract obscuring completely the fundus view in both eyes. Ultrasonography displayed a bilateral thickened chorio-retina at the posterior pole. Uneventful bilateral lensectomy with posterior capsulorhexis and anterior vitrectomy was performed during the same anesthesia. Postoperative fundus evaluation revealed a thickened choroid and macular folds in both eyes that increased over time secondary to a comparatively slow globe growth. There were no postoperative complications. The aphakic eyes were corrected with semi-rigid contact lenses regularly adapted under general anesthesia. At date last seen, four years after the cataract surgery, best corrected visual acuity was 0.125 OD and 0.16 OS with special crafted +100 D semi-rigid contact lenses, despite macular folds of 1.40 mm thickness OD and 2.18 mm thickness OS.

Conclusion Vision development is possible in Hallermann-Streiff syndrome with bilateral cataract, severe microphtalmia and retinal folds, providing early surgical management, absence of postoperative complications and appropriate follow-up.

Financial Interest: None: No commercial relationship.
Grants: None

P126 Treatment of an optic pit maculoschisis with topical non-steroidal antiphlogistics

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Introduction A 32 year old healthy woman presented with a reduced visual acuity in her left eye which had been noticed by an optician. She never had glasses and was unaware of previous eye disease. Best corrected visual acuity was 1.0 OD and 0.4 OS.
Anterior segments were unremarkable OU. Funduscopy revealed normal findings OD and a large optic pit and a macula without a foveal reflex OS.
OCT imaging was unremarkable OD and showed OS a maculoschisis with a central foveal thickness of 349 µm.

Methods After explaining the treatment options including laser photocoagulation and pars plana vitrectomy, the patient decided for a treatment attempt with topical non-steroidal antiphlogistics. Initially three drops of nepafenac were administered daily in combination with lubricating eye drops. The nepafenac eye drops were slowly reduced to 2xd and 1xd respectively and finally taperered out.

Results We observed a slow but continuous reduction of intra- and subretinal fluid which had completely resorbed after 8 months when the treatment was stopped. Nasal to the fovea some alterations oft he outer retina remained. The final visual acuity OS was 0.63, and the central foveal thickness was 263 µm. There has been no recurrence during the 36 months of follow up.

Conclusion Topical non-steroidal antiphlogistics can reduce macular edema. In this case of a maculoschisis secondary to an optic disc pit we also observed a positive effect. In another case with optic disc pit administration of topical non-steroidal antiphlogistics was less effective. We assume that an inflammatory component needs to be present in responsive cases.

Financial Interest: None: No commercial relationship
Grants: None

P127 Long term follow up in case of atypical macular hole treated with 25G pars plana vitrectomy (ppV), ILM peeling and gas tamponade

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Introduction A female 69 year old patient presented with reduced vision in her left eye. Visual acuity was 0,25 secondary to a macular hole. The anterior segment was unremarkable. Unusual was the shape of the macular hole which had a diameter of 203 µm at its narrowest portion and a diameter of 2172 µm at its base.

Methods A 25 G ppV with ILM peeling and 16% C2F6 gas tamponade was performed and OCT images were taken during follow up.

Results Follow up was 24 months. Three weeks post operatively, the macular hole had closed and visual acuity had improved to 0.5, but a large area of subretinal fluid of 1760 µm x 300 µm remained. Nine months after ppV a cataract surgery was performed. The area of subretinal fluid resorbed slowly and the subretinal fluid had completely dried 16 months after the ppV and the macula remained dry until the last visit 24 months after surgery. The last visual acuity in the left eye was 0.63 at the final visit.

Conclusion Pars plana vitrectomy in macular holes with very large diameters at their base can achieve visual improvement, but complete fluid resorption and best visual acuity may be observed more than a year after surgery.

Financial Interest: None: No commercial relationship
Grants: None

P128 A patient with geographic atrophy, central island and vitreofoveal traction treated with 25 G pars plana vitrectomy

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Introduction A 81 year old gentleman was referred to our clinic due to a vision loss and metamorphosia in his left eye. Both eyes were pseudophacic, Visual acuity was 1.0 OD and 0.5 OS. In his

left eye the patient had metamorphopsia. The anterior segments showed an unremarkable pseudophakia. Funduscopy revealed an extensive geographic atrophy in both eyes with preserved RPE subfoveally. OCT scans showed in the left eye a vitreofoveal traction and an elevation of outer retinal layers.

Methods In the left eye a 25 G ppV with an air tamponade was performed. OCT and fundus images were evaluated post operatively.

Results Four weeks after surgery, metamorphopsia had improved and visual acuity was 0.63. At 4 month follow up, visual acuity in the left eye was 1.0.

Conclusion Vision in patients with advanced AMD and vitreofoveal or vitreomacular traction undergoing a pars plana vitrectomy can still gain vision and quality of life.

Financial Interest: None: No commercial relationship
Grants: None

P129 Acute Myopization after a single dose of acetazolamide

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Purpose To report a case of a 32-year-old male presenting with bilateral circumferential choroidal and ciliary body detachment causing acute myopization due to advancement of the iris-lens diaphragm, after receiving a single oral dose of acetazolamide 250 mg.

Methods Clinical case Report

Results A 32-year-old patient, with no previous medical history, was referred because of recurrent episodes of vertical diplopia associated with a cerebellar oculomotor syndrome, in the context of a positive family history. Following an extensive work up, a transient episodic ataxia was suspected, and the patient was initiated on acetazolamide 250mg twice a day. A few hours after the first oral administration of acetazolamide, the patient complained of progressive blurry vision with increasing near-sightedness. Twelve hours after the drug intake, a myopization of -4.5 diopters was measured. The anterior chamber was shallow, but without angle closure. An anterior ciliary body rotation with anterior displacement of the iris-lens diaphragm, an extremely rare complication of acetazolamide, was suspected and the patient was admitted for monitoring due to risk of malignant glaucoma. Twelve hours later, the myopia had progressed to -5.5 diopters with angle closure but no ocular hypertension. A bilateral circumferential choroidal and ciliary body detachment could be seen on ultrasound biomicroscopy. In order to reverse the anterior ciliary body rotation, cycloplegia was initiated with atropine 0.5% 2x/day associated with topical dexamethasone 4x/day. The evolution was positive with a progressive deepening of the anterior chamber, re-opening of the iridocorneal angle, and complete resolution of the myopization after five days. Best corrected visual acuity remained at 1.2 in both eyes throughout follow-up.

Conclusions Acute myopic shift with uveal detachment is an extremely rare idiosyncratic adverse reaction to acetazolamide. Treatment is focused on discontinuation of the drug, cycloplegia to induce posterior replacement of the ciliary body and topical steroid agents. Close monitoring and control of intraocular pressure is necessary because of the risk of malignant glaucoma.

Financial Interest: None: No commercial relationship
Grants: None