Medical Retina

# THE CORRELATION BETWEEN QUALITY OF LIFE (QOL) AND HEALTH LITERACY (HL) IN PATIENTS WITH DIABETIC MACULAR OEDEMA AND AGE-RELATED MACULAR DEGENERATION

**Nikolaos Tsakalis**[1], Ioannis Giapitzakis[1]
*Ophthalmology Department, General Hospital of Ierapetra, Greece*

Purpose:

The purpose of this study is to clarify the relationship between HL and QoL in patients of the Ophthalmology Department of the General Hospital of Ierapetra who undergo intravitreal injections due to diabetic macular edema as well as age-related macular degeneration.

Materials-Method:

After informed and written consent, 64 patients participated. The assessment of QoL related to vision was done through questionnaire NE-VFQ25 (GRversion-RAND) and the assessment of HL through the questionnaire of HLS-EU16 (GRversion). Socioeconomic data was collected through open-ended questions to patients and caregivers. The data set was evaluated against retrospective data from patients` ophthalmological history.

Results:

Of the total 64 patients, only 5 (7.81%) had an adequate HL score while the remaining patients were divided into the other two categories: problematic HL (32 patients–50%) and insufficient HL (27 patients–42.19%). In patients with problematic and insufficient HL, delayed initiation of treatment greater than 4 months was observed in 71.18% (42/59). The loss of 2 scheduled appointments over an 18-month interval was observed in 30% of patients with problematic and insufficient HL. The completion of QoL questionnaires showed a strong positive relationship with patients` BCVA and regarding the HL status, there was an association of QoL with insufficient HL but not with adequate HL.

Conclusions:

HL is directly related to disease prevention, initiation and adherence to the treatment plan. Possible actions to enhance it may have a catalytic effect on the strengthening of QoL in patients undergoing intravitreal treatments.

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# POTENTIAL RENAL INJURY RISK RELATED TO INTRAVITREAL ANTI-VEGF TREATMENT FOR DIABETIC MACULAR EDEMA IN ROUTINE CLINICAL SETTINGS.

**Maria Del Mar Prieto del Cura**[1], Marina Sastre Ibañez[1], Maria Jose Crespo Carballes[1]
*Retina Department, Hospital Infanta Leonor, Spain*

Introduction:Vascular endothelial growth factor inhibitors (anti-VEGF) have been shown to be effective in the treatment of diabetic macular edema. However, there is little information about the systemic effects of intraocular administration of anti-VEGF drugs in patients with coexistent diabetic nephropathy because it can produce adverse renal effects.

Methods: This retrospective cohort study analyzed the effect of intravitreal anti-VEGF drugs (bevacizumab, ranibizumab or aflibercept) on eFGR and microalbuminuria (MicA) in patients with diabetic macular edema and non-proliferative retinopathy without chronic kidney disease (CKD).

Results: 66 patients were included, 54.5% male and 45.5% female, with a mean age of 66.70±11.6 years. The mean follow-up of patients with antiangiogenic treatment was 42.5±28.07 months and the mean number of injections was 10.91±7.54. In 12.1% of the cases there was a worsening of the glomerular filtration rate (eFGR) and a 19.7% worsening of the microalbuminuria (MicA). The number of injections was not related to the worsening of the eFGR ($p = 0.74$) or the MicA ($p = 0.239$). No relationship was found between the type of drug and the deterioration of the GFR ($p = 0.689$) or the MicA ($p = 0.53$).

Conclusions:Based on the results there is a small proportion of patients with increase in MicA and the decrease in eFGR after anti-VEGF therapy and these was no associated with the number of injection or the drug type. Ophthalmologists should be aware of renal damage in order to do a close monitoring of renal function and proteinuria after intravitreal administration of anti-VEGF.

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# Retinal changes in Idiopathic Inflammatory Myopathies

**Rachna Agarwal**[1]
*Ophthalmology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, India*

Purpose

Retinal changes are the window to systemic vasculature. Therefore, we explored retinal changes in patients with Idiopathic inflammatory myopathies (IIM) as a surrogate for vascular health.

Methods

Adult and Juvenile IIM patients (2017 ACR/EULAR criteria), visiting a tertiary care centre in 2021 were enrolled for detailed ophthalmic examination in comparison with healthy controls (HC). Patients with conditions that precluded thorough posterior chamber examination were excluded.

Scale variables are expressed as median (IQR). Multivariate analysis (binary logistic regression-BLR) was conducted, adjusting for age, gender, and comorbidities besides factors significant in univariate analysis.

Results

43 patients with IIM [31 females; age 36 (23-45) years; disease duration 5.5 (2-12) months] were enrolled for participation. DM (44%) was the most common diagnosis.

IIM patients exhibited frequent attenuation of retinal vessels (32.6% vs 4.3%,p 0.001), AV nicking (14% vs 2.2%,p=0.053), and vascular tortuosity (18.6% vs 2.2%,p=0.012), besides decreased visual acuity (53.5% vs 10.9%, p0.001) and immature cataracts (34.9% vs. 2.2%,p0.001).

Attenuation of vessels [OR 10.9 (1.7-71),p=0.004] emerged as significantly different from HC after adjusting for covariates in BLR.

Notably, adults with IIM were more predisposed to retinal abnormalities [21 (57%) vs 1 (16%),p=0.068], especially attenuation of vessels [14(38%) vs 0(0),p=0.067] than jIIM. However, no difference was found in retinal features amongst the subtypes of adult IIM, nor did they correlate with MDAAT, MDI, or HAQ-DI.

Conclusion

Retinal microvasculopathy and diminution of vision occur in nearly one-thirds to half of the patients with IIM. Microvasculopathy occurs across subtypes of IIM, and more so in adults, calling for further investigation as a surrogate for damage assessment and potentially even systemic vascular health.

Financial Disclosure

None

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# The impact of diabetic retinopathy on the choriocapillaris in neovascular age-related macular degeneration

**Giacomo Boscia**[1], Pasquale Viggiano[1], Maria Oliva Grassi[1], Enrico Borrelli[1,2], Francesco Boscia[1]

[1]*Department of Translational Biomedicine Neuroscience, University of Bari "Aldo Moro", Department of Translational Biomedicine Neuroscience, University of Bari "Aldo Moro", Italy*

[2]*Department of Ophthalmology, Eye Clinic, University of Turin, Italy*

Purpose:To investigate the impact of diabetic retinopathy (DR) on morphological choriocapillaris(CC)modifications in eyes with type 1 macular neovascularization(MNV)secondary to age-related macular degeneration(AMD)using optical coherence tomography angiography(OCTA).Methods:Eyes with AMD-related type 1 MNV with and without DR were prospectively included.3x3 mm OCTA scans were performed at two visits:before the loading phase of intravitreal injections of aflibercept (T1)and 1 month after the last injection(T2).OCTAEnface flow images of the CC were analyzed for flow deficit percentage(FD%),flow deficit average area(FDa),and flow deficit number(FDn)in a 500-μm-wide ring surrounding the dark halo(DH)around type1MNV.Results:A total of 65 eyes,out of which 30 eyes had mild DR,were included.In the group without diabetes,there was a gradual reduction in FD% in the CC ring around the DH after anti-angiogenic therapy,indicating reperfusion of the CC(p=0.003).However, in the DR group,there were no significant changes in CC parameters between the two study visits.Specifically, the FD% in the CC ring around the DH did not show a significant reduction at T2 compared to T1 values (p 0.05). Furthermore, the comparison of the variation in FD% between the two groups was statistically significant.The "no diabetic group" exhibited gradual choriocapillaris reperfusion after the loading phase of aflibercept,whereas the diabetic eyes did not show significant changes(p=0.029)Conclusions:The CC surrounding the DH associated to type 1 MNV exhibited greater hypoperfusion in diabetic eyes compared to eyes without diabetes, both before starting therapy and after the loading phase.Hence,DR may be a potential risk factor in the development and progression of late-stage AMD and may also influence the response to anti-angiogenic therapy.

Medical Retina

# CHOROIDAL STRUCTURE IN EYES WITH BRANCH RETINAL VEIN OCCLUSION

**Yoshinori Mitamura**[1], T. Enkhmaa[1]
*Department of Ophthalmology, Institute of Biomedical Sciences, Tokushima University Graduate School, Japan*

Purpose: To investigate the choroidal structure in eyes with branch retinal vein occlusion (BRVO) after intravitreal aflibercept (IVA) injections.

Methods: Thirty treatment-naïve patients who underwent IVA for BRVO were examined by enhanced depth imaging optical coherence tomography (EDI-OCT) before and after the IVA. The EDI-OCT images were binarized by ImageJ software. The cross sectional luminal, stromal, and total areas of the subfoveal choroid of 1,500-µm-width were quantified. The stromal area to total choroidal area (S/C) ratio was calculated.

Results: Compared to normal contralateral eyes, afflicted eyes at baseline exhibited significantly greater stromal area (P 0.001), total choroidal area (P =0.009), and S/C ratio (P 0.001), but no difference in luminal area (P =0.148). After the IVA, the stromal but not the luminal area was significantly decreased in the affected eyes (P 0.001, P =0.062, respectively). The S/C ratio and total choroidal area were significantly decreased (both P 0.001). Baseline S/C ratio was significantly correlated with baseline central retinal thickness (CRT), and CRT improvement at three and six months post-treatment even after adjusting for the axial length, age, and sex (all P0.017).

Conclusions: The binarization of the EDI-OCT images may be a useful and noninvasive method to evaluate the choroid after anti-vascular endothelial groth factor therapy for BRVO and to predict the prognosis after IVA.

Financial Disclosure: No

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# INTRAVITREAL STEROIDS AND DISORGANISATION OF RETINAL INNER LAYERS (DRIL) IN DIABETIC MACULAR OEDEMA: FINDINGS FROM A REAL-WORLD SINGLE-CENTRE COHORT

**Emmanouil Tasos**[1], Evangelos Minos[1], Daniel Hornan[1]
*Ophthalmology, North West Anglia Nhs Foundation Trust, UK*

Introduction

The Disorganisation of Retinal Inner Layers (DRIL) is an established biomarker of diabetic macular oedema (DMO), which correlates well with its severity. We evaluated whether intravitreal Ozurdex and Iluvien affected the presence of DRIL, and whether this correlated with changes to CRT.

Methods

Data was collected for 129 patients with DMO on Ozurdex and 14 patients with DMO on Iluvien. Patients were followed up for 12 months and had their CRT measured using OCT imaging. OCT imaging was evaluated to determine the presence or absence of DRIL pre- and post-treatment.

Results

77% of eyes had discernible DRIL on OCT pre-Ozurdex, whereas 60% had DRIL at 9-12 months post-Ozurdex; DRIL was eliminated 2-3 months post-Ozurdex in 48% of eyes. Similarly, the proportion of eyes with DRIL decreased from 29% pre-Iluvien to 18% 12 months post-Iluvien.

In the Ozurdex cohort, reduction in CRT 2-3 months post-Ozurdex was 131 microns in eyes that were DRIL-positive pre-injection cf. 38 microns in DRIL-negative eyes. Also, eyes with DRIL eliminated had a CRT reduction of 194 microns vs. 74 microns in eyes where DRIL persisted.

Conclusions

Our results showed DRIL did not indicate resistance to treatment with Ozurdex or Iluvien. Thus, intravitreal steroids may treat DMO with DRIL better than anti-VEGF agents and should be considered in eyes responding inadequately to anti-VEGF agents or in DRIL-positive treatment-naïve eyes with DMO.

Funding declaration: Yes; funding was provided by Allergan.

Medical Retina

# NON-INVASIVE MULTIMODAL RETINAL IMAGING IN POLYPOIDAL CHOROIDAL VASCULOPATHY: A CASE SERIES

**Nikolaos Bitzanakis**[1], Ilias Gkizis[1], Christina Karakosta[1], Chrysoula Sgourou[1], Aikaterini Nikiforou[1], Tina Xirou[1], Stamatina Kabanarou[1]
*Department of Ophthalmology, General Hospital of Athens, Korgialenio-Benakio, Greece*

Purpose: To present the characteristics of polypoidal choroidal vasculopathy (PCV) using non-invasive multimodal imaging in a case series.

Methods: A retrospective, cross-sectional study was conducted. In total 10 eyes of 9 patients were included. All patients, prior to treatment initiation, underwent non-invasive multimodal retinal imaging, which included Optical Coherence Tomography (OCT), OCT-Angiography (OCT-A), blue and green light Fundus Autofluorescence (FAF). The PCV OCT findings, which were documented, included: multiple Retinal Pigment Epithelium Detachment (PED); sharply peaked PED; notched PED; double-layer sign; bubble/ring sign and exudates. In enface OCT-A, complex RPE elevations and small sub-RPE ring-like lesions were evaluated. Moreover, in OCT-A, a halo, a vascular network, or rosette patterns were documented. In FAF, 6 signs were assessed: confluent hypo-autofluorescence with or without surrounding hyper-autofluorescent ring, hyper-autofluorescence with surrounding hypo-autofluorescent ring, granular hypo-autofluorescence, blocked hypo-autofluorescence and no signs.

Results: In OCT scans, sharply peaked PED, multiple PEDs, bubble/ring sign, double-layer sign, and the exudates were present in 60%, 30%, 30%, 80% και 100% of eyes respectively. In OCTA, complex RPE elevation, small sub-RPE ring-like lesion, halo, rosette and vascular networkpatterns were detected in 75%, 12.5%, 25%, 25%, 50% of eyes respectively. In FAF, confluent hypo-autofluorescence with surrounding hyper-autofluorescent ring, confluent hypo-autofluorescence, granular hypo-autofluorescence and blocked hypo-autofluorescence due to hemorrhage were detected in 50%, 40%, 90% και 20% of eyes, respectively.

Conclusions: Anatomical features documented during non-invasive multimodal retinal imaging may establish diagnostic criteria for polypoidal choroidal vasculopathy, as an alternative to the Indocyanine Green Angiography gold standard.

Financial Disclosure: None

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## UTILISING OCT BIOMARKERS TO CREATE A PERSONALISED RESOURCE-EFFICEIENT PATHWAY FOR MANAGEMENT OF WET AMD PATIENTS:LEAN PATHWAY STUDY

**Rashi Arora**, Christina Mathew
*Ophthalmology, Salisbury NHS Foundation Trust, UK*

Background; This small scale study explores the feasibility of utilizing Optical Coherence Tomography (OCT) biomarkers to tailor treatment strategies for Wet Age-Related Macular Degeneration (AMD). Against the backdrop of the COVID-19 experience, we examine the potential for creating a cost-efficient pathway in wet AMD management by integrating lessons learned from pandemic-related healthcare adaptations.

Methodology: Clinically stable patients on the treat-and-extend pathway were recruited, with two clinical evaluators assessing patients conventionally (face-to-face consults with VA and OCT assessment at every visit). We compared outcomes with visits following a modified lean protocol (face-to-face consults on alternative visits). The safety protocol, triggered by negative OCT biomarkers or specific clinical signs, prompted a face-to-face clinical review with a modified treatment plan if indicated.

Results: Of the 104 eyes included, 96 (89%) exhibited concordance between the conventional and lean pathways. Twenty-eight eyes triggered the safety protocol, with 8 requiring a change in treatment plans. Patient outcomes were not compromised by reduced face-to-face reviews.

Conclusion: Our findings underscore the crucial role of OCT biomarkers in identifying individualized response patterns to anti-VEGF therapy. Insights from the pandemic, including virtual utilization and streamlined protocols, contribute to a cost-effective approach in delivering personalized care for wet AMD patients. This study advances ophthalmic care, proposing a synergistic use of OCT biomarkers and lessons from the COVID-19 era to enhance both the efficacy and economic viability of personalized wet AMD treatment pathways. This study contributes to the evolving landscape of ophthalmic care.

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# VITREORETINAL INTERFACE ABNORMALITIES IN PATIENTS WITH RETINAL VEIN OCCLUSION IN A TERTIARY REFERRAL CENTER

**Irini Chatziralli**[1], C. Agapitou[1], E. Dimitriou[1], P. Kapsis[1], D. Kazantzis[1], A. Risi-Koziona[1], G. Theodossiadis[1], P. Theodossiadis[1]

*2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Greece*

Purpose: The purpose of this study is to investigate the prevalence of vitreoretinal interface (VRI) disorders in patients with retinal vein occlusion (RVO) and to evaluate the impact of VRI abnormalities on the treatment outcomes of macular edema secondary to RVO using intravitreal aflibercept.

Methods: Participants in this prospective study were consecutive patients with macular edema secondary to RVO, who received intravitreal aflibercept injections. At baseline, best-corrected visual acuity (BCVA) was assessed, and spectral domain-optical coherence tomography (SD-OCT) was performed to measure central subfield thickness (CST) and to evaluate the presence of VRI disorders, namely vitreoretinal adhesion (VMA), vitreoretinal traction (VMT), epiretinal membrane (ERM), lamellar macular hole (LMH) and full-thickness macular hole (FTMH). The primary outcomes were the prevalence of various VRI disorders in patients with RVO and the impact of VRI disorders on BCVA and CST after aflibercept treatment in such patients.

Results: At baseline, 16.1% of patients had VMA, 3.2% VMT, 18.3% ERM and 1.1% LMH. There was a statistically significant improvement in BCVA and decrease in CST in RVO patients over time. There was no statistically significant difference regarding BCVA and CST at baseline and until month 24 after treatment between patients with VRI disorders and those without VRI disorders. However, the mean number of injections during the follow-up period was higher in the group with VRI disorders (9.4±2.1) compared to those without VRI disorders (8.1±0.7, p=0.0002).

Conclusions: The prevalence of VRI disorders in patients with RVO was 16.1% for VMA, 3.2% for VMT, 18.3% for ERM and 1.1% for LMH. VRI disorders were not found to affect the anatomical and visual outcomes after intravitreal aflibercept treatment in patients with RVO, although more intravitreal injections were needed in patients with VRI disorders.

Medical Retina

# ANOTHER CASE OF MACULA OEDEMA

**V. Nguyen**[1,2,3], R. Porter[1,2]
[1]*Department of Ophthalmology, Inala Indigenous Health Service, Australia*
[2]*Department of Ophthalmology, Wynnum-Manly Community Health Centre, Gundu Pa, Australia*
[3]*Department of Ophthalmology, Redland Hospital Metro South Health, Australia*

Purpose:

To highlight a case of adult-onset bestrophinopathy initially mistaken as a central serous chorioretinopathy (CSCR).

Methods:

A 37-year-old female presented with slightly reduced vision in her right eye. Vision was right 6/7.5 and left 6/6. Intraocular pressures were right 9mmHg and left 11 mmHg. Pupils were equal and reactive with no relative afferent pupillary defect.

Refraction showed mild hyperopic astigmatism which improved vision to 6/5 bilaterally. Anterior segment examination was unremarkable. Posterior eye examination showed healthy optic nerves and peripheral retina. The right macula was raised with a dome shaped serous detachment on optical coherence tomography. The left macula was flat. Fundus autofluorescence revealed a hyperfluorescence edge surrounding the serous detachment. Fluoresceine and indomethacin green angiography showed no leakage. The patient was managed as a CSCR conservatively.

Six months later, the serous detachment had not improved. The right choroidal thickness measured 377um, making CSCR a less likely diagnosis. Electrooculography testing was organised, revealing a reduced Arden ratio suggestive of a bestrophinopathy disease.

Results:

Genetic testing confirmed a BEST-1 gene mutation causing BEST disease with an autosomal dominance inheritance. Bestrophinopathies are a spectrum of ophthalmic disorders caused by pathogenic variants in BEST-1 gene expressed in the retinal pigmented epithelium. There are four recognised phenotypes, all resulting in retinal degeneration. Evaluation of relatives at risk to clarify the genetic status is helpful, as individuals may benefit from linking in with low vision services.

Conclusion:

Adult-onset bestrophinopathy can be commonly mistaken as CSCR. Multimodal imaging, electrophysiology and genetic testing are key in making the diagnosis.

Financial disclosure: No

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# OPTIC DISC PSEUDO-DUPLICATION AFTER FOCAL LASER TREATMENT OF DIABETIC MACULAR EDEMA

**Asli Perente**[1], Doukas Dardabounis[1], Irfan Perente[1]
*Department of Ophthalmology, University Hospital of Alexandroupolis, Greece*

**Purpose:** to present a case with an unusual optic nerve head like lesion in the macula.

**Methods:** color fundus photography, fluorescein angiography (FA), optical coherence tomography (OCT) and optical coherence tomography-angiography (OCT-A) were used for the visualization of the lesion.

**Results:** according to FA, OCT and OCT-A the diagnosis of quiescent type 2 choroidal neovascular membrane (CNV) was set. During the years of follow-up there were no activation of the CNV and deterioration in visual acuity. Therefore no treatment was needed.

**Conclusions:** secondary CNV is a possible complication of laser photocoagulation. In our case, the location of the CNV at the borders of focal laser treatment indicates that the CNV formation in this patient may represent a late complication of laser photocoagulation. Pseudo-duplication of the optic disc is a rare condition and is commonly associated with choroidal coloboma or degenerative myopia scarring. The presence of pseudo-duplication in a diabetic patient secondary to chorioretinal scar in conjunction with choroidovitreal neovascularization has been reported in the literature. Our patient is considered to be a unique case of optic disc pseudo-duplication due to type 2 CNV developed after focal laser application for clinically significant macular edema.

*Financial Disclosure: No*

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# Combined central retinal vein and branch retinal artery occlusion: a systematic review

**Stefano Dore**[1], Lorenza Ronchi[1], Matteo Sacchi[1], Arianna Balloi[1], Carlo Murgia[1], Angelo Zinellu[2], Antonio Pinna[1]

[1]*Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, Azienda Ospedaliero-Universitaria, Italy, Sassari, Italy, Azienda Ospedaliero-Universitaria, Italy*

[2]*Department of Biomedical Sciences,University of Sassari, University of Sassari, Italy*

Purpose: To perform a systematic review and analyze the current available data on central retinal vein obstruction (CRVO) with simultaneous branch retinal artery occlusion (BRAO), a rarely described occurrence.

Methods: MEDLINE/PubMed and ISI Web of Sciences searches were performed according to MOOSE guidelines. Studies were considered eligible if (1) they described patients with simultaneous CRVO+BRAO, (2) had been published in peer-reviewed journals. We initially identified 241 records from databases. Finally, only 20 reports met selection criteria.

Results: Thirty patients (16 men, 14 women; mean age 45.6±15 years) were analyzed. Eighteen (60%) patients presented vascular risk factors. Mean visual acuity at onset and final visual outcome were 20/83 and 20/45, a not significant improvement. Vision improved in 50% of cases. A marked heterogeneity in treatment approach was found. Eight (27%) patients received no therapy, whereas in 22 (73%) a large variety of topical and/or systemic drugs was given. In the treated group, mean visual acuity at onset and final visual outcome were 20/90 and 20/44, a not statistically significant improvement.

Conclusions: Results suggest that combined CRVO+BRAO occurs at a younger age than isolated CRVO or BRAO. At present, there is insufficient evidence to support any specific management to improve vision in simultaneous CRVO+BRAO.

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# PACHYCHOROID SPECTRUM DISEASES (PSD) : AN INTERESTING CASE OF PPS AND CSCR CO –EXISTENCE IN THE SAME PATIENT

**Maria Evanthia Sotirianakou**[1], A. Rapanou[1], S. Doumazos[1], A. Mani[1], T. Rotsos[1], Prof.I. Georgalas[1]

*First Department of Ophthalmology, National and Kapodistrian University of Athens, Gennimatas General Hospital, Greece*

## Purpose

Pachychoroid Spectrum Diseases(PSD) are conditions which share common characteristics including that of choroidal hyperpermeability and thickened choroid.The latest addition is the Peripapillary Pachychoroid Syndrome(PPS) which involves overlapping clinical manifestations with Central Serous Chorioretinopathy(CSCR).We present an interesting case of a patient with PPS and CSCR and explore whether they are distinctive conditions or subtypes of the same pathology.

## Methods

A 77 year old male with hypertension and obstructive sleep apnea was referred to our Medical Retina Unit due to bilateral visual acuity (VA) decrease.A thorough history was taken and a detailed ocular examination was completed,followed by evaluation with Optical Coherence Tomography(OCT),Optical coherence tomography angiography(OCT-A),Fluorescein Angiography(FA) and Indocyanin Green Angiography(ICGA).

## Results

The VA was 7/10 in the right eye (RE) and 2/10 in the left (LE).The slit lamp examination was unremarkable apart from retinal pigment epithelium(RPE) changes.OCT in the RE revealed intraretinal cystic spaces nasally to the fovea and pachychoroid,while in the LE subfoveal and intraretinal fluid,RPE detachment and pachychoroid nasally to fovea.FA showed peripapillary pinpoint leakage in the RE and window defects in the LE but no CNV related leakage,while OCT-A showed no choroidal neovascularization.On ICGA pachyvessels and corresponding mild leakage were revealed bilaterally.Considering all the findings the diagnosis of PPS in the RE and chronic CSCR in the LE was considered.

## Conclusions

This case highlights the features of PPS and CSCR.According to the literature and our observations PPS could be a type of serous chorioretinopathy that is not central but located peripapillary but further research is warranted.

Financial Disclosure:No

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# RESPONSE ASSESMENT OF CHOROIDAL NEOVASCULARIZATION ASSOCIATED WITH ANGIOID STREAKS TREATED WITH INTRAVITREAL RANIBIZUMAB INJECTIONS: A CASE REPORT

**Chrysoula Sgourou**[1], Georgios Bontzos[1], Nikolaos Bitzanakis[1], Christina Karakosta[1], Fragkiskos Martinos[1], Tina Xirou[1], Stamatina Kabanarou[1]
*Department of Ophthalmology, General Hospital of Athens, Korgialenio-Benakio, E.E.S, Greece*

Purpose: We present a case of choroidal neovascularization (CNV) associated with angiod streaks and its treatment response following intravitreal ranibizumab injections through weekly assessments.

Methods: A patient with a history of angiod streaks and low vision in the left eye (LE) due to disciform scar presented with active CNV in the right eye (RE). He underwent 8 ranibizumab injections over the last 1.5 years. Visual acuity was 0.3 (RE) and counting fingers (LE). Disease activity and the necessity for ongoing injections were determined based on the presence of subretinal fluid, abnormal “fuzzy” boundaries of subretinal hyperreflective material (SHRM) and features of CNV activity, as observed on OCT and OCTA. During the course of the last two injections follow-ups were scheduled at the 2nd-, 3rd-, and 4th-week post-injection. Patient`s response to anti-VEGF therapy was assessed with OCT and OCTA at each visit.

Results: At the 2nd-week visits the subretinal fluid was absorbed, the CNV showed less signs of activity and the boundaries of SHRM were not “fuzzy.” However, from the 3rd-week onwards, disease recurrence was observed in OCT/OCTA, providing further evidence of disease activity by the 4th-week of follow-up. Similar results were found during the follow up appointments after the second injection.

Conclusion: This case could be characterized as a "short term responder" to treatment, with results consistent with previous research we conducted on cases of CNV associated with age-related macular degeneration.

Financial Disclosure: No

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# A 0.2 LOGMAR IMPROVEMENT IN BCVA (FRACT) IS CLINICALLY SIGNIFICANT WHEN ASSESSING LOW-VISION PATIENTS

**Paulo Eduardo Stanga**[1]
*Ophthalmology, The Retina Clinic London, UK*

Objective:
Accurately measuring visual acuity (VA) is crucial for evaluating low-vision patients. Traditional tests are limited to subjects with normal to moderate vision loss. The Freiburg Visual Acuity Test (FrACT) provides objective, quantifiable, and reproducible VA assessments for low-vision subjects. However, the degree of logMAR change to denote clinical significance has yet to be determined.

Methods:
To determine the threshold of clinical significance using FrACT, we enrolled 10 subjects with normal vision and 25 subjects with retinitis pigmentosa and a best-corrected VA worse than 1.9 logMAR (Snellen equivalent 20/1600). To validate FrACT scores, individuals were subjected to a visual field assessment, Multi-Luminance Shape Discrimination Test (MLSDT), and Rasch-validated Michigan Retinal Degeneration Questionnaire (MRDQ).

Results:
Using FrACT, we quantitatively assigned logMAR notations to low-vision patients with VA levels of counting fingers (CF) and hand motion (HM). Although a 0.1 logMAR change can be reliably measured by FrACT, there is a natural variation in the VA of low-vision patients that equates to 0.2 logMAR. FrACT logMAR values had a strong correlation ($r^2 = -0.92$) with visual field mean deviation (MD), where a 0.2 logMAR difference corresponded to a 3dB difference in MD. Therefore, a 0.2 logMAR change measured by FrACT is considered clinically meaningful.

Conclusion:
FrACT enables reliable quantification of VA from normal to low vision. Based on the correlation between the FrACT and visual field/MLSDT/MRDQ scores, we confirmed that FrACT can discriminate between "low-vision" levels (e.g., CF, HM) and a 0.2 logMAR change is clinically significant.

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# EVOLUTION OF MACULAR ATROPHY IN EYES WITH NEOVASCULAR AGE-RELATED MACULAR DEGENERATION COMPARED TO FELLOW NON-NEOVASCULAR EYES

**Styliani Blazaki**[1], E. Blavakis[1], G. Chlouverakis[2], G. Bontzos[3], I. Chatziralli[4], G. Smoustopoulos[3], E. Dimitriou[4], A. Stavrakakis[1], S. Kabanarou[3], T. Xirou[3], D. Vavvas[5], M. Tsilimbaris[1]

[1]*Department of Ophthalmology, University Hospital of Heraklion, Greece*
[2]*Laboratory of Biostatistics, Faculty of Medicine, Greece*
[3]*Department of Ophthalmology, Korgialenio-Benakio General Hospital, Greece*
[4]*2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Greece*
[5]*Department of Ophthalmology, Massachusetts Eye and Ear, Harvard Medical School, USA*

Purpose: To evaluate the evolution of macular atrophy (MA) in patients with neovascular AMD (nAMD), compared with their fellow eyes exhibiting dry AMD (dAMD).
Methods: This retrospective study included 124 patients from three centers treated with anti-VEGF in their nAMD eye and having dAMD in the fellow eye. Patients without MA at baseline were analyzed to study the time to first MA development. Synchronous and unsynchronous time-course of MA was also studied. MA was evaluated using near infrared images, while all available optical coherence tomography (OCT) images were used to confirm the criteria proposed by the Classification of Atrophy Meetings group for complete MA.
Results: MA first detection in nAMD eyes increased significantly from year to 2 to 6 compared to dAMD eyes. Over the study's follow-up 45.1% of nAMD-E developed MA, compared to 16.5% of fellow eyes (p0.001). When MA in the two eyes was compared in a synchronous paired manner over 4 years, nAMD eyes had an average MA progression rate of 0.275 mm/year versus 0.110 mm/year in their fellow dAMD eyes. Multivariate ANOVA revealed significant time (p0.001), eye (p=0.003) and time-eye interaction (p0.001) effects. However, when MA did develop in dAMD eyes and was compared in an asynchronous manner to MA of nAMD eyes, it was found to progress faster in dAMD eyes (dAMD: 0.295 mm/year vs. nAMD: 0.176 mm/year) with a significant time-eye interaction (p=0.015)
Conclusions: In this study a significant difference in MA incidence and progression was documented in eyes with nAMD under treatment, compared to fellow eye exhibiting dAMD. Eyes with nAMD tended to develop more MA compared to fellow dAMD eyes. However, when atrophy did develop in the fellow dAMD eyes, it progressed faster over time compared to MA in nAMD eyes.

Medical Retina

# THE IMPACT OF RESVERATROL FOOD SUPPLEMENTS IN WET AMD: THE 1-YEAR FINDINGS OF A PROSPECTIVE STUDY

**Nikolaos Gouliopoulos**[1], J. Datseris[2], J. Datseris[2], N. Bouratzis[1], C. Kotronis[1], M.E. Tzanidaki[2], A. Rouvas[1]

[1]*2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Medical School of Athens, "Attikon" Hospital, Greece*

[2]*Department of Ophthalmology, Omma Eye Institute, Greece*

Purpose: To examine the effect of a resveratrol food supplement as an adjunctive treatment in wet-AMD.

Methods: 50 naïve and previously untreated patients suffering from wet-AMD participated in our prospective study. They were randomly assigned in two subgroups, each consisting of 25 patients, according to the applied treatment regimen. Every participant was treated with 3 monthly intravitreal injections of 2.0 mg aflibercept followed by injections according to need (PRN protocol). The patients in the second group also consumed daily two tablets of resveratrol enriched oral supplements. The patients were assessed monthly for 12-months. The main outcome evaluations were changes in best corrected visual acuity (BCVA), number of applied anti-VEGF injections, contrast sensitivity status (Pelli-Robson test), and patient's quality of life assessed with a self-rating questionnaire (HADS).

Results: Between the studied groups, no significant changes were present regarding the baseline demographic and clinical data (p0.05 for all). Over the 1-year period, a similar number of IAIs was applied in both groups, while the rest of the clinical data also did not differ significantly after the completion of the study (p0.05 for all), except for HADS Depression and HADS Anxiety questionnaires scores, which were significantly better in patients who undertook resveratrol oral supplements (p

Conclusions: Our findings suggest that resveratrol oral supplements could be considered as a complementary therapy in wet-AMD.

Financial Disclosure: Yes

Medical Retina

# THE FREQUENCY OF WET-AGE RELATED MACULAR DEGENERATION RECURRENCES IS ELEVATED DURING THE WARMER MONTHS

**Nikolaos Gouliopoulos**[1], N. Bouratzis[1], I. Georgalas[2], P. Theodossiadis[1], A. Rouvas[1]
[1]*2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Medical School of Athens, "Attikon" Hospital, Greece*
[2]*1st Department of Ophthalmology, National and Kapodistrian University of Athens, Medical School of Athens, "G. Gennimatas" Hospital, Greece*

Purpose: To examine whether the recurrences of wet-AMD are more frequent during the months with higher temperature and more sunlight hours.

Methods: In our study, 147 eyes with 201 recurrences in patients suffering from wet-AMD were evaluated. Basic demographic and clinical data by every participant were also assessed. All the patients had been treated with intravitreal anti-VEGF injections (either aflibercept or ranibizumab) according to PRN treatment regimen. “Recurrence” was defined as the re-detection of sub-retinal and/or intra-retinal fluid and/or sub-macular hemorrhage in OCT scans, after at least two consecutive monthly examinations with a “dry” macula. Based on the weather conditions prevailing in each month, the year was divided in three 4-month periods (zone A: June-September, zone B: October-January, zone C: February-May). Mean temperature and hours of sunlight exposure were recorded.

Results: No significant differences were detected regarding the patients’ age, gender status, smoking habits, frequency of hypertension, dyslipidemia, and the values of visual acuity and intraocular pressure (p0.05 for all) among the studied groups. 100 recurrences (49.8%) occurred during the period June-September, 61 (30.5%) during the period October-January, and 40 (19.9%) during the period February-May (chi-square=16.4, p0.001). Mean temperature was 27.6±1.8ºC, 15.1±4.6ºC, and 16.5±4.4ºC in zones A, B, and C, respectively. Hours (h) of sunlight exposure (average hours/month) were 344±34h, 188±42h, and 223±57h in zones A, B, and C.

Conclusions: We demonstrated that the frequency wet AMD recurrences is significantly higher during the period June-September, possibly due to the elevated levels of UV radiation and mean temperature.

Financial Disclosure: No

Medical Retina

# TELEOPHTHALMOLOGY PRACTICE IN SPAIN: EXAMINING THE PRESENT LEGAL CONTROVERSIES

Paula Boned-Fustel[1], Laura Fernández García[1], Patricia Udaondo Mirete[1]
*Ophthalmology, University and Polytechnic Hospital La Fe, Spain*

## INTRODUCTION

Numerous uncertainties persist regarding the legal and regulatory dimensions of teleophthalmology. Vital concerns like professional liability, data protection, and ethical care necessitate thorough examination to ensure secure teleophthalmology practices for both patients and medical professionals.

## PURPOSE

To provide a general overview of the medical and legal aspects of the practice of teleophthalmology in Spain.

## METHODS

A review of European legislation and the current national and regional framework in Spain revealed no specific references to the practice of teleophthalmology. Legislation relating to the practice of telemedicine in general applies, by extension, to teleophthalmology.

## RESULTS

In Spain, teleophthalmology lacks a specific legal framework, relying on general healthcare, data protection, and electronic media legislation. Ethical approval is granted if the practice aligns with medical standards and mutual agreement between patient and professional. Professional liability insurance generally covers technological ophthalmological care. Patient consent for teleconsultations is not obligatory, except for image publication for educational or scientific purposes. Direct interaction in teleophthalmology is allowed with a pre-existing doctor-patient relationship.

## CONCLUSION

Despite the expanding field of telemedicine, Spain lacks specific legislation governing these healthcare services. Remote modalities fall under the umbrella of general laws applied subsidiarily. The responsible physician, as per professional standards, bears ultimate responsibility, and practitioners should ensure insurance coverage for remote services. Integrating teleophthalmology into a healthcare system is crucial for ensuring continuous care, especially in direct doctor-patient consultations in private healthcare settings.

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Medical Retina

# 5-YEAR FOLLOW-UP OF BILATERAL MACULAR NEOVASCULARIZATION IN A 40-YEAR-OLD PATIENT WITH BASAL LAMINAR DRUSEN

Ioannis Markopoulos[1], Evangelos Spanos[1], Andreas Roussos[1], **Efthymia Kalogera**[1], Kallirroi Konstantopoulou[1], Michael Karampelas[1], Vasileios Peponis[1]
*1st Ophthalmology Department, Ophthalmiatreio Eye Hospital of Athens, Greece*

Purpose:

To present a case of a 40-year-old patient with bilateral CNV and basal laminar drusen, monitored with multimodal imaging for 5 years.

Case presentation:

A 40-year-old male patient with a history of type 1 diabetes, presented to the Medical Retina department. BCVA was 6/6 bilaterally and there were no signs of diabetic retinopathy. Numerous small, round, yellow cuticular drusen were noted, randomly scattered in the macula and the posterior pole bilaterally. OCT of the macula revealed multiple basal laminar drusen configured in a typical saw-tooth pattern and the presence of a small amount of SRF not involving the fovea, bilaterally. Angio-OCT showed a probable type 1 extrafoveal CNV, corresponding to the area of SRF in the right eye and a clearly demarcated parafoveal CNV in the left eye. FA showed a characteristic “stars-in-the-sky” appearance bilaterally, with only very mild leakage in the areas of the presumed CNV in both eyes. Due to excellent visual acuity and no visual disturbance, close monitoring with multimodal imaging and p.os. supplementation with AREDS-2 capsules was decided. In a total of 5 years follow-up, his BCVA is well preserved at 6/6 in both eyes without any visual symptoms, there is no deterioration of the lesions in FAF and OCT angiogram shows only a mature inactive CNV in the left eye.

Conclusion:

Conservative approach seems to be a feasible option in young patients with cuticular drusen and inactive CNV, although frequent follow-up is mandatory for monitoring any signs of CNV activity or visual acuity deterioration.

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# OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY IN THE DIAGNOSIS AND MONITORING OF THE PERSISTENT CHANGES IN THE POSTERIOR SEGMENT OF THE EYE IN COVID-19 PATIENTS

**Magdalena Kal**[1,2], Jerzy Mackiewicz[3], Dominik Odrobina[4], Dorota Zarębska-Michaluk[5]

[1]*Collegium Medicum of Jan Kochanowski University in Kielce, Poland*

[2]*Ophthalmic Clinic of the Voivodeship Hospital in Kielce, Poland*

[3]*Department of Vitreoretinal Surgery, Medical University of Lublin, Lublin, Poland*

[4]*Insitute of Medical Science of Jan Kochanowski University in Kielce, Poland*

[5]*Department of Infectious Disease, Provincial Hospital in Kielce, Poland*

The control, prospective study was carried out among 49 patients with COVID-19 bilateral pneumonia who underwent twice examination with optical coherence tomography angiography (OCTA) - 2 months after hospital discharge (group 1) and 6 months later (group 2). We observed a significantly decreased vessel density (VD) in group 2 compared to group 1 in some areas of the superficial capillary plexus (SCP) in the central retina. A significantly decreased VD was found in some areas in the deep capillary plexus (DCP) in group 2 compared to group 1 and the control group. The foveal avascular zone (FAZ) in DCP was significantly increased in group 2 compared to group 1. We observed a significantly decreased VD in some areas in the choriocapillaris (CC) and a significantly increased VD in other areas of CC in group 2 compared to group 1.

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# ASSESSMENT OF RETINAL THICKNESS IN COVID-19 PATIENTS WITH ELEVATED D-DIMERS AND INTERLEUKIN-6 LEVELS

**Magdalena Kal**, **Magdalena Kal**[1]
*Collegium Medicum, University of Jan Kochanowski, Poland*

The analysis included patients admitted to the hospital due to SARS-CoV-2 infection-caused pneumonia participating in a prospective study with the aim of an ophthalmologic assessment after 2 months (group 1), followed by a re-evaluation after 8 months after hospital discharge (group 2). The central retinal thickness (RT) was automatically assessed with swept-source optical coherence tomography (SS-OCT). Levels of D-dimers, saturation (SpO2) and Interleukin 6 (IL-6) obtained on the admission of COVID-19 patients were correlated with RT obtained by SS-OCT 2 months after hospital discharge. RT was significantly decreased or increased in some areas in group 2 compared with group 1.RT was significantly increased in group 2 compared to the healthy group. A statistically significant correlation was found between RT in group 1 and SpO2 equal to or lower than 90% (positive correlation), between RT in group 1 and D-dimers (negative correlation) and Interleukin 6 (positive correlation) but only in patients with SpO2 equal to or lower than 90%.

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# WHICH IS THE OPTIMAL TREATMENT REGIMEN FOR POLYPOIDAL CHOROIDAL VASCULOPATHY? THE 12-MONTHS OUTCOMES OF A PROSPECTIVE STUDY

**Alexandros Rouvas**[1], E. Gotzaridis[2], N. Bouratzis[1], M. Douvali[1], P. Theodossiadis[1], N. Gouliopoulos[1]

[1]*2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Medical School of Athens, "Attikon" Hospital, Greece, 2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Medical School of Athens, "Attikon" Hospital, Greece, Greece*

[2]*Private Practice, Private Practice, Greece*

Purpose: To examine the efficacy of treat-and-extend (T&E) and pro re nata (PRN) treatment regimens with aflibercept in the management of polypoidal choroidal vasculopathy (PCV).

Methods: In our prospective study, 30 naive and previously untreated PCV patients were included. Initially, the loading phase consisted of one session of photodynamic therapy (PDT) and three monthly intravitreal injections of 2.0mg aflibercept (IAIs). Afterwards the patients were randomly divided in two groups; in the first one (16 patients) the PRN treatment modality of IAIs was applied, while in the second one (14 patients) the treat-and-extend regimen was applied. All the participants were evaluated for one year. Following the completion of the study, the outcomes of the aforementioned regimens were evaluated by the means of best corrected visual acuity (BCVA), frequency of recurrence of polypoidal lesions and developed fibrosis, and the number of intravitreal injections.

Results: Over the study period, BCVA significantly improved in the treat-and-extend group (logMAR BCVA 0.41±0.15 vs 0.57±0.24 at baseline, p=0.044), while in the PRN group VA remained stable (logMAR BCVA 0.70±0.36 vs 0.65±0.18 at baseline, p=0.61). Moreover, the patients of treat-and-extend group did not encounter development/progression of fibrosis or any recurrent episodes, whereas in the PRN group the frequency of recurrences and development/progression of fibrosis were significantly higher (0 vs 1.37±0.5, p0.001 and 0% vs 44%, p=0.02, respectively). Nevertheless, the number of applied IAIs was significantly elevated in the treat-and-extend group (6±0 vs 5.13±1.08, p=0.006).

Conclusions: Our findings highlighted the superiority of treat-and-extend regimen with IAIs, which seems to achieve better functional outcomes, requiring though a greater number of IAIs.

Financial Disclosure: No

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# BILATERAL CYSTOID MACULAR EDEMA AFTER INTRAVENOUS INFUSION OF RITUXIMAB

**Alexandros Rouvas**[1], N. Bouratzis[1], E. Gotzaridis[2], N. Gouliopoulos[1]
[1]*2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Medical School of Athens, "Attikon" Hospital, Greece, 2nd Department of Ophthalmology, National and Kapodistrian University of Athens, Medical School of Athens, "Attikon" Hospital, Greece, Greece*
[2]*Private Practice, Private Practice, Greece*

Purpose: To present an uncommon case of bilateral cystoid macular edema which developed following intravenous infusion of Rituximab for the treatment of IgG4-related disease. Furthermore, we present its successful resolution after the application of intravitreal dexamethasone implant (Ozurdex).

Methods: A retrospective case report.

Results: A 65-year old Greek man referred to our department, complaining for vision deterioration and metamorphopsia in both eyes. His medical history revealed that the symptoms initiated after the intravenous infusion of rituximab, which was applied for the treatment of IgG4-related disease. The rest of his ocular history was unremarkable. Best corrected visual acuity (BCVA) was 1/10 bilaterally. The optical coherence tomography (OCT) scans revealed the presence of subretinal and intraretinal (“like schisis”) fluid. Fluorescein angiography showed that focal hyperfluorescence was present in both eyes. The findings of the indocyanine angiography were not diagnostic. Afterwards, an intravitreal dexamethasone implant was applied in both eyes. Complete resolution of subretinal and intraretinal fluid was achieved bilaterally in one month, while his BCVA rose to 8/10 bilaterally. The situation remained stable for a three-month period; then intravenous infusion of rituximab was re-applied, and our patient experienced a vision loss. As well, the same clinical findings in OCT scans and fluorescein angiography were detected. We applied again an intravitreal dexamethasone implant, which was accompanied by the complete resolution of the macular edema.

Conclusions: We present a rare adverse effect of Rituximab, since its infusion was followed by the development of intraretinal and subretinal fluid in the posterior pole. We also present the successful resolution of the macular edema after the application of Ozurdex. It is noteworthy that the same complication developed again after a second intravitreal injection of Rituximab and that it was also successfully managed with the same treatment.

Financial Disclosure: Yes

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# INTERVENTIONAL RETROSPECTIVE CASE SERIES OF PATIENTS UNDERGOING TREATMENT INTERVALS OF MORE THAN TWENTY-FOUR (24) WEEKS WITH FARICIMAB

Adrian Babel[1,4], E. Chin[2,3], **D. Almeida**[4]
[1]*Boonshoft School of Medicine, Wright State University, USA*
[2]*Vitreoretinal Surgery, Retina Consultants of Southern California, USA*
[3]*Veterans Affair Hospital, Loma Linda Eye Institute, USA*
[4]*Retina Research, Erie Retina Research & Center for Advanced Surgical Exploration, USA*

Purpose: To evaluate the efficacy of intravitreal faricimab dosing interval at and beyond twenty-four (24) weeks in patients with diabetic macular edema (DME) and neovascular age-related macular degeneration (nAMD).

Methods: Retrospective case series of six (6) patients with persistent DME and nAMD who received intravitreal faricimab at and beyond the 24-week (six-month) dosing interval regimen.

Results: The majority of patients experienced improved vision (mean best-corrected visual acuity (BCVA) improvement of 10.5 letters) and anatomy (mean central macular thickness (CMT) decrease of 37.667μm on optical coherence tomography (OCT)) at 6 months despite extended faricimab dosing intervals.

Conclusions: Extended intravitreal faricimab dosing intervals at and beyond 24 weeks maintained visual and anatomical outcomes in patients over 6 months. This suggests the feasibility of personalized extended dosing tailored to each patient's disease activity, potentially reducing treatment burden.

Medical Retina

# A CASE OF FINGOLIMOD-ASSOCIATED MACULAR EDEMA (FAME)

**ELENI-NADIA DERDERA**[1], S. Kypraiou[1], A. Liouta[1], M. Chroni[1], G. Kontadakis[1], S. Ioannou[1], D. Katri[1]

*Ophthalmology, Pammakaristos Hospital of Divine Providence, Greece*

PURPOSE: To present a case of fingolimod associated bilateral cystoid macular edema.

CASE DESCRIPTION: A 68-year-old female patient presented with symptoms of blurred vision and pain lasting 2 days. Her past medical history included multiple sclerosis (MS), emotional disturbance, dyslipidemia and arterial hypertension. During the physical examination her BCVA was 4/10 in the right eye and 3/10 in the left eye, her intraocular pressure in both eyes was 11mmHg and she had mild color disturbance. Funduscopic examination revealed bilateral cystoid macular edema without any other clinical findings. Brain MRI exam remained stable and the orbital MRI was clear. Treatment was initiated with oral acetazolamide, steroid and NSAIDs drops. The drug suspected- fingolimod (8 years under treatment for relapsing MS) was discontinued. The macular edema subsided within a few days and there has been no recurrence.

CONCLUSION: To highlight the necessity of taking a thorough patient's medical history and the importance of the collaboration between Neurologists and Ophthalmologists.

Medical Retina

# COMMOTIO RETINAE AFTER BLUNT TRAUMA

**A. LIOUTA**[1], S. KYPRAIOU[1], E. DERDERA[1], M. CHRONI[1], E. SARRI[1], S. CHRISTOFOROU[1], G. VRIONIS[1], D. KATRI[1]

*Department of Ophthalmology, Pammakaristos Hospital of Divive Providence, Greece*

PURPOSE: To present a case of commotio retinae following blunt trauma.

CASE PRESENTATION: A 63-year-old male patient presented at the emergency department, reporting blunt trauma to his right eye due to an accidental bow strike, approximately 12 hours earlier. He had no history of underlying disease or previous ocular surgery. During physical examination, the best corrected visual acuity (BCVA) was 20/20 bilaterally. The intraocular pressure was 15mmHg in the right eye and 14 mmHg in the left eye. The slit lamp biomicroscopy revealed conjunctival laceration temporally less than 1mm and the anterior segment evaluation was normal. The fundus examination had no clinical findings in the left eye and on his right eye showed a normal optic disc with elevated area of retinal whitening in the macular area as seen in Berlin's edema. The patient was treated with tab acetazolamide, dexamethasone and Nsaid drops and the fundoscopy finding subsided within a few days.

CONCLUSION: Despite the initial alarming presentation evolving the macula area, the edema resolved within 3 days without any remaining structural or functional alteration.

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# VISUAL AND ANATOMICAL OUTCOMES OF A SINGLE INTRAVITREAL DEXAMETHASONE IN DIABETIC MACULAR EDEMA: AN 8 YEAR REAL-WORLD STUDY

**Veronika Lipkova**[2], L. Faes[1], S. Sivaprasad[1], D. J. Fu[1]
[1]*NIHR Biomedical Research Centre, Moorfields Eye Hospital NHS Foundation Trust, UK*
[2]*KCH, Kings College Hospital NHS Foundation Trust, UK*

Purpose:

A proportion of patients with diabetic macular oedema (DMO) do not respond to anti-angiogenic agents. This study quantified visual and anatomical outcomes from an initial intravitreal dexamethasone injection.

Methods:

We included 240 adult dexamethasone-naive patients with DMO treated at Moorfields Eye Hospital (London, UK) with a 700 µg intravitreal dexamethasone implant (Ozurdex®: Allergan, Inc., CA, USA). Primary outcome was the median event time (MET) until gain in visual acuity (VA) of at least 5 Early Treatment Diabetic Retinopathy Study (ETDRS) letters from baseline. Secondary outcomes included (i) time to increase of at least 10 ETDRS letters from baseline at 2 consecutive visits and (ii) duration at which positive visual response was sustained.

Results:

We observed a 75% probability of gaining ≥ 5 ETDRS letters (MET 3.63 months [95% CI 2.33–4.43]) and 50% probability of gaining ≥ 10 ETDRS letters (MET 5.83 months [95% CI 5.33–6.33]) within 6 months of initial injection. There was less than 50% chance of sustaining a positive visual outcome beyond 4 months. Among the patients who experienced an increase of 10 or more letters, 64% had a VA less than 70 ETDRS letters in both eyes at baseline, but following dexamethasone administration 34% of these patients demonstrated visual acuity of 70 ETDRS letters or better.

Conclusions:

Most patients can be expected to have a positive visual outcome following an initial injection that subsides within 4 months. Real-world retreatment was delayed until after visual benefits were lost in half of the cohort.

Medical Retina

# DIABETIC MACULAR EDEMA IN PATIENTS WITH END-STAGE RENAL DISEASE

**Milka Mavija**[1,2], B. Topić[1,2], M. Tepić Popović[1,2]
[1]*Ophthalmology Clinic, University Clinical Center of the Repubic of Srpska, Bosnia and Herzegovina*
[2]*Ophthalmology Department, Faculty of Medicine, University of Banja Luka, Bosnia and Herzegovina*

Purpose

To analyze the type of diabetic retinopathy (DR) and diabetic macular edema (DME) in patients with end-stage renal disease.

Methods:

34 diabetic patients with end-stage renal disease were observed in whom the type DR and DME were analyzed. All patients underwent a detailed ophthalmological examination including fluorescein angiography.

Results

Proliferative DR (PDR) was found in 85% of all patients, severe non-proliferative DR (NPDR) was found in 10% of patients, and moderate NPDR in 5% of patients ($\chi^2$ 29,292; df 3; p 0.01). DME was found in almost all patients: 47% of diffuse DME, 26% of ischemic DME, 15% of patients with focal DME, and in 12% of patients with mixed DME, mainly of the ischemic type. ($\chi^2$ 17.019; df 3; p 0.01).

Conclusions

Diabetic patients with end-stage renal disease suffer from ischaemic retinopathy, including maculopathy.

Financial Disclosure

No

Medical Retina

# CORRELATION OF MACULAR VOLUME AND BEST-CORRECTED VISUAL ACUITY IN THE TREATMENT OF PATIENTS WITH NEOVASCULAR AGE-RELATED MACULAR DEGENERATION BY INTRAVITREAL BROLUCIZUMAB ADMINISTRATION.

**Biljana Topić**[1,2], M. Mavija[1,2], M. Tepić[1,2]
[1]*Ophthalmology Clinic, University Clinical Centar of the Republic of Srpska, Bosnia and Herzegovina*
[2]*Ophthalmology, University of Banja Luka, Faculty of Medicine, Bosnia and Herzegovina*

Purpose: Analysis of functional and morphological parameters with nAMD after one year of intravitreal brolucizumab therapy.

Methods: The research was conducted at the Clinic for Eye Diseases of the University Clinical Centre of the Republic of Srpska in the period from March 2022 to March 2023, where a prospective analysis included 80 patients (a total of 100 eyes) suffering from nAMD, who were treated intravitreally with brolucizumab 6mg/0.05 ml, according to the pro re nata regimens. The patients were divided into two groups: patients previously treated with some of the angiogenesis inhibitors (NONNAIV- 67.3%) and non-treated patients (NAIV-32.7%). Optical coherence tomography and OCT angiography were performed in all patients, along with analysis and monitoring of the best-corrected visual acuity, in order to monitor the activity of choroidal neovascularization, central macular thickness and macular volume, while measuring the presence of intraretinal and subretinal fluid. All patients were monitored at regular postoperative controls, where signs of nAMD activity and possible signs of intraocular inflammation, retinal vasculitis, or retinal vein occlusion were recorded.

Results: The use of brolucizumab leads to a statistically significant reduction in macular volume (NONNAIV patients (Me=10.40 vs. Me=9.60, p  0.001), and also in NAIV patients (Me=10.75 vs. Me=9.70, p  0.001), by comparing the values before and after the application of therapy. Regarding BCVA before and after the application of brolucizumab therapy, no statistically significant change was recorded (p=0.093), but functional stability was achieved in all patients.

Conclusion: Brolucizumab applied in the treatment of nAMD leads to the improvement of morphological and maintenance of functional parameters in both examined groups of patients.

Financial Disclosure: No

Medical Retina

# UNILATERAL ADULT-ONSET VITELLIFORM MACULAR DYSTROPHY : A CASE SERIES WITH A LONG FOLLOW-UP

**Nikolaos Bouratzis**[1], Dimitrios Tsigkos[1], Loukas Kontomichos[1], Dimitrios Karagiannis[1], Nikolaos Gouliopoulos[2], Dimitra Kopsini[1], Georgios Batsos[1], Efstratios Paroikakis[1]
[1]*Second Ophthalmology Department, Specialised Eye Hospital Ophthalmiatreio Athinon, Greece*
[2]*Second Ophthalmology Department, Attikon University Hospital, Greece*

Purpose: To report four cases of Unilateral Adult-onset Vitteliform Macular lesions within the Greek population, while documenting their progression through an extended follow up period.

Case Presentation: Four female patients, aged between 59 and 75 years, presented with unilateral Adult-onset Vitelliform lesions. All patients underwent a comprehensive ophthalmologic examination, including medical history assessment, fundoscopy, optical coherence tomography, autofluorescence, and electro-oculogram. The initial visual acuity of the affected eye ranged from 0.7 to 0.9. All lesions exhibited typical clinical findings, progressing through various vitelliform stages, from stage 2 to stage 4. The vitelliform lesion was located in the macula area, either subfoveal or juxtafoveal..
We monitor patients through the years and provide a long follow-up for each patient, ranging from 3 to 8 years. The decrease in visual acuity is associated with the severity and duration of the retinal findings at baseline. Visual acuity at the end of the follow-up period ranged from 0.6 to 0.8. No lesions were detected in the fellow eye of any of the four patients after an extensive follow-up.

CONCLUSION: Adult-onset Vitelliform is often bilateral and may display asymmetry, but only few sporadic unilateral cases are reported in the literature. While involvement of the fellow eye eventually is common, no such finding has been identified yet in our group of patients despite even a long-term follow-up. To establish a potential genetic association between our findings and the disease in the Greek population, further studies involving multiple patients are required.

Financial Disclosures: No

Medical Retina

# DIAGNOSIS AND MANAGEMENT OF A POLYPOIDAL CHOROIDAL VASCULOPATHY LESION BENEATH AN OPTIC DISC MELANOCYTOMA

**Nikolaos Bouratzis**[1], Alexandros Rouvas[2], Maria Douvali[2], Panagiotis Theodossiadis[2], Nikolaos Gouliopoulos, Efstratios Paroikakis[1], Nikolaos Gouliopoulos[2]
[1]*Second Ophthalmology Department, Specialised Eye Hospital Ophthalmiatreio Athinon, Greece*
[2]*Second Ophthalmology Department, , University of Athens Medical School,'Attikon' General Hospital, Greece*

Purpose: To present an uncommon case of a woman with optic disk melanocytoma (ODMC) in conjunction with polypoidal choroidal vasculopathy (PCV). We also present the outcomes of the applied treatment, consisting of a session of photodynamic therapy (PDT) and three monthly intravitreal aflibercept injections.

Methods: A retrospective case report.

Results: An 83-year-old Greek woman, referred to our department complaining for blurred vision in her left eye. Her initial best corrected visual acuity (BCVA) was 2/10; the fundus examination revealed a pigmented lesion covering partially the optic nerve head and extending into the peripapillary choroid and retina, while hard exudates were observed temporally to it. Fluorescein angiography indicated blocked hypofluorescence in the area covered by the lesion and diffuse hyperfluorescence at its temporal rim. Indocyanine green angiography identified 3 hyperfluorescent polypoidal lesions arising from the choroidal vasculature. Optical coherence tomography (OCT) revealed subretinal fluid and retinal pigment epithelium detachments (RPE) corresponding to the PCV lesions. A diagnosis of ODMC associated with PCV was set. The treatment regimen included a PDT session along with 3 monthly intravitreal aflibercept injections. Three months since the beginning of the treatment, her new BCVA was 5/10, while ICGA demonstrated total polyps occlusion and the OCT examinations did not detect any residual subretinal fluid. Ten months later, ODMC was stable, BCVA rose to 7/10, no polyps were present, and total resolution of RPE detachment was achieved.

Conclusions:
We reported a rare case of PCV coexisting with ODMC and the efficacy of the applied treatment consisting of PDT combined with intravitreal aflibercept injections

Financial Disclosures: No

Medical Retina

# DOME-SHAPED MACULA WITH SEROUS MACULAR DETACHMENT CASE REPORT

**Stanislavs Trofaila**[1], S. Sepetiene[1], G. Laganovska[1]
*Department of Ophthalmology, Pauls Stradins Clinical University Hospital, Latvia*

Purpose
To report a case of a bilateral dome-shaped macula (DSM) with serous macular detachment (SMD) in the right eye of a 24-year-old woman who later developed SMD in the fellow eye, and to present results from different treatment options that were used in the process.
Methods
The patient was diagnosed with SMD due to DSM in the right eye in January 2018. Two intravitreal Bevacizumab injections and half-dose photodynamic therapy were given. A serous macular detachment later developed in the left eye as well. For the left eye, a course of 3x Aflibercept intravitreal injections was performed, micropulse laser, laser photocoagulation of a potential leaking point according to fluorescin angiography (FAG) data, and injection of intravitreal Faricimab. Currently, the patient continues treatment with Faricimab.
Results
The treatment options used in this case did not provide stable results. None to minimal efficiency was found with Bevacizumab, micropulse laser, laser photocoagulation of a suspected leaking point, and Aflibercept.
More efficient results were shown with photodynamic therapy and the injection of Faricimab in terms of the reduction of central macular thickness (CMT). However, in our case, PDT has subsequently led to the atrophy of a photoreceptor layer, which has significantly reduced vision.
Conclusions
DSM with SMD remains a challenging entity with insignificant results in most of the treatment modalities. New treatment options, such as dual-action anti-VEGF and anti-Ang-2 agents, might be a viable treatment alternative that requires further studies.
Financial Disclosure:
No

Medical Retina

# INTRAOCULAR PRESSURE CHANGES FOLLOWING INTRAVITREAL AFLIBERCEPT INJECTION: VIAL FORMULATION VERSUS PRE-FILLED SYRINGE.

**Dimitrios Liakopoulos**[1], G. Hatjialekou[1], E. Anastasiou[1], A. Mouteveli[1], M. Kokkinos[1]
*Ophthalmology Department, General Hospital of Rhodes, Greece*

Purpose: The comparison of intraocular pressure changes after intravitreal aflibercept injection, when performed using aspiration from a vial versus using a pre-filled syringe.

Methods: In the study participated 18 patients (22 eyes), undergoing intravitreal aflibercept therapy for age-related macular degeneration or diabetic macular edema. Patients had no history of other ocular disease or surgery. Administration of the substance occurred at sequential session during the treatment plan. In the first session, the substance was aspirated from a vial and administered using a 1mL syringe, while in the subsequent treatment, a pre-filled syringe was used. A volume of 0.05mL was administered in all eyes using a 30G needle, following the instructions for use. Intraocular pressure was measured 5 minutes before, and 15 and 30 minutes after substance injection using rebound tonometry, with each patient in a consistent body position.

Results: The mean change in intraocular pressure before aflibercept injection compared to 15 minutes after was 10.08 ± 1.40 mmHg and 10.46 ± 1.43 mm Hg, while after 30 minutes it was 6.75 ± 1.43 mmHg and 7.02 ± 1.90 mmHg, for drug administration from a vial versus a pre-filled syringe, respectively. There were no statistically significant differences in the values of intraocular pressure change at the 15 and 30-minute time intervals between the two methods of substance administration (p-values of 0.229 and 0.363, respectively).

Conclusions: The change in intraocular pressure after aflibercept injection does not appear to differ between the two available methods of administration for intravitreal injection.

Financial Disclosure: No

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# APOLIPOPROTEIN A4 IN TEAR FLUID AS A NOVEL BIOMARKER FOR NON-INVASIVE SCREENING OF RETINOPATHY OF PREMATURITY

**Alicia Hoi Ying Liu**[6], Wai Ching Lam[1,3], YH Sze[2], T Lam[2], B. Chu[5], K Jalal[4], C Lai[5], M Wong[4], Q Li[5]

[1]*Ophthalmology, University of British Columbia, Canada*
[2]*School of Optometry, The Hong Kong Polytechnic University, China*
[3]*Ophthalmology, The University of Hong Kong, China*
[4]*Pediatric, Queen Mary Hospital, China*
[5]*Ophthalmology, Queen Mary Hospital, China*
[6]*Faculty of Medicine, The University of Hong Kong, China*

Retinopathy of prematurity (ROP) is the leading cause of preventable childhood blindness. Indirect ophthalmoscopy is the current gold standard for ROP screening, yet it is a stressful procedure for preterm infants. Tear protein biomarkers may offer an accessible, non-invasive option.

An expansion of our previous study in identifying dysregulated tear proteins among ROP infants. Infants whose birth weight ≤1500g or gestational age ≤30 weeks in NICUs were recruited. Examination began at 4 weeks chronologic age/31 weeks postmenstrual age. Tear fluids from ROP (n=3) and non-ROP (n=15) infants (ROP: 34.8±2.6 weeks postmenstrual age, non-ROP: 35.2±0.7, p=0.78) were collected with Schirmer's strips. Tear proteins were quantified by SWATH-acquisition in ZenoTOF 7600 mass spectrometer, analysed in PeakView (Sciex).

876 unique protein groups (1% FDR) were quantified, with 52 significantly differentiated proteins (FC ≥1.5 or ≤0.67, p0.05). Among them, 17 (33%) involved in protein-protein interaction with vascular endothelial growth factor A (VEGFA), a therapeutic hallmark of ROP treatment. This includes the significantly downregulated apolipoprotein A4 (APOA4, FC=0.29, p=0.03).

The downregulation of APOA4 is consistent with our previously reported findings with another mass spectrometry system (TripleTOF 6600, Sciex). These reproducible results with independent samples signify the potential application of APOA4 biomarker in ROP. APOA4 is reported to regulate platelet aggregation and thrombosis, and its association with vascular growth disruption may lead to the incompletely vascularized retina in ROP. Our study highlights the potential of tear protein biomarkers for non-invasive ROP screening, and the novel VEGFA and APOA4 interaction discovered may enhance future anti-VEGF treatment development.

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# SIX MONTH OUTCOMES OF THE REAL-WORLD USE OF FARICIMAB IN DIABETIC MACULAR OEDEMA (DMO).

**George Berrett**[1], C. Santiago[1]
*Department of Ophthalmology, Aberdeen Royal Infirmary, NHS Grampian, UK*

Purpose:

Diabetes affects 7% of the population of the United Kingdom and DMO is the leading cause of visual loss in this group. Thus there is appetite for more effective and durable treatment options as service pressures increase1,2. Recent evidence suggests non-inferiority of visual acuity with Faricimab against Aflibercept, in addition to greater anatomical improvement3,4. We present our initial experience of Faricimab in clinical practice.

Methods:

We collected retrospective consecutive patients initiated on intravitreal Faricimab 6mg for DMO at the Aberdeen Royal Infirmary with at least 6 months of follow-up, between February and August 2023. Visual acuity and central retinal thickness were analysed at initiation versus 6 months, and co-morbidities and adverse events noted.

Results:

47 eyes of 35 patients were included, of which 36 eyes had insufficient response to existing treatment (Aflibercept+-Ozurdex/ macular laser) and 11 were treatment naïve. Each eye averaged 4.4 doses over the study period. Paired t-testing demonstrated visual acuity improvement at 6 months from 60.7 ETDRS letters (95% CI, 57.13 – 64.27) to 66.6 (62.57 – 70.53), p0.001, and a reduction in central retinal thickness from 496.1 microns (466.22 – 525.98) to 373.3 (340.68 – 405.92), p0.001. 4 eyes received Ozurdex and 1 focal laser after this period. There were no significant adverse events.

Conclusions:

Our data demonstrates real-world functional and anatomical improvement in our cohort with Faricimab over prior standard of care, and thus encourages its use as a primary therapy in the management of DMO.

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# MUTATIONAL SPECTRUM AND DEEP PHENOTYPING IN PSEUDOXANTHOMA ELASTICUM: FINDINGS FROM A PORTUGUESE COHORT

**Nuno Gouveia**[1,2], M. Dias[1,2], R. Felix[1,2], S. Estrela-Silva[3,8], D. Cabral[4], A.L. Carvalho[2,5,6], J. Murta[1,2,7], R. Silva[1,2,7], J.P. Marques[1,2,7]

[1]*Ophthalmology Unit, Centro Hospitalar e Universitário de Coimbra (CHUC), Portugal*
[2]*Clinical Academic Center of Coimbra (CACC), Clinical Academic Center of Coimbra (CACC), Portugal*
[3]*Ophthalmology Unit, Centro Hospitalar e Universitário de São João (CHUSJ), Portugal*
[4]*Ophthalmology Unit, Hospital Garcia de Orta (HGO), Portugal*
[5]*Medical Genetics Unit, Centro Hospitalar e Universitário de Coimbra (CHUC), Portugal*
[6]*University Clinic of Medical Genetics, Faculty of Medicine, University of Coimbra (FMUC), Portugal*
[7]*University Clinic of Ophthalmology, Faculty of Medicine, University of Coimbra (FMUC), Portugal*
[8]*Department of Surgery and Physiology, Faculty of Medicine, University of Porto (FMUP), Portugal*

Purpose

Pseudoxanthoma Elasticum (PXE) is a rare autosomal recessive disorder originated by disease-causing variants in ABCC6 gene. The purpose of this study was to characterize the genetic landscape, phenotypic spectrum and genotype-phenotype correlations in a Portuguese cohort of PXE patients.

Methods

Multicentric cross-sectional study conducted in patients with a clinical and genetic diagnosis of PXE. Patients were identified using the IRD-PT registry (www.retina.com.pt). Genotypes were classified into 3 groups: (1) two truncating variants, (2) two non-truncating variants, or (3) mixed variants. Deep phenotyping comprised a comprehensive ophthalmologic and systemic evaluation using the updated Phenodex Score (PS).

Results

Twenty-seven patients (23 families) were included. Sixteen different ABCC6 variants were identified, 7 of which are novel. The most prevalent variant was the nonsense variant c.3421CT p.(Arg1141*) with an allele frequency of 18.5%. All patients exhibited ocular manifestations. Cutaneous manifestations were present in most patients (88.9%, n=24/27). A PS score E2 was strongly associated with worse visual acuity (B=-29.01, p=0.001). No association was found between the presence of macular neovascularization and age, sex or genotypic groups.

Conclusions

This study describes the genetic spectrum of patients with PXE for the first time in a Portuguese cohort. A total of 16 different variants in ABCC6 were found (7 of which are novel), thus highlighting the genotypic heterogeneity associated with this condition and expanding its mutational spectrum. Still, no major genotype-phenotype associations could be established.

No Financial Disclosure

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## POST CATARACT SURPRISE: THE CHALLENGES OF DIAGNOSING CHOROIDAL MELANOMA

**Nikolaos Dimitriou**[1], Nikolaos Papadopoulos[1], Ioannis Markopoulos[1], Christina Kourentis[1], Vasileios Peponis[1], Michael Karampelas[1]
*First Ophthalmology Department, Ophthalmiatreio Athinon, Greece*

Purpose: To present a case of choroidal melanoma found on a post-cataract visit.

Methods: An 87-year-old male patient presented to our outpatient department with non improving vision in his right eye following cataract surgery ten days prior. BCVA was 1/10 and 8/10 for the right and left eye respectively. Ophthalmic history was unremarkable.

Results: Slit lamp examination of the anterior segment was normal. Fundoscopy revealed a pigmented dome-shaped lesion superior to the macula with surface orange pigment accompanied with serous retinal detachment. OCT demonstrated sub-retinal fluid that extended to the macula. Fundus autofluorescence revealed focal hyper-autofluorescence that corresponded to the areas of orange pigment. B-scan ultrasonography revealed an acoustically hollow raised lesion.

Conclusion: Choroidal melanoma is the most common primary intraocular malignancy in adults. Our case demonstrates the importance of a thorough fundus examination prior to cataract surgery, in order to exclude any retinal pathology.

Financial disclosure: None

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# FARICIMAB-RELATED TOXIC ANTERIOR SEGMENT SYNDROME (TASS-LIKE) REACTION IN A DIABETIC PATIENT: A MOORFIELDS CASE REPORT

Georgios Koutsocheras[1], S. Phatak[1], A. Tufail[1], **W. Rahman**[1]
*Medical Retina Department, Moorfields Eye Hospital NHS Foundation Trust, UK*

Purpose: Faricimab has been approved in the UK for the treatment of diabetic macular oedema (DMO) since September 2022. We describe a case of TASS-like reaction following intravitreal Faricimab for DMO.

Methods: A 55-year-old diabetic patient presented with reduced vision in the right eye. BCVA was 75 ETDRS letters in the right eye and 85 letters in the left eye. He had centre-involving DMO (with intraretinal and subretinal fluid) in the right eye and was treated with intravitreal Faricimab. Four weeks after his second injection, right BCVA improved to 85 letters and OCT scan showed resolving macular oedema. He received a third injection uneventfully, however, 15 minutes following the injection, he complained of significantly blurred vision in the right eye.

Results: Examination showed severe corneal epithelial haze with Descemet's striae. There was a significant fibrinous reaction in the anterior chamber with pigment; the pupil was mid-dilated and sluggish. The fundus view was hazy, and B-scan ultrasound revealed attached retina with a clear vitreous cavity. A diagnosis of TASS-like reaction was made, and the inflammation was treated with an intensive course of topical steroids. The patient was reviewed the following day, and his clinical signs had significantly improved with resolved corneal haze and reduced fibrinous reaction.

Conclusions: To the best of our knowledge, this is the first case of TASS-like reaction following intravitreal Faricimab, and we describe an extremely rapid-onset, severe inflammatory response. It highlights the need for vigilance when treating patients with anti-VEGF injections and prompt review and treatment if symptoms occur.