Outer retinal hyperreflective deposits (ORYD): a new OCT feature in naïve diabetic macular oedema after PPV with ILM peeling.

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Br J Ophthalmol. 2019 Aug 7; pii: bjophthalmol-2019-314523. doi: 10.1136/bjophthalmol-2019-314523.

ABSTRACT

PURPOSE:

We aimed to investigate a novel optical coherence tomography (OCT) finding of outer retinal hyperreflective deposits (ORYDs) in patients with naïve diabetic macular oedema (DMO) seen after small gauge pars plana vitrectomy (PPV) with internal limiting membrane (ILM) peeling. Furthermore, we evaluated the predictive value of ORYD for visual outcome over 24 months follow-up.

METHODS:

Retrospective cohort study including 111 eyes from 111 patients with naïve DMO treated by PPV and ILM peeling with a follow-up of 24 months. OCT scans were analysed for the presence of ORYD 1 week and 1, 6, 12, 18 and 24 months after surgery. Change in baseline best-corrected visual acuity (BCVA) and central subfoveal thickness (CST) after surgery were measured over the follow-up period. Presence of ORYD was correlated with baseline characteristics and BCVA after 24 months

RESULTS:

Hundred and eleven eyes from 111 patients were included (mean age 67.5±14.8 years). ORYD was identified in the outer plexiform layer as hyperreflective deposits in 92 patients (82.8%) 7 days after surgery but it was not present before surgery. There was a significant reduction in the presence of ORYD. After 24 months ORYD disappeared in all cases (p<0.001).

CONCLUSIONS:

We describe a novel OCT feature of ORYD present in the early postoperative phase in the majority of patients after PPV with ILM peeling for naïve DMO, disappearing over the postoperative course. These deposits might be a result of sudden desinflammation and could shed new light on the process of DMO resolution after operative intervention.

Outcomes of Suspending VEGF Inhibitors for Neovascular Age-Related Macular Degeneration When Lesions Have Been Inactive for 3 Months.

Nguyen V, Vaze A, Fraser-Bell S, Arnold J, Essex RW, Barthelmes D, Gillies MC; Fight Retinal Blindness! Study Group.

Ophthalmol Retina. 2019 Aug;3(8):623-628

ABSTRACT

PURPOSE:

Currently, little evidence supports the safety of suspending vascular endothelial growth factor (VEGF) inhibitors for neovascular age-related macular degeneration (nAMD). We assessed the outcomes of eyes in which this seems to have been attempted.

DESIGN:

Observational study from a prospectively designed database.

PARTICIPANTS:

Eyes enrolled in the Fight Retinal Blindness! registry of nAMD treatment outcomes were considered to have suspended treatment if they had a 3-month or longer documented period of inactivity of the choroidal neovascular lesion with no further treatments unless the lesion re-activated.

METHODS:

Time and proportion to re-activation of the lesion were analyzed using Kaplan-Meier survival curves. Visual outcomes after treatment suspension were assessed with paired t tests.

MAIN OUTCOME MEASURES:

The proportion of eyes resuming treatment because of lesion re-activation, change in visual acuity (VA) at time of re-activation, and recovery of vision 12 months later.

RESULTS:

We identified 434 eyes in which treatment was suspended and that were tracked for at least 12 months thereafter. The estimated percentage of eyes re-activating in the first year after treatment suspension was 41%, increasing to 79% by the fifth year. The median time to re-activation was 504 days. The 275 eyes whose lesion was observed to re-activate lost a mean of 4.2 letters (95% confidence interval [CI], -5.6 to -2.8 letters; $P < 0.001$) from the last injection to the time of re-activation; 206 eyes resumed treatment for at least 12 months after re-activation and recovered a mean of +1.2 letters (95% CI, -0.4 to 2.7 letters; $P = 0.133$),

resulting in a net loss of 3.3 letters (95% CI, 2.3-5.1 letters; P < 0.001) compared with VA at treatment suspension. Lower VA at the time of suspension and longer duration of treatment were associated with reduced risk of re-activation. Median time to re-activation was substantially greater when eyes had been treated for at least 3 years.

CONCLUSIONS:

Fewer than half of the eyes in which treatment was suspended re-activated in the first year, but most re-activated by the fifth year. Caution should be exercised to avoid suspending treatment prematurely. Further research is warranted to identify the eyes in which treatment may be suspended safely.

Effect of Baseline Subretinal Fluid on Treatment Outcomes in VIVID-DME and VISTA-DME Studies.

Korobelnik JF, Lu C, Katz TA, Dhoot DS, Loewenstein A, Arnold J, Staurenghi G.

Ophthalmol Retina. 2019 Aug;3(8):663-669

ABSTRACT

PURPOSE:

To evaluate the effect of baseline subretinal fluid (SRF) on treatment outcomes with intravitreal aflibercept injection (IAI) versus laser treatment in patients with diabetic macular edema (DME) in the VIVID and VISTA studies.

DESIGN:

Post hoc analysis of 2 randomized controlled trials.

PARTICIPANTS:

Eight hundred seventy-two patients with DME.

METHODS:

We randomized patients to receive IAI 2 mg every 4 weeks (2q4), IAI 2 mg every 8 weeks after 5 monthly doses (2q8), or laser.

MAIN OUTCOME MEASURES:

Effect of presence or absence of baseline SRF on visual outcomes in the integrated dataset at weeks 52 and 100.

RESULTS:

Mean best-corrected visual acuity (BCVA) gains in the 2q4, 2q8, and laser arms at week 52 were +14.5, +11.0, and -2.3 letters, respectively, (those with baseline SRF) and +10.3, +10.6, and +2.5 letters, respectively, (those without). At week 100, mean gains were +13.5, +10.9, and -2.3 letters (those with baseline SRF) and +10.6, +10.0, and +2.7 letters (those without). The treatment effect for IAI versus laser from baseline to week 52 of 100 was greater for patients with baseline SRF versus those without (nominal $P < 0.001$, for interaction). The proportions of patients who gained 15 letters or more in the 2q4, 2q8, and laser arms at week 52 were 52.3%, 40.2%, and 8.9%, respectively, (those with baseline SRF) and 30.9%, 29.1%, and 8.2%, respectively, (those without) and at week 100 were 50.0%, 35.4%, and 12.9%, respectively, (those with baseline SRF) and 33.3%, 30.5%, and 12.5%, respectively, (those without). Time to first sustained SRF clearance seemed to be shorter in the IAI arms versus laser. The overall safety profile was similar in the IAI arms.

CONCLUSIONS:

This post hoc analysis demonstrated the visual outcome benefits of IAI over laser, regardless of baseline SRF status. A greater treatment effect of IAI was observed in patients with baseline SRF versus those without; however, no meaningful impact of baseline SRF status on treatment outcomes with IAI was demonstrated, indicating that the differential effects of laser might have been the driving force behind the different treatment outcomes in both groups.

OCT Angiography Findings of Tamoxifen Retinopathy: Similarity with Macular Telangiectasia Type 2.

Lee S, Kim HA, Yoon YH

Ophthalmol Retina. 2019 Aug;3(8):681-689

ABSTRACT

PURPOSE:

We aimed to describe the vascular changes in eyes associated with tamoxifen retinopathy using OCT angiography (OCTA) and to compare these changes with abnormalities in macular telangiectasia type 2 (MacTel 2) previously reported in the literature.

DESIGN:

Retrospective, observational study.

PARTICIPANTS:

Seventeen eyes with tamoxifen retinopathy and 17 eyes of age-matched healthy control participants.

METHODS:

The medical records of patients who visited the ophthalmology department with a history of taking tamoxifen were reviewed. Tamoxifen retinopathy was diagnosed based on typical spectral-domain (SD) OCT findings, such as intraretinal cavitation, photoreceptor disruption, or both. Multimodal imaging, particularly focused on OCTA, was analyzed. To compare vessel density in OCTA, age-matched normal control participants also were enrolled. coefficients.

MAIN OUTCOMES AND MEASURES:

Descriptive appraisal of the vascular abnormalities and objective quantification of vessel density associated with tamoxifen retinopathy.

RESULTS:

Among 292 patients who were screened, 26 were diagnosed with tamoxifen retinopathy. Of these, 17 eyes of 10 patients who were evaluated using OCTA were included. All patients were women, with a median patient age of 65.0 years. They were treated with tamoxifen as adjuvant endocrine therapy for breast cancer. All eyes showed intraretinal cavitation, and 8 eyes showed focal photoreceptor disruption as well, on OCT. On OCTA imaging, 14 eyes (82.4%) showed saccular capillary telangiectasia at the deep capillary plexus and 6 eyes

(35.3%) showed right-angled vessels. Foveal vessel density of the superficial plexus was significantly lower in eyes with tamoxifen retinopathy than in control participants (P = 0.003). Crystalline deposits on fundus photographs (12 eyes [70.6%]) and increased autofluorescence on fundus autofluorescence (16 eyes [94.1%]) also were noted as characteristic findings of tamoxifen retinopathy.

CONCLUSION:

In addition to morphologic changes of tamoxifen retinopathy in SD OCT, its vascular changes on OCTA, such as telangiectatic vascular change at the deep capillary plexus and right-angled vessels, are similar to those observed in the early stages of MacTel 2.

Detection of Nonexudative Choroidal Neovascularization and Progression to Exudative Choroidal Neovascularization Using OCT Angiography.

Bailey ST, Thaware O, Wang J, Hagag AM, Zhang X, Flaxel CJ, Lauer AK, Hwang TS, Lin P, Huang D, Jia Y.

Ophthalmol Retina. 2019 Aug;3(8):629-636

ABSTRACT

PURPOSE:

To detect nonexudative choroidal neovascularization (CNV) in age-related macular degeneration (AMD) with OCT angiography (OCTA) and determine the risk of exudative CNV developing compared with eyes without nonexudative CNV.

DESIGN:

Prospective, longitudinal, observational study.

PARTICIPANTS:

Consecutive patients with drusen and pigmentary changes in the study eye and exudative neovascular AMD in the fellow eye.

METHODS:

In this prospective observational study, participants underwent spectral-domain OCTA (AngioVue; Optovue, Inc, Fremont, CA), clinical examination, and structural OCT at baseline and 6-month intervals for 2 years. OCT angiography images were exported for custom processing to remove projection artifact and calculate CNV vessel area.

MAIN OUTCOME MEASURES:

Rate of developing exudation in eyes with and without nonexudative CNV as detected by OCTA on regular follow-up.

RESULTS:

Sixty-three study participants were followed up every 6 months and 48 completed the 2-year study. Mean age was 78 years and 60.3% were female. On the baseline visit, 5 eyes (7.9%) were found to have nonexudative CNV by OCTA, and 3 of them demonstrated exudation. Of 58 eyes with a normal OCTA on baseline visit, 5 eyes developed nonexudative CNV during a follow-up visit. All 5 of these nonexudative CNV went on to develop exudation in subsequent visits. Overall, 8 of the 10 eyes with nonexudative CNV developed exudation

with a mean time of 8 months and mean CNV area growth rate of 20% per month (P = 0.014, exponential model). Initiation of antiangiogenic treatment halted their growth. In comparison, exudation occurred in only 6 of the 53 eyes (11%) that lacked a precursor nonexudative CNV. Cox proportional hazard analysis showed that having nonexudative CNV detected was associated with an 18.1-fold increase in the rate of exudation subsequently developing (P < 0.0001).

CONCLUSION:

Nonexudative CNV frequently is detected by OCTA in the fellow eyes of those with exudative CNV. These lesions carry a high risk of exudation developing within the first year after detection and could benefit from close monitoring. The high risk of progression may justify prophylactic treatment; further studies are needed.

Bilateral advanced (group D or E) intraocular retinoblastoma: outcomes in 72 Asian Indian patients.

Kaliki S, Mittal P3, Mohan S2, Chattannavar G, Jajapuram SD, Mohamed A, Palkonda VAR.

Eye (Lond). 2019 Aug;33(8):1297-1304.

ABSTRACT

PURPOSE:

To study the clinical presentation, treatment, and outcomes of patients with bilateral advanced intraocular retinoblastoma.

METHODS:

Retrospective case series of 72 patients.

RESULTS:

The mean age at presentation was 19 months. Leukocoria (n = 49, 68%) was the most common presenting complaint. The tumors were classified as groups D (n = 60, 42%) or E (n = 84, 58%) based on the Philadelphia version of International Classification of Retinoblastoma (ICRB); groups D (n = 84, 58%) or E (n = 60, 42%) based on Children's Hospital Los Angeles version of International Classification of Intraocular Retinoblastoma (ICIoR); T2 (n = 116, 81%) or T3 (n = 28, 19%) based on 8th edition American Joint Committee Classification (AJCC). Systemic chemotherapy (n = 138, 96%) was the most common primary treatment modality. The chance of globe salvage was higher for group D based on ICRB (83%; odds ratio (OR) 7.73; 95% confidence interval (CI) 3.45-17.33) or ICIoR (81%; OR 12.75; 95% CI 5.74-28.34) and T2b (73%; OR 5.19; 95% CI 2.51-10.73) based on AJCC. Over a mean follow-up period of 59 months, tumor recurrence was noted in 42 (29%) eyes and globe salvage was achieved in 83 (58%) eyes. Of the 50 eyes where vision was recorded, vision of 20/200 or better was achieved in 24 (48%) eyes. There were events of leukemia (n = 1, 1%), pinealoblastoma (n = 1, 1%), systemic metastasis (n = 3, 4%), and death (n = 4, 6%) during the follow-up period..

CONCLUSION:

Multimodality treatment allows globe salvage (58%) and vision salvage (48%) in eyes with advanced group D and E intraocular retinoblastoma.

Anti-Vascular Endothelial Growth Factor Therapy for Diabetic Retinopathy: Consequences of Inadvertent Treatment Interruptions.

Wubben TJ, Johnson MW; Anti-VEGF Treatment Interruption Study Group.

Am J Ophthalmol. 2019 Aug;204:13-18.

ABSTRACT

PURPOSE:

To illustrate that patients with diabetic retinopathy who are treated exclusively with anti-vascular endothelial growth factor (VEGF) therapy and have an interruption in treatment may experience marked progression of disease with potentially devastating visual consequences.

DESIGN:

Retrospective, multicenter, case series.

METHODS:

Retrospective review of patients treated exclusively with anti-VEGF therapy for proliferative diabetic retinopathy (PDR) or nonproliferative diabetic retinopathy (NPDR), with or without diabetic macular edema (DME), and temporarily lost to follow-up. Baseline disease characteristics, cause and duration of the treatment interruption, and resulting disease progression, complications, and outcomes were assessed.

RESULTS:

Thirteen eyes of 12 patients with type 2 diabetes were identified. The mean age was 57 ± 10 years, and 50% were women. Anti-VEGF therapy was indicated for PDR with DME in 7 (54%) eyes, PDR without DME in 3 (23%) eyes, and moderate to severe NPDR with DME in 3 (23%) eyes. Eight eyes had visual acuity (VA) of 20/80 or better before treatment interruption. The median duration of treatment hiatus was 12 months. Reasons for treatment interruption included intercurrent illness (31%), noncompliance (31%), and financial issues (15%). Complications upon follow-up included vitreous hemorrhage (9 eyes), neovascular glaucoma (5 eyes), and traction retinal detachment (4 eyes). Despite treatment of these complications, 77% of eyes lost ≥3 lines of VA, with 46% of eyes having a final VA of hand motion or worse..

CONCLUSION:

Diabetic patients are subject to significant lapses in follow-up because of illness, financial hardship, or noncompliance. In patients with diabetic retinopathy, especially PDR, who are managed with anti-VEGF therapy alone, unintentional treatment interruptions can result in irreversible blindness.

August 2019 segment compiled by Dr. Prabu Baskaran, AEH Chennai