Retina Roundup
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Epiretinal membrane surgery after retinal detachment repair: visual acuity outcomes and optical coherence tomography analysis

Soares RR, Mahmoudzadeh R, Salabati M, Massenzio E, Israilevich R, Patel SN, Hinkle J, Kuriyan AE, Hsu J, Garg SJ, Khan MA.

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Abstract

Purpose: To assess visual acuity (VA) outcomes of epiretinal membrane (ERM) surgery following primary rhegmatogenous retinal detachment (RD) repair.

Design: Retrospective, consecutive case series.

Subjects: Eyes undergoing pars plana vitrectomy (PPV) with membrane peel (MP) surgery for ERM following primary RD repair (PPV with or without scleral buckle (SB) and gas tamponade).

Methods: Retrospective chart review from 2015 to 2018. A previously described ERM grading scale was utilized for OCT structural analysis.

Main outcome measures: Visual acuity (VA) and change in VA at 6 months and final follow-up. Secondary outcomes included assessment of structural OCT features predictive of VA outcomes.

Results: 53 eyes of 53 patients were included. VA improved significantly from logMAR 1.00 ± 0.51 (Snellen 20/200) pre-MP to 0.45 ± 0.41 (20/56) at 6 months and 0.42 ± 0.41 (20/53) at final follow-up, a significant improvement ($p<0.001$) at each timepoint. Eyes with macula on RD had better 6 month [0.29 ± 0.18 (20/39) vs. 0.51 ± 0.46 (20/65), $p=0.02$] and final VA [0.29 ± 0.14 (20/39) vs. 0.46 ± 0.47 (20/58), $p=0.04$] after MP surgery, but VA improved significantly from pre-MP in both macula on and macula off eyes ($p<0.0001$, respectively). Three (5.7%) eyes were graded as Stage 1, 8 (15.1%) as Stage 2, 8 (15.1%) as Stage 3, and 34 (64.2%) as Stage 4, with a trend toward higher ERM stages having worse pre-MP VA ($p=0.06$). Both MP occurring ≤180 days from RD repair and ellipsoid zone loss were associated with worse pre-MP VA [1.13 ± 0.09 (20/270) vs. 0.82 ± 0.07(20/132), $p=0.01$ and 1.21 ± 0.07 (20/324) vs. 0.74 ± 0.09 (20/110) $p=0.0003$, respectively]. Ellipsoid zone loss [adjusted means 0.54 ± 0.07 (20/69) vs. 0.25 ± 0.08 (20/36) at final visit, $p=0.006$] and RD repair with PPV/SB [0.53 ± 0.08 (20/68) vs. 0.31 ±0.07 (20/41) at final visit, $p=0.03$] were significantly associated with worse VA at both 6 months and final follow-up.

Conclusions: Eyes undergoing MP after RD repair have significant VA gains independent of macula-status at time of RD repair. Pre-operative ellipsoid zone disruption was the OCT feature best predictive of VA.

Urgent vitrectomy with vancomycin infusion, silicone oil endotamponade, and general antibiotic treatment in multiple cases of endophthalmitis from a single day of intravitreal injections-case series

Pietras-Baczewska A, Jasińska E, Toro MD, Bonfiglio V, Reibaldi M, Avitabile T, Nowomiejska K, Rejdak R.

J Clin Med. 2021 Mar 4;10(5):1059. doi: 10.3390/jcm10051059. PMID: 33806541; PMCID: PMC7961493.

Abstract

The aim of this study was to report on the anatomical and functional results of surgical management of seven cases of endophthalmitis related to a single day of intravitreal aflibercept injections. Patients with signs of endophthalmitis who underwent aflibercept injections (seven eyes) performed on the same day were retrospectively evaluated. The data of visual acuity and optical coherence tomography (OCT) within nine months of the follow-up and the treatment and results of microbiological cultures are reported. Four of the total seven cases had a positive bacterial culture outcome (*Streptococcus mitis)*. All patients underwent vitrectomy combined with phacoemulsification when the eyes were not pseudophakic, vancomycin infusion, and silicone oil tamponade within 24 h; additionally, systemic antibiotics were administered intravenously. The final best-corrected visual acuity (BCVA) after the treatment was finger counting or light perception in all cases, and all eyes were saved with disruption of the inner retinal layers and stabilization of the retina in regard to changes related to the wet age-related macular degeneration (AMD). Although the retinal anatomy was mostly preserved, most of the patients affected by *Streptococcus mitis*-induced endophthalmitis did not regain baseline vision after the therapy.

Recognizable patterns of submacular fibrosis in the Enhanced s-cone syndrome

Alsalamah AK, Khan AO, Bakar AA, Schatz P, Nowilaty SR. Recognizable Patterns of Submacular Fibrosis in the Enhanced S-Cone Syndrome.

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Abstract

Purpose: To highlight recognizable patterns of subretinal fibrosis in the enhanced S-cone syndrome (ESCS).

Design: Retrospective case series.

Participants: 47 patients with subretinal fibrosis identified from 101 clinically diagnosed ESCS patients, confirmed by full field-electroretinography (ERG) (35/47) and/or genetic testing (34/47).

Methods: Multimodal retinal imaging, ERG and genetic analysis.

Main outcome measures: Patterns of subretinal fibrosis with angiographic, optical coherence tomography, and genetic correlations.

Results: 85 eyes of 47 patients (24 males; 36 unrelated consanguineous families) had subretinal fibrosis. Mean age at presentation was 14 years. Best-corrected visual acuity ranged from 20/20 to hand motion. All 34 genetically-tested patients were homozygous for pathogenic NR2E3 variants. Subretinal fibrosis was always in the macular area, although it extended beyond in some cases. Six recurrent patterns of submacular fibrosis were noted: central unifocal nodular, circumferential unifocal nodular, multifocal nodular, arcuate, helicoid, and thick geographic. Some patients had a combination of patterns. Previous misdiagnosis as inflammatory disease was common. Fibrosis was fairly symmetrical in a given patient but not always present or identical in other affected individuals with a given homozygous mutation from the same or other families.

Conclusions: These recognizable patterns of submacular fibrosis are part of the ESCS phenotypic spectrum and strongly suggest the disease. In addition to facilitating diagnosis, recognition of these patterns can spare patients unnecessary work-up for inflammatory cause.

Photodynamic therapy as a treatment option for peripapillary pachychoroid syndrome: a pilot study

Iovino C, Peiretti E, Tatti F, Querques G, Borrelli E, Sacconi R, Chhablani J, Agrawal H, Boon CJF, van Dijk EHC, Cennamo G, Lupidi M, Muzi A, Di Iorio V, Iglicki M, Smadar L, Loewenstein A, Zur D.

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Abstract

Background: To investigate the anatomical and functional results in eyes with peripapillary pachychoroid syndrome (PPS) undergoing photodynamic therapy (PDT).

Methods: A total of 25 eyes from 23 patients with PPS treated with PDT were retrospectively evaluated in this multicentric study. Main outcome measure was the proportion of eyes that achieved treatment success, defined as a decrease in both subretinal fluid (SRF) height and central subfield thickness (CST), at 3 months after PDT compared to baseline. Secondary outcomes were the change in CST, SRF, and best-corrected visual acuity (BCVA) 3 months after treatment and predictive factors for treatment success. When available, data between 3 and 12 months were also reviewed.

Results: Treatment success was achieved in 16 eyes (64%). In the total cohort, CST decreased significantly from 356 ± 118 µm at baseline to 282 ± 90 µm and 270 ± 91 µm at 1 and 3 months, respectively ($p < 0.001$). Maximal SRF height decreased significantly from 102 ± 83 µm at baseline to 38 ± 46 µm and 32 ± 42 µm at 1 and 3 months, respectively ($p < 0.001$), and remained stable at month 6 (29 ± 44 µm) and month 12 (23 ± 35 µm). BCVA improved significantly from baseline to month 3 ($p = 0.021$).

Conclusions: PDT can be considered an efficacious treatment option in patients with PPS. Prospective data with longer follow-up in a bigger cohort are needed in order to determine the optimal treatment algorithm in this relatively novel disease.

Outcomes following implementation of a high-volume medical retina virtual clinic utilising a diagnostic hub during COVID-19

Hanumunthadu D, Adan K, Tinkler K, Balaskas K, Hamilton R, Nicholson L; Moorfields Medical Retina Virtual Assessment Study Group.

Eye (Lond). 2021 Apr 6:1–7. doi: 10.1038/s41433-021-01510-4. Epub ahead of print. PMID: 33824508;

Abstract

Background: To describe the clinical outcomes following implementation of a high-volume medical retina virtual clinic utilising a diagnostic hub.

Methods: Retrospective consecutive case-series of all patients attending the medical retina virtual clinics at Moorfields Eye Hospital (City Road) for 6 weeks from September 21, 2020.

Results: In 6 weeks, 1006 patients attended the medical retina virtual clinics, which included an appointment in the diagnostic hub followed by an assessment asynchronously the following working day. The vast majority of patients were follow-up attendances (969, 96.3%) with much fewer new patient attendances (37, 3.7%). The most common diagnoses made overall were diabetic retinopathy (457, 45.4%), age-related macular degeneration (208, 20.7%) and retinal vein occlusion (80, 8.0%). The majority of patient (643, 63.9%) outcomes were follow-up in the medical retina virtual clini cs including 313 (31.1%) with OCT-only pathway and 330 (32.8%) with OCT and widefield fundus imaging. Routine follow-up requested after virtual assessment included 320 (31.8%) with a 3-4 month review and 267 (26.5%) with a 6 months assessment. Only 62 patients (6.2%) were asked to return for face-to-face assessment within 2 weeks.

Conclusions: We describe a new high-volume medical retina virtual clinic utilising a diagnostic hub in which more than 1000 patients were seen and assessed asynchronously. Most patients were assessed as suitable for routine follow-up in this virtual pathway and only a small proportion required urgent reviews (within 2 weeks). In the COVID-19 era, this form of high-volume virtual clinic has the potential to review patients efficiently and safely.

Non ICGA treatment criteria for suboptimal Anti VEGF response for Polypoidal Choroidal Vasculopathy: APOIS PCV Workgroup Report 2

Chong Teo KY, Sadda SR, Gemmy Cheung CM, Chakravarthy U, Staurenghi G, Invernizzi A, Ogura Y, Ruamviboonsuk P, Chen SJ, Gupta V, Tan C, Chhablani J, Corvi F, Kim JE, Gomi F, Koh AH, Kokame G, Mitchell P, Wong TY, Lee WK, Lai TYY.

Ophthalmol Retina. 2021 Apr 15:S2468-6530(21)00119-6. doi: 10.1016/j.oret.2021.04.002. Epub ahead of print. PMID: 33866022.

Abstract

Purpose: To develop and validate optical coherence tomography (OCT) and color fundus photography (CFP) criteria in differentiating polypoidal choroidal vasculopathy (PCV) from typical neovascular age-related macular degeneration (nAMD) in eyes with suboptimal response to anti-vascular endothelial growth factor (VEGF) monotherapy, and to determine whether OCT alone can be used to guide photodynamic therapy (PDT) treatment.

Design: Clinical study evaluating diagnostic accuracy.

Participants: Patients with nAMD who received 3-monthly anti-VEGF monotherapy but had persistent activity defined as subretinal fluid and/or intraretinal fluid at month 3 assessments.

Methods: In phase 1, international retina experts evaluated OCT and CFP of eyes with nAMD to identify the presence or absence of features attributable to PCV. The performance of individual and combinations of these features were compared to ICGA. In phase 2, these criteria were applied to an independent image set to assess generalizability. In a separate exercise, retinal experts drew proposed PDT treatment spots using only OCT and near-infra red (NIR) images in eyes with PCV and persistent activity. The location and size of proposed spot was compared to ICGA to determine the extent of coverage of polypoidal lesions (PL) and branching neovascular network (BNN).

Main outcome measures: Sensitivity and specificity of CFP and OCT criteria to differentiate PCV from nAMD, and accuracy of coverage of OCT-guided PDT compared to ICGA.

Results: In eyes with persistent activity, the combination of 3 non-ICGA-based criteria (sharp-peaked pigment epithelial detachment (PED), sub-retinal pigment epithelium (RPE) ring-like lesion, and orange nodule) to detect PCV showed good agreement compared to ICGA, with an area under the receiver operating characteristic curve of 0.85. Validation using both an independent image set and assessors achieved an accuracy of 0.77. Compared to ICGA, the OCT-guided PDT treatment spot covered 100% of PL and 90% of the BNN.

Evolving treatment patterns and outcomes of neovascular age-related macular degeneration over a decade

Schwartz R, Warwick A, Olvera-Barrios A, Pikoula M, Lee AY, Denaxas S, Taylor P, Egan C, Chakravarthy U, Lip PL, Tufail A; UK EMR Users Group.

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Abstract

Purpose: Management of neovascular age-related macular degeneration (nAMD) has evolved over the last decade with several treatment regimens and different medications. This study describes the treatment patterns and, importantly, visual outcomes over ten years in a large cohort of patients.

Design: Retrospective analysis of electronic health records from 27 National Health Service (NHS) secondary care healthcare providers in the UK.

Participants: Treatment-naïve patients receiving at least three intravitreal anti-vascular endothelial growth factor (VEGF) injections for nAMD in their first six months of follow-up were included. Patients with missing data for age or gender and those aged less than 55 were excluded.

Methods: Eyes with at least three years of follow-up were grouped by years of treatment initiation, and three-year outcomes were compared between the groups. Data were generated during routine clinical care between 09/2008 and 12/2018.

Main outcome measures: Visual acuity, number of injections, number of visits.

Results: A total of 15,810 eyes of 13,705 patients receiving 194,904 injections were included. Visual acuity (VA) improved from baseline during the first year, but dropped thereafter, resulting in loss of visual gains. This trend remained consistent throughout the past decade. Although an increasing proportion of eyes remained in the driving standard, this was driven by better presenting visual acuities over the decade. The number of injections dropped substantially between the first and subsequent years, from a mean of 6.25 in year 1 to 3 in year 2 and 2.5 in year 3, without improvement over the decade. In a multivariable regression analysis, final VA improved by 0.24 letters for each year since 2008, and younger age and baseline VA were significantly associated with VA at three years.

Conclusion: Our findings show that despite improvement in functional VA over the years, primarily driven by improving baseline VA, patients continue to lose vision after the first year of treatment, with only marginal change over the past decade. The data suggest that

these results may be related to suboptimal treatment patterns, which have not improved over the years. Rethinking treatment strategies may be warranted, possibly on a national level or through the introduction of longer-acting therapies.

April 2021 segment compiled by: Dr. Indu Govindaraj, Aravind Eye Hospital Chennai