RETINA ROUNDUP

August 2025

RETINA ROUND UP ARTICLES – AUGUST 2025

1. **THE EFFICACY AND SAFETY OF INTRAVENOUS PROSTAGLANDIN E1 IN THE MANAGEMENT OF RETINAL ARTERY OCCLUSION: A Systematic Review**

Serhan HA, Oweidah A, Shaheen A, et al. The Efficacy and Safety of Intravenous Prostaglandin E1 in the Management of Retinal Artery Occlusion: A Systematic Review. Retina. March, 2025.

Purpose:

To evaluate the efficacy and safety of prostaglandin E1 (PGE1) for the management of central/branch retinal artery occlusion (CRAO/BRAO).

Methods:

Our protocol was registered prospectively on PROSPERO (CRD42024522961). We searched four electronic databases [PubMed, Scopus, Web of Science, and Google Scholar] to retrieve all studies reported using PGE1 for patients with CRAO/BRAO. We conducted a Wilcoxon signed-rank test to assess the effect of PGE1 on the visual acuity (VA) of included subjects. VA change was used as a measure to assess the degree of VA improvement. We assessed the quality of included studies using the JBI tool.

Results:

We included a total of six studies with a total of 21 cases. Age ranged from 45 to 97 years with a mean of 65.76 years for 10 women and 11 men. Cases with CRAO represented 85.7% and BRAO represented 14.3% of total cases. The median time from symptoms onset to treatment initiation was 7 hours. The median for the initial dose was 40 μg. The Wilcoxon signed-rank test revealed significant improvement in visual acuity after intravenous PGE1 treatment ($V = 231$, $P < 0.05$).

Conclusion:

Our analysis revealed preliminary evidence suggesting that IV PGE1 may be a potentially safe and effective treatment for improving VA in patients with CRAO/BRAO. However, our evidence is limited as our review relies primarily on case reports and case series.

2. OUTCOMES OF DESCEMET MEMBRANE EPIRETINAL GRAFT FOR REFRACTORY MACULAR HOLE CLOSURE

Steinkerchner, Megan S. MD; Lane, Anne M. MPH; Gragoudas, Evangelos S. MD; Kim, Ivana K. MD, MBA; Wu, Frances MD. OUTCOMES OF PERSISTENT EXUDATIVE RETINAL DETACHMENTS AFTER PROTON BEAM IRRADIATION FOR CHOROIDAL MELANOMA. Retina 45(7):p 1279-1285, July 2025.

Purpose:

To report the visual and anatomical outcomes of Descemet membrane epiretinal graft for refractory full-thickness macular holes (MHs).

Methods:

This interventional case series included patients with refractory MH who previously underwent standard pars plana vitrectomy with internal limiting membrane peeling for repair of MH with no success. Donor corneas unsuitable for keratoplasty were stripped at the Eye Bank. The corneoscleral button was stained with blue dye, punched to obtain a 2-mm Descemet membrane graft, which was positioned over the MH. At the end of surgery, 20% sulfur hexafluoride gas tamponade was administered.

Results:

Twelve eyes of 12 patients with a mean follow-up of 8 ± 4 months were included. The MH closure rate was 91.7%. Best-corrected visual acuity significantly improved from 1.09 ± 0.56 preoperatively to 0.46 ± 0.54 logMAR (20/63 Snellen) after surgery (P = 0.006). The external limiting membrane and ellipsoid zone recovery rates were 33.3% and 41.7%, respectively.

Conclusion:

Descemet membrane epiretinal graft leads to satisfactory anatomic and visual outcomes for eyes with refractory MH.

3. **ENDOTHELIAL CELL LOSS AFTER PARS PLANA VITRECTOMY WITH SILICONE OIL TAMPONADE: A Comparative Study of Rhegmatogenous and Tractional Retinal Detachments**

Feng, Limiao MD; Zhang, Yuming MD; Pan, Jiandong MD, PhD. ENDOTHELIAL CELL LOSS AFTER PARS PLANA VITRECTOMY WITH SILICONE OIL TAMPONADE: A Comparative Study of Rhegmatogenous and Tractional Retinal Detachments. Retina 45(7):p 1262-1270, July 2025.

Purpose:

To compare the rate of endothelial cell density (ECD) loss in patients undergoing pars plana vitrectomy (PPV) with silicone oil (SO) tamponade, focusing on differences between rhegmatogenous retinal detachment (RRD) and tractional retinal detachment (TRD) cases.

Methods:

A retrospective analysis was conducted on 427 eyes from patients with RRD (n = 293) and TRD (n = 134) who underwent PPV with SO tamponade. Endothelial cell density changes were recorded, and the impact of factors such as age, gender, surgical technique, SO emulsification, tamponade duration, and postoperative intraocular pressure were evaluated using univariate and multivariate regression models.

Results:

Patients with TRD showed a significantly higher ECD loss (9.17%) compared with patients with RRD (3.39%). Endothelial cell density loss was particularly severe in patients undergoing combined anterior and posterior surgeries, as the vitrectomy in combination with phacoemulsification group showed a loss of 6.85% and the intraocular lens group exhibited 6.48%. Multivariate regression revealed a 1% increase in ECD loss for every 8-year increase in age (P = 0.006). No significant correlation between transient high intraocular pressure and ECD loss.

Conclusion:

Patients with TRD are at greater risk of ECD loss after PPV with SO tamponade, particularly in cases involving combined surgeries. Advanced age and the absence of a natural lens were associated with greater ECD loss. Maintaining postoperative intraocular pressure below 40 mmHg is considered safe for ECD. Further investigation into the mechanisms of SO-related endothelial damage is needed.

4. RESOLUTION OF ANGIOGRAPHIC MACULAR LEAKAGE WITH FARICIMAB VERSUS AFLIBERCEPT IN PATIENTS WITH DIABETIC MACULAR EDEMA IN YOSEMITE/RHINE

Goldberg RA, Mar FA, Csaky K, et al. Resolution of Angiographic Macular Leakage with Faricimab versus Aflibercept in Patients with Diabetic Macular Edema in YOSEMITE/RHINE. Ophthalmol Retina. 2025;9(6):515-526.

Purpose:

To evaluate if dual angiopoietin-2 (Ang-2)/VEGF-A inhibition with faricimab resulted in greater macular leakage resolution versus aflibercept in patients with diabetic macular edema (DME).

Design:

Post hoc analysis of macular leakage assessments prespecified in the YOSEMITE/RHINE (NCT03622580/NCT03622593) phase III trials.

Methods:

Patients were randomized 1:1:1 to faricimab 6.0 mg every 8 weeks (Q8W), faricimab 6.0 mg according to a personalized treat-and-extend (T&E)-based regimen, or aflibercept 2.0 mg Q8W. This analysis included the first 16 weeks (head-to-head dosing period) when all patients received assigned study drug every 4 weeks (Q4W); patients were assessed 4 weeks after receiving 4 doses of assigned study drug Q4W.

Main Outcome Measures:

Macular leakage area on fluorescein angiography assessed by a reading center; proportion of patients with resolution of macular leakage (defined as macular leakage area 0–1 mm^2) and high macular leakage (defined as macular leakage area ≥10 mm^2) at baseline and week 16; and the proportion of faricimab T&E patients receiving Q16W dosing at week 52 among those with resolution of and high macular leakage at week 16.

Results:

Among patients with macular leakage data available at baseline, there were 1216 patients in the pooled faricimab (Q8W + T&E) arms and 593 patients in the aflibercept arm. Baseline median macular leakage area was similar between the faricimab (24.6 mm^2) and aflibercept arms (25.6 mm^2). At week 16, median macular leakage area was 3.6 mm^2 with faricimab versus 7.6 mm^2 with aflibercept (nominal $P < 0.0001$). More Faricimab-treated patients (28%) achieved resolution of macular leakage versus aflibercept at week 16 (15%; nominal $P < 0.0001$). In the faricimab T&E arm, 63% of patients with resolution of macular leakage and 45% of patients with high macular leakage at week 16 achieved Q16W dosing at week 52 (nominal $P < 0.01$).

Conclusions:

Faricimab demonstrated greater macular leakage resolution versus aflibercept during head-to-head dosing. These findings suggest that dual Ang-2/VEGF-A inhibition promotes vascular stability beyond VEGF inhibition alone, supporting faricimab's potential to offer greater disease control and extend durability for patients with DME.

5. CONTINUOUS RANIBIZUMAB VIA PORT DELIVERY SYSTEM VS MONTHLY RANIBIZUMAB FOR TREATMENT OF DIABETIC MACULAR EDEMA: THE PAGODA RANDOMIZED CLINICAL TRIAL

Khanani AM, Campochiaro PA, Graff JM, et al. Continuous Ranibizumab via Port Delivery System vs Monthly Ranibizumab for Treatment of Diabetic Macular Edema: The Pagoda Randomized Clinical Trial. JAMA Ophthalmol. 2025;143(4):326–335. doi:10.1001/jamaophthalmol.2025.0006

Objective:

To evaluate the efficacy and safety through 64 weeks of ranibizumab, 100 mg/mL, via PDS with refill exchanges every 24 weeks (PDS Q24W) in patients with DME vs intravitreal injections of ranibizumab, 0.5 mg, every 4 weeks (monthly ranibizumab).

Design, Setting, and Participants:

This randomized clinical trial was a phase 3, multicenter, noninferiority trial conducted across 87 sites in the US. Treatment-naïve patients at least 18 years old with center-involved DME were eligible for study participation. Enrollment was from September 30, 2019, to June 25, 2021; data were analyzed from September 30, 2019, to September 19, 2022. Participants were randomized 3:2 to receive 4 monthly doses of ranibizumab, 0.5 mg, followed by ranibizumab, 100 mg/mL, via PDS Q24W or monthly ranibizumab.

Main Outcome and Measure:

The primary end point was change in best-corrected visual acuity (BCVA) from baseline averaged over weeks 60 and 64.

Results:

A total of 634 participants were randomized (PDS Q24W group, n = 381; monthly ranibizumab, n = 253). The mean (SD) age at baseline was 60.7 (9.6) years; 363 (57.3%) participants were male and 271 (42.7%) female. Adjusted mean BCVA change from baseline averaged over weeks 60 and 64 was an increase of 9.6 letters for PDS Q24W and 9.4 letters for monthly ranibizumab (difference, 0.2; 95% CI, −1.2 to 1.6), meeting the primary end point of PDS noninferiority (margin, –4.5 letters). PDS Q24W participants had a mean (SD) decrease of 6.7 (12.0) letters 4 weeks after PDS insertion; mean BCVA was similar to monthly ranibizumab 16 weeks after implantation. Adverse events of special interest were more common in the PDS Q24W group (88 participants; 27.5%) than the monthly ranibizumab group (28 participants; 8.9%). No cases of endophthalmitis or retinal detachment were reported with PDS Q24W.

Conclusion:

This trial found that changes in BCVA from baseline averaged over weeks 60/64 in the PDS Q24W group were comparable to the monthly ranibizumab group. While AESIs were more common with PDS Q24W, there were no instances of endophthalmitis or retinal detachment. Continuous ranibizumab, 100 mg/mL, via PDS was approved in the US for patients with DME in February 2025 and provides effective, durable, and generally well-tolerated treatment for DME with retreatment every 6 months through at least 64 weeks.

6. TENON'S CAPSULE GRAFT AS A SEALANT IN PEDIATRIC RETINAL DETACHMENT

Ozdek S, Zeydanli EO, Yalcin E. Tenon's Capsule Graft as a Sealant in Pediatric Retinal Detachment. Retin Cases Brief Rep. June, 2025

Purpose:

To describe a surgical technique utilizing an autologous tenon's capsule graft, in four cases of complex retinal detachments associated with infantile high myopic macular holes (MH), Morning Glory Syndrome (MGS), and an optic disc pit maculopathy.

Methods:

Tenon's capsule was exposed following conjunctival incision, separated from the episcleral tissue, and excised to appropriate sizes. The tenon grafts were then inserted through a sclerotomy and positioned over the MH (2 eyes) and the excavation of the morning glory disc (1 eye), and implanted over the optic disc pit (1 eye) under a small PFCL bubble. Silicone oil tamponade was used in all cases.

Results:

All cases achieved successful retinal reattachment and demonstrated stable integration of the Tenon's capsule grafts over a follow-up of more than 6 months, with no signs of infection or inflammation. Silicone oil was removed in MH cases and the grafts remained stable.

Conclusion:

Tenon's capsule transplantation emerges as a promising alternative sealing material in pediatric vitreoretinal surgery, offering potential advantages in terms of availability, stability, and efficacy. Further validation through larger studies across diverse retinal pathologies is warranted to ascertain its broader applicability and impact on visual function.