# Retina Roundup

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1. Retina. 2024 Jun 1;44(6):965-973.
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# PNEUMATIC RETINOPEXY: Analysis of Risk Factors and Complications in 850 Cases

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**Background & aims:** To study out types and incidence of the complications and reveal the risk factors that affect anatomical and visual success of pneumatic retinopexy with a high number of rhegmatogenous retinal detachment cases.

**Methods:** Eight hundred and fifty eyes of the 837 patients who admitted at a tertiary center, between January 2015 and January 2022 for the diagnosis of rhegmatogenous retinal detachment, then underwent pneumatic retinopexy and had at least sixth month follow-up, were included in the study. The multivariate logistic regression model was created to investigate the factors affecting anatomical and visual success

**Results:** The anatomical success rate was 53.4% with the first pneumatic retinopexy and 99.8% after subsequent procedures. Visual acuity of >0.4 logMAR (<20/50 Snellen), proliferative vitreoretinopathy, and macular involvement was determined as significant preoperative risk factors for single operation and visual success in all univariate and multivariate analyses. In addition, pseudophakic/aphakic lens status was associated with single operation failure in all analyses. Besides, in all analyzes for single operation and visual success, new or missed tears, proliferative vitreoretinopathy, delayed subretinal fluid, macular hole, and subretinal gas were identified as significant postoperative risk factors. Among these, new or missed tears was determined as the most common complication with a rate of 24%.

**Conclusions:** There are many risk factors influencing the success of pneumatic retinopexy. These factors and complications should always be considered, before applying this rapid, effective, inexpensive, and minimally invasive method.

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2. Indian J Ophthalmol. 2024 Jun 1;72(6):890-895.
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# Hemi-retinal vein occlusion: Characterizing a rare retinal vasculopathy

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**Purpose:** To characterize hemi-retinal vein occlusion (HRVO) in patients presenting to a multi-tier ophthalmology hospital network.

**Methods:** This retrospective, hospital-based study analyzed 2,834,616 new patients between August 2010 and June 2021. Patients with a clinical diagnosis of HRVO in at least one eye were included as cases. Data were collected using an electronic medical record system. Data were compared to the findings noted in branch RVO (BRVO) and central RVO (CRVO) patients.

**Findings:** HRVO constituted 0.9% ( n = 191) of all the retinal vein occlusions (RVOs), with the mean age being 60.55 ± 10.14 years. Most patients were male (125, 65.45%) with unilateral (92.67%) affliction. Majority presented during the sixth (31.41%) or seventh (32.46%) decade of life. Most patients reported mild (37.07%) or moderate (27.32%) visual impairment, with vision < 20/200 being less common in HRVO (25.8%) and BRVO (17.2%) compared to CRVO (44.1%) ( P < 0.00001). Glaucoma was diagnosed and treated in 49 (23.90%) eyes, which was much higher than CRVO (11.45%) and BRVO (5.04%) ( P < 0.001), though neovascular glaucoma was much less than CRVO (2.9% vs. 9.2%) ( P = 0.0037). On follow-up, HRVO eyes (12.2%) had lesser vision loss compared to CRVO eyes (13.7%) (this difference does not look very significant to me), though BRVO had the least (9.1%) vision loss.

**Conclusion:** HRVO is a rare RVO, presenting more in males. It causes less-severe visual impairment compared to CRVO. Large majority of patients with HRVO do not have identifiable systemic risk factors other than age. Preexisting glaucoma was more associated with HRVO compared to other RVOs.

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3. Retina. 2024 Jun 1;44(6):1083-1091.
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# Imaging and Clinical Features of Pulsatile Polypoidal Choroidal Vasculopathy

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**Purpose:** To investigate the imaging and clinical features of polypoidal choroidal vasculopathy (PCV) with pulsation.

**Methods:** The PCV eyes were classified into pulsatile and nonpulsatile PCV groups according to the pulsation on indocyanine green angiography. Imaging features including the dye filling time of the polyp and clinical features were compared.

**Findings:** A total of 75 eyes were classified into the pulsatile PCV (30 eyes) and the nonpulsatile PCV (45 eyes) groups. The initial filling time and complete filling time of the polyp of the pulsatile PCV group (2.59 ± 0.93 and 8.33 ± 3.42 seconds) were shorter than those of the nonpulsatile PCV group (4.11 ± 1.87 and 10.63 ± 3.81 seconds, $P < 0.001$ and $P = 0.010$, respectively). The pigment epithelial detachment height of the pulsatile PCV group (414.90 ± 377.15 μ m) was greater than that of the nonpulsatile PCV group (247.81 ± 164.07 μ m, $P = 0.030$). The pulsatile PCV group showed a higher prevalence of subretinal hemorrhage (43.33%) after intravitreal injection than the nonpulsatile PCV group (13.95%, $P = 0.005$) during 12 months. The mean number of injections during 12 months of the pulsatile PCV group (5.48 ± 1.46) was greater than that of the nonpulsatile PCV group (4.09 ± 1.21, $P < 0.001$).

**Conclusion:** Eyes with pulsatile PCV showed shorter filling time of the polyp, greater pigment epithelial detachment height, higher prevalence of subretinal hemorrhage, and more intravitreal injection numbers during 12 months. These might suggest that PCV has distinct imaging and clinical features according to the polyp pulsation.

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4. Retina. 2024 Jun 1;44(6):991-996.
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# 25-Gauge Versus27 Gauge Vitrectomy for Management of Vitreoretinal Diseases: A Large Prospective Randomized Trial

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**Objective:** To compare the safety and performance clinical outcomes of the 27-gauge (G) two-dimensional cutting vitrectomy probe versus a standard 25-G probe for retinal procedures.

**Methods:** In this large randomized prospective study, all candidates for epiretinal membrane or macular hole surgery were randomized to the 27-G group or 25-G group. Outcome measures included surgery time, changes in best-corrected distance visual acuity, intraocular pressure, and central macular thickness between baseline and 1-month and 3-month follow-up time points. Moreover, intraoperative and postoperative complications were evaluated as well as the rate of sutureless vitrectomy.

**Results:** A total of 463 patients were included in this study, 227 patients in the 27-G group and 236 patients in the 25-G group. A similar total surgery time was found between both groups ( P = 0.0911). Similar best-corrected distance visual acuity and central macular thickness changes were observed between baseline and the 1-month and 3-month follow-up visits. No significant differences were reported in intraoperative and postoperative complications rates. The rate of sutureless vitrectomy was 96.5% for the 27-G group and 91.1% for the 25-G group ( P = 0.0170).

**Conclusion:** These results suggest that 27-G vitrectomy probe is similar to 25-G probe in surgery time and complications, while decreasing the need for vitrectomy sutures.

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5. JAMA Ophthalmol. 2024 Jun 6:e241822.
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# Melatonin and Risk of Age-Related Macular Degeneration

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**Importance:** Melatonin has been shown to oppose several processes that are known to mediate age-related macular degeneration (AMD), but whether melatonin can confer benefits against AMD remains unclear.

**Objective:** To examine the association between melatonin supplementation and the risk of the development or progression of AMD.

**Design, setting, and participants:** This retrospective cohort study accessed data from TriNetX, a national database of deidentified electronic medical records from both inpatient and outpatient health care organizations across the US, between December 4, 2023, and March 19, 2024. Patients aged 50 years or older, 60 years or older, and 70 years or older with no history of AMD (AMD-naive group) and with a history of nonexudative AMD (nonexudative AMD group) were queried for instances of melatonin medication codes between November 14, 2008, and November 14, 2023. Patients were then classified into either a melatonin group or a control group based on the presence of medication codes for melatonin. Propensity score matching (PSM) was performed to match the cohorts based on demographic variables, comorbidities, and nonmelatonin hypnotic medication use. Exposure: The presence of at least 4 instances of melatonin records that each occurred at least 3 months apart.

**Main outcomes and measures:** After PSM, the melatonin and the control cohorts were compared to evaluate the risk ratios (RRs) and the 95% CIs of having an outcome. For the AMD-naive group, the outcome was defined as a new diagnosis of any AMD, whereas for the nonexudative AMD group, the outcome was progression to exudative AMD.

**Results:** Among 121 523 patients in the melatonin-naive group aged 50 years or older (4848 in the melatonin cohort [4580 after PSM; mean (SD) age, 68.24 (11.47) years; 2588 female (56.5%)] and 116 675 in the control cohort [4580 after PSM; mean (SD) age, 68.17 (10.63) years; 2681 female (58.5%)]), melatonin use was associated with a reduced risk of developing AMD (RR, 0.42; 95% CI, 0.28-0.62). Among 66 253 patients aged 50 years or older in the nonexudative AMD group (4350 in the melatonin cohort [4064 after PSM; mean (SD) age, 80.21 (8.78) years; 2482 female (61.1%)] and 61 903 in the control cohort [4064 patients after PSM; mean (SD) age, 80.31 (8.03) years; 2531

female (62.3%)]), melatonin was associated with a reduced risk of AMD progression to exudative AMD (RR, 0.44; 95% CI, 0.34-0.56). The results were consistent among subsets of individuals aged 60 years or older (AMD-naive cohort: RR, 0.36 [95% CI, 0.25-0.54]; nonexudative AMD cohort: RR, 0.38 [95% CI, 0.30-0.49]) and 70 years or older (AMD-naive cohort: RR, 0.35 [95% CI, 0.23-0.53]; nonexudative AMD cohort: RR, 0.40 [95% CI, 0.31-0.51]).

**Conclusion and relevance:** Melatonin use was associated with a decreased risk of development and progression of AMD. Although lifestyle factors may have influenced this association, these findings provide a rationale for further research on the efficacy of using melatonin as a preventive therapy against AMD.


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6. Retina :10.1097/IAE.0000000000004169, May 29, 2024.
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# Factors Associated with Delayed Diagnosis in Patients with Primary Vitreoretinal Lymphoma

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**Purpose:** To identify demographic and clinical factors associated with delayed diagnosis in patients with primary vitreoretinal lymphoma (VRL).

**Methods:** Retrospective, tertiary referral center-based cohort study of all patients at Mayo Clinic in Rochester, Minnesota with a biopsy-proven diagnosis of VRL from January 1, 2000, to October 31, 2022.

**Results:** There were 87 patients included during the 22-year study period with 73 (83.9%) patients diagnosed with VRL upon initial evaluation at the tertiary center, with the other 14 (16.1%) patients diagnosed later. The median referral time was 4.8 months (range: 0-113 months). Patients who received an initial diagnosis of inflammatory uveitis or another incorrect diagnosis elsewhere were referred slower than those initially diagnosed with VRL ($p$=0.04). The most common incorrect initial diagnosis from an outside institution was inflammatory uveitis (n=35, 40.2%). When patients were split into 4 groups based on referral time, prior use of corticosteroids was associated with a significant delay in referral ($p$=0.03).

**Conclusion:** Diagnosing VRL continues to be challenging, as months-long delays from initial evaluation to expert referral center evaluation are common. Prior use of corticosteroids was associated with delay in diagnosis and referral time, underscoring the need to increase awareness regarding differences between VRL and uveitis.

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7. Retina :10.1097/IAE.0000000000004174, June4, 2024.
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# Efficacy and Safety of The Proposed Biosimilar Aflibercept, SDZ-AFL, In Patients With Neovascular Age-Related Macular Degeneration: 52-Week Results from the Phase 3 Mylight Study

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**Purpose:** The Phase 3 Mylight study was designed to confirm clinical equivalence of proposed biosimilar aflibercept (SOK583A1; Sandoz [SDZ-AFL]) to its reference biologic (Eylea®; Regeneron Pharmaceuticals, Inc.; Bayer AG [Ref-AFL]).

**Methods:** Mylight was a prospective, double-masked, 2-arm, parallel phase 3 study. Participants with neovascular age-related macular degeneration (nAMD) were randomized 1:1 to receive eight injections of SDZ-AFL (n=244) or Ref-AFL (n=240) over 48 weeks. The primary endpoint was mean change in best-corrected visual acuity (BCVA) score from Baseline to Week 8. Secondary endpoints included anatomical outcomes, BCVA at Weeks 24 and 52, safety, and pharmacokinetics.

**Results:** Similarity in mean change in BCVA score was established between SDZ-AFL (n=235) and Ref-AFL (n=226) at Week 8 (difference: –0.3 [90% CI: –1.5, 1.0]), and to Week 52. No clinically meaningful differences occurred between groups in anatomical outcomes. Safety profiles were similar, with comparable incidences of treatment-related adverse events (SDZ-AFL: 2.5%; Ref-AFL: 2.9%). The incidence of anti-drug antibodies was similar between groups. Systemic free aflibercept concentrations 24 hours post-dose were low, and comparable between SDZ-AFL and Ref-AFL.

**Conclusion:** SDZ-AFL matched reference aflibercept in terms of efficacy, safety, and pharmacokinetics in participants with nAMD. Therefore, this Phase 3 study confirmed biosimilarity of SDZ-AFL to Ref-AFL.

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