RETINA ROUNDUP

October 2024

Retina ():10.1097/IAE.0000000000004219, August 26, 2024. | DOI: 10.1097/IAE.0000000000004219.

1. Intraoperative closure of large full thickness macular holes with perfluorocarbon liquid

Sabatino, Francesco MD FEBO1; Banderas-García, Sandra MD FEBO2; Patton, Niall MD2; Dhawahir-Scala, Felipe MD2. Intraoperative closure of large full thickness macular holes with perfluorocarbon liquid.

Purpose:

To report the role of perfluorocarbon liquid (PFCL) and passive extrusion for management of large full thickness macular holes (FTMHs).

Methods:

A standard pars plana vitrectomy with induction of posterior vitreous detachment was performed for all patients. After internal limiting membrane (ILM) peel, a bubble of perfluorocarbon liquid (PFCL) was injected over the posterior pole and passive extrusion of fluid was performed with a backflush instrument below the PFCL bubble, without touching the FTMH edges, until the FTMH centre was reached. Intraoperative optical coherence tomography (OCT) showed formation of an inner retina roof in all cases and confirmed intraoperative FTMH closure. Complete PFCL removal was performed after fluid-air exchange and gas tamponade was utilised in all cases.

Results:

Preoperative FTMH mean aperture size was 761um and standard deviation (SD) 100um (range 682-918um). FTMH closure was achieved in all eyes and visualised intraoperatively with OCT. After an average follow-up of 2 months, there was improvement in the mean BCVA and central scotoma.

Conclusion:

FTMH closure can be achieved intraoperatively with the use of PFCL and passive extrusion. The described surgical technique could be a valid alternative for repair of large FTMHs.

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2. Oral curcumin to reduce risk of proliferative vitreoretinopathy following rhegmatogenous retinal detachment repair.

Zheng, Yuxi MD1; Valikodath, Nita MD MS2; Woodward, Richmond MD1; Allen, Ariana BS1; Grewal, Dilraj S. MD FASRS1; Fekrat, Sharon MD FASRS1. Oral curcumin to reduce risk of proliferative vitreoretinopathy following rhegmatogenous retinal detachment repair..

Purpose:

To evaluate outcomes of patients who underwent rhegmatogenous retinal detachment (RRD) repair and were started on oral curcumin for proliferative vitreoretinopathy (PVR) prevention.

Methods:

Retrospective, observational case series of eyes of patients undergoing high-risk RRD repair that were started on curcumin postoperatively. Recommended dosing was 500 mg twice daily for 30 days followed by 500 mg daily for 60 days. The primary outcome was recurrent PVR-related RRD within 6 months and single-surgery retinal reattachment rate (SSRRR). Secondary outcomes included epiretinal membrane (ERM) formation, visual acuity and curcumin safety profile.

Results:

32 eyes of 31 patients met study inclusion criteria. Postoperatively, 2 eyes developed a PVR-related detachment (6.3%), and 2 eyes redetached due to new breaks without PVR (6.3%). Overall, SSRRR was 87.5%. SSRRR without silicone oil was 92.6% (25/27). Of the 12 cases with Grade C PVR-related RD, the SSRRR was 91.7%. Postoperatively, 7 eyes developed an ERM (21.9%), of which 3 underwent ERM removal (9.4%). No patient had gastrointestinal upset or anaemia.

Conclusions:

This proof-of-concept clinical study suggests that oral curcumin is well tolerated and warrants further investigation for its potential to reduce the risk of PVR after RRD repair in eyes at higher risk of PVR.

Retina ():10.1097/IAE.0000000000004224, August 01, 2024. | DOI: 10.1097/IAE.0000000000004224

3. RB1 circulating-tumor DNA in the blood of Retinoblastoma patients increases in untreated patients.

Silverman, Rebecca F. MD1,2; Francis, Jasmine H. MD1,2; Robbins, Melissa A. MPH1; Dunkel, Ira J. MD3; Abramson, David H. MD1,2. RB1 circulating-tumor DNA in the blood of Retinoblastoma patients increases in untreated patients.

Purpose:

Circulating tumor DNA (ctDNA) in plasma has been identified in many cancers, including retinoblastoma at diagnosis. We have previously shown that with treatment (enucleation or ophthalmic artery chemosurgery (OAC)) all ctDNA disappears; and if there is persistent plasma ctDNA after treatment metastases develop. The purpose of this study was to determine how the ctDNA *RB1* variant allele frequency (VAF) changes in patients with retinoblastoma who have delayed treatment.

Methods:

Circulating tumor DNA *RB1* was detected and VAF was measured at diagnosis and again prior to any intervention at some time later ranging from 2 to 28 days.

Results:

Four patients with five ctDNA *RB1* mutations were detected at diagnosis and VAF was increased on re-evaluation of the same *RB1* mutations in ctDNA.

Conclusion:

In this small cohort, every patient (4) and every *RB1* mutation (5) plasma level VAF% increased when measured at two time periods before treatment was instituted suggesting that growing tumors demonstrate increasing plasma ctDNA.

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Retina ():10.1097/IAE.0000000000004178, June 11, 2024. | DOI: 10.1097/IAE.0000000000004178

4. Transcorneal Vitrectomy in Eyes with Regressed Retinoblastoma.

Bao, Yicheng K. MD1; Sanchez, Gisella M. MD2; Lee, Thomas C. MD1,2; Berry, Jesse L. MD1,2; Nagiel, Aaron MD, PhD1,2. Transcorneal Vitrectomy in Eyes with Regressed Retinoblastoma.

Purpose:

Current treatments for retinoblastoma facilitate globe salvage but can result in vitreoretinal disorders that may require surgery. There is controversy on surgical approaches in eyes with retinoblastoma. Here we describe a trans corneal vitrectomy approach that avoids the use of chemotherapy or cryotherapy.

Methods:

Retrospective chart review was performed on five consecutive patients with regressed retinoblastoma for >12 months (Group D/ct2b) at Children's Hospital Los Angeles who had vitrectomy between November 2022 and December 2023.

Results:

Five patients underwent 8 vitrectomies for various indications including IOL fibrosis, vitreous haemorrhage, cataract, retinal detachment, and silicone oil removal. Mean age at first vitrectomy was 6.2 years (range: 2-9 years); mean time from last retinoblastoma treatment was 50.4 months (range: 20-82 months). Radially oriented corneal incisions were made with the 23-gauge or 25-gauge trocar system and the Versa HD LenZ (Oculus) was utilized with the RESIGHT (Zeiss) for top-down visualization. Neither chemotherapy nor cryotherapy were utilized. Wounds were sutured parallel to the limbus with 10-0 polyglactin 910 suture (Vicryl, Ethicon), and a final water rinse was performed to lyse any potential retinoblastoma cells. Surgical objectives were achieved, vision remained stable, and no retinoblastoma spread was noted with a mean follow-up of 7.6 months (range: 3-12 months).

Conclusions:

This vitrectomy technique for eyes with regressed retinoblastoma permits top-down viewing with the Versa HD LenZ. Radial placement of corneal wounds avoids suturing through the uveal tract, and a postsurgical water rinse lyses any retinoblastoma cells. This approach may obviate the need for chemotherapeutics or cryotherapy.

BMC Ophthalmol. 2024 Sep 6;24(1):398. doi: 10.1186/s12886-024-03634-z.

5. Effect of anti-vascular endothelial growth factor on early-stage post-vitrectomy macular edema in patients with proliferative diabetic retinopathy

Zhou H, Zhang J, Guo B, Lin J, Mei J, Deng C, Wu R, Zheng Q, Lin Z. Effect of anti-vascular endothelial growth factor on early-stage post-vitrectomy macular edema in patients with proliferative diabetic retinopathy.

Purpose:

To investigate the effectiveness of anti-vascular endothelial growth factor (VEGF) therapy on post-vitrectomy macular edema (PVME) and determine the risk factors for PVME recovery.

Methods:

This retrospective study included 179 eyes of 179 patients who underwent pars plana vitrectomy for proliferative diabetic retinopathy and developed PVME within 3 months after surgery. Eyes were grouped according to postoperative anti-VEGF treatment.

Results:

Central retinal thickness (CRT) decreased significantly from baseline to 3-month follow-up in groups with (509.9 ± 157.2 μm vs. 401.2 ± 172.1 μm, $P < 0.001$) or without (406.1 ± 96.1 μm vs. 355.1 ± 126.0 μm, $P = 0.008$) postoperative anti-VEGF treatment. Best-corrected visual acuity (BCVA) did not differ between the two groups during follow-up. In the group not receiving anti-VEGF therapy, BCVA was significantly improved at 1, 2, and 3 months ($P = 0.007$, $P < 0.001$, and $P < 0.001$, respectively), while in the anti-VEGF group, BCVA was significantly improved at 1 and 3 months ($P = 0.03$ and $P < 0.001$). A thicker baseline CRT ($\beta = 0.44$; 95% confidence interval, 0.26-0.61; $P < 0.001$) was significantly associated with decreasing CRT.

Conclusion:

PVME tends to spontaneously resolve in the early postoperative period. The effect of anti-VEGF therapy in the first 3 months after diagnosis appears to be limited.

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6. Similar Risk of Kidney Failure among Patients with Blinding Diseases Who Receive Ranibizumab, Aflibercept, and Bevacizumab: An Observational Health Data Sciences and Informatics Network Study

Purpose: To characterize the incidence of kidney failure associated with intravitreal anti-VEGF exposure; and compare the risk of kidney failure in patients treated with ranibizumab, aflibercept, or bevacizumab.

Design: Retrospective cohort study across 12 databases in the Observational Health Data Sciences and Informatics (OHDSI) network.

Subjects: Subjects aged >18 years with > 3 monthly intravitreal anti-VEGF medications for a blinding disease (diabetic retinopathy, diabetic macular edema, exudative age-related macular degeneration, or retinal vein occlusion).

Methods: The standardized incidence proportions and rates of kidney failure while on treatment with anti-VEGF were calculated. For each comparison (e.g., aflibercept versus ranibizumab), patients from each group were matched 1:1 using propensity scores. Cox proportional hazards models were used to estimate the risk of kidney failure while on treatment. A random effects meta-analysis was performed to combine each database's hazard ratio (HR) estimate into a single network-wide estimate.

Main Outcome Measures: Incidence of kidney failure while on anti-VEGF treatment, and time from cohort entry to kidney failure.

Results: Of the 6.1 million patients with blinding diseases, 37,189 who received ranibizumab, 39.447 aflibercept and 1,63,611 bevacizumab were included; the total treatment exposure time was 1,61,724 person-years. The average standardized incidence proportion of kidney failure was 678 per 1,00,000 persons (range, 0-2389) and incidence rate 742 per 1,00,000 person-years (range 0-2661). The meta-analysis HR of kidney failure comparing aflibercept with ranibizumab was 1.01 (95% confidence interval [CI], 0.70-1.47; P ¼ 0.45), ranibizumab with bevacizumab 0.95 (95% CI, 0.68e1.32; P ¼ 0.62), and aflibercept with bevacizumab 0.95 (95% CI, 0.65e1.39; P ¼ 0.60).

Conclusions: There was no substantially different relative risk of kidney failure between those who received ranibizumab, bevacizumab, or aflibercept. Practicing ophthalmologists and

nephrologists should be aware of the risk of kidney failure among patients receiving intravitreal anti-VEGF medications and that there is little empirical evidence to preferentially choose among the specific intravitreal anti-VEGF agent

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