7/15/2022 05:30 pm

Surgery Symposium 5

Factors Associated With COVID-19 Vaccine Hesitancy and Clinical Trends in the Presentation of Primary Rhegmatogenous Retinal Detachments

- Peter Tang, MD, PhD
- Sushant Wagley, MD
- Edwin Ryan, MD
- D. Wilkin Parke, MD
- Robert Mittra, MD
- Rusdeep Mundae, MD

Objective:
Do factors related to COVID-19 vaccine hesitancy have a negative impact on clinical outcomes in patients with primary rhegmatogenous retinal detachments?

Purpose:
To evaluate the factors associated with coronavirus disease 2019 (COVID-19) vaccine hesitancy and clinical trends of primary rhegmatogenous retinal detachment (RRD) during the first full year of COVID-19 vaccine availability.

Methods:
Consecutive patients treated with primary RRD in a 52-week period during the 1st year of COVID-19 vaccine availability (December 14, 2020 to December 12, 2021). Patients initially presented vaccinated for COVID-19 (Front-Vax cohort) or unvaccinated (Un-Vax cohort). The Un-Vax cohort was further divided into those who subsequently obtained COVID-19 vaccination (Back-Vax cohort) or remained unvaccinated throughout their post-operative course (No-Vax cohort). Cohorts were assessed on demographic variables and clinical presentations along with visual outcomes and follow-up.

Results:
This study included a total of 1,047 patients divided into 391 and 656 patients in the Front- and Un-Vax cohorts. The Un-Vax cohort was further divided into 252 and 404 patients in the Back- and No-Vax cohorts. Demographic factors were similar. The overall vaccination rate for our study population was 61.4% (643/1047). Significantly greater number of patients in the Un-Vax cohort presented with mac-off RRDs (364/656 [55.5%]) and primary PVR (98/656 [14.9%]) compared to the Front-Vax cohort (Mac-off RRD: 174/391 [44.5%], $P = 0.0340$); PVR: 17/391 [4.3%], $P < 0.0001$). Furthermore, the Un-Vax cohort exhibited greater number of retinal re-detachments requiring repeat surgical operations (87/656 [12.3%]) compared to the Front-Vax cohort (23/391 [5.9%], $P < 0.0001$). Significantly more *CPT* code 67113 (repair of complex retinal detachment) were billed for Un-Vax cohorts (153/656 [23.3%]) compared to Front-Vax cohorts (23/391 [5.9%], $P < 0.0001$). When examining within the Un-Vax cohort, the No-Vax cohort displayed significantly higher rates of lost to follow-up (34/404 [7.7%]) compared to Front- (10/391 [2.3%], $P < 0.0001$) and Back-Vax cohorts (5/252 [2.2%], $P < 0.0001$), which were similar ($P = 0.8098$). Patients in the Back- and No-Vax cohorts that were new to our clinic demonstrated significantly higher rates of mac-off RRDs (Back-Vax: 124/207 [59.9%], $P < 0.0001$; No-Vax: 201/350 [60%], $P < 0.0001$) compared to those in the Front-Vax cohort (150/326 [46%]). No-Vax patients showed worse median BCVA after surgical repair compared to Front-Vax cohort. No-Vax patients (median = 35 miles) traveled significantly further for care compared to Front- (median = 22.3 miles; $P < 0.0001$) and Back-Vax patients (median = 25.45 miles; $P = 0.0038$). Within new patients to our clinic, No-Vax patients (median = 26.5 miles) traveled significantly further for care compared to Front- (median = 22.1 miles; $P = 0.0003$) and Back-Vax patients (median = 19.7 miles; $P = 0.0237$).

Conclusion:
Vaccine hesitant patients with primary RRD were more likely to have mac-off disease, to present with primary PVR, to be lost to follow-up, to have worse final BCVA outcomes, and to have traveled further distances for care.

IRB APPROVAL No - exempt

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Surgery Symposium 5

Giant Retinal Detachment: Etiologies, Clinical presentation, and Treatment Outcomes

- VISHAL RAVAL, MBBS, DNB, FMRF, FASRS
- Mudit Tyagi, MS, FASRS
- Raja Narayanan, MD, MBA
- Rajeev Reddy

Objective:
To evaluate etiologies, clinical presentation, and surgical outcomes for patients with giant retinal detachment (GRD) managed at a tertiary eye institute.

Purpose:
Considering not many studies include complex etiologies of GRD, there is an unmet need for an assessment of all-encompassing GRD's. We aim to investigate the functional and anatomic outcomes for patients undergoing surgical repair for GRD as well as access various factors affecting final success.

Methods:
Retrospective, consecutive case series of 396 patients (396 eyes) who underwent surgery from 2010 to 2021 were reviewed. Factors affecting final anatomical and functional success were determined.

Results:
Mean age was 37 years (range; 1-79 years) and 86% (n=339) of the subjects were male. Children (age <16 years, n=77) constituted 19.4% of total cases while trauma (21.3%) and high myopia (11.3%) were the associated risk factors. Two-seventy seven eyes (70%) had giant retinal tear configuration of >180^{o} and <270^{o}, associated with partial retinal detachment in 71% (n=282) of eyes and macular detachment in 66% (n=262) of eyes. Forty-eight eyes (12%) had associated grade C proliferative vitreoretinopathy at presentation. Primary surgical repair for GRD included pars plana vitrectomy (PPV) (n=240, 61%), PPV with belt buckle (BB) (n=152, 38%) or scleral buckle (n=4, 1%). Intraoperative perfluorocarbon liquid (PFCL) was used in 260 eyes (66%) and silicone oil tamponade in 387 eyes (98%). The mean follow-up duration after initial surgery was 15 months (median, 8.4 months; range, 3-83 months). Anatomical success after initial surgery was 64% (255 eyes) which improved to 77.8% (308 eyes) after undergoing a second vitreoretinal procedure for recurrent RD (53 eyes). Median visual acuity improved from 20/1500 preoperatively to 20/400 at final follow-up (p= 0.01), and 15% of eyes achieved final visual acuity of 20/60 or better. Short-term complications included cataract progression in 21 eyes (5%) and secondary glaucoma in 33 eyes (8.3%), while long-term complication included phthisis bulbi in 2 eyes (0.5%). Factors associated with poor anatomical success include age < 16 years (p=0.005), GRT size >180 degree (p=0.04), and presenting visual acuity 20/400 or less (p=0.001).

Conclusion:
Trauma and myopia constitutes the major risk factors for GRD in our series. Surgery for GRD managed with PPV with or without belt buckle and silicone oil tamponade had good anatomic and favorable visual outcomes at last follow-up.

IRB APPROVAL Yes

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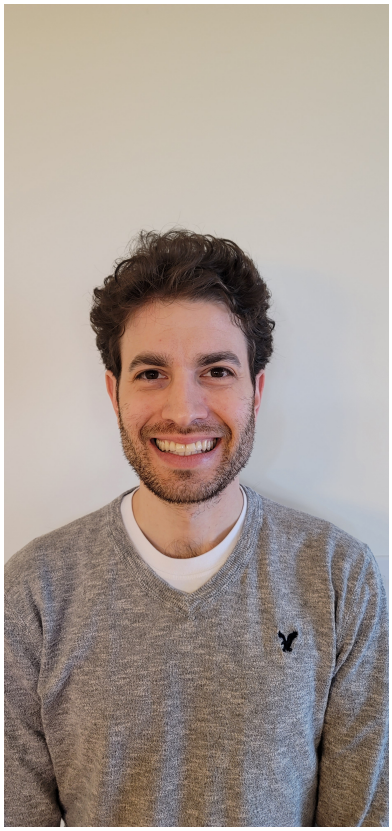
Fellow-Eye Retinal Detachment Risk as Stratified by Hyaloid Status on Optical Coherence Tomography



- Josh Wallsh
- Spencer Langevin, MD
- Aman Kumar
- Jonathan Huz, MD
- Naomi Falk, MD
- Pawan Bhatnagar, MD

Objective:
To evaluate the risk of a rhegmatogenous retinal detachment (RRD) in the fellow eye utilizing posterior hyaloid status as determined by optical coherence tomography (OCT) at the time of initial RRD.

Purpose:
Previous research has reported the rate of bilateral RRD as between 10-40%, but the incidence of a fellow eye RRD is certainly impacted by the posterior vitreous detachment (PVD) status at presentation. Utilizing OCT imaging to determine the PVD status at presentation may assist in risk stratification for eventual RRD development in the fellow eye and assist in patient education.

Methods:
A retrospective chart review of all patients diagnosed with a RRD was undertaken. Posterior hyaloid status—presence or absence of a posterior vitreous detachment—in both eyes at the time of initial RRD was determined by OCT imaging. Time to fellow eye RRD was documented in those patients where this event occurred. In addition, OCT imaging was utilized in those fellow eyes with a visible posterior hyaloid to document whether a posterior vitreous detachment (PVD) developed during follow-up and time to such an event. Patients were excluded if their initial RRD was due to intraocular inflammation, retinopathy of prematurity, following globe rupture or diabetic tractional retinal detachment.

Results:
A total of 1049 patients with an RRD were followed for an average of 5.8 ± 0.4 years. Overall, 154 (14.7%) patients were diagnosed with RRD in both eyes during this follow-up period. There were OCT images available for 582 fellow eyes: PVD noted in 229 (39.3%) and an attached hyaloid in 353 (51.7%) fellow eyes. An RRD occurred in 7 (3.1%) fellow eyes with a PVD at presentation. Within the cohort of fellow eyes with an attached hyaloid, 29 (8.2%) developed an RRD during follow-up; however, when evaluating only those that developed a PVD during follow-up 24.6% of such eyes were found to have an RRD as well. At the time of PVD development in the fellow eye an additional 21 (17.8%) eyes were noted to have a retinal tear that was treated without progression to RRD.

Conclusion:
Optical coherence tomography imaging of the fellow eye at time of presentation with an RRD offers a significant amount of information regarding risk stratification for RRD in this eye. Patients noted to have a completely detached posterior hyaloid are at a significantly lower risk of RRD than those with a visible posterior hyaloid –who need to be monitored closely at the time of PVD development.

IRB APPROVAL No - no IRB or exemption

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Multimodal Imaging Predictors of Functional Outcomes Following Rhegmatogenous Retinal Detachment Repair

- WEI WEI LEE, MD
- Carolina Francisconi, MD
- Samara Marafon, MD, MSc
- Verena Juncal, MD
- Roxane Hillier
- Rajeev Muni, MD, MSC, FRCS(C), FASRS

Objective:
Does outer retinal integrity and retinal displacement impact functional outcomes after retinal detachment repair?

Purpose:
To evaluate the microstructural optical coherence tomography (OCT) and fundus autofluorescence (FAF) imaging predictors of visual acuity, metamorphopsia and aniseikonia after retinal detachment repair.

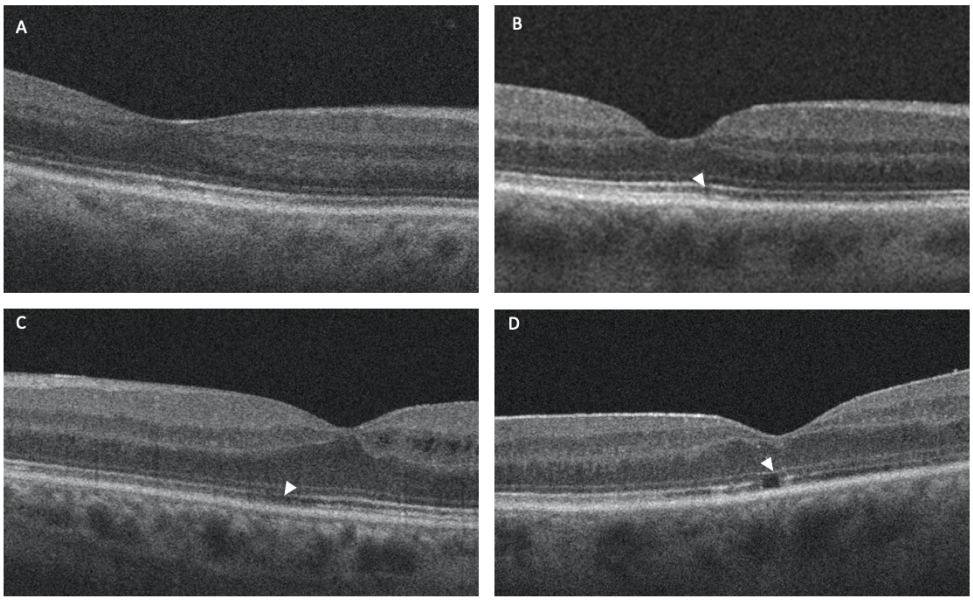
Methods:
Retrospective analysis of 614 eyes of 614 patients who underwent primary rhegmatogenous retinal detachment (RRD) repair. Best corrected visual acuity, metamorphopsia and aniseikonia were formally tested at 3 months post-operatively. Metamorphopsia and aniseikonia were quantitatively assessed with M-CHARTS and the New Aniseikonia Test. High-resolution spectral-domain OCT and FAF images were captured at 3 months post-operatively. Images were assessed for discontinuity of the outer retinal bands on OCT and retinal displacement detected by retinal vessel printings (RVPs) on FAF by 2 masked graders with disagreements adjudicated by a 3rd senior masked grader. Multivariable regression analysis was used to determine the imaging predictors of post-operative visual acuity, metamorphopsia and aniseikonia.

Results:
After adjusting for age and sex, discontinuity of the external limiting membrane (ELM) (p=0.001) and presence of RVPs on FAF (p=0.025) at 3 months were significant predictors of visual acuity at 3 months post-operatively. Discontinuity of the interdigitation zone (IZ) was associated with metamorphopsia [horizontal, MH (p =0.004); vertical, MV (p=0.077); average of MH+MV (p=0.011]. Retinal displacement identified by the presence of RVPs was a significant predictor of aniseikonia (p=0.037).

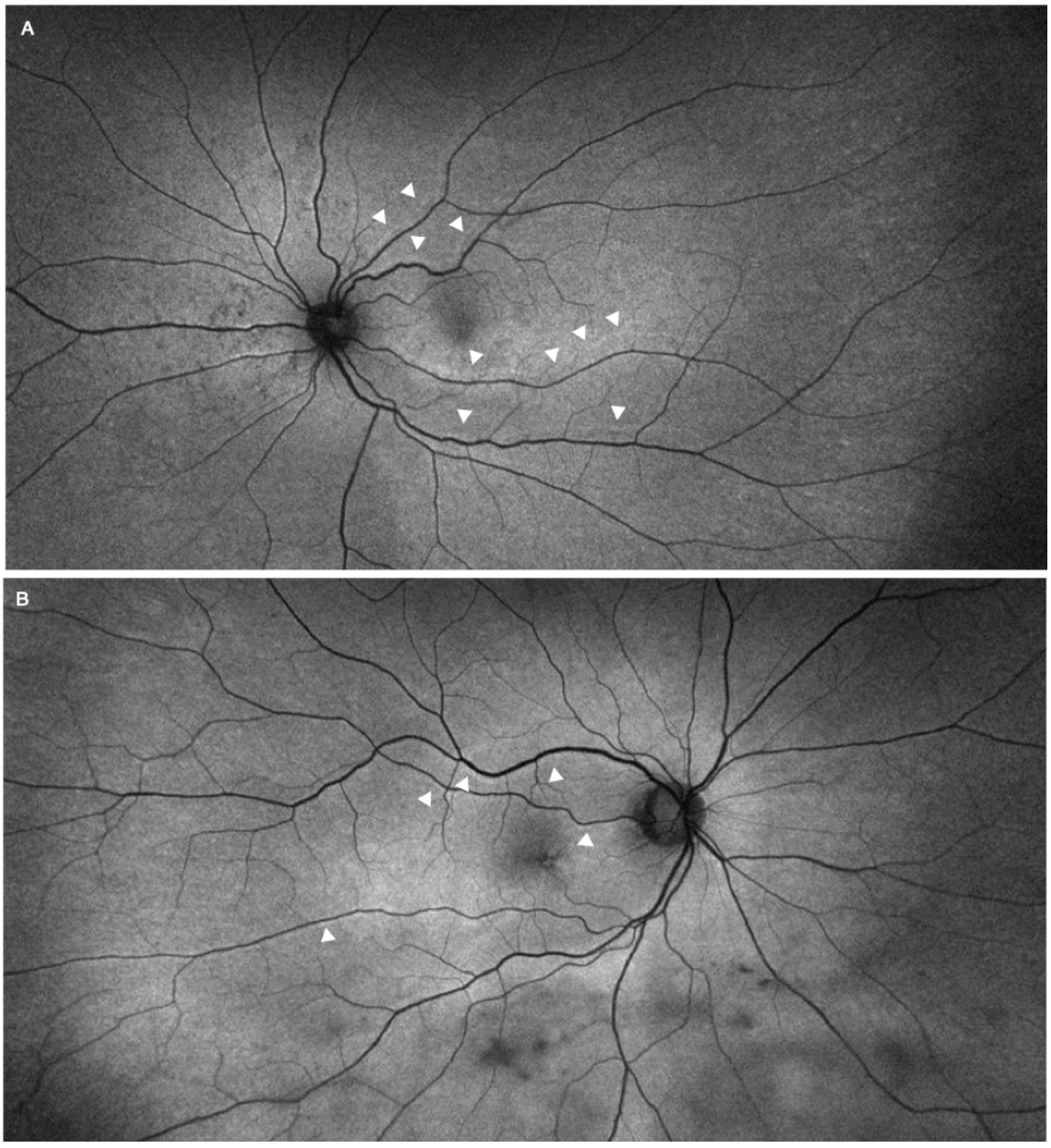
Conclusion:
Post-operative discontinuity of the external limiting membrane and retinal displacement were significant predictors of post-operative visual acuity following RRD repair. Discontinuity of the IZ and retinal displacement were significant predictors of post-operative metamorphopsia and aniseikonia, respectively. Modifications of surgical techniques aimed to reduce post-operative discontinuity of the outer retinal bands and retinal displacement may improve functional outcomes after retinal detachment repair.

IRB APPROVAL Yes

Figure 2



Discontinuity of the outer retinal layers on OCT



Retinal Vessel Printing on Fundus Autofluorescence