Retina Roundup
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PARS PLANA VITRECTOMY FOR THE TREATMENT OF TRACTIONAL AND DEGENERATIVE LAMELLAR MACULAR HOLES: Functional and Anatomical Results

Figueroa, Marta S.; Govetto, Andrea; Steel, David H.; Sebag, J.; Virgili, Gianni; Hubschman, Jean Pierre

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ABSTRACT

PURPOSE:

Functional and anatomical outcomes of vitrectomy with membrane peeling were compared in tractional lamellar macular holes (LMH)/macular pseudoholes (MPH) versus degenerative LMH

METHODS:

This multicentre retrospective study enrolled patients with a minimum follow-up of 6 months. The association of spectral domain optical coherence tomography parameters with preoperative and postoperative best-corrected visual acuity was analyzed.

RESULTS:

Seventy-seven (74.8%) tractional LMH/MPH and 26 (25.2%) degenerative LMH were included. Preoperative best-corrected visual acuity was better in tractional LMH/MPH (0.39 ± 0.2 logarithm of the minimal angle of resolution, 20/50 Snellen equivalent) than degenerative LMH (0.56 ± 0.2 logarithm of the minimal angle of resolution, 20/66 Snellen equivalent; $P < 0.001$). Premacular membranes were found in all tractional LMH/MPH, whereas LMH-associated epiretinal proliferation (LHEP) was present in all degenerative LMH. Primary anatomical success was achieved in 97/103 eyes (94.2%), with foveal restoration occurring earlier in degenerative LMH (1.6 ± 2.3 vs. 3.3 ± 3.6 months; $P = 0.025$). Best-corrected visual acuity improved in both tractional LMH/MPH and degenerative LMH ($P < 0.001$ and $P = 0.012$, respectively) but was better in tractional LMH/MPH ($P = 0.001$).

CONCLUSION:

The presence of premacular membranes and absence of LMH-associated epiretinal proliferation in all tractional LMH/MPH further distinguishes this from degenerative LMH. Best-corrected visual acuity improved in both subgroups but more so in tractional LMH/MPH. Complete anatomical restoration of foveal microanatomy was rare in degenerative LMH,

reflecting significant morphological and pathophysiological differences between the two lesions.

SWEPT-SOURCE OPTICAL COHERENCE TOMOGRAPHY TO DETERMINE THE RECOVERY OF RETINAL LAYERS AFTER INVERTED INTERNAL LIMITING MEMBRANE FLAP TECHNIQUE FOR MACULAR HOLE: Correlation With Visual Acuity Improvement

Morawski, Krzysztof; Jedrychowska-Jamborska, Justyna; Kubicka-Trzaska, Agnieszka; Romanowska-Dixon, Bozena

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ABSTRACT

PURPOSE:

To analyze the recovery of retinal lines using swept-source optical coherence tomography after inverted internal limiting membrane flap technique to treat full-thickness macular hole, and the relationship between best-corrected visual acuity and retinal line repair.

METHODS:

Thirty-eight eyes were evaluated for recovery of the external limiting membrane, photoreceptor inner segment/outer segment junction line, and cone outer segment tips (COST) line. Correlation between the recovery of retinal lines and best-corrected visual acuity improvement was analyzed 6 months after surgery.

RESULTS:

The closure rate of full-thickness macular hole was 97%. The best recovery rates were associated with external limiting membrane line recovery (25 eyes, 65.8%), followed by inner segment/outer segment line recovery (22 eyes, 57.9%), and less frequently, COST line recovery (9 eyes, 23.7%); moreover, recovery of the COST line was apparent only in eyes with recovered external limiting membrane and inner segment/outer segment lines. Mean postoperative visual acuity in the COST line recovery group (COST+) was 20/42 (0.48, 0.33 logarithm of the minimum angle of resolution), compared with 20/95 (0.21, 0.68 logarithm of the minimum angle of resolution) without COST line recovery (COST−). Final visual acuity was significantly better in the COST+ group compared with the COST− group ($P = 0.002$).

CONCLUSION:

Cone outer segment tips line recovery is correlated with best-corrected visual acuity improvement for eyes treated with inverted internal limiting membrane flap technique for full-thickness macular hole.

Quantitative Ultra-Widefield Angiography and Diabetic Retinopathy Severity: An Assessment of Panretinal Leakage Index, Ischemic Index and Microaneurysm Count

Justis P. Ehlers, Alice C. Jiang, Joseph D. Boss, Ming Hu, Natalia Figueiredo, Amy Babiuch, Katherine Talcott, Sumit Sharma, Jenna Hach, Thuy Le, Alison Rogozinski, Leina Lunasco, Jamie L. Reese, Sunil K. Srivastava

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ABSTRACT

PURPOSE:

To investigate the relationship between the diabetic retinopathy (DR) severity and quantitative ultra-widefield angiographic metrics, including leakage index, ischemic index, and microaneurysm count. Design Retrospective image analysis study.

METHODS:

Eyes with DR that had undergone ultra-widefield fluorescein angiography (UWFA) with associated color photography were identified. All eyes were laser-naive and had not received any intravitreal pharmacotherapy within 6 months of UWFA. Each eye was graded for DR severity. Quantitative angiographic parameters were evaluated with a semiautomated analysis platform with expert reader correction, as needed. Angiographic parameters included panretinal leakage index, ischemic index, and microaneurysm count. Clinical characteristics analyzed included age, gender, race, hemoglobin A1C level, hypertension, systolic blood pressure, diastolic blood pressure, and smoking history. Main Outcome Measures Association of DR severity with panretinal leakage index, ischemic index, and microaneurysm count.

RESULTS:

Three hundred thirty-nine eyes were included with mean age of 62±13 years. Forty-two percent of eyes were from women and 57.5% were from men. Distribution of DR severity was as follows: mild NPDR in 11.2%, moderate NPDR in 23.9%, severe NPDR in 40.1%, and PDR with 24.8%. Panretinal leakage index [mild NPDR (mean = 0.51%), moderate NPDR mean = 1.20%, severe NPDR (mean = 2.75%), and PDR (mean = 5.84%); $P<2\times10^{-16}$], panretinal ischemic index [mild NPDR (mean = 0.95%, moderate NPDR (mean = 1.37%), severe NPDR (mean = 2.80%), and PDR (mean = 9.53%); $P<2\times10^{-16}$], and panretinal microaneurysm count [mild NPDR (mean = 36), moderate NPDR (mean = 129), severe NPDR (mean = 203), and PDR (mean = 254); $P<5\times10^{-7}$] were strongly associated with DR severity. Multivariate analysis demonstrated that ischemic index and leakage index were the parameters associated most strongly with level of DR severity.

CONCLUSION:

Panretinal leakage index, panretinal ischemic index, and panretinal microaneurysm count are associated with DR severity. Additional research is needed to understand the clinical implications of these parameters related to progression risk, prognosis, and implications for therapeutic response

Accuracy of intraocular lens calculations based on fellow-eye biometry for phacovitrectomy for macula-off rhegmatogenous retinal detachments.

Abdul R. El-Khayat, Alex J. Brent, Shamfa A. M. Peart & Partha R. Chaudhuri

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ABSTRACT

OBJECTIVES:

To determine the accuracy of using fellow-eye biometry for intraocular lens calculations for phacovitrectomy for macula off rhegmatogenous retinal detachments.

METHODS:

Retrospective case review of phacovitrectomies for consecutive macula off retinal detachments over 10 years. Optical and/or ultrasound biometry was performed for affected and fellow eyes. Prediction error was determined by calculating the difference between predicted and actual refractive outcomes. Results from fellow- and same-eye biometry were compared.

RESULTS:

Forty-two eyes were included. The mean prediction errors for fellow- and same-eye biometry were -0.01 ± 1.09 and -1.22 ± 2.32 dioptres, respectively, indicating a myopic shift for same eye biometry calculations. The mean absolute prediction errors for fellow and same eye biometry were 0.73 ± 0.80 and 1.57 ± 2.08 dioptres, respectively. The difference was statistically significant ($P = 0.016$).

CONCLUSIONS:

When appropriate, intraocular lens calculations using fellow-eye biometry for phacovitrectomy for macula off rhegmatogenous retinal detachments are accurate and better than those from same-eye biometry.

Choroidal thickness and vascular density in macular telangiectasia type 2 using en face swept-source optical coherence tomography.

Jay C Wang, Inês Laíns, Patrick Oellers, Ivana K Kim, Joan W Miller, John B Miller

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ABSTRACT

PURPOSE:

To investigate the choroidal thickness (CT) and choroidal vascular densities (CVD) of patients with macular telangiectasia type 2 (MacTel2) and their association with other multimodal imaging features, using swept-source optical coherence tomography (SS-OCT).

METHODS:

Prospective, cross-sectional study. Consecutive patients with MacTel2 along with controls without any macular disease were included. Fundus photography, confocal blue reflectance, near-infrared reflectance, autofluorescence, fluorescein angiography, spectral domain OCT and SS-OCT were performed. Images were independently analysed by two graders, and CVD was calculated from binarised en face SS-OCT images. CT was obtained from the SS-OCT platform via built-in automated segmentation. Multilevel mixed-effects models were used for statistical analysis.

RESULTS:

Thirty-nine eyes of 20 patients with MacTel2 and 29 eyes of 15 control patients were included. Average CT and perifoveal temporal CT did not differ significantly between eyes with MacTel2 and control eyes ($p \geq 0.350$), when accounting for confounding factors. Overall and temporal CVD also did not significantly differ between the two groups ($p \geq 0.490$).

CONCLUSIONS:

CT and CVD did not significantly differ between MacTel2 and control eyes in this study using SS-OCT. Even though MacTel2 may include abnormalities involving the choroid, these are likely minor in comparison to the predominant retinal changes.

Changes in Management Based on Vitreous Culture in Endophthalmitis After Intravitreal Anti-vascular Endothelial Growth Factor Injection

Samir N. Patel, Philip P. Storey, Maitri Pancholy, Anthony Obeid, Turner D. Wibbelsman, Hannah Levin, Jason Hsu, Sunir J. Garg, James P. Dunn, James F. Vander

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ABSTRACT

PURPOSE:

To assess whether vitreous culture results affect the clinical management of patients with acute endophthalmitis after intravitreal anti–vascular endothelial growth factor (VEGF) injection.

DESIGN:

Retrospective case series.

METHODS:

SETTING: Single-center.

STUDY POPULATION: Patients who developed endophthalmitis after intravitreal injection of aflibercept, bevacizumab, or ranibizumab between January 1, 2016, and May 31, 2018.

OBSERVATION: A change in clinical management was defined as additional intravitreal antibiotic injections or pars plana vitrectomy.

MAIN OUTCOME MEASURES: A change in clinical management within 2 weeks of initial endophthalmitis culture and treatment; visual acuity. Results Of 204,986 intravitreal anti-VEGF injections performed, 60 cases (0.0293%) of endophthalmitis were identified, 18 of which were culture-positive. Six of 60 eyes (10%) had a change in clinical management. A change in clinical management was initiated in 3 of 18 (17%) culture-positive cases compared to 3 of 42 (7%) culture-negative cases (P = .357). Changes in management for culture-positive cases were performed based on declining vision (2 cases) and worsening clinical examination (1 case). Changes in management for culture-negative endophthalmitis cases were performed based on declining vision (1 case) and worsening clinical examination (2 cases). No additional interventions were initiated based on positive-culture results. Comparing vision loss from baseline by culture result, at final follow-up, oral flora-associated culture-positive cases lost 17.5 lines, non–oral flora-associated culture-positive cases lost 9.1 lines, and culture-negative cases lost 2.5 lines of vision (P < .001).

CONCLUSION:

Following endophthalmitis from intravitreal injection of anti-VEGF agents, vitreous culture data may help prognosticate visual outcomes but appear to have a limited effect on clinical management.

Preoperative Bevacizumab for Tractional Retinal Detachment in Proliferative Diabetic Retinopathy: A Prospective Randomized Clinical Trial

J. Fernando Arevalo, Andres F. Lasave, Igor Kozak, Saba Al Rashaed, Eman Al Kahtani, Mauricio Maia, Michel E. Farah, Caroline Cutolo, Miguel Brito, Claudia Osorio, Patricia Navarro, Lihteh Wu, María H. Berrocal, Virgilio Morales-Canton, Martin A. Serrano, Federico Graue-Wiechers, Nelson Alexandre Sabrosa, Arturo A. Alezzandrini, Roberto Gallego-Pinazo for the Pan-American Collaborative Retina Study (PACORES) Group

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ABSTRACT

PURPOSE:

To assess the effectiveness and safety of an intravitreal injection of 1.25 mg bevacizumab (IVB) as a preoperative adjunct to small-gauge pars plana vitrectomy (PPV) compared with PPV alone in eyes with tractional retinal detachment secondary to proliferative diabetic retinopathy.

METHODS:

This prospective, double-masked, randomized, multicenter, active-controlled clinical trial enrolled 224 eyes of 224 patients between November 2013 and July 2015. All eyes underwent a baseline examination including best-corrected visual acuity, color photos, optical coherence tomography, and fluorescein angiography. Data were collected on intraoperative bleeding, total surgical time, early (<1 month) postoperative vitreous hemorrhage, and mean change in best-corrected visual acuity at 12 months. $P < .05$ was considered statistically significant.

RESULTS:

A total of 214 patients (214 eyes) were randomized in a 1:1 ratio to PPV plus IVB ([study group] 102 eyes) or PPV plus sham ([control] 112 eyes). Iatrogenic retinal breaks were noted intraoperatively in 35 eyes (34.3%) in the study group, and 66 eyes (58.9%) in the control group ($P = .001$). Grade 2 intraoperative bleeding was noted in 32 (31.3%) eyes in the study group and 58 (51.7 %) eyes in the control group ($P = .001$). Endodiathermy was necessary in 28 (27.4 %) eyes in the study group, compared with 75 (66.9%) eyes in the control group ($P = .0001$). Mean surgical time was 71.3 ± 32.1 minutes in the study group and 83.6 ± 38.7 minutes in the control group ($P = .061$).

CONCLUSIONS:

Preoperative IVB seems to reduce intraoperative bleeding, improving surgical field visualization, and reducing intraoperative and postoperative complications.

November 2019 segment complied by: Dr. Chitaranjan Mishra, Aravind Eye Hospital Madurai