

Intervortex venous anastomosis in pachychoroid-related disorders.

Retina. 2021 May 1;41(5):997-1004. doi: 10.1097/IAE.0000000000003004.

Spaide RF, Ledesma-Gil G, Gemmy Cheung CM.

Abstract

Purpose: To evaluate the choroidal vascular patterns of patients with pachychoroid-related diseases in eyes images with wide-field indocyanine green angiography.

Methods: Retrospective study of wide-field indocyanine green angiographic images of patients with pachychoroid, peripapillary pachychoroid syndrome, central serous chorioretinopathy, and pachychoroid-associated neovascularization that were evaluated for anastomoses between vortex vein systems, which are ordinarily separated by a watershed zone.

Results: There were 21 subjects with a mean age of 57.4 years and 15 were male. Among the 42 eyes evaluated, central serous chorioretinopathy was found in 24 eyes (57.1%), peripapillary pachychoroid syndrome in 5 (11.9%), pachychoroid associated neovascularization in 7 (16.7%), and pachychoroid in 6 (14.3%). Every eye showed anastomosis between the superonasal, superotemporal, and inferotemporal vortex vein systems. The inferonasal vortex vein system was less likely to demonstrate anastomosis except for peripapillary pachychoroid syndrome, which showed anastomosis in all eyes. The anastomotic connections were prominent in the central macula in the central serous chorioretinopathy and pachychoroid-associated neovascularization cases, and around the nerve in the peripapillary pachychoroid syndrome cases. Although the large choroidal veins were particularly prominent in the neovascular cases, the number was fewer in the macular region than in other pachychoroid-related diseases in this series. Compared with a control group of nine eyes, the inferotemporal-superotemporal-superonasal anastomotic connections were more common in the case group ($P < 0.001$) and inferonasal quadrant ($P = 0.023$ right eye; $P = 0.01$, left eye).

Conclusion: Intervortex venous anastomosis is common in pachychoroid, central serous chorioretinopathy, peripapillary pachychoroid syndrome, and pachychoroid-associated neovascularization. This finding has important implications concerning pathogenesis and classification of disease

Manchester revisional macular hole study: Predictive value of optical coherence tomography parameters on outcomes of repeat vitrectomy, extension of internal limiting membrane peel, and gas tamponade for persistent macular holes.

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Baumann C, El-Faouri M, Ivanova T, Patton N, Ch'ng SW, Dhawahir-Scala F, Jalil A.

Abstract

Purpose: To evaluate the efficacy of repeat pars plana vitrectomy and gas tamponade for persistent macular holes (MHs), especially looking at a predictive value of optical coherence tomography parameters in revisional surgery.

Methods: Retrospective, nonrandomized interventional case series of consecutive patients with a persistent MH that underwent revisional pars plana vitrectomy and gas tamponade. The primary outcome measure was anatomical closure of the MH after revisional surgery. The secondary outcome measure was a functional outcome of the MH closure based on the best-corrected visual acuity. The changes of minimum linear diameter and MH index after the primary surgery were evaluated to see if they were prognostic markers of success for the revisional surgery.

Results: A total of 27 patients with a persistent MH after primary MH surgery were identified, all of whom underwent a second operation with pars plana vitrectomy and gas tamponade with an internal limiting membrane peel extension in 20 cases. The MH closure rate after revisional surgery was 89% (24/27). Twenty-two cases were included in the optical coherence tomography analysis, of which 14 MHs that showed both a reduction of the minimum linear diameter and an increase in the MH index after the primary repair closed after revisional surgery. The mean best-corrected visual acuity before revisional surgery was 0.86 logMAR (20/145 Snellen) but increased significantly

postoperatively to 0.69 (± 0.15) logMAR (20/98 Snellen) at 3 months and to 0.49 logMAR (20/62 Snellen) at 12 months.

Conclusion: For a persistent idiopathic MH, simple repeat pars plana vitrectomy with gas tamponade has a good anatomical and functional success rate in selected cases. The minimum linear diameter and MH index can be useful optical coherence tomography markers for prognostic guidance.

Intraoperative and postoperative monitoring of autologous neurosensory retinal flap transplantation for a refractory macular hole associated with high myopia

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Takeuchi J, Kataoka K, Shimizu H, Tomita R, Kominami T, Ushida H, Kaneko H, Ito Y, Terasaki H.

Abstract

Purpose: To describe the intraoperative and postoperative morphological and functional outcomes after autologous neurosensory retinal flap transplantation (ART) for a high myopia-related refractory macular hole (MH).

Methods: This prospective interventional study enrolled five eyes of five patients (age range 54-84 years) with highly myopic refractory MHs who underwent ART. All cases were evaluated with intraoperative optical coherence tomography and postoperative optical coherence tomography, optical coherence tomography angiography, and microperimetry for at least 6 months postoperatively.

Results: Intraoperatively, the MH was covered by an ART flap with a persistent small subretinal space that was filled with the ART flap after 4 days to 6 days. Optical coherence tomography discriminated the original from the transplanted retina. The mean basal diameter of the original MH decreased from $1,504 \pm 684$ μm preoperatively to $1,111 \pm 356$ μm postoperatively. The best-corrected visual acuity improved in two cases, was stable in two cases, and deteriorated in one case. Microperimetry demonstrated no obvious postoperative changes in the fixation points and the absolute scotoma corresponding to the base of MHs with chorioretinal atrophy. In two eyes, choroidal neovascularization developed beneath the transplanted retinas.

Conclusion: Transplanted tissue was in a fixed position by 1 week postoperatively with a decreased diameter of the original MH. Postoperative fixation points were on the original retina at the MH edge. Because choroidal neovascularization may develop, detailed monitoring is required.

Square grid deformation analysis of the macula and postoperative metamorphopsia after macular hole surgery.

Retina. 2021 May 1;41(5):931-939. doi: 10.1097/IAE.0000000000002955.

Park SH, Park KH, Kim HY, Lee JJ, Kwon HJ, Park SW, Byon IS, Lee JE.

Abstract

Purpose: To investigate the correlation between postoperative metamorphopsia and macular deformation after macular hole surgery.

Methods: This study included 28 eyes of 28 patients who underwent vitrectomy and internal limiting membrane removal for an idiopathic macular hole. The retinal vasculatures were compared between preoperative and postoperative photographs, and postoperative deformation of the macula was assessed as deformation of the square grid. The displacement of each node was measured, and deformation of the grid was calculated as differences in the coordinates of the adjacent nodes. These parameters were analyzed to find correlation with metamorphopsia measured using the M-charts after 6 postoperative months.

Results: The average deformations in the vertical and horizontal lines of the grid were 94.29 μm and 49.72 μm , respectively. Perifoveal deformation was significantly greater than parafoveal deformation ($P = 0.001\sim 0.019$). The multiple regression analysis demonstrated that the vertical M-score correlated with superior perifoveal deformation of the vertical line on the fovea ($P = 0.036$), and the horizontal M-score correlated with temporal perifoveal deformation of the horizontal line on the fovea ($P = 0.032$).

Conclusion: The parafoveal tissue was displaced with the fovea concurrently after internal limiting membrane removal in macular hole surgery causing perifoveal deformation, which correlated with postoperative metamorphopsia.

Retinal detachment after acute retinal necrosis and the efficacies of different interventions: A Systematic Review and Metaanalysis.

Retina. 2021 May 1;41(5):965-978. doi: 10.1097/IAE.0000000000002971

Zhao XY, Meng LH, Zhang WF, Wang DY, Chen YX.

Abstract

Purpose: To estimate the rate of retinal detachment (RD) after acute retinal necrosis (ARN) and evaluate the efficacies of different interventions.

Methods: The databases Medline and EMBASE from inception to March 2020 were searched to identify the relevant studies. R software version 3.6.3 was used to perform the statistical analyses. Results in proportion with 95% confidence interval were calculated using generalized linear mixed models.

Results: Sixty-seven studies involving 1,811 patients were finally included. The pooling results suggested the general RD rate of ARN was 47%. The RD rate increased with the extent of retinitis and was slightly lower when involved Zone III. The RD rate was 37% for herpes simplex virus ARN and 46% for varicella-zoster virus ARN; 52% for immunocompetent patients and 39% for immunocompromised patients. Retinal detachment presented in 2% of eyes at the first visit. Systemic antiviral therapy could lower the RD rate significantly from 67% to 43%, and prophylactic vitrectomy could lower the RD rate significantly from 45% to 22%. Systemic antiviral therapy plus vitrectomy achieved the lowest RD rate to 18%. Although the efficacy of prophylactic laser or intravitreal antiviral therapy was still limited. Prophylactic vitrectomy might significantly increase the incidence of proliferative vitreoretinopathy from 7% to 32%.

Conclusion: About half of the eyes might develop RD during the entire course of ARN. Systemic antiviral therapy and prophylactic vitrectomy are effective interventions to prevent RD, whereas the roles of prophylactic laser or adjunctive intravitreal antiviral therapy are still unclear. Varicella-zoster virus ARN and cases with extensive retinitis might need intensified interventions.

Posterior scleral contraction to treat myopic foveoschisis in highly myopic eyes.

Retina. 2021 May 1;41(5):1047-1056. doi: 10.1097/IAE.0000000000002997

Ye J, Pan AP, Zhu S, Zheng L, Lu F, Xue AQ.

Abstract

Purpose: To evaluate the efficacy of posterior scleral contraction to treat myopic foveoschisis (MF).

Methods: The records of MF patients treated with posterior scleral contraction were reviewed. During posterior scleral contraction, a cross-linked fusiform strip from allogeneic sclera was used and designed axial length (AL) shortening amount was around 2.0~3.0 mm based on preoperative AL. The middle part of the strip was placed at the posterior pole of the eye. After few aqueous humors were released, the strip was tightened to contract posterior sclera and shorten AL. Clinical data were collected at pre-operation (op) and post-op follow-ups for 12 months.

Results: Twenty-four eyes were collected. The AL at pre-op, post-op 1-week, 3-month, 6-month, and 12-month were 29.84 ± 1.24 , 27.39 ± 1.32 , 27.73 ± 1.23 , 27.86 ± 1.26 , and 27.91 ± 1.29 mm. There was no AL difference between post-op 6-month and 12-month ($P = 0.242$). The accumulated MF reattachment rate at post-op 1-week, 3-month, 6-month, and 12-month were 8.3%, 16.7%, 50.5%, and 95.8%. The best-corrected visual acuity at post-op 6-month and 12-month were 0.71 ± 0.39 (Snellen acuity 20/80) and 0.64 ± 0.37 (Snellen acuity 20/63), improving significantly compared with pre-op ($P = 0.006$ and <0.001).

Conclusion: The posterior scleral contraction was effective to treat MF. The AL stabilized after post-op 6-month and MF reattached gradually with improved visual acuity up to post-op 12-month.

APEX: A phase II randomised clinical trial evaluating the safety and preliminary efficacy of oral X-82 to treat exudative age-related macular degeneration.

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Cohen MN, O'Shaughnessy D, Fisher K, Cerami J, Awh CC, Salazar DE, Rosenfeld P, Heier JS

Abstract

Purpose: The safety and efficacy of X-82, an orally administered inhibitor of vascular endothelial growth factor (VEGF) and platelet-derived growth factor, was investigated for treatment of wet age-related macular degeneration (AMD) in a phase II clinical trial.

Methods: This phase II, randomised, double-masked, placebo-controlled trial enrolled subjects with a prior diagnosis of exudative AMD having received at least two intravitreal injections of anti-VEGF therapy. Subjects were randomised equally into four groups that received either daily 50mg, 100mg or 200mg dosages of X-82 or a placebo tablet. At each 4-week interval visit for 52 weeks, subjects were to be assessed to determine if rescue treatment was needed with anti-VEGF therapy.

Results: 157 patients were enrolled. Due to gastrointestinal and hepatobiliary adverse events and the fulfilment of the primary endpoint, the trial was stopped prematurely after a second interim analysis. The primary endpoint of non-inferiority of visual acuity compared with placebo was demonstrated in all groups receiving X-82 ($p < 0.001$). There was a dose-dependent trend in the number of injections over a 52-week period, with the 50 mg ($n=40$), 100 mg ($n=39$), 200 mg ($n=39$) and placebo ($n=39$) group requiring 6.7, 6.0, 4.7 and 8.1 injections, respectively.

Conclusions: X-82 oral therapy in combination with pro re nata anti-VEGF injections showed non-inferiority in visual acuity outcomes while achieving a dose-dependent decrease in the number of anti-VEGF injections compared with

placebo. Given the limited tolerability and safety issues observed, X-82 does not have a sufficient benefit to risk profile in treatment of patients with AMD.

May 2021 Segment compiled by : Dr. Piyush Kohli, Aravind Eye Hospital,
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