

Abstract 186

OCT ANGIOGRAPHY EVALUATION OF MACULAR PLEXUSES FOLLOWING PRIMARY RHEGMATOGENOUS RETINAL DETACHMENT SURGERY: IMPACT OF SURGICAL TECHNIQUE AND TAMPONADE CHOICE

Oral

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Purpose:

To evaluate state of macular microcirculation after macula-on and macula-off rhegmatogenous retinal detachment (RRD), successfully treated with different surgical techniques and tamponade, and the correlation with visual acuity.

Methods:

This retrospective observational study included 82 patients, 33 macula-on and 49 macula-off. 70 underwent pars plana vitrectomy, whereas 12 underwent scleral buckling. 65 eyes were filled with gas, 17 received silicone oil (SO). Optical coherence tomography angiography (OCT-A) was used to evaluate macular perfusion in superficial capillary plexus (SCP), in deep capillary plexus (DCP) and in choriocapillary plexus. We recorded preoperative and postoperative best visual acuity (BCVA), foveal avascular zone (FAZ) in SCP and in DCP, central macular thickness (CMT), development of cystoid macular edema and epiretinal membrane.

Results:

Macula-on eyes filled with gas had better postoperative BCVA than those filled with SO ($p = 0.003$). There was significant decrease in SCP vessel density (VD) and larger FAZ in RRD eyes compared to fellow eyes. Type of tamponade was correlated with DCP FAZ in macula-off group ($p = 0.024$). Subgroup analysis dependent on type of surgery and tamponade showed no significant difference in VD. A negative correlation was observed between SCP VD and BCVA ($p = 0.028$) and between SCP VD and SO duration ($p = 0.039$). Eyes filled with SO had a greater CMT ($p = 0.002$).

Conclusions:

RRD cause decreased retinal perfusion even after successful anatomical repair. Macula-on eyes filled with SO presented suboptimal vision gain. SO correlated with a greater risk of developing cystoid macular edema. We suggest early removal of SO to reduce damage caused and a carefully considered decision especially regarding RRD macula-on eyes.