Pars Plana Vitrectomy Versus Combined Scleral Buckling-Pars Plana Vitrectomy with Gas Tamponade for Primary Retinal Detachment Repair

Jose Echegaray, MD
Luis J Haddock, MD, Thomas A. Albini, MD, Jorge A. Fortun, MD, William E Smiddy, M.D., Harry W. Flynn, M.D., Audina Berrocal, MD

Purpose:
To compare outcomes of primary uncomplicated rhegmatogenous retinal detachment (RRD) repair between pars plana vitrectomy (PPV) and combined scleral buckling-vitrectomy (SB-PPV).

Methods:
A single-institution, retrospective, observational study of 488 cases with primary RRD repaired via PPV or SB-PPV and gas tamponade was performed. The primary outcome was primary anatomic success (PAS) and the secondary outcome was best corrected visual acuity (BCVA). The risk for retinal redetachment of preoperative and intraoperative variables (lens status, gas tamponade, location of sub retinal fluid drainage) was assessed using logistic regression. Survival analysis was performed via cox proportional hazard regression.

Results:
The mean follow-up was 14.3 months. Primary and final anatomic success were achieved in 425 (87.1%) and 487 (99.8%) cases, respectively. For the PPV group, 90/111 (81.1%) cases achieved PAS at 3-months, compared to 345/374 (92.2%) in the SB-PPV group (p=0.0010). Overall mean pre-operative LogMAR BCVA (1.057) improved to final BCVA (0.520) (p<0.0001). Phakic eyes had a reduced risk of redetachment than those with a posterior chamber intraocular lens (PCIOL) (p = 0.0361), but not after adjusting for the use of a SB (p = 0.3894). Perfluoropropane (C3F8) had a reduced risk of redetachment compared to sulfur hexafluoride (SF6) in phakic eyes (p = 0.0078). Drainage from a peripheral tear had a lower risk of redetachment with C3F8 (p=0.0186).

Conclusions:
SB-PPV may provide an advantage over PPV-only for primary RRD repair, especially for phakic eyes and with C3F8. The protective effect of a SB may explain better overall outcomes in phakic eyes. C3F8 may also be advantageous for phakic eyes.