Pars Plana Vitrectomy for Primary Rhegmatogenous Retinal Detachment Anatomically Eligible for Pneumatic Retinopexy

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Purpose:
Pars-plana vitrectomy (PPV) is the most commonly employed surgical technique for rhegmatogenous retinal detachment (RRD) repair at our institution. The purpose of this study was to investigate outcomes of PPV for eyes with RRD anatomically eligible for pneumatic retinopexy (PR).

Methods:
Retrospective case series of eyes that underwent PPV for RRD (CPT 67108) at a single private practice from 2011-2018. Eyes were divided into RRD anatomically eligible for PR (single retinal break or a group of breaks in detached retina within 1 clock hour above the 8- and 4-o'clock meridians, with any number, location and size of retinal breaks or lattice degeneration in attached retina) vs not eligible.

Results:
1797 consecutive charts were reviewed of which 1608 with sufficient data were analyzed. Of those, 902 eyes were anatomically eligible for PR (PRE group) and 706 were not (nPRE group). Single surgery anatomical success (SSAS) in the PRE group was 92.6% vs 87.1% in the nPRE group (p<0.05). Final anatomical surgical success (FASS) was 99.7% in the PRE group vs 99.9% in the nPRE group (p=0.9). Within the PRE group, gas tamponade with SF6 (n=716) was associated to higher SSAS compared to C3F8 (n=158; 94% vs 87.3%, p<0.05) and PPV alone (n=888) had higher SSAS than combined PPV/scleral buckle (n=14; 93% vs 71%, p<0.05). Neither phakia status (phakic 57%, pseudophakic 43%, aphakic 0.004%), macula-on (56.4%) vs macula-off (43.6%) preoperative status, single retinal break (86.5%) vs multiple retinal breaks (13.5%), postoperative hypertension (14.2%), hypotony (3.3%), and vitreous hemorrhage (2%) were statistically associated with SSAS. The most common etiology for SSAS failure was PVR (n=40, 60%). Mean number of total surgeries for RD repair was 2.1 for eyes with initial SSAS failure. Final BCVA was 20/40 or better in 69% and 20/200 or worse in 6%.

Conclusions:
This is the first dataset evaluating PPV for PR eligible RRD cases in the real-world setting. The data demonstrates that PPV is safe and effective for this patient population. While multiple factors influence surgeon’s choice of technique, this study affirms that PPV should be considered the benchmark to repair RRDs that are anatomically suitable for PR.