Pars plana vitrectomy versus combined pars plana vitrectomy and scleral buckle for repair of primary rhegmatogenous retinal detachment with inferior retinal breaks

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Background

Rhegmatogenous retinal detachment (RRD) is a vision threatening disease. Inferior retinal breaks have been reported to increase the risk of surgical failure following RRD primary repair.

Purpose

To compare the anatomical and functional outcomes of pars plana vitrectomy (PPV) alone versus combined PPV and scleral buckle (PPV/SB) for the repair of RRD due to inferior retinal breaks.

Study Design

Retrospective, comparative single center study.

Methods

- Chart review of patients who underwent (PPV) alone or combined (PPV /SB) for primary RRD with inferior retinal breaks between 5 and 7 o'clock, performed by two surgeons between 2009 and 2019 at St. Michael's Hospital.
- Exclusion criteria: Patients with pre-existing proliferative vitreoretinopathy, or <3 months of follow-up.
- Preoperative RRD characteristics were reviewed including baseline visual acuity, lens status, macular involvement, extension of RRD.
- The intraoperative interventions were reviewed including types of drainage and tamponade and use of cryopexy.
- The primary outcome was the single surgery anatomic re-attachment rate (SSAR) at 12 months.
- The Secondary outcomes were final anatomic re-attachment rate (FAR), and visual acuity.

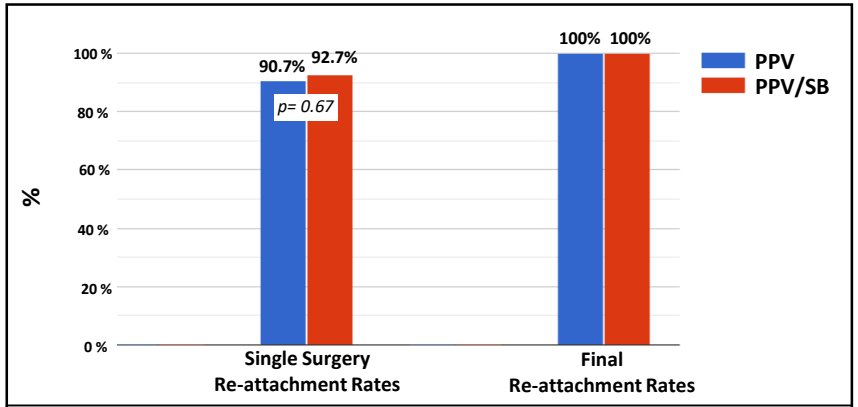
Results

- A total of 141 patients were included, of which 86 had PPV alone while 55 had PPV/SB.
- Mean follow-up time in the PPV group was 33.9±22.9 months, and in the PPV/SB group was 17.7±14.2 months.

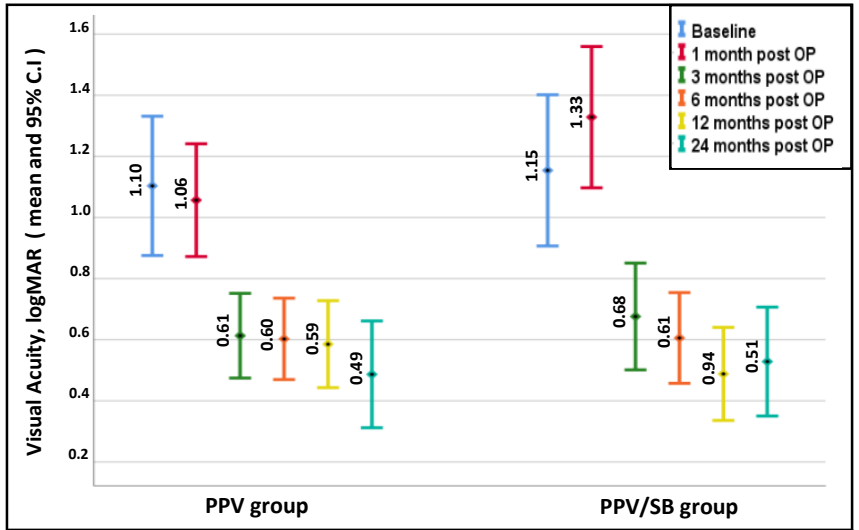
	PPV (n=86)	PPV/SB (n=55)	P-value
Preoperative characteristics			
Age, Year (Mean ± SD)	55.9 ± 12.3	58.6 ± 12.8	0.20
Pseudophakic (%)	32.6%	49.1%	0.05
Macula-off (%)	60.5%	78.2%	0.02
RRD clock hours (Mean ± SD)	6.4 ± 2.6	6.4 ± 2.6	0.99
Retinal breaks at 6 o'clock (%)	55.4%	52.7%	0.76
Intraoperative characteristics			
Drainage method, through RBs (%)	81.4%	56.4%	0.001
Use of cryopexy (%)	25.6%	1.8%	0.001
Use of C3F8 gas tamponade (%)	90.7%	100%	0.001
Postoperative characteristics			
Epiretinal membrane (%)	23.3%	30.90%	0.31
Cystoid macular edema (%)	20.9%	21.8%	0.90
Cataract (%)	77.6%	71.4%	0.53

Conclusions

Primary PPV and PPV/SB for RRDs with inferior retinal breaks had similar SSAR, FAR and functional outcomes.



Graph 1: Bar graph showing the single surgery anatomic re-attachment rate (SSAR) at one year in the PPV group (90.7%) compared to the PPV/SB group (92.7%), p=0.67. The final anatomic re-attachment rate (FAR) in both study groups was (100%).



Graph 2: Error bar graph showing the baseline and postoperative visual acuity outcomes (Mean logMAR and 95% confidence interval) in both groups. There were no significant differences between groups at all time points.