

Clinical Outcomes in Bilateral Sequential Rhegmatogenous Retinal Detachment

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Summary

- ***Largest series (504 eyes) of sequential, bilateral rhegmatogenous retinal detachments (RRD)*** repaired with scleral buckle (SB), pars plana vitrectomy (PPV) or combined SB/PPV.
- Goal was to assess clinical outcomes by utilizing a **paired-eye comparison** rather than conglomeration of RRD from different patients.
- Single operation anatomic success (SOAS) was similar for each eye but *the second eye is more likely to present earlier and have less anatomic involvement*, but final VA outcomes were similar.
- ***PPV/SB yielded significantly higher SOAS than PPV or SB alone.***

Background

- Rhegmatogenous retinal detachment (RRD)
 - Significant evolution in surgical management.
 - Single operation anatomic success (SOAS) – most ideal for visual outcome.
 - The choice of surgical technique may impact outcome: PPV, SB, PPV/SB and pneumatic retinopexy.
- Bilateral RRD occurs in about 3-31% of all cases.
 - Concomitant vitreous base/retinal pathology in both eyes – the “fellow-eye” syndrome.
- ‘Paired-eye’ comparison of bilateral RRD.
 - Fellow eye is a matched control to compare surgical management.

Methods – Subjects

- Retrospective, multi-center study over an 11 year period (2008-2019).

Inclusion Criteria

- Adults >18 years
- Primary RRD
- 6 months postoperative follow up
- RRD treated with PPV, SB or PPV/SB

Exclusion Criteria

- Hereditary vitreoretinopathy
- Viral retinitis
- Simultaneous bilateral RRD
- Prior vitrectomy or pneumatic retinopexy in either eye

Methods – Clinical Outcome Measures

- Anatomic characteristics of RRD
 - Lens status, PVD, VH, macular attachment, quadrants of detachment
- Surgical procedures
 - Type of procedure (PPV only, SB only or combined SB/PPV) and re-operation(s)
- Visual outcome
 - Baseline, 3 months, 6 months, and final follow up

Analysis

First and Second Eye RRD

- SOAS
- Anatomic characteristics
- Postoperative visual outcomes

Paired-Eye Surgical Comparison

- Different surgical procedure in each eye

Results – First and Second Eye RRD

	First Eye (N=252)	Second Eye (N=252)	P value
SOAS	208 (82.5%)	211 (83.7%)	0.80
Overall SOAS	419 / 504 eyes (83.1%)		
Total surgeries	1.2 (range 1-4)	1.2 (range 1-4)	0.68

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Total surgeries	1.2 (range 1-4)	1.2 (range 1-4)	0.68
Macula off	141 (56.0%)	86 (34.1%)	<0.001
Quadrants of detachment	2.0 ± 0.9	1.9 ± 0.9	0.01
Baseline VA	20/149	20/62	<0.001
3 month VA	20/58	20/45	0.002
6 month VA	20/49	20/41	0.03
Final VA	20/37	20/36	0.68

Results – Paired-Eye Comparison of Surgical Technique

Surgery 1	Surgery 2	N	SOAS	P value
PPV/SB	PPV or SB	75 patients	PPV/SB: 72/75 (96.0%) PPV or SB: 52/75 (69.3%)	<0.001
PPV/SB	PPV only	58 patients	PPV/SB: 52/58 (89.7%) PPV: 40/58 (69.0%)	0.01
PPV/SB	SB only	17 patients	PPV/SB: 15/17 (93.8%) SB: 12/17 (70.6%)	0.45

Limitations

- Retrospective cohort study design.
- Bilateral RRD patients may have more abnormal vitreous base and therefore more complex RD.
- Though paired eye comparison may serve as an 'ideal control' – still imperfect.
 - Contralateral eye RRD may present distinctly and varied from the initial eye RRD.

Conclusions

- Patients with bilateral, sequential RRD have similar visual and surgical outcomes between eyes.
- Largest clinical series of bilateral sequential RRDs to date.
- Macula off RRD is less common in the second eye.
- Bilateral, sequential RRD is a unique scenario to evaluate surgical outcomes between different surgical techniques.
 - PPV/SB may yield a higher SOAS than either procedure alone.
 - Placement of a supplemental SB during PPV may increase SOAS compared to PPV alone.