Long-term Visual and Anatomic Outcomes of 25 Gauge Pars Plana Vitrectomy for Diabetic Tractional Retinal Detachment

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Purpose:
Most studies to date for diabetic tractional retinal detachment (TRD) surgery have included limited long term follow up. Our purpose was to evaluate the long-term visual and anatomic outcomes of 25-G pars plana vitrectomy (PPV) for diabetic TRD.

Methods:
Retrospective review of 126 consecutive patients (140 eyes) receiving PPV for diabetic TRD between January 1, 2015 and December 31, 2017 at a single retina center. Only patients with a minimum 6 months of postsurgical follow up were included. Demographic data, pre- and post-surgical BCVA, and anatomic outcomes were analyzed. Main outcome measures were post-op BCVA and anatomic reattachment.

Results:
Mean length of follow up for 126 patients (140 eyes) was 26 months (6-51). 97 percent of eyes were attached at final follow up. 69 percent of eyes were stable or improved from pre-surgical BCVA at final follow up. BCVA improved from mean logMAR 1.10 (20/252 Snellen) before surgery to logMAR 0.81 (20/129) at final follow up [p=0.001]. Final BCVA was logMAR 0.77 (20/118) for eyes with only one surgery (80%) and logMAR 1.08 (20/240) for eyes requiring at least one re-operation (20%) [p=0.033]. 22 eyes received SF6 gas, 1 received C3F8, and 28 received silicone oil. Eyes receiving oil had worse mean final BCVA of logMAR 1.49 (20/618) compared to logMAR 0.73 (20/107) in those receiving neither oil nor gas [p<0.001]. Those receiving gas had a final BCVA of logMAR 0.73 (20/107) and were similar to the group receiving neither oil nor gas [p=0.98].

Conclusions:
This study includes the largest number of patients to date with long-term follow up undergoing PPV for diabetic TRD with a final attachment rate of 97 percent, and statistically significant and continued improved mean BCVA at final follow up. Patients who require only one surgery tend to have better visual outcomes than those in whom reoperation is required. Those receiving silicone oil tamponade have worse long-term visual outcomes than those receiving gas or neither agent. These results confirm the long term benefit of surgery for patients with diabetic TRD.