

## Efficacy of In-Situ Surgical vs. Needle Revision on Late Failed Trabeculectomy Blebs

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**Abstract :** Objective: The objective of this research is to compare the efficacy of the late in-situ surgical revision augmented with continuous infusion and needle revision on failed trabeculectomy blebs. Methods From December 2018 to December 2021, a prospective randomized controlled trial was performed on 44 glaucoma patients with failed bleb  $\geq$  6months with medically uncontrolled in Eye Hospital, China Academy of Chinese Medical Sciences. They were randomly divided into two groups. 22 eyes of 22 patients underwent the late in-situ surgical revision with continuous anterior chamber infusion in the study group, and 22 of 22 patients were treated with needle revision in the control group. Main outcome measures include preoperative and postoperative intraocular pressure (IOP), the number of anti-glaucoma medicines, the operation success rate, and the postoperative complications. Results The postoperative IOP values decreased significantly from the baseline in both groups (both  $P < 0.05$ ). IOP was significantly lower in the study group than in the control group at one week, 1, and 3 months postoperatively (all  $P < 0.05$ ). IOP reductions in the study group were substantially more prominent than in the control group at all postoperative time points (all  $P < 0.05$ ). The complete success rate in the study group was significantly higher than in the control group (71.4% vs. 33.3%,  $P < 0.05$ ), while the complete failure rate was significantly lower in the study group (0% vs. 28.5%,  $P < 0.05$ ). According to Cox's proportional hazards regression analysis, high IOP at baseline was independently associated with increased risks of complete failure (adjusted hazard ratio=1.141, 95% confidence interval=1.021-1.276,  $P < 0.05$ ). There was no significant difference in the incidence of postoperative complications between the two groups ( $P > 0.05$ ). Conclusion: Both in-situ surgical and needle revision have acceptable success rates and safety for the late failed trabeculectomy blebs, while the former is likely to have a higher level of efficacy over the latter. Needle revision may be insufficient for eyes with low target IOP.

**Keywords :** glaucoma, trabeculectomy blebs, in-situ surgical revision, needle revision

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