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Original Article

Long-term Outcomes of Trabeculectomy Versus Ahmed Glaucoma Valve Implantation in Vitrectomized Eyes

Gulsah Gumus Akgun,[1] Nese Alagoz,[1] Ihsan Cakir,[1] Cigdem Altan,[1] Ali Safa Balci,[2] Yavuz Selim Dogan,[3] Tekin Yasar,[1] Gizem Taskin[1]

[1]Department of Ophthalmology, University of Health Sciences, Beyoglu Eye Training and Research Hospital, Istanbul, Türkiye
[2]Department of Ophthalmology, Sancaktepe Prof. Dr. Ilhan Varank Training and Research Hospital, Istanbul, Türkiye
[3]Department of Ophthalmology, Kirklareli Training and Research Hospital, Kirklareli, Türkiye

Abstract

Objectives: This study compares the long-term outcomes and success rates of trabeculectomy and Ahmed glaucoma valve (AGV) implantation in vitrectomized eyes.

Methods: This study included 58 eyes of 58 patients who had undergone pars plana vitrectomy and subsequently received either trabeculectomy (25 eyes) or AGV implantation (33 eyes) at our hospital between March 01, 2017 and April 01, 2023 and had at least 1-year follow-up. Complete success was defined as maintaining an intraocular pressure (IOP) between 5 and 21 mmHg without medication, whereas overall success was defined as achieving the same IOP range with or without medication. Failure was defined as an IOP exceeding 21 mmHg or falling below 5 mmHg, visual deterioration to light perception due to glaucoma progression or complications from glaucoma surgery, or the need for further glaucoma surgery.

Results: The complete success was higher in the trabeculectomy group. Whereas both groups' overall success rates were similar at the last follow-up (p=0.04). Both groups demonstrated a comparable failure rate (p=0.44). The probability of success in the trabeculectomy group was 92.0% at 12 months, 88.0% at 24 months, and 84.0% at 36 months, whereas in the AGV group, it was 87.8% at 12 months, 81.8% at 24 months, and 75.7% at 36 months. There was no difference in terms of post-operative complication rate in both groups. (p=0.36).

Conclusion: Both AGV implantation and trabeculectomy yield comparable outcomes in vitrectomized eyes. However, trabeculectomy reduced the requirement for antiglaucoma medications postoperatively. Consequently, trabeculectomy may be a viable option in carefully selected vitrectomized eyes.

Keywords: Ahmed glaucoma valve, trabeculectomy, vitrectomized eyes

Introduction

Vitrectomy is a commonly performed surgical procedure for the treatment of numerous vitreoretinal diseases. A variety of factors can elevate intraocular pressure (IOP) after vitrectomy, including pupillary block, inflammatory response, infiltration of the trabecular meshwork by silicone oil (SO) particles, and angle closure caused by Synechia (1,2). Secondary glaucoma is a common complication in eyes that have undergone vitrectomy, with an increase in IOP observed in 19–28% of cases following pars plana vitrectomy (PPV) (3,4). In eyes where SO is used as an endotamponade, the risk of glaucoma ranges from 2.2% to 56%, with risk increasing with the prolonged presence of SO in the eye (5).

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Address for correspondence: Gulsah Gumus Akgun, MD. Department of Ophthalmology, University of Health Sciences, Beyoglu Eye Training and Research Hospital, Istanbul, Türkiye
Phone: +90 212 251 59 00 **E-mail:** gumus_118_@hotmail.com

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Treatment options range from the use of topical antiglaucoma medications to surgery or cyclodestructive procedures. When IOP elevation persists, glaucoma surgery is often necessary. Trabeculectomy with mitomycin C and glaucoma drainage device (GDD) implantation, such as the Ahmed glaucoma valve (AGV), are two widely used surgical options for managing glaucoma that is unresponsive to medical treatment. However, glaucoma surgery has a less favorable prognosis and a higher likelihood of complications in vitrectomized eyes (6). Conjunctival scarring from previous surgery is a significant cause of trabeculectomy failure, and the success rate after vitrectomy may be reduced (7). Therefore, GDDs are generally preferred for refractory glaucoma in vitrectomized eyes (8-10). However, challenges of GDD implantation include prolonged surgical duration, technical difficulties due to conjunctival scarring, and the cost of the devices, particularly in low- and middle-income countries.

Previous studies have reported on the success rates of various glaucoma surgeries in vitrectomized eyes (11-13). This study compares the long-term outcomes and success rates of trabeculectomy and AGV implantation in eyes that have undergone vitrectomy. This is the first study to compare AGV implantation and trabeculectomy in vitrectomized eyes.

Methods

This retrospective study included previously vitrectomized eyes that underwent either trabeculectomy or AGV implantation at our hospital between March 01, 2017, and April 01, 2023. Written informed consent for the use of patient data was obtained from all participants in accordance with the Declaration of Helsinki, and the study received approval from the local ethics committee (Approval number: 3/37, date: March 14, 2024).

Patients with a history of PPV before receiving either trabeculectomy or AGV implantation who had at least 1-year follow-up were included in the study. Patients were splitted into two groups according to which intervention they received. Cases with missing data or follow-up of <12 months, and those under the age of 18, were excluded from the study. Data collected for each patient included gender, age, indication for PPV, type of tamponade used during PPV, lens status, pre-existing glaucoma before PPV, type of glaucoma surgery performed, pre-operative best corrected visual acuity (BCVA), pre-operative IOP, pre-operative antiglaucoma medication use, pre-operative cup-to-disk ratio, pre-operative retinal nerve fiber layer thickness, follow-up time, number of cyclodestructive laser treatments after glaucoma surgery, post-operative complications, and the number of bleb needling and cyst excisions. BCVA was measured with a Snellen chart and was converted into logMAR for statistical analysis. IOP was measured using a Goldman applanation tonometer (AT 900, Haag Streit, Bern, Switzerland). BCVA, IOP, antiglaucoma medication use, and follow-up data were recorded at 1 week, 1 month, 3 months, 6 months, 1 year, 2 years, 3 years, and at the final follow-up.

Complete success was defined as the maintenance of IOP between 5 and 21 mmHg with a minimum 20% reduction from the baseline IOP, without requiring any glaucoma medication or surgical intervention for high IOP other than bleb needling and AGV cyst excision. Qualified success was defined as IOP maintained between 5 and 21 mmHg with the additional use of antiglaucoma medications. Overall success was defined as the sum of complete and qualified successes. Surgical failure was defined as an IOP >21 mmHg or <5 mmHg, a decline in vision to light perception attributable to glaucoma progression or surgical complications, or the need for additional glaucoma interventions, including trabeculectomy, AGV implantation, or cyclodestructive procedures (14).

The primary outcome measure of the study was the success rate in both groups, while secondary outcomes included IOP, BCVA, the number of antiglaucoma medications, complications, and the need for further glaucoma surgery.

Surgical Technique

All procedures were performed by three glaucoma consultants using uniform techniques, which are detailed below.

Trabeculectomy

A fornix-based conjunctival flap was created. Mitomycin-C (0.2 mg/mL) was administered to the scleral surface for 2–3 min. A rectangular-shaped 1/2–2/3 thick scleral flap (4 mm × 3 mm) was created, and a trabecular block (1 × 2 mm) was excised. A peripheral iridectomy was then performed, and both the scleral flap and conjunctiva were sutured using 10-0 nylon sutures.

AGV Implantation

A superior fornix-based peritomy was made and extended towards the superotemporal region. The end plate was placed 10 mm from the limbus using two 8/0 Vicryl sutures placed 7 mm from the limbus. The silicone tube was shortened, maintaining a bevel-up position, 1.5 mm in front of the limbus. A scleral tunnel was then created 4 mm behind the limbus using a 23-G needle, through which the tube was inserted into the anterior chamber, positioning with the iris plane. The posterior part of the silicone tube was covered with a pericardium. The procedure concluded by closing the conjunctiva with 8/0 Vicryl sutures.

Post-operative Follow-up

Following surgery, topical antibiotics were administered 5 times daily for 2 weeks as part of the standard post-oper-

ative regimen for all patients. Topical prednisolone acetate was used 6 times daily for the initial 2 weeks before being tapered over 6 weeks. Following trabeculectomy, all cases received cyclopentolate hydrochloride eye drops thrice daily for 2 weeks.

Statistical Analysis

All statistical analyses were conducted using the Statistical Package for the Social Sciences 20.0® for Windows (IBM Corporation, Armonk, NY). Independent t-tests were utilized to compare variables between groups, and categorical data were analyzed using a Chi-square test (two-sided). The cumulative probability of success was determined using Kaplan–Meier survival analysis, and the log-rank test was performed to compare success rates. A $p<0.05$ was considered statistically significant.

Results

From a total of 58 patients, 25 eyes of 25 patients (18 Male/7 Female) were included in the trabeculectomy group, and 33 eyes of 33 patients (27 Male/6 Female) were included in the AGV group. Pre-operative characteristics of the patients are summarized in Table 1. The mean age was significantly higher in the trabeculectomy group (59.4 years vs. 46.3 years, p=0.001). There was no significant difference in the indications for PPV between the groups (p=0.89). Hence, it was used as the endotamponade during PPV for 7 eyes (28.0%) in the trabeculectomy group and 22 eyes (66.7%) in the AGV group, with a significantly higher rate of SO use in the AGV group (P = 0.008). All patients underwent glaucoma surgery after the removal of SO. Pre-operative BCVA, IOP, and the number of antiglaucoma medications were similar in both groups (p>0.05 for all).

Table 1. Demographics and baseline characteristics of the subjects

	Trabeculectomy (n=25) (%)	AGV (n=33) (%)	p
Age (mean±SD)	59.4±14.3	46.30±14.19	0.001
Lens (n)			
Phakic	4 (16.0)	1 (3.1)	0.21
Pseudophakic	19 (76.0)	28 (84.8)	
Aphakic	2 (8.0)	4 (12.1)	
Presence of glaucoma before PPV (n)	10 (40.0)	8 (24.2)	0,20
Indication for PPV (n)			
PDR and complications	5 (20.0)	6 (18.2)	0.89
Vitreomacular interface disorders	8 (32.0)	2 (6.1)	
Retinal detachment	7 (28.0)	16 (48.5)	
IOL-nucleus drop	5 (20.0)	7 (21.2)	
Endophthalmitis	0	2 (6.1)	
Tamponad used during PPV			
Silicon oil	7 (28.0)	22 (66.7	0.008
Gas	5 (20.0	2 (6.1	
No tamponade	13 (52.0	9 (27.3)	
The time of SO removal (month) (median)	4 (IQR=2, 10)	7 (IQR=3, 13.5)	0.37
BCVA	1.23±0.66 (0.3–2.7)	1.43±0.71 (0.3–3.1)	0.27
IOP	30.76±8.4 (19–47)	32.13±7.81 (16–52)	0.51
Medication	3.5±0.65 (2–4)	3.28±0.51 (2–4)	0.15
Cup/disk ratio	0.74±0.24 (0.2–1.0)	0.83±0.17 (0.5–1.0)	0.06
CCT	568.87±33.71 (516–617)	613.62±65.19 (511–695)	0.11
RNFL	74.2±16.63 (45–95)	81.45±17.67 (55–114)	0.31
Follow-up time (mean±SD)	30.76±20.4	35.02±16.91	0.2

AGV: Ahmed glaucoma valve; PPV: Pars Plana vitrectomy; PDR: Proliferative diabetic retinopathy; BCVA: Best corrected visual acuity; IOP: Intraocular pressure; CCT: Central corneal thickness; RNFL: Retinal nerve fiber layer; SD: Standard deviation; SO: Silicone oil. Categorical data were expressed as n (%).

The median follow-up time was 30.76 months in the trabeculectomy group and 35.02 months in the AGV group (p=0.08). No significant difference was observed in mean IOP between the groups throughout follow-up, except at the 1- and 6-month visits (p=0.04 and p=0.01, respectively), where IOP was lower in the trabeculectomy group (Fig. 1). The number of antiglaucoma medications was significantly lower in the trabeculectomy group at all follow-up visits except for at 1 week (p<0.05 for all, Table 2). BCVA was similar between the groups at all follow-ups (p>0.05 for all).

While the overall success rate was similar between the trabeculectomy (84.0%) and AGV (75.8%) groups, the complete success rate was higher in the trabeculectomy group. The percentage of eyes free of antiglaucoma medication in the trabeculectomy group was 40.0% (10 eyes), compared to 15.2% (5 eyes) in the AGV group (p=0.04). Figure 2 shows the Kaplan–Meier survival curves of complete success rates, and Figure 3 represents the overall success rates of each group (p=0.016 and p=0.69, respectively). The cumulative probability of overall success at 12, 24, and 36 months was 92.0%, 88.0%, and 84.0%, respectively, in the trabeculectomy group,

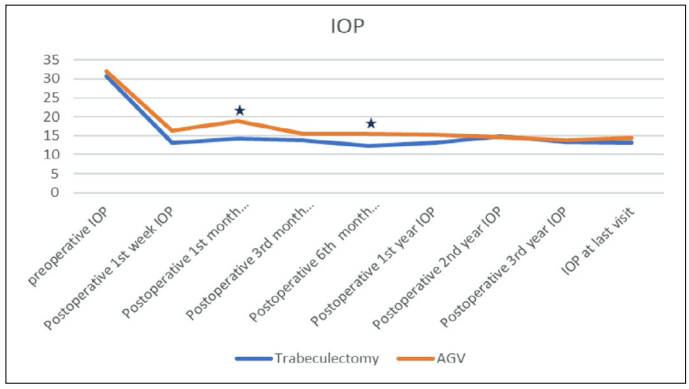


Figure 1. Graphic of intraocular pressure values of both groups in all follow-ups.

AGV: Ahmed glaucoma valve; IOP: Intraocular pressure, statistically significant.

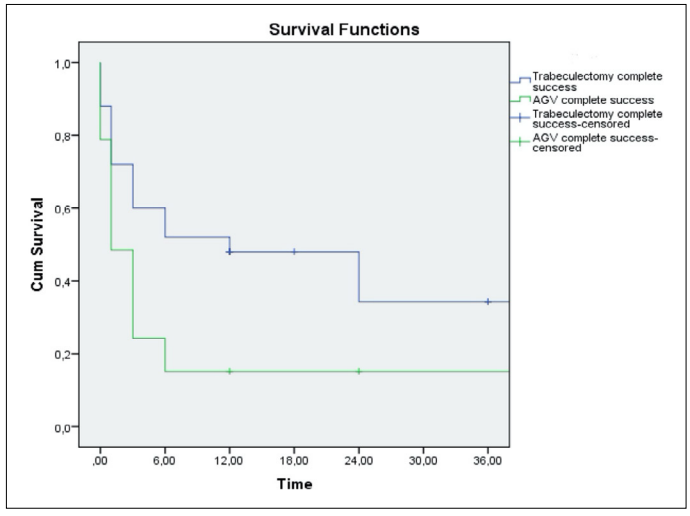


Figure 2. Kaplan–Meier survival graphic showing each group's complete success rates (p=0.016).

Table 2. Mean intraocular pressure values and the number of antiglaucoma medications of both groups in all follow-ups

	Trabeculectomy	AGV	p
Post-operative 1st week IOP	13.08±8.27 (1–35)	16.27±8.73 (2–38)	0.18
Number of antiglaucoma medication in 1st week	0.43±1.04 (0–4)	0.72±1.31 (0–3)	0.39
Post-operative 1st month IOP	14.12±7.78 (2–33)	18.83±8.36 (1–40)	0.04
Number of antiglaucoma medication in 1st month	0.54±0.98 (0–3)	1.46±1.41 (0–3)	0.01
Post-operative 3rd month IOP	13.86±5.81 (8–33)	15.4± 6.83 (2–31)	0.39
Number of antiglaucoma medication in 3rd month	1.08±1.34 (0–4)	2.01±1.34 (0–4)	0.02
Post-operative 6th month IOP	12.2±4.01 (4–24)	15.39±4.99 (8–33)	0.01
Number of antiglaucoma medication in 6th month	1.32±1.43 (0–4)	2.22±1.33 (0–4)	0.02
Post-operative 1st year IOP	13.24±5.55 (2–32)	15.27±4.67 (6–30)	0.14
Number of antiglaucoma medication in 1st year	1.24±1.39 (0–4)	2.06±1.39 (0–4)	0.03
Post-operative 2nd year IOP	14.84±7.79 (4–38)	14.42±3.92 (9–23)	0.82
Number of antiglaucoma medication in 2nd year	1.23±1.42 (0–4)	2.31±1.34 (0–4)	0.03
Post-operative 3rd year IOP	13.31±7.23 (4–34)	13.72±3.57 (7–23)	0.83
Number of antiglaucoma medication in 3rd year	1.23–1.3 (0–3)	2.27±1.31 (0–4)	0.04
IOP at last visit	13.04±6.51 (4–38)	14.48±5.73 (8–30)	0.37
Number of antiglaucoma medication at last visit	1.56±1.55 (0–4)	2.39±1.43 (0–4)	0.04

AGV: Ahmed glaucoma valve; IOP: Intraocular pressure.

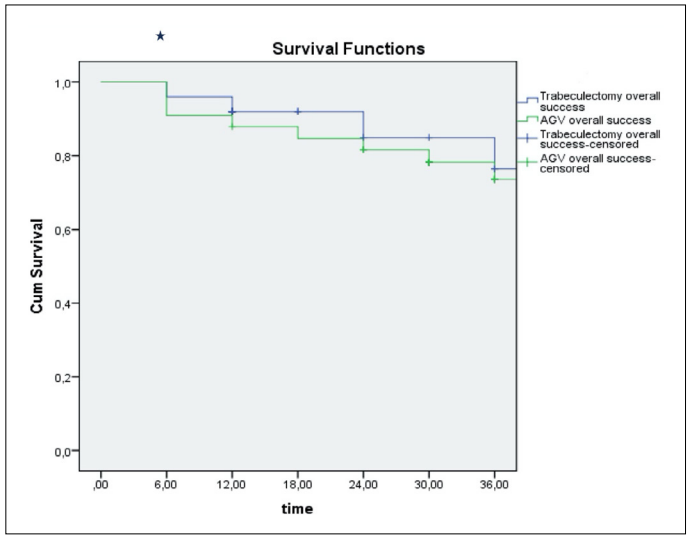


Figure 3. Kaplan–Meier survival graphic showing each group's overall success rates (p=0.69).

and 87.8%, 81.8%, and 75.7%, respectively, in the AGV group.

When eyes were classified based on SO tamponade, the overall success rates following trabeculectomy and AGV were comparable (88.9% vs. 81.8%, respectively; p=0.62); however, complete success was significantly higher in the trabeculectomy group than in the AGV group (50% vs. 9.1%, respectively; p=0.04) among eyes without prior SO. In eyes with prior SO tamponade, the trabeculectomy and AGV groups achieved comparable rates of overall success (71.4% vs. 72.7%, respectively; p=0.9) and complete success (14.3% vs. 18.2%, respectively; p=0.8).

Bleb needling was performed in 2 eyes (8 %) in the trabeculectomy group, and AGV cyst excision was performed in 4 eyes (12.2%) in the AGV group. Surgical failure occurred in 4 eyes (16.0%) in the trabeculectomy group and 8 eyes (24.2%) in the AGV group (p=0.44). In the trabeculectomy group, surgical failure was the result of a final IOP >22 mmHg in 2 eyes (8.0%), a final IOP lower than 5 mmHg in 1 eye (4.0%), and the need for further glaucoma surgery in 1 eye (4.0%). In the AGV group, failure was related to vision loss in 3 eyes (9.1%), final IOP over 22 mmHg in 4 eyes (12.1%), and the need for additional glaucoma surgery in 5 eyes (15.2%) (Table 3).

Post-operative complications were observed in 3 (12.0%) eyes in the trabeculectomy group and 7 eyes (21.2%) in the AGV group (p=0.36). In the trabeculectomy group, post-operative complications included hypotony and choroidal effusion in 1 eye (4.0%), intraocular lens drop in 1 eye (4.0%), cystoid macular edema in 1 eye (4.0%), and cataract formation in 1 eye (4.0%). In the AGV group, hypotony and choroidal effusion were observed in 2 eyes (6.06%), cystoid macular edema in 2 eyes (6.06%), tube exposure in 2 eyes (6.06%), tube obstruction in 1 eye (3.03%), and bullous keratopathy in 1 eye (3.03%). In the single case of tube obstruction, tube extraction was performed due to exposure and obstruction of the tube by the iris; in the single case of bullous keratopathy, evisceration was performed due to vision loss. Two cases of choroidal effusion responded well to topical treatment, while 1 case (3.03%) in the AGV group required viscoelastic substance injection into the anterior chamber due to persistent choroidal detachment (Table 4).

Discussion

An increase in IOP following PPV is common, with even higher incidence noted when SO is used as an endotamponade (5,15). Trabeculectomy remains the gold standard for treating medically refractory glaucoma. This procedure establishes a channel between the anterior chamber and the subconjunctival space, allowing aqueous humor from the an-

Table 4. Post-operative complications in each group

	Trabeculectomy group (n=25) (%)	AGV group (n=33) (%)
Hypotony and choroidal effusion	1 (4.0)	2 (6.06)
IOL drop	1 (4.0)	
CME	1 (4.0)	2 (6.06)
Cataract formation	1 (4.0)	
Tube exposure		2 (6.06)
Obstruction of tube		1 (3.03
Bullous keratopathy		1 (3.03)

AGV: Ahmed glaucoma valve; IOL: Intraocular lens; CME: cystoid macular edema. Categorical data were expressed as n (%).

Table 3. Reasons for failure in each groups

	LP loss	Final IOP >22 mmHg (%)	Final IOP <5 mmHg (%)	Further glaucoma surgery (%)
Trabeculectomy group (n=25)	0	2 (8.0)	1 (4.0)	1 (4.0)
AGV group (n=33)	3 (9.1)	4 (12.1)	0	5 (15.2)

LP: Light perception; AGV: Ahmed glaucoma valve; IOP: Intraocular pressure. Categorical data were expressed as n (%).

terior chamber to drain beneath the conjunctival bleb (16). Success of trabeculectomy largely depends on the long-term viability of the bleb, with post-operative conjunctival scarring posing a substantial risk for failure (7). Thus, trabeculectomy after vitrectomy is often less successful. However, advances in vitrectomy technology have led to more minimally invasive procedures, shorter operation times, and reduced complication rates. These likely contribute to decreased conjunctival fibroblast proliferation, reduced chemical factors in the vitreous, and the presence of fewer inflammatory cells (12).

GDDs are widely used, especially in cases at high risk for bleb failure, such as in patients with neovascular glaucoma (NVG) or those who have undergone vitrectomy or other conjunctival incisional procedures. GDDs include a silicone tube that allows aqueous outflow from the anterior chamber to an endplate. However, they have notable limitations, including restriction of ocular movement, potential tube exposure, a higher rate of early hypotony, corneal touch, and an increased need for penetrating keratoplasty. Consequently, many surgeons reserve GDDs for refractory cases (14,17). Further research on the optimal surgical methods for managing glaucoma in vitrectomized eyes is essential to determine the most effective strategy.

We compared the long-term outcomes of trabeculectomy and AGV implantation in a population of vitrectomized eyes. During an average follow-up of 33.17 months, complete success was achieved in 40.0% of eyes in the trabeculectomy group and 15.2% in the AGV group, while overall success rates were 84.0% and 75.8%, respectively. Complete success was higher in the trabeculectomy group, and 40.0% of eyes remained medication-free at the final follow-up (p=0.04). The cumulative probabilities of success were 92.0% and 87.8% at 1 year, 88.0% and 81.8% at 2 years, and 84.0% and 75.7% at 3 years in the trabeculectomy and AGV groups, respectively.

A previous study reported the success rates of trabeculectomy after vitrectomy as 55.1%, 45.3%, and 43.1% at 1-, 2-, and 3-year post-surgery, respectively. Their lower success rates were attributed to the high prevalence of NVG (67.2%) and uveitis (7.2%) in the cohort (12). Chronic inflammation and NVG are well-established risk factors for trabeculectomy failure (7). Neovascularization is considered to impair post-operative wound healing. In addition, factors such as extensive conjunctival inflammation, scarring, increased influx of vasoactive materials from the vitreous into the anterior chamber, and post-vitrectomy inflammation may contribute to poor outcomes after trabeculectomy in vitrectomized eyes (12,18,19). The trabeculectomy success rates for vitrectomized NVG cases were reported as 62.6% at 1 year and 58.2% at 2 years post-surgery in the study by Takihara et al. (19) In contrast, the success rates demonstrated in the current study were higher than previously reported, which may be attributed to differences in patient populations. Our cohort included eyes that had undergone vitrectomy due to various indications; the single NVG case in the trabeculectomy group failed postoperatively after 12 months. In addition, 2 eyes required bleb needling during follow-up, although this was not regarded as a failure in our study.

Trabeculectomy is considered more likely to fail in eyes where SO was used as the endotamponade during vitrectomy. This is mainly due to conjunctival scarring and emulsified SO, which can induce inflammation and fibrosis (20). Among our patients, 7 eyes (28.0%) had prior SO endotamponade, and none experienced failure in the long term, except for the single NVG case. The rate of prior SO tamponade was more prevalent in the AGV cohort (66.7%). When eyes were subgrouped according to prior SO tamponade, complete success was significantly higher in the trabeculectomy group than in the AGV group among eyes without prior SO. However, in eyes without prior SO, overall success rates were similar between the two groups, and both complete and overall success rates were comparable in eyes with prior SO tamponade. Notably, the median SO removal time in these eyes was 4 months, significantly shorter than the durations reported in the literature (20). In addition, although not statistically significant, SO was removed even sooner in the trabeculectomy group, which may have further contributed to the favorable outcomes.

Previously reported success rates of AGV implantation after vitrectomy range between 62% and 80% at 12- and 24-month follow-up, comparable to our findings (13,14,21,22). Lower visual acuity, higher pre-operative IOP, presence of NVG, and prior glaucoma surgery have all been identified as factors predicting failure in tube shunt procedures (23,24). Meanwhile, in a study comparing outcomes of AGV implantation in vitrectomized eyes with and without SO endotamponade, mean IOP, number of medications, and complication rates were similar between the two groups after 2 years (14). However, the success rate was 70.2% in eyes with SO and 87.2% in eyes without SO, suggesting SO to be a risk factor for AGV failure (14). Early SO removal may facilitate IOP control, but the risk of recurrent retinal detachment often restricts this possibility. In the present study, the overall AGV success rate was 75.8%, and a majority of AGV-implanted eyes (60.6%) required antiglaucoma medications for IOP management, consistent with previous studies (13,14,21,22,25). In our series, 66.7% of AGV-implanted eyes had prior SO endotamponade, which was removed in a median of 7 months.

El-Saied et al. (13) evaluated four different glaucoma surgeries in vitrectomized eyes using a more homogenous population, in which all eyes had undergone vitrectomy for retinal detachment with SO endotamponade. At 12-month follow-

up, the authors reported the highest success rate with the Ex-Press mini shunt (100%), followed by the AGV implantation (80%). Both trabeculectomy and deep sclerectomy surgeries had a lower success rate (50%) (13). In the present study, overall success rates were comparable between the two groups (84% in the trabeculectomy group and 76% in the AGV group). While the success rate of AGV was consistent with previous studies, trabeculectomy demonstrated a greater success rate than previously reported. This difference may be attributed to the higher proportion of cases with SO endotamponade and a younger mean age in the AGV group compared to the trabeculectomy group in our study.

Previous investigations demonstrate that younger age is an independent risk factor for post-operative failure after both trabeculectomy and AGV implantation. This association is generally attributed to the more pronounced inflammatory response in younger patients, which accelerates bleb scarring and implant encapsulation (12,13,23,24). In our series, the mean age of the trabeculectomy cohort was substantially higher than that of the AGV cohort; this difference may have favorably influenced the surgical outcomes observed in the trabeculectomy group.

Post-operative complications were observed at similar rates in both groups. In vitrectomized eyes, hypotony and choroidal effusion are among the most common complications following glaucoma surgery (13,25). El-Saied et al. (13) report hypotony in 50% of eyes following AGV implantation and in 40% of eyes following trabeculectomy. Pakravan et al. (25) reported choroidal effusion in 4 out of 15 eyes after trabeculectomy and in 2 out of 15 eyes following AGV implantation in a cohort of vitrectomized and aphakic eyes; suprachoroidal hemorrhage occurred in 2 other eyes in their AGV group. In our study, hypotony was observed in 3 (12%) cases in the trabeculectomy group and 3 (9.1%) cases in the AGV group at the 1-month post-surgical visit. However, chronic hypotony had developed in only one trabeculectomy case by the final follow-up, which was considered a surgical failure in our study. Other complications observed in our series included tube exposure and tube obstruction, both of which demanded further surgical intervention.

The primary limitations of this study include the relatively small cohort of patients, the heterogeneity of the groups in terms of PPV indications, its retrospective design, and the lack of patient randomization. The unequal distribution and duration of SO tamponade between the trabeculectomy and AGV groups, as well as the high mean age in the trabeculectomy group, may have influenced surgical outcomes, thereby limiting the generalizability of the comparative results. Nevertheless, the current study's findings suggest that trabeculectomy may have outcomes as favorable as AGV in the long term in selected vitrectomized eyes.

Conclusion

Although both AGV implantation and trabeculectomy demonstrated comparable results in vitrectomized eyes, this finding should be interpreted with caution due to differences in patient characteristics between the groups. The need for post-operative antiglaucoma medications was lower following trabeculectomy, which may indicate its potential as a favorable option in appropriately selected eyes. Ultimately, the decision between these two surgical options should be guided by the surgeon's expertise and an assessment of conjunctival mobility and integrity.

Disclosures

Ethics Committee Approval: This study was approved by the Health Sciences University Hamidiye Scientific Research Ethics Committee (Date: 14.03.2024, Number: 3/37) and conducted in accordance with the tenets of the Declaration of Helsinki.

Informed Consent: Written informed consents were obtained from all patients.

Conflict of Interest: None declared.

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