Comparing vitrectomy, silicone oil endotamponade with/without cyclopectomy to treat cyclodialysis clefts with severe ocular trauma

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Acknowledgements
Funding statement: No funding was received by any of the authors for this study.
Financial Disclosures: The authors have no Financial Disclosures.
Declaration of conflicting interests: None of the authors has conflicting of interests with this submission.
Authors’ contributions: AAW–Methodology, Data curation, Software, Writing- Original draft preparation. ZQZ –Conceptualization, Methodology, Writing- Reviewing and Editing, Validation.

Summary statement: This study compared VEWOC and VEWC as treatment options for cases with traumatic cyclodialysis clefts. The results showed that both surgical approaches were equally effective in treating cyclodialysis clefts secondary to severe ocular trauma with no additional need to include cyclopexy in the procedure.

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Abstract

Purpose: Comparing the anatomical and functional outcomes of vitrectomy, silicone oil endotamponade without cyclopexy (VEWOC) and with cyclopexy (VEWC) in patients with traumatic cyclodialysis clefts and severe ocular comorbidities.

Methods: A total of 55 patients (55 eyes) with traumatic cyclodialysis clefts were divided into VEWOC and VEWC groups according to the surgery undergone. Besides the cyclodialysis
clefts, all study eyes had one or more additional conditions caused by severe ocular trauma: cataract, lens dislocation, vitreous hemorrhage, retinal detachment, choroidal detachment, maculopathy, suprachoroidal hemorrhage, sub-retinal hemorrhage, or proliferative vitreoretinopathy. The minimum postoperative follow-up period for all patients was six months. The main measures of outcome were: rate of successful anatomical repair, intraocular pressure (IOP), and best-corrected visual acuity (BCVA).

**Results:** Both the VEWOC group (33 eyes) and the VEWC group (22 eyes) showed significant improvement in postoperative BCVA and IOP at the final follow-up. The groups had no significant differences in terms of anatomical success rates (VEWOC 29/33 vs VEWC 20/22, \( P=1.000 \)), final BCVA [VEWOC 1.60±0.76 (median Snellen acuity: counting fingers, range: light perception to 20/20) vs VEWC 1.46±0.66 (median Snellen acuity: 20/800, range: light perception to 20/32), \( P=0.485 \)], and final IOP (VEWOC 13.40[8.20–17.80] vs VEWC 11.40[6.65–14.00] mmHg, \( P=0.311 \)). However, the IOP on postoperative day 1 was significantly different between the groups (VEWOC 10.40[6.40–14.60] vs VEWC 6.40[4.70–7.98] mmHg, \( P=0.002 \)).

**Conclusions:** This study showed that both surgical approaches were equally effective in treating cyclodialysis clefts secondary to severe ocular trauma. Therefore, it may be unnecessary to perform cycloplexy in addition to the vitrectomy procedure in such cases.

**Key words:** cyclodialysis cleft, cycloplexy, ocular trauma, silicone oil endotamponade, vitrectomy.
Introduction

A cyclodialysis cleft is a condition wherein the longitudinal ciliary muscle is detached from the scleral spur. This forms an abnormal communication between the anterior chamber and the suprachoroidal space, which leads to chronic ocular hypotony, corneal edema, shallowing of the anterior chamber, cataract, choroidal effusion, optic nerve edema, retinal and choroidal folds, hypotonous maculopathy, retinal pigment epithelium (RPE) atrophy, and loss of vision.

Cyclodialysis clefts often occur due to trauma or as complications following ophthalmic procedures. Although gonioscopy is the gold standard test for the diagnosis of a cyclodialysis cleft, ultrasound biomicroscopy (UBM) is more widely used in cases with ocular trauma, which is not affected by medial opacity. The treatment options for cyclodialysis clefts include topical cycloplegic agents, injection of viscoelastic material or blood plasma, transscleral diathermy, laser photocoagulation, cyclocryotherapy, cycloplexy, scleral sutured capsular tension ring, intraocular lens, scleral buckling, vitrectomy, and endotamponade. The ophthalmologist may choose one or more of these procedures to close the cyclodialysis cleft depending on its size and the presence of other ocular comorbidities such as lens dislocation, vitreous hemorrhage, and retinal detachment.

For traumatic cyclodialysis clefts associated with severe vitreous or chorioretinal pathology, vitrectomy with silicone oil endotamponade is the preferred procedure for treatment. However, it is unclear whether cycloplexy should be combined with the vitrectomy procedures or not.

Therefore, this study retrospectively compared the anatomical and functional outcomes of these
Methods

This is a retrospective, comparative clinical study. The medical records of patients with cyclodialysis clefts secondary to severe ocular trauma were reviewed. All patients were treated at the Eye Hospital of Wenzhou Medical University between January 2013 and October 2019. Cases with missing records, history of glaucoma, or silicone oil-sustained eyes were excluded. The study was approved by the Ethics Committee of the Eye Hospital of Wenzhou Medical University, and was conducted in accordance with the tenets of the Declaration of Helsinki.

The inclusion criterion was severe ocular trauma resulting in a cyclodialysis cleft in addition to other anterior and posterior segment damage (including cataract, lens dislocation, vitreous hemorrhage, retinal detachment, choroidal detachment, maculopathy, suprachoroidal hemorrhage, sub-retinal hemorrhage, or proliferative vitreoretinopathy). The 55 patients (55 eyes) who were recruited for this study were divided into two groups according to the surgical treatment received: vitrectomy, silicone oil endotamponade without cyclopexy (VEWOC) group and vitrectomy, silicone oil endotamponade with cyclopexy (VEWC) group. All patients were examined and treated by the same surgeon (ZQZ).

All patients underwent a preoperative ophthalmic examination including best-corrected visual acuity (BCVA), intraocular pressure (IOP) measurement, slit-lamp photography, B-scan ultrasound, and UBM. BCVA was measured using the standard logarithmic vision chart, and the
value was transferred to the digital logarithm of the minimum angle of resolution (LogMAR) scale for statistical analysis.\textsuperscript{6,7} IOP was measured thrice using a pneumotonometer TX-20 (Canon Inc.; Tokyo, Japan) and the average value was calculated and documented. B-scan ultrasound was performed to assess the condition of the vitreous cavity and the retina. UBM HF 35-50 (OTI; Toronto, Canada) was used to identify the size of the cyclodialysis cleft. All patients were administered topical steroids and antibiotics after injury; additional general antibiotics were prescribed in cases with open globe injuries. Topical atropine 1\% was used to make the diagnosis of cyclodialysis.

Patients underwent the surgeries under either retrobulbar or general anesthesia. A 3-port 23-gauge transconjunctival pars plana vitrectomy was carried out to resect the vitreous and intraocular opacification. Additionally, a pars plana-based lensectomy, phacofragmentation, or phacoemulsification was performed for cataract and lens dislocation. Thereafter, some of the patients underwent a modified procedure of cyclopexy. After the careful confirmation of the cyclodialysis cleft with a corneal contact lens or a wide-angle viewing system intraoperatively, the surgeon marked the site on the cleft where sutures were to be placed. A limbus conjunctival flap was created, which extended 1 clock hour from the margins of the marked cleft. One long straight needle with a 10/0 polypropylene string was used to pierce the sclera (1.5 mm posterior to the limbus) and detach ciliary body at the location of the cyclodialysis cleft. A 25-gauge needle (external diameter 0.5 mm, inner diameter 0.25 mm, length 16 mm) was used as a bridge to help the needle through the pars plana infusion cannula or limbus incision opposite to the cleft.
Subsequently, the needle was returned into the eye to pierce the other part of the detached ciliary body and the spur to surface of sclera (the needle distance was usually 3 mm) with the assistance of the 25-gauge needle again. The 10/0 polypropylene string was then tied. The procedures of the internal cyclopexy technique were presented in Figure 1. The above-mentioned steps were repeated until the all cleft was sutured. The knots of the sutures were placed on the surface of the sclera and were covered by the conjunctiva. Finally, endolaser photocoagulation or cryotherapy was done for retinal breaks and degeneration. Fluid-air exchange and silicone oil endotamponade were accomplished.

All patients were asked to maintain a fixed head position to maintain the detached retina or ciliary body superiorly for at least two weeks postoperatively. If the location of detached retina conflicted with the detached ciliary body, the detached retina was given priority. Topical corticosteroids and antibiotics were prescribed. Usually, the silicone oil was removed and the artificial lens was implanted after 3–6 months. Postoperative examinations were planned at days 1, 3, and 10; months 1, 3, 6, and 12; and yearly thereafter. UBM examinations were usually repeated on postoperative day 10. Postoperative clinical data including BCVA, IOP, complications such as IOP spikes\(^8\) (IOP ≥ 25 mmHg), hypotony\(^3\) (IOP ≤ 5 mmHg), and secondary glaucoma were collected. IOP spikes were treated with antihypertensive therapy. Topical corticosteroids were used for hypotony at earlier stages. Anti-glaucoma surgery was performed for cases with secondary glaucoma.
Statistical analysis was performed using SPSS software v19.0 (IBM; Armonk, New York, United States). Continuous variables were expressed as mean ± standard deviation or median (25th percentile–75th percentile) [M (P25–P75)] wherever appropriate. The Chi-squared test, t-test, and non-parametric test were used to compare clinical results. P values < 0.05 were considered statistically significant.

Results

The research included 55 eyes (34 right eyes) of 55 patients (53 males) with a mean age of 48.96 ± 11.35 years (range: 22–71 years). These patients were formed by 26 cases of closed globe injury (contusion: 25/26, 96.2%; lamellar laceration: 1/26, 3.8%) and 29 cases of open globe injury (rupture: 20/29, 69.0%; penetrating: 7/29, 24.1%; perforating: 1/29, 3.4%; intraocular foreign body: 1/29, 3.4%). All eyes had additional severe trauma complications such as hyphema (44/55, 80.0%), cataract (41/55, 74.5%), lens dislocation (40/55, 72.7%), vitreous hemorrhage (54/55, 98.2%), retinal detachment (50/55, 90.9%), choroidal detachment (49/55, 89.1%), maculopathy (41/55, 74.5%), suprachoroidal hemorrhage (15/55, 27.3%), subretinal hemorrhage (35/55, 63.6%), or proliferative vitreoretinopathy (18/55, 32.7%) (Details of all the patients are presented in Table 1).

The median extent of the cyclodialysis cleft was 3.00 clock-hours (P25–P75: 2.00–5.00 clock-hours). In eight eyes, the extent of the cyclodialysis cleft was larger than 6 clock-hours. The median preoperative BCVA (logMAR) was 2.00 (P25–P75: 2.00–2.50) (media
n Snellen acuity: hand motion, range: no light perception to 20/400) including seven eyes with no light perception. The median preoperative IOP was 6.3 mmHg (P25–P75: 5.00–8.80 mmHg), which included six cases over 10 mmHg (median [M]: 17.3 mmHg; range: 10.5–25.1 mmHg). The data encompassing 33 eyes in the VEWOC group and 22 in the VEWC group are shown in Table 1. The width of the cyclodialysis cleft in the VEWOC group (M [P25–P75]: 3.00 [2.00–4.00] clock-hours) was smaller than that of the VEWC group (M [P25–P75]: 4.00 [2.00–6.25] clock-hours). However, all the preoperative outcomes showed no statistically significant differences between the two groups (Table 1).

Intraoperatively, lenses were removed for all cases of cataract or lens dislocation and one eye underwent vitrectomy twice to re-attach the retina.

After VEWOC and VEWC treatments, all the patients were followed up for at least six months. The final postoperative BCVA and IOP values of both groups had significantly improved compared to the preoperative values, with all p values ≤0.001 (A comparison of the pre- and postoperative BCVA and IOP values is presented in Table 2). The postoperative anatomical success rates were 29/33 (87.9%) and 20/22 (90.9%), respectively. Figure 2 shows a representative case in VEWOC group. There were no significant differences between the two groups in terms of this parameter (VEWOC 29/33 vs VEWC 20/22, P = 1.00). Three unsuccessful eyes underwent a repeat cycloplexy procedure for complete cleft repair, while other patients refused surgical repair for normal IOP. The final
BCVA was not significantly different between the two treatment groups [VEWOC 1.60±0.76 (median Snellen acuity: counting fingers, range: light perception to 20/20) vs VEWC 1.46±0.66 (median Snellen acuity: 20/800, range: light perception to 20/32), \( P = 0.485 \)]. During the follow-up period, the IOP of postoperative day 1 was significantly different between the two groups (VEWOC 10.40 [6.40–14.60] vs VEWC 6.40 [4.70–7.98] mmHg, \( P = 0.002 \)). However, the IOP values showed no significant differences at other follow-up times. (The postoperative findings of all the patients are tabulated in Table 3). The mean values of IOP during the follow-up period are presented as a graph in Figure 3.

Postoperative complications included temporary IOP spike, secondary glaucoma, and hypotony. In the VEWOC group, the incidence rate of IOP spike was higher compared to the VEWC group (VEWOC 17/33 vs VEWC 8/22, \( P = 0.269 \)). At the final follow-up visit, two cases of secondary glaucoma were reported in the VEWOC group. There were still nine eyes with hypotony and the incidence rate of hypotony was higher in the VEWC group than in the VEWOC group (VEWOC 5/33 vs VEWC 4/22, \( P = 1.000 \)). However, these values were not significantly different between the two groups (Table 3).

Discussion

This study compared VEWOC and VEWC as treatment options for cases with traumatic cyclodiagnosis clefts.
For large cyclodialysis clefts or those cases with concomitant retinal pathology, vitrectomy is employed. However, there are only a few reports on cyclodalysis in the literature owing to the rarity of this condition. Hoerauf et al., Helbig et al., and Takaya et al. reported 1, 3, and 4 patients with cyclodialysis successfully treated with vitrectomy, cryotherapy, and gas endotamponade respectively. Meanwhile, Kyprianous et al. reported a case treated by vitrectomy, cyclopexy with trans-scleral diathermy, and gas tamponade. Dutra Medeiros et al. introduced the surgical method of vitrectomy, silicone oil, or gas endotamponade. A recent research studied large cyclodialysis clefts treated by multiple surgical steps including vitrectomy, cryotherapy, phacoemulsification with placement of a capsular tension ring, and gas tamponade. However, all these studies had a small sample size and were non-comparative in nature. The study conducted by Xu et al. compared the results of cyclopexy versus treatment procedures with vitrectomy, endophotocoagulation, and gas/silicone oil endotamponade. Popovic et al. recently reported a large sample, multi-center retrospective study, describing outcomes of 36 cases following the treatment for cyclodialysis clefts. Several surgical procedures including cryotherapy, endophotocoagulation, implantation of capsular tension ring, cyclopexy, and gas/silicone oil endotamponade may be jointly performed to close the cleft. As no clear consensus has been reached regarding the treatment method, there are no uniform guidelines for the treatment of cyclodialysis clefts with vitrectomy. Therefore, this study was conducted to analyze whether cyclopexy should be performed in combination with vitrectomy and silicone oil endotamponade to enhance the success rate in cases with concomitant traumatic...
comorbidities.

Although this consecutive case series study was not randomized, there were no significant differences between the two treatment groups in terms of preoperative data. However, the VEWC group had a larger trend in the extent of the cyclodialysis cleft than the VEWOC group (VEWOC 3.00 [2.00–4.00] vs VEWC 4.00 [2.00–6.25] clock-hours). The surgeon’s choice of VEWC for treatment of larger cyclodialysis clefts may be due to the consideration of the large width of the cyclodialysis cleft; if left swinging in the vitreous cavity, it might negatively influence the operation and may lead to iatrogenic retinal and choroidal injury. Furthermore, the surgeon might have unconsciously selected more procedures to ensure the closure of the larger cyclodialysis clefts.

The postoperative values of BCVA, IOP, and anatomical success rates of both groups were ultimately favorable; however, the data showed no significant differences between the two groups. These results imply that vitrectomy and silicone oil endotamponade repairing in itself was sufficient and that additional surgical procedures were not necessary. The principle of this surgical method is to apply silicone oil endotamponade to reattach the cyclodialysis; the silicone oil is space-occupying, maintains ocular anatomical features, prevents choroidal effusion, isolates the ciliary body from inflammatory mediators which can adversely affect aqueous production,\textsuperscript{17-19} approximates the detached ciliary body to the scleral spur, and aids its subsequent reattachment.\textsuperscript{9,13}

During the follow-up period, both groups revealed a diverse IOP profile. For the VEWOC
group, the IOP was significantly raised on postoperative day 1 itself. However, in the VEWC group, the IOP only normalized by postoperative day 3. This is interesting to note, because Agrawal et al. reported that IOP was highest on postoperative day 1 in a direct cyclopectomy treatment.\textsuperscript{4} We hypothesize that the additional procedure produced more inflammation in the vicinity of the ciliary body.\textsuperscript{20} Besides, trauma may cause dysfunction of the ciliary body, and direct ciliary body damage resulting from cyclopectomy could decrease the production of the aqueous again. With the eventual recovery of the ciliary body, the aqueous humor dynamics recovered balance, and both groups showed stable IOP control on postoperative day 3.

The presence of an IOP spike is common after cyclodialysis and vitrectomy surgery. The mechanisms of hypertension are as follows. As the aqueous drainage channels experience prolonged hypotony, they collapse and cannot immediately allow the aqueous humor outflow when the detached ciliary body is adhered to the spur.\textsuperscript{3,4,21} Other possible reasons include acute pupillary block, emulsified oil in the angle, peripheral anterior synechiae, inflammation within the anterior chamber, and shallow anterior chamber.\textsuperscript{22,23} Following antihypertensive therapy, IOP spikes are mostly under control. In our case series, only one eye with closed globe injury developed glaucoma. This might be due to contusion changes in the trabecular meshwork of the anterior chamber.\textsuperscript{24} The likely reasons for postoperative hypotony may have been the dysfunction of the ciliary body despite it being anatomically restored,\textsuperscript{25} aphakia,\textsuperscript{22} the potentially toxicity of the silicone oil tamponade on the ciliary body,\textsuperscript{26,27} and the exposed areas of bare RPE due to deficient retina that facilitate the absorption of intraocular fluid.\textsuperscript{28}
This research has several limitations such as its retrospective nature and the absence of randomization. Despite these limitations, as far as we know, this is the first study comparing VEWOC and VEWC as treatment options for traumatic cyclodialysis clefts with multiple additional ocular comorbidities.

In conclusion, our study showed that vitrectomy with silicone oil endotamponade in itself is an effective method of treating cyclodialysis clefts caused by severe ocular trauma with no additional need to include cyclopegia in the procedure. If the interference of the swinging detached ciliary body is the only concern, surgeons can fix a needle or two to prevent this. The results of this study may help surgeons select the appropriate treatment approach for cyclodialysis cleft closures and reduce the discomfort of long intraoperative times and minimize surgical damages. We plan to perform future studies with larger sample sizes and longer follow-up periods to better evaluate the long-term outcomes of this approach. Furthermore, a prospective, randomized comparative case series study will also be carried out in the future.

**Key words:** cyclodialysis cleft, cyclopegia, ocular trauma, silicone oil endotamponade, vitrectomy.
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Figure Legends

Figure 1. Images of the internal cycloplexy technique:

(A) A long straight needle with 10/0 polypropylene string is used to pierce the sclera and detach the ciliary body at the site of the cyclodialysis cleft.

(B) and (C) A second 25-gauge needle is used as a bridge to help the needle through the corneal limbus incision opposite to the cleft.

(D) and (E) The needle is returned into the eye and to pierce the other part of the detached ciliary body and the spur to the surface of the sclera with the assistance of the 25-gauge needle.

(F) The 10/0 polypropylene string is then tied on the surface of the sclera.

Figure 2. Pre- and postoperative ultrasound biomicroscopy (UBM) images in the vitrectomy, silicone oil endotamponade without cycloplexy (VEWOC) group:

(A), (C), (E), and (G) - UBM showing cyclodialysis clefts extending from the 9 o’clock to the 3 o’clock position. the iris (at 12 o’clock) is adhered to the chamber angle with the assistance of topical atropine 1%. The other ciliary body is also detached.

(B), (D), (F), and (H) - UBM images taken 3 months after the VEWOC surgery showing that the cyclodialysis clefts are all closed.

Figure 3. Postoperative intraocular pressure (IOP) profile following vitrectomy, silicone oil endotamponade without cycloplexy (VEWOC) and with cycloplexy (VEWC)
Table 1. Preoperative clinical data for 55 patients with cyclodialysis clefts.

|                       | VEWOC group | VEWC group | P value |
|-----------------------|-------------|------------|---------|
| Number of eyes        | 33          | 22         |         |
| Age (in years)        | 48.70 ± 12.38 | 49.36 ± 9.86 | 0.833   |
| Gender (female/male)  | 1/32        | 1/22       | 1.000   |
| Injury type (closed/open) | 13/20     | 13/9       | 0.152   |
| Injury time (in days) | 9.00 [7.00–14.00] | 8.50 [5.75–11.00] | 0.258   |
| Cyclodialysis extent (clock hours) | 3.00 [2.00–4.00] | 4.00 [2.00–6.25] | 0.096 |
| Preoperative BCVA (logMAR) | 2.00 [2.00–2.50] (median Snellen acuity: HM, range: NLP to 20/400) | 2.50 [2.00–2.50] (median Snellen acuity: LP, range: NLP to CF) | 0.701 |
| Preoperative IOP (in mmHg) | 6.30 [5.50–8.80] | 5.95 [4.28–7.00] | 0.183   |
| Cataract               | 24/33 (72.7%) | 17/22 (77.3%) | 0.705   |
| Lens dislocation       | 25/33 (75.8%) | 15/22 (68.2%) | 0.537   |
| Maculopathy            | 25/33 (75.8%) | 16/22 (72.7%) | 0.800   |
| Suprachoroid hemorrhage| 9/33 (27.3%) | 6/22 (27.3%) | 1.000   |
| Subretinal hemorrhage  | 20/33 (60.6%) | 15/22 (68.2%) | 0.567   |
| PVR                    | 13/33 (39.4%) | 5/22 (22.7%) | 0.197   |

Continuous variables are expressed as mean ± standard deviation (x ± s) or median [25th percentile–75th percentile] (M [P25–P75]); [VEWOC: vitrectomy, silicone oil endotamponade without cyclopexy; VEWC: vitrectomy, silicone oil endotamponade with cyclopexy; BCVA: best-corrected visual acuity; HM: hand motion; NLP: no light perception; LP: light perception; CF: counting fingers; IOP: intraocular pressure; PVR: proliferative vitreoretinopathy]
Table 2. Comparison of pre- and postoperative values of both groups

|                         | Preoperative | Postoperative | P value |
|-------------------------|--------------|---------------|---------|
| **VEWOC group**         |              |               |         |
| BCVA (logMAR)           | 2.00 [2.00–2.50] (median Snellen acuity: HM, range: NLP to 20/400) | 1.70 [1.15–2.00] (median Snellen acuity: CF, range: LP to 20/20) | <0.001 |
| IOP (mmHg)              | 6.30 [5.00–8.80] | 13.40 [8.20–17.80] | <0.001 |
| **VEWC group**          |              |               |         |
| BCVA (logMAR)           | 2.50 [2.00–2.50] (median Snellen acuity: LP, range: NLP to CF) | 1.61 [1.00–2.00] (median Snellen acuity: 20/800, range: LP to 20/32) | <0.001 |
| IOP (mmHg)              | 5.95 [4.28–7.00] | 11.40 [6.65–14.00] | 0.001 |

Continuous variables were expressed as median [25th percentile–75th percentile] (M [P25–P75]);
[VEWOC: vitrectomy, silicone oil endotamponade without cyclopexy; VEWC: vitrectomy, silicone oil endotamponade with cyclopexy; BCVA: best-corrected visual acuity; HM: hand motion; NLP: no light perception; CF: counting fingers; LP: light perception; IOP: intraocular pressure]
Table 3. Postoperative findings in patients with cyclodialysis clefts

|                          | VEWOC group       | VEWC group       | P value |
|--------------------------|-------------------|------------------|---------|
| Anatomical success rate  | 29/33 (87.9%)     | 20/22 (90.9%)    | 1.000   |
| Postoperative BCVA       | 1.60 ± 0.76       | 1.46 ± 0.66      | 0.485   |
| (logMAR)                 | (median Snellen acuity: CF, range: LP to 20/20) | (median Snellen acuity: 20/800, range: LP to 20/32) | |
| Postoperative IOP (mmHg) |                   |                  |         |
| 1 day                    | 10.40 [6.40–14.60]| 6.40 [4.70–7.98] | 0.002   |
| 3 days                   | 8.10 [6.60–15.70] | 8.30 [6.88–18.53]| 0.938   |
| 10 days                  | 12.10 [6.70–20.75]| 7.50 [6.70–15.63]| 0.257   |
| 1 month                  | 11.30 [8.00–21.50]| 9.00 [6.68–19.08]| 0.167   |
| 3 months                 | 15.56 ± 9.31      | 11.35 ± 5.09     | 0.059   |
| 6 months                 | 13.20 [8.90–17.35]| 11.70 [9.36–14.00]| 0.439   |
| Final visit              | 13.40 [8.20–17.80]| 11.40 [6.65–14.00]| 0.311   |
| IOP spike                | 17/33 (51.5%)     | 8/22 (36.4%)     | 0.269   |
| Hypotony                 | 5/33 (15.2%)      | 4/22 (18.2%)     | 1.000   |

Continuous variables are expressed as mean ± standard deviation (x ± s) or median [25th percentile–75th percentile] (M [P25–P75]);
[VEWOC: vitrectomy, silicone oil endotamponade without cyclopexy; VEWC: vitrectomy, silicone oil endotamponade with cyclopexy; BCVA: best-corrected visual acuity; CF: counting fingers; LP: light perception; IOP: intraocular pressure]
