ABSTRACT
The authors introduce a feasible technique of passive silicone oil removal via the pars plana using 23-gauge transconjunctival vitrectomy microsurgery instruments. The procedure consists of three-port transconjunctival insertion of 23-gauge microcannulas. An inferotemporal cannula is connected to an infusion line and the height of the bottle is raised. The other two open ports are used to remove intravitreal silicone oil with an externally applied cotton swab. Passive silicone oil removal was conducted using the 23-gauge system in 46 phakic or pseudophakic eyes with silicone oil of both 1,000 (n = 39) and 5,000 centistokes (n = 7). A suture was placed for one of three sclera entry sites in 17 eyes. Cataract extraction with phacoemulsification was combined with passive silicone oil removal in 14 eyes. Transient hypotony was observed in 2 eyes. No retinal redetachment or other procedure-related complications were encountered. [Ophthalmic Surg Lasers Imaging 2011;42:514-515.]

INTRODUCTION
One of the recent advances in retinal vitreous surgery is using 23-gauge instrumentation that offers advantages in fluids, providing retinal stability in surgery for retinal diseases. Important benefits of 23-gauge microincision surgery are improved patient comfort and superior anatomic and functional outcomes. Use of silicone oil tamponade with 23-gauge procedures has increasingly been reported.1 Placing or removing silicone oil with a cannulated 23-gauge microincision system is an important skill. In this report, we introduce a technique of passive silicone oil removal via the pars plana using 23-gauge transconjunctival vitrectomy surgery instruments.
three times to eliminate the tiny remnants of silicone oil from the vitreal cavity. Superonasal and superotemporal microcannulas are plugged following partial or full fluid–air exchange, and air infusion pressure is set to 20 mm Hg. Microcannulas are withdrawn and conjunctiva is repositioned after clamping the air infusion line temporarily. Following the removal of the last (infusion) cannula, tonus check of the globe is done. Air leakage from the incision site may be observed in eyes with completely shaved vitreous base by the 20-gauge vitrectomy system. A transconjunctival 8-0 polyglactin suture is used in such cases. Additional intravitreal injection of sterile air with a 30-gauge needle may be performed to restore the globe tonus. Inferonasal subconjunctival antibiotic and steroid is injected at the end of the procedure.

We performed passive silicone oil removal successfully with the 23-gauge system in 46 phakic or pseudophakic eyes with silicone oil of both 1,000 (n = 39) and 5,000 centistokes (n = 7). The removal time was 6 to 9 minutes for 1,000 centistokes of silicone oil and 11 to 18 minutes for 5,000 centistokes of silicone oil. Suture was needed for one of three sclera entry sites in 17 eyes. In the remaining 29 eyes, no suture was used. Cataract extraction with phacoemulsification was combined with passive silicone oil removal in 14 eyes. Epimacular membrane was peeled in 5 eyes with history of trauma. Transient hypotony (intraocular pressure < 8 mm Hg) was observed in 25 eyes; postoperative intraocular pressures were between 3 and 5 mm Hg in 7 eyes and 5 and 7 mm Hg in 18 eyes. Intraocular pressures returned to greater than 10 mm Hg following 3-day patching in all 25 eyes. No problems with oil under the conjunctiva or other procedure-related complications were encountered.

DISCUSSION

Silicone oil is removed from the eye when the retina is attached, when chorioretinal scars are formed, and when there is no significant traction on the retina. Several techniques have been described for the removal of silicone oil from eyes. In aphakic eyes, silicone oil can be removed through a limbal or clear corneal incision. However, a pars plana approach is necessary in phakic and pseudophakic eyes.

Conventionally, silicone oil is removed using active suction via scleral ports with an infusion cannula in place. The benefit of this technique is the feasibility to control the retina during silicone oil removal and to apply necessary interventions such as membrane removal at the same session. It also allows the removal of residual emulsified silicone oil particles via repeated fluid–air exchange. Conjunctival dissection for silicone oil removal is more difficult, especially in eyes with repeated vitrectomies, because previous operations result in scarring of conjunctiva. A new microincision active silicone oil removal using 25-gauge instruments has been recently introduced to overcome this problem. However, the size of the lumen of the microcannula in the 25-gauge system (0.5 mm) is narrower than that of the 23-gauge cannula (0.7 mm), which introduces the problem of infusion fluid circulation inside the vitreal cavity. The limitation of 25-gauge instruments is in the passive removal of silicone oil of 5,000 centistokes. Silicone oil of 5,000 centistokes is widely used in cases in which longer intravitreal tamponade is needed, such as in traumatic or pediatric retinal detachment cases. Passive silicone oil removal with 23-gauge microcannulas is appropriate for removal of silicone oil of 1,000 and 5,000 centistokes.

With the active 25-gauge silicone oil extraction system, average removal times for 1,000 and 5,000 centistokes of silicone oil were 3 and 10 minutes, respectively. Similar to our study with the 23-gauge passive removal system, the mean passive removal time of 1,000 centistokes of silicone oil with the 25-gauge transconjunctival sutureless vitrectomy system was 7 minutes.

Passive removal of 1,000 and 5,000 centistokes of silicone oil from phakic and pseudophakic eyes by 23-gauge vitrectomy instruments is possible. This technique eliminates the risks of complications related to conventional sclerotomies, improves patient comfort, and decreases the surgical trauma.

REFERENCES