Small-gauge vitrectomy has brought back renewed interest in vitreoretinal surgery, and excellent studies have recently compared results of silicone oil of different viscosities (1,000 vs 5,000 centistoke) for the repair of complex retinal detachment (CRD). Shah and associates investigated the short-term outcomes of 25-gauge pars plana vitrectomy (PPV) in 18 cases of CRD requiring silicone oil tamponade. They found that all patients who received 5,000-centistoke silicone oil had attachment after retinal detachment repair (six cases), in contrast to 58.3% of patients who received 1,000-centistoke silicone oil (seven of 12). Furthermore, they demonstrated that 91.6% of eyes managed with 1,000-centistoke silicone oil (11 of 12) had complications at the end of follow up, and that only 16.6% of eyes treated with 5,000-centistoke silicone oil (one of six) had associated complications. Even though these numbers are small, we believe that their study raises a very important question in CRD repair with small-gauge (or 20-gauge for that matter) vitrectomy utilizing 1,000- vs 5,000-centistoke silicone oil: Which one is better?

In a previous study, Scott and associates compared the anatomic and visual acuity outcomes, as well as complication rates, after CRD repair using 1,000- vs 5,000-centistoke silicone oil. They found no significant difference in the rate of retinal redetachment at each of the follow-up intervals investigated. There was no significant difference between the groups with respect to visual acuity from preoperatively to 6 months postoperatively. Rates of elevated intraocular pressure, hypotony, corneal abnormality, cataract, and silicone oil emulsification were similar in the two groups. On the other hand, Soheilian and associates...
ates reported higher rates of retinal redetachment and poorer visual outcome with 5,000-centistoke silicone oil than with 1,000-centistoke silicone oil.

Our experience when comparing 1,000- vs 5,000-centistoke silicone oil for CRD repair favors 5,000-centistoke silicone oil. We have previously reported on a series of 101 eyes (patients) with vitrectomy and silicone oil for CRD repair. In our series, 91 of 102 (89.2%) eyes were aphakic or pseudophakic at the end of the procedures including silicone oil removal, and 50 out of 102 (49%) eyes had had previous vitreoretinal procedures. Table 1 demonstrates a higher rate of complications when using 1,000-centistoke silicone oil as compared to 5,000-centistoke silicone oil for CRD repair ($P=0.0199$ [two-sided Fisher’s exact test]) including retinal redetachment, reproliferation, glaucoma, hypotony, keratopathy (Figure 1), cataract, silicone oil in the anterior chamber (Figure 2), and silicone oil emulsification (Figure 3) (which tends to occur not only more frequently but faster with 1,000-centistoke silicone oil). During the last 13 years, including small-gauge vitrectomy, our results confirm and support our previous recommendation that,

| Table 1. Complications after Silicone Oil Use in Complex Retinal Detachment Surgery |
|---------------------------------|------|------|------|------|
|                                | 1,000 CS 25 EYES | % | 5,000 CS 76 EYES | % | TOTAL 101 EYES | % |
| Any complication               | 15  | 60  | 25  | 32.8 | 40  | 39.6 |
| Reproliferation                | 3   | 11.5| 14  | 18.4 | 17  | 16.6 |
| Glaucoma                       | 4   | 15.3| 10  | 13.1 | 14  | 13.7 |
| Retinal Redetachment           | 4   | 15.3| 7   | 9.2  | 11  | 10.7 |
| Emulsification                 | 4   | 15.3| 4   | 5.2  | 8   | 7.8 |
| Optic Atrophy                  | 0   | 0   | 6   | 7.8  | 6   | 5.8 |
| Keratopathy                    | 2   | 7.6 | 3   | 3.9  | 5   | 4.9 |
| AC SO                          | 2   | 7.6 | 2   | 2.6  | 4   | 3.9 |
| Hypotony                       | 1   | 3.8 | 2   | 2.6  | 3   | 2.9 |
| Cataract                       | 1   | 3.8 | 0   | 0    | 1   | 0.9 |
| Vitreous Hemorrhage            | 0   | 0   | 1   | 1.3  | 1   | 0.9 |
| Phthisis Bulbi                 | 1   | 3.8 | 0   | 0    | 1   | 0.9 |
| Diplopia                       | 0   | 0   | 1   | 1.3  | 1   | 0.9 |

AC SO = Silicone oil in the anterior chamber.
± Several patients had more than one complication.
although 1,000-centistoke silicone oil is easier to manipulate, 5,000-centistoke silicone oil should be used in CRD as it is associated with a lower incidence of complications, especially if used as a temporary tamponade with silicone oil removal in 3 to 6 months when possible. In addition, a complete fill of the vitreous cavity with silicone oil is easier to achieve with 5,000-centistoke silicone oil.2,4

In small-gauge (25- or 23-gauge) vitrectomy with silicone oil for repair of CRD, we still favor 5,000-centistoke silicone oil, even though it is more difficult to inject and to remove. Our surgical technique includes removing the trocar, conjunctival diathermy, and enlarging the wound through the conjunctiva to accommodate an 18-gauge angiocatheter. All 20-, 23-, and 25-gauge sclerotomies should be closed with one through-and-through 7-0 vicryl stitch including the conjunctiva to avoid silicone oil conjunctival cysts (Figures 4 and 5).5 Our higher retinal reattachment rate and lower complication rate with 5,000-centistoke silicone oil justifies enlarging one sclerotomy during small-gauge vitrectomy in these CRD cases.

A prospective randomized clinical trial may be needed to accurately determine any difference between 1,000- and 5,000-centistoke silicone oil for CRD repair.

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