which is proposed to be changed to *ICG fluorescence*, we have no objection to the use of one or another of these terms.

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Silicone Oil versus Gas Tamponade

Dear Editor:

Dr Lai et al[1] studied anatomic and visual results of macular hole surgery comparing intraocular gas (C_3F_8) with face-down positioning for 2 weeks and silicone oil with face-down positioning only on the evening of surgery. They concluded that C_3F_8 was a more effective tamponade with respect to closure of macular holes and for final visual acuity (VA) outcome. Based on our own surgical series and other reported series,[2] we have come to a similar conclusion that, though macular hole closure rates may in the end be similar, VA recovery is less with macular holes treated with silicone oil than with gas.

To investigate the potential reasons for silicone oil tamponade achieving less VA recovery than intraocular gas tamponade, we evaluated patients undergoing macular hole surgery with silicone oil with optical coherence tomography (OCT; Zeiss Humphrey Instruments, San Leandro, CA). We report a patient with an unexpected finding on OCT after successful macular hole closure.

A 15-year-old male was referred 6 months after blunt trauma to the left eye. He had noted a blue spot in his central vision since the incident. Slit-lamp biomicroscopy revealed a 250-μm full-thickness macular hole with localized surrounding subretinal fluid. Due to his young age and attention deficit hyperactivity disorder, it was not felt that he could position well with intraocular gas. The surgical procedure consisted of pars plana vitrectomy, detachment of the posterior vitreous cortex, and internal limiting membrane peeling with indocyanine green dye followed by fluid–air exchange, autologous serum, and silicone oil implant. The hole was flat and closed on biomicroscopy on the first postoperative day. At 3 months, VA was 20/100, and OCT was performed in the upright position (Fig 1).

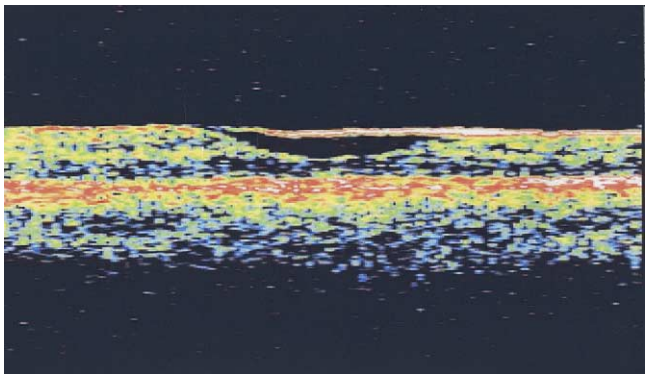

Figure 1. Optical coherence tomography of closed traumatic macular hole with silicone oil still in the vitreous cavity. Note the recovery of the normal foveal depression and the interface anterior to the fovea representing the posterior edge of the silicone oil bubble. The silicone oil bubble does not conform to the foveal depression in the upright position.

The OCT demonstrated an unusual, well-defined interface anterior to the fovea, presumably corresponding to the posterior face of the silicone oil bubble, which did not appear to provide any support to the central fovea in the upright position (Fig 1). The surface tension and buoyancy of intraocular gas are much greater than those of silicone oil.[3,4] Because of these properties, silicone oil does not conform well to irregular spaces—a property that has been termed *wetability* of a silicone oil bubble.[3,4] Although this is well understood with regard to poor tamponade around irregular edges of a scleral buckle, it is less well understood in the foveal region. This OCT demonstrates that the poor conformability of the silicone oil bubble may be important with regard to the foveal region. The silicone oil bubble does not conform well to the foveal depression in the upright position, based on this OCT evaluation (Fig 1), and this could be an important explanation for the worse visual outcomes in silicone oil patients in the Lai et al series. We have confirmed this OCT finding in other patients with silicone oil after macular hole closure. Although the macular hole may be initially well supported by silicone oil when it is open with parafoveal edema and subretinal fluid, the silicone oil may provide less tamponade as the macular hole closes and the foveal region begins to recover the normal foveal depression. Although the hole may close, the poor tamponade may result in less effective closure, resulting in worse visual outcomes. This lack of effective macular tamponade in the upright position has also been previously discussed with regard to other retinal diseases,[5] but has previously not been demonstrated, to our knowledge, by any imaging technique.

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Author reply

Dear Editor:

We appreciate Drs Kokame and Yamamoto's interest in and comments on our article. We agree that it is not clear why anatomic and visual outcomes in macular hole surgery with silicone oil tamponade appear to be worse than those in C_3F_8 tamponade. We offered several hypotheses in our article, including the theoretical mechanical advantage of C_3F_8 gas over silicone oil to sequester the macular hole from vitreous fluid currents because of its greater relative buoyancy. Drs Kokame and Yamamoto postulate that the poor conformability of the silicone oil bubble in the foveal region, particularly during upright positioning, may result in less effective tamponade and, ultimately, poorer visual recovery. In their case report, the optical coherence tomography image clearly demonstrates the potential space that exists between the anterior retinal surface of the closed macular hole and the posterior surface of the oil bubble. As they suggest, the effective tamponade of oil may progressively diminish as the parafoveal edema resolves and the normal concavity of the fovea returns. Serial optical coherence tomographies to examine the potentially changing interface between silicone oil and the edges of a closing hole may shed further light on this most interesting hypothesis.

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Utility Assessment and Dry Eye Disease

Dear Editor:

It is with great interest that we read the excellent article by Schiffman et al.[1] The finding of time tradeoff ocular values very similar to those that have been noted previously[2] lends even greater confidence to the validity of time tradeoff utility values for use in quality of life evaluations.

The importance of utility value analysis is that it allows us to take *evidence-based medicine* to a higher and different level, that of *value-based medicine*, in which the patient-perceived value conferred by health care interventions is quantified and compared with the resources expended.[3] While the Short Form 36 Health Survey and the National Eye Institute Visual Function Questionnaire 25 give important information, these instruments do not allow the performance of cost–utility analysis, the foundation for value-based medicine.

We note one important aspect of quality of life analysis that Schiffman et al and numerous other researchers have encountered—how to incorporate the presence of comorbidities that accompany the primary disease under study. The authors have presented some of their data in a form in which they adjust the dry eye utility values for the presence of comorbidities. By doing so, the utility value loss attributable to dry eyes is diminished. As the authors have noted, others have stated that the failure to take comorbidities into account overestimates the lost utility from disease and overestimates the potential benefit of treatment.[4]

We believe there is a very compelling reason not to adjust utility values to account for the presence of comorbidities: adjusting the utility values of the disease of interest for the presence of comorbidities often quantifies the treatment of that disease (in this case, dry eyes) as more valuable in those with otherwise perfect health than in those who are not in otherwise perfect health. Thus, treatment of dry eyes in a group of patients with kidney disease and partial paralysis would seem less valuable after the adjustment for comorbidities than treatment in people with dry eyes and no systemic abnormalities. In essence, allowing comorbidities to influence the value of a treatment discriminates against those who have the comorbidities. Looked at another way, it discriminates against those with disabilities. It is doubtful that the American public, the courts, or Congressional policymakers would accept such discrimination. Furthermore, the Americans with Disabilities Act of 1990 can be specifically construed to apply to this type of discrimination, particularly in regard to public sector payments (Medicare and Medicaid) for health care services.[5]

We all strive with the hope that the research we perform will someday be public policy and benefit patients in real-life situations. Constructing quality of life instruments so they confer less value for health care interventions in those with comorbidities, whether theoretically correct or not, runs counter to the accepted values and laws of society. We strongly believe that we must guard against this phenomenon if quality of life instruments and health care economic analyses are to assume an important role in our health care system.

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