I met with Chuck Hess, Head of Instrument Development at Storz, and we created a magnetic wand. However, these particles were not magnetized, consistent with the non-magnetic behavior of surgical instruments and blades. I wrote an article in 2005 describing and complaining about these particles, even though they had only a cosmetic rather than a clinical relevance. In this article, Drs. Masket, Lichtenstein, Steinert, and Koch agreed that these reflective particles had a metallic origin. It is interesting that Dr. Koch also mentioned silicone as a possible etiology. All concluded that these particles were clinically insignificant.

I tried an assortment of metal blades from multiple companies, and the reflective particles were still present. In 2007, I had the privilege of introducing microcoaxial phacoemulsification with Alcon Laboratories and worked with the engineers at BVI to develop the first 2.2 mm guarded blade. After careful polishing, the frequency of seeing these particles was greatly reduced, although an isolated particle was still occasionally observed in the incision. I was able to retrieve samples from the incision that were analyzed by electron microscopy and found to be metal. It is necessary to note that these blades were not polished with any silicone process.

It is important that we continue to improve the manufacturing of all instruments that enter and exit the eye during cataract surgery. Simply because there is no harm done, we should never be deterred from developing new methods that guarantee that the intraocular lens remains the only foreign body that we leave behind in the eye.

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Reply: Post-cataract surgery hyperreflective lesions within corneal incisions suspected to be silicone oil from disposable blades.

We thank Dr. Osher for the thoughtful commentary and the additional information on this topic. We were surprised by the paucity of literature on these hyperreflective lesions, and our initial thought was exactly what you propose: that the hyperreflective lesions within the paracentesis and main wounds are metallic. I had a case in which my second instrument contacted the inner lumen of the phacoemulsification probe tip, resulting in a shower of hyperreflective material being spread throughout the anterior chamber. One piece remained embedded within the iris, similar to the iris photograph you presented. However, I believe that the hyperreflective material that we describe within corneal incisions in our original manuscript may be a separate entity and possibly not metallic in origin.

The stainless steel Aurosleek Keratome Blade (Aurolab) package insert states that blades are coated with medical grade silicone oil to improve lubricity and penetration force. When an optical coherence tomography (OCT) is obtained through the incisions show lesions within the tract of the wounds, however, there is no posterior shadowing, which would be expected from a metallic lesion. Moreover, when blades are cleaned prior to use, the hyperreflective lesions are noticed less often on porcine corneas. In addition, when the
cleaned blades had a trace amount of silicone oil placed on them and used on porcine corneas, the hyperreflective lesions appeared similar to what we see in postoperative eyes. Of interest, the cleaned blades required more penetrating force that could be from a lubricating effect or that the blades were dulled during the cleaning.

As a surgical retina fellow, I have seen a hyperreflective lesion within the needle track after performing an anterior chamber paracentesis with a 30-gauge needle. BD PrecisionGlide needles have since been implicated in leaving residual silicone oil within the vitreous cavity after intravitreal injections, causing symptomatic floaters in some patients.2

Further studies should be conducted on this topic. It would be interesting to know what the corneal penetrating forces of these blades are before and after cleaning (assuming there is silicone oil or other coating). Knowing exactly what silicone oil and metal within the corneal incision on OCT, electron microscopy, and frozen sections would be helpful. We wonder whether these hyperreflective lesions change over time, and if they are oil, they may emulsify or coalesce over time.

The metallic lesions described by Dr. Osher are certainly seen at times, but we hypothesize that another set of hyperreflective lesions seems to be present and may be due to silicone oil, yet further studies need to be conducted. We also could not agree more with your conclusion that it is crucial to continue the improvement of the surgical tool manufacturing so as to prevent introduction any foreign material besides the lens itself.

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Comment on: Comparative study of topical steroids vs nonsteroidal anti-inflammatory drugs to control postcataract surgery inflammation
We read with interest the study by Deka.1 Despite advances in our techniques and understanding of cataract surgery, postoperative inflammation remains a cause of discomfort and prolonged recovery and can affect visual acuity. This well-conducted prospective, randomized, investigator-masked controlled study compared 3 arms of postphacoemulsification cataract extraction medication regimens. The first arm (Group 1) received topical nonsteroidal anti-inflammatory drug (NSAID) for 3 days before cataract surgery and then for 1 month postoperatively, the second arm (Group 2) received no preoperative treatment and topical corticosteroid for 1 month postoperatively, and the third arm (Group 3) received topical NSAID for 3 days preoperatively and 1 month postoperatively in combination with topical corticosteroid for 14 days postoperatively. We commend the authors for their efforts but would like to comment on their study design and conclusions.

Group 2, the arm receiving topical corticosteroid only, did not have any preoperative antiinflammatory treatment in stark contrast with the other 2 arms that were treated with 3 days of bromfenac 0.09% before cataract surgery. There is well-established evidence that preoperative use of antiinflammatory medication for 3 days before cataract surgery significantly reduces postoperative inflammation and cystoid macular edema (CME) and improves short-term visual recovery compared with no preoperative treatment.2 Presumably, if Group 2 also received 3 days of preoperative corticosteroid treatment, their modest and clinically insignificant increase in macular thickening observed at postoperative day 21 would have been entirely prevented. Furthermore, despite the absence of preoperative treatment, Group 2 still exhibited significantly less anterior chamber inflammation at days 1 and 7 postoperatively compared with Group 1 (NSAID only), which supports the more potent antiinflammatory properties of prednisolone acetate 1% compared with those of bromfenac 0.09%.

CME is the most common cause of vision loss after cataract surgery and, therefore, understandably one of the primary focuses of this interventional trial. Despite its importance, there is no universally accepted definition of clinically significant postcataract CME, but a recent publication by the American Academy of Ophthalmology suggested a cutoff of 30% increase of central subfield thickness on optical coherence tomography from baseline as a reasonably sensitive and specific definition of clinically significant CME.3 Application of such a definition to results presented in Table 7, would likely result in no statistically significant differences among all 3 groups in incidence of CME.

We applaud the authors for this well-performed prospective study and believe that it supports 2 previous assertions in the literature that preoperative use of antiinflammatory medications for 3 days accelerates recovery of eyes after cataract surgery (but does not affect long-term visual outcomes) and that topical use of prednisolone acetate 1% alone without concomitant NSAID results in equivalent long-term visual acuity outcomes compared with combination therapy.2–4

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