# Clear Lensectomy

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As refractive surgeons, we often concentrate on surface or intra-stromal corrective procedures for refractive errors, and only rarely think primarily of intraocular procedures for this purpose. Indeed, clear lens extraction, a procedure which has been around for more than a decade, is often overlooked. It is with the idea of reexamining this neglected procedure and re-acquainting refractive surgeons with its historical perspective that Robert H. Osher, MD presented his talk, "Clear Lensectomy," at the 1998 AAO annual meeting in New Orleans, LA.

The idea of removing a clear crystalline lens for the sole purpose of correcting a refractive error, while gaining increased acceptance today, was considered radical when it was first proposed by Frank Verzella, MD in the mid-1980's. Many ophthalmologists were "downright hostile" about subjecting an otherwise healthy myope to the risk of intraocular surgery and possible retinal detachment.

Dr. Osher said that he was in the other group of ophthalmologists, the ones that "were intrigued" by the possibility. After all, Dr. Osher said, "if we could justify the risks to allow selected aphakes to become deliriously happy, why not apply the same rationale to the phakic high hyperope?"

Dr. Osher reviewed his initial data from 1987 showing good results in a small series of patients who had clear lensectomy for high hyperopia, which justified the procedure in his view. He also reviewed similarly favorable results from a number of other studies in the literature, including those my Lyle & Jin in 1994, Koch in 1993, Siganos in 1993, and Isfahani and Salz in 1997.

To illustrate these results, the data from Isfahani and Salz may be examined. 18 hyperopic eyes of 10 patients underwent phacoemulsification with a posterior chamber lens (PCIOL) implantation using the Hoffer Q Formula. The mean preoperative spherical equivalent was +6.17 D with a range of +4.25 to +9.62 D. Mean axial length was 21 mm with a range between 17.62 and 22.65 mm. The mean postoperative spherical equivalent was 0.21. All eyes in this study achieved an uncorrected visual acuity of 20/40 or better. No intraoperative or postoperative complications were identified, although it is important to note that 2 patients lost 2 lines of bet-corrected visual acuity (with a final visual acuity of 20/30) "without any identifiable reason," according to Dr. Osher.

Dr. Osher stated that "the limiting factor in improving the success of hyperopic lens extraction is the relative inaccuracy of modem IOL calculation formulas for the short eye." Dr. Holliday (of the Holliday equation) believes that newer formulas that use additional anterior segment measurements such as corneal diameter, anterior chamber depth, and lens thickness will be required, because "the anterior segment is often not proportional to axial length," especially in the highly hyperopic eye.

Dr. Osher also stated, "there has been a problem with the availability of high-powered IOLs in the US." Johnny Guyton, MD of Georgia introduced the concept of piggybacking IOLs in 1993, and this concept has been expanded by several other surgeons, including James Gills, MD. These approaches may help to mitigate the shortages of high-powered IOLs.

In conclusion, according to Dr. Osher, "the future of refractive surgery for the high hyperope may include phakic implantation, the subject of another chapter." However, at the present time, according to Dr. Osher, "clear leans extraction using the safest small incision cataract surgery remains a valid alternative in severely farsighted patients." As Dr. Osher pointed out in the end, "We must

keep an open mind and a willingness to explore... as we venture along the untrodden path that leads into the frontier of refractive surgery."