

# LACS WITH IMPLANTATION OF A TRIFOCAL IOL AFTER PREVIOUS ICL AND PRK SURGERIES

In this case report, laser-assisted cataract surgery led to a good outcome in a demanding patient.

BY MARK TOMALLA, MD; AND IOANNIS DOULGKERIDIS



Implantation of phakic IOLs has been an accepted practice to correct refractive errors since the introduction of angle-supported phakic IOLs in the 1950s. The practice had continued through the 1980s with iris-fixed lens

models and the 1990s with posterior chamber designs such as the Implantable Collamer Lens (now Visian ICL; STAAR Surgical).<sup>1-6</sup> In 2015, phakic IOLs still present good refractive surgical options for anterior segment surgeons. The implantation of phakic IOLs remains an acceptable solution, particularly for patients who are not suitable for laser refractive surgery or refractive lens exchange.

Phakic IOLs have not been without controversy, particularly because of their possible side effects and complications including endothelial cell loss and cataractogenesis. In recent years, optimization of lens designs and of inclusion criteria have led to minimization of these phenomena. When cataract does occur after phakic IOL implantation—no matter whether its formation was a consequence of the IOL implantation or physiologic processes—the anterior segment surgeon is asked to provide a solution. Although explantation of these lenses and subsequent cataract extraction is not a great challenge for an experienced surgeon, there are additional options in the era of laser-assisted cataract surgery (LACS). We present such a case in this article.

## PRESENTATION AND HISTORY

A 32-year-old woman with phakic IOL implants presented at our clinic with the chief complaint of an increasing loss of visual acuity and glare, especially at night. The phakic IOL implantation was performed bilaterally 9 years previous in our clinic with implantation of two Visian ICLs (Model ICM115V4). Refraction at the time of ICL implantation was  $-8.50$   $-0.75$   $\times$   $80^\circ$  OD and  $-8.50$   $-0.25$   $\times$   $75^\circ$  OS. There was no contraindication for phakic

IOL implantation. The operations were performed under general anesthesia without complication. One month postoperatively, refraction was  $+0.25$   $-0.75$   $\times$   $3^\circ$  OD and  $0.00$   $-0.75$   $\times$   $164^\circ$  OS. Distance UCVA was 20/16 OD and 20/16 OS.

Annual monitoring of endothelial cell count and the anterior segment was performed, and the patient enjoyed the benefits of a life without glasses or contact lenses. Then the patient presented 9 years postoperatively with the symptoms described above. Her distance UCVA was significantly reduced at 20/40 OD and 20/63 OD. Autorefractive values were  $-0.50$   $-0.75$   $\times$   $18^\circ$  OD and  $-1.25$   $-0.75$   $\times$   $169^\circ$  OS. Subcapsular cataracts were seen in each eye, especially OD.

Because of the young age of the patient and her BCVA of 20/16, we performed bilateral myopic PRK. This resulted in distance UCVA of 20/16 OD and 20/16 OS. After the elapse of another 3 years, the patient complained again of a reduction in visual acuity OD only; examination showed progression of the subcapsular cataract. Refraction in this eye was  $+1.25$   $-0.75$   $\times$   $128^\circ$ , distance UCVA was 20/32, and distance BCVA was 20/25.

After extensive discussion with the patient, we decided to perform LACS in her right eye without prior



## AT A GLANCE

- Manipulating or explanting an ICL requires care with the laser-created capsulorhexis to avoid tears or runouts in case the rhexis is incomplete with capsular adhesions.
- LACS can be performed after previous implantation of a variety of phakic IOL models; however, there may be some risk when the procedure is applied in phakic eyes with iris-fixed IOLs.

## CASE STUDY: WHY I HAD LACS



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As a consultant ophthalmologist, I had my suspicions around 5 or 6 years ago that I had the beginning stages of cataracts. I went to see my friend, the well-known ophthalmologist and Chief Medical Editor of *CRST Europe*, Sheraz M. Daya, MD, FACP,

FACS, FRCS(Ed), FRCOphth, for an official diagnosis.

My eyesight had started to fail me gradually, and I had become increasingly dependent on glasses, which I

found to be a nuisance. My vision problems left me struggling to use the computer, a tool that is imperative for my work. Even a round of golf with friends was proving embarrassing, as everyone had to point out the location of the golf ball for me. The turning point was when I felt that driving on the motorway at night and in bad weather was becoming increasingly tricky and dangerous. It was then that I decided to finally have something done about it.

The decision to opt for laser-assisted cataract surgery (LACS) was not a light one, but, having myself performed standard phacoemulsification techniques many times, I was fully aware of the risks and knew the advantages of LACS over manual surgery. Because I have known Sheraz for a number of years and have always been impressed with his work, there was no question in my mind about allowing him to perform LACS on my eyes. The Centre for Sight was the obvious choice of clinic, as I knew that the staff and facilities were of the highest standard.

The initial surgery on my first eye took place at the end of February 2014 (Figures 1 through 3; [eyetube.net/?v=odofo](http://eyetube.net/?v=odofo)), and I underwent surgery on my second eye about 4 weeks later. Having been an ophthalmologist for many years, I was impressed at how techniques for surgery have vastly improved over the years, not only in terms of safety but also in patient well-being and comfort. For example, anesthesia for the eye was administered using drops rather than injection.

As a patient, I was naturally concerned and felt tense. However, the staff at Centre for Sight proved to be superb, putting me immediately at ease with their relaxed and thorough manner. Watching carefully to ensure that everything was done by the book, I observed the staff's professionalism to be excellent.

After surgery, I was delighted by the results, noticing the clarity and sharpness of vision to be fantastic. I no longer needed glasses except for very close work. Being mostly free from glasses was a gratifying feeling. It was also interesting to finally understand exactly how so many of my own patients feel after their surgeries.

Before surgery, I felt that I, like many other people experiencing age-related vision problems, had adapted to losing my sight, and afterward it was a truly wonderful feeling to get it back. ■

### WATCH IT NOW



Figure 1. Victus treatment screen: Capsulotomy has been completed.

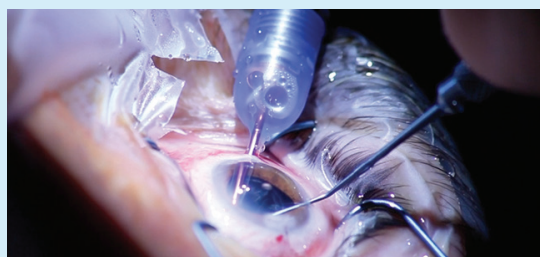


Figure 2. Dr. Daya performs phacoemulsification on Dr. Condon's eye.



Figure 3. Drs. Condon (left) and Daya (right), after surgery.



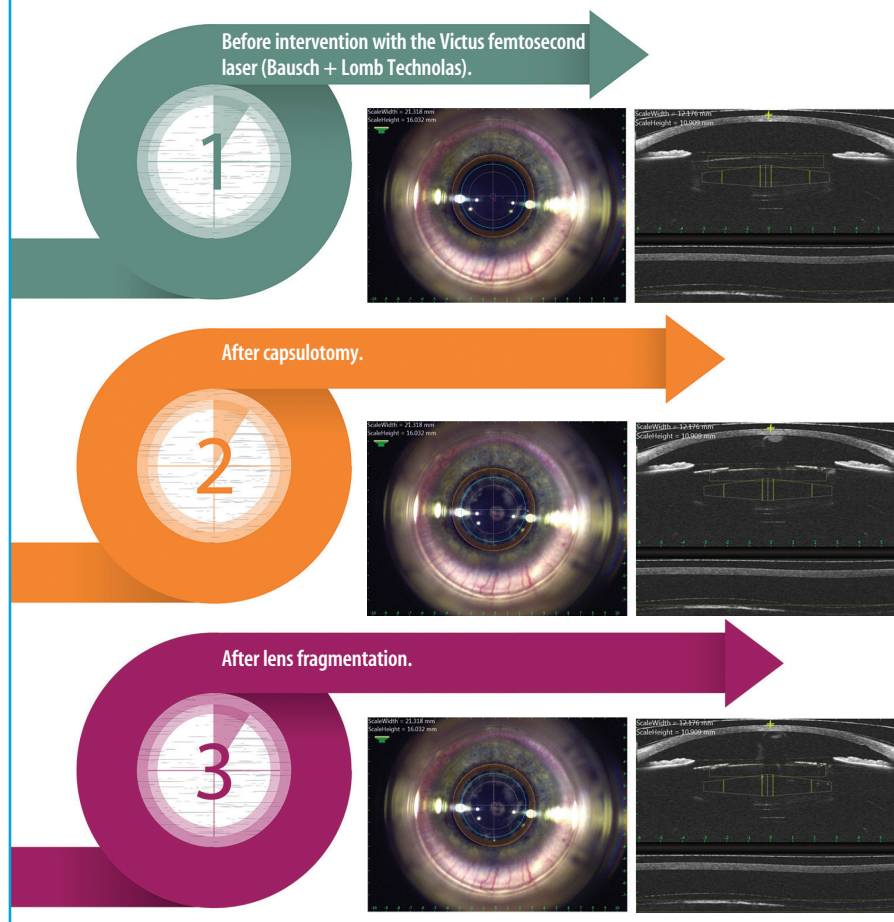
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## STEPS IN THE TREATMENT PLAN



manipulation of the phakic IOL. Because of her desire not to wear eyeglasses and in the absence of contraindications, we decided to implant a trifocal IOL. The IOL calculation was performed with the IOLMaster (Carl Zeiss Meditec) using the Haigis L formula for eyes after myopic LASIK.

## SURGERY AND POSTOP COURSE

A 5.3-mm overlapped capsulorrhexis was created, and lens fragmentation with two circular and four radial cuts was performed with the femtosecond laser. The energy was set to 7,000 nJ (see *Steps in the Treatment Plan*). The lens fragmentation through the ICL was performed without complications. Subsequently, the ICL was explanted as usual through a 3.5-mm tunnel, and implantation of an AT LISA trifocal IOL (Carl Zeiss Meditec) was performed. Because the UCVA OS was 20/16, no intervention was performed in this eye.

The 1-month examination showed perfect centration of the IOL and an individually adapted capsulorrhexis. The visual result of distance UCVA 20/20, intermediate UCVA 20/20, and near UCVA 20/20 OD led to a high degree of satisfaction in the patient.

## DISCUSSION

As demonstrated in the case presented here, previous implantation of a phakic IOL is no obstacle to take advantage of the femtosecond laser technology. When manipulating or explanting the ICL, care should be taken with the laser-created capsulorrhexis to avoid tears or runouts in case the rhexis is incomplete with capsular adhesions. The accumulation of gas bubbles under the ICL did not lead to any special conditions or difficulties.

The procedure could possibly be applied in eyes with different types of previously implanted phakic IOLs, such as iris-fixated or angle-supported lenses. However, we believe that there is some risk when the procedure is applied in phakic eyes with iris-fixated IOLs: The harder nonelastic material, in combination with the accumulation of air bubbles, might cause trauma to the iris in the location of haptic fixation. There are not many experiential reports published with such cases, so in the future it will be interesting to learn more from other authors about the limits and capabilities of the femtosecond laser for these applications.<sup>7,8</sup> ■

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