LACS as Part of a Premium Package

With a significant financial investment and two other challenges to overcome, this author asked: Is the current generation of LACS the way to go?

BY PAVEL STODULKA, MD, PhD

Modern ultrasound-based cataract surgery is effective, fast, and safe. How can we make it even better, and why should we bother trying to do so when it already performs so well?

Consider two similar examples from the history of ophthalmic surgery: the conversion from extracapsular cataract extraction to ultrasound phacoemulsification and from LASIK flap creation with a mechanical microkeratome to flap creation with a femtosecond laser. It seems obvious in hindsight that these changes made these procedures better, but it was not as clear when the technologies were introduced. Increased cost, more complex devices, and longer surgery times were the common features of the aforementioned improvements at their time of onset. Of course there were also technologies with a lot of promise that did not survive in the market, such as conductive keratoplasty and some of the early models of accommodating IOLs.

Given these previous successes and failures, is the current generation of laser-assisted cataract surgery (LACS) the way to go? We decided that it was worth the chance almost 3 years ago and became the first Victus laser (Bausch + Lomb Technolas) users in Europe, and our center the first to use LACS in the Czech Republic. The first LACS in this country was performed in the same patient in whom I performed the first LASIK in the Czech Republic 17 years before.

THREE MAJOR CHALLENGES

Since acquiring the Victus, we have performed nearly 5,000 LACS procedures. At the start, there were three major challenges with LACS: (1) making the initial capital outlay, (2) finding space for the laser, and (3) adjusting patient flow.

Capital outlay. Regarding finances, we had to find resources to build a dedicated operating room (OR) attached to our existing cataract surgery rooms.

Finding space for the laser. Fortunately there was enough space in the existing building so that we did not need to build an extension, and we were able to fit the new OR next to the existing ones and place the extensive air conditioning unit on the roof next to the old OR. The air conditioner is bulky because it has to be capable, year round, of maintaining the temperature at ±1°C and the humidity between 30% and 50% around the femtosecond laser. The latest version of the Victus laser, as well as some other femtosecond laser platforms currently on the market, are no longer as sensitive to environment. The cost of the laser itself was about €500,000, and creation of the OR equipped with the aforementioned air conditioning unit cost almost the same amount. In other words, the investment was quite significant.

Patient flow. Our first patients were treated in February 2012, and, for these early cases, patient flow significantly slowed. It took me about 5 to 8 minutes to perform the laser part of each procedure, before the patient was moved to the next room for intraocular surgery. I was therefore able to perform only about half the normal number of surgeries per day. Soon, however, I was confident enough with the Victus laser to teach one of our residents to do the laser portion. Although

TAKE-HOME MESSAGE

- Three major challenges in the adoption of LACS at Gemini Eye Clinics were (1) the initial capital outlay, (2) finding space for the laser, and (3) adjusting patient flow.
- This clinic's premium package includes LACS with implantation of a trifocal IOL, preoperative imaging, laser astigmatic keratotomy if needed, and postoperative enhancement if needed.
- The author uses LACS not only in premium patients but also certain challenging cases.

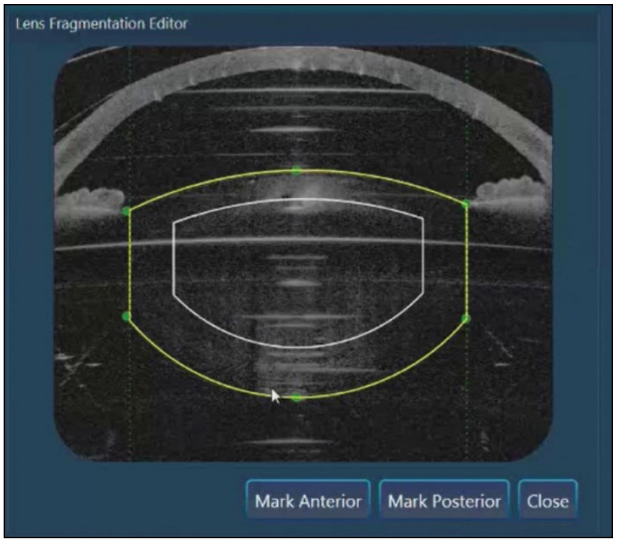

Figure 1. Optical coherence tomography automated intraocular structure recognition with fragmentation area suggestion.

she has had no previous surgical experience, she quickly learned both the procedure planning and the docking of the patient.

With that division of labor in place, we soon returned to scheduling the same daily number of eyes (n=35) as before the introduction of LACS. Currently, one of our trained residents performs the laser part of cataract surgery and I switch between working in two ORs. This relatively high volume is possible thanks to the professional performance of our team and to the abilities of the cutting-edge technologies we use.

The latest generation of the Victus laser is capable of performing automated recognition of intraocular structures and making treatment suggestions (Figure 1). The surgeon at the laser typically only confirms what the laser suggests as the treatment plan. This feature makes the laser part of the procedure significantly shorter than previously possible with earlier generations of the technology. For the intraocular portion of the surgery, the high vacuum and stable fluidics possible with the Stellaris PC platform (Bausch + Lomb) enables fast and effective execution. Of course, a highly experienced and skillful surgeon is also a key element for safe, effective, and fast surgery.

The patient flow is organized according to the schema depicted in Figure 2. Patients come to reception, undergo measurements, and are then seen by a resident ophthalmologist. After nursing, they go to a waiting room until they are called by a staff member to proceed to the laser part of the procedure. They are then returned to the waiting room. Next, we call them to the OR for the manual part of surgery including IOL implantation. After surgery,

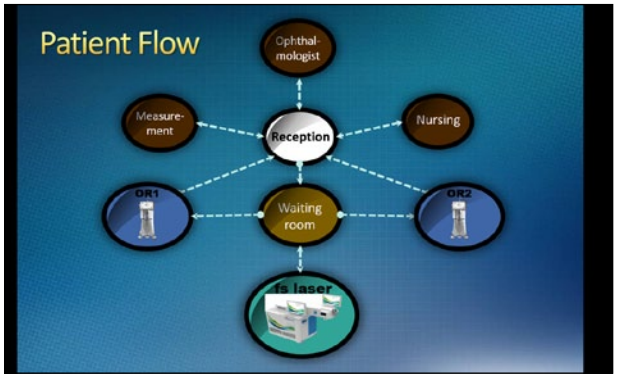

Figure 2. Patient flow chart for LACS.

patients go back to the waiting room, then to reception, and then return home.

PREMIUM PACKAGE

Our pricing strategy is to offer patients a premium package that includes LACS with implantation of a trifocal IOL (FineVision IOL; PhysIOL). We upcharge for this premium package, which also includes preoperative optical coherence tomography of the central retina, arcuate laser astigmatic keratotomy (AK) if needed, and postoperative enhancement if needed. I implant a capsular tension ring in all eyes with bifocal or trifocal IOLs to ensure the best possible long-term IOL centration, and this is also included in the package.

If patients who opt for the premium package have regular corneal astigmatism on a stable cornea, we treat it with arcuate laser AK (eyetube.net/?v=afigi); we use few toric IOLs. The laser AK results are surprisingly precise and stable, with 71% of eyes achieving ±0.50 D of cylinder at 6 months (Figure 3) and 100% of eyes ±1.00 D of cylinder.

eyetube.net
eyetube.net/?v=afigi

eyetube.net
eyetube.net/?v=ihosu

As noted, the laser AK is included in the premium package, as is PRK or femtosecond LASIK in case fine-tuning of residual refractive error is needed after IOL implantation. We charge more than our premium LASIK package for toric trifocal IOL implantation (eyetube.net/?v=ihosu), as those IOLs are too expensive to fit into this package.

An advantage of the Victus femtosecond laser platform is that it is capable of both LACS and LASIK. The versatility of the Victus laser includes, in addition to LACS and LASIK, tunnel creation for intrastromal corneal ring segments, pocket creation for corneal implants such as presbyopic inlays, and capabilities for corneal transplantation.

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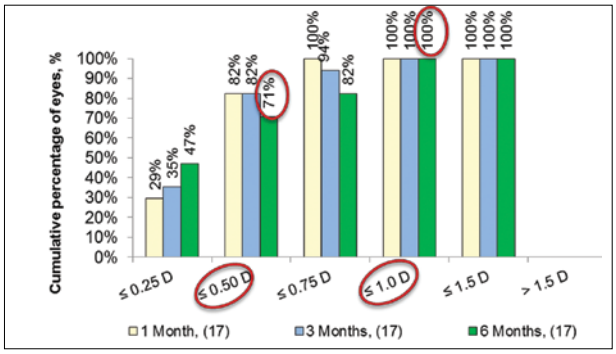

Figure 3. Results of arcuate laser astigmatic keratotomy at 6 months.

Economically, it makes sense to purchase a single versatile device capable of all these surgeries, rather than separate instruments. LASIK, especially, is a significant source of revenue to cover the cost of the Victus device, disposables, and service contract.

In a typical week, we perform LACS on 2 days and LASIK on 2 days. Currently, I perform all LACS procedures that are done at the Gemini Eye Clinic. LACS accounts for about 90% of my cataract surgeries and about 10% of all cataract surgeries performed at our centers. I implant a trifocal IOL in about 80% of my patients; only 10% or fewer opt for LACS with a monofocal IOL.

When we started using LACS technology, we were featured on the local television news, but we have not paid for any advertising for the LACS technology. In contrast, we do advertise our femtosecond LASIK procedures.

CONCLUSION

Among the 5,000 eyes that have undergone LACS at our clinic are those of the President of the Czech Republic, Vaclav Klaus. LACS has become a popular offering for our premium patients, and I am glad we stepped boldly into performing LACS in 2012.

We use the LACS platform not only for our premium cataract surgery patients but also in challenging or difficult situations, in particular in eyes with low endothelial cell counts (eyetube.net/?v=opefi) or weak zonules. In the future, we plan to expand our LACS concept. ■

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