According to this surgeon, now is as good time as any.

BY SHERAZ M. DAYA, MD, FACP, FACS, FRCS(Ed), FRCOphth

There are many surgeons who consider acquisition of femtosecond technology for cataract surgery today either premature or even foolhardy. The naysayers have numerous arguments against laser cataract surgery, including (1) technology in infancy, (2) cost and business reasons, and (3) minimal if any added advantage over a conventional phacoemulsification technique. As a habitual “prosumer,” I am a natural optimist and, I suppose, a risk-taker, but I would temper this by stating that I do actually take an analytic view when considering new technologies. For a high-ticket item like this, I would not make an impulsive move if I did not feel it was worthwhile.

MY PREFERENCE

My decision was to acquire the Victus femtosecond laser (Technolas Perfect Vision GmbH and Bausch + Lomb; Figure 1). This laser fits well into my practice, which is a combination of laser refractive, premium cataract, and corneal surgery. I work out of three locations, two of which provide surgical care. In addition to cataract surgery, I am able to perform refractive procedures including LASIK flaps, limbal relaxing incisions, and Intracor, as well as performing the cuts for corneal transplants and tunnels for intrastromal corneal ring segments with the Victus. The wide spectrum of options makes this laser perfect for my relatively low-volume, premium market practice.

In time, I hope to have just one femtosecond and one excimer laser in each surgical facility, rather than two femtosecond lasers and one excimer. The cost savings in terms of maintenance, let alone capital outlay, makes considerable sense. I should add that, when one acquires a high-capital value acquisition, good relationships are paramount for mutual success. I have had a long and excellent relationship with Bausch + Lomb and Technolas Perfect Vision GmbH and must also disclose that I am a consultant to the two companies.

I have been a very early adopter of many surgical techniques and technologies. This includes being among the first to perform LASIK in the United Kingdom, as well introducing

(Continued on page 46)
According to this surgeon, the cost may outweigh the benefits at this time.

**BY KHIUN F. TJIA, MD**

**PROS AND CONS OF LASER CATARACT SURGERY**

I acknowledge the superiority of femtosecond laser capsulorhexis creation compared with manual capsulorhexis. Even in the best hands, a manual technique does not match the predictability of a laser. The femtosecond laser also has a theoretical advantage with regard to incisions of all types, but in my opinion this advantage is not as marked as the advantage of laser-assisted capsulorhexis creation.

On the other hand, this potential superiority of laser cataract surgery involves a significant additional cost, which I would need to transfer to my patients. In order to profitably integrate laser cataract surgery into our practice, the extra cost to each patient would be between €800 and €1,000. Keeping this number in mind, I see no opportunity for a healthy business case proposal, nor a logical reason to convince my colleagues to purchase a laser at this time.

I anxiously await the review of clinical refractive outcomes with the laser versus traditional cataract surgery. I am comfortable with the concept of using the laser for multifocal IOL patients, but, because I am not a proponent of the light-splitting principle, I implant a relatively low number of multifocal IOLs. Therefore, for the vast majority of my patients who receive monofocal or toric monofocal IOLs, I do not anticipate a significant increase in patient outcomes and/or satisfaction with laser cataract surgery.

For these reasons, it would be difficult for me to counsel a monofocal IOL candidate to spend an exorbitant extra sum of money for an uncertain theoretical benefit. Conversely, I foresee a trend toward more aggressive marketing of laser cataract surgery, which could ultimately lead to lower pricing and general acceptance of this technology in the future.

Another aspect to address is the current limitation of the laser to cut the lens in manageable fragments. Denser nuclei and smaller pupils are still challenges to effective treatment with any femtosecond laser system. I am eager to see the progress of technology to improve the performance of laser cataract surgery in these challenging cases.

(Continued on page 72)
(Continued from page 44)

the first IntraLase femtosecond laser (now Abbott Medical Optics Inc) to the United Kingdom in 2004. I have had the argument against early acquisition leveled at me on numerous occasions, but happily have not been incorrect—so far.

**DECISION-MAKING**

Besides the choice of platform, it may be useful to relay some of the issues that went through my mind in terms of decision-making.

Technology. Femtosecond technology has improved in leaps and bounds, and, with the integration of high-resolution anterior segment scanning, the lasers for cataract surgery are more sophisticated than those used to create LASIK flaps. The reality is that perfect capsulotomies can now be created repeatedly and reliably, and the hardest of crystalline lenses can be fragmented with today’s laser platforms for cataract surgery. Therefore, in my view, why wait? What would I be waiting for?

Innovation. The introduction of lasers for cataract surgery opens a host of possibilities, which is what excites me more than anything else. This laser offers a new level of precision and reproducibility and replaces some of the steps in conventional cataract and lens surgery. Pushing the boundaries and coming up with other techniques is inevitable with integration of laser cataract surgery, and these techniques will undoubtedly improve a good procedure even further.

Being an early adopter affords one an opportunity to enter uncharted territories. Indeed, we have already devised an alternative method of hydrodissecting the lens through a lens fragmentation incision, and a new cannula has been developed by Bausch + Lomb (Figure 2) to accomplish this reliably. This small change has resulted in faster lens removal and a statistically significant reduction in ultrasound times.1 In the future, implants will likely be designed specifically for use with laser cataract surgery, and I have no doubt that, with further innovation, the procedure will continue to get better, resulting in improved safety and visual outcomes.

Premium surgery. As a provider of premium lens procedures, in which more than 90% of our cataract and lens patients receive premium implants, femtosecond laser technology is a natural and perfect fit. Patients are making a major lifestyle choice; they wish to have the most accurate procedure to give them spectacle independence. In this highly educated patient group, the benefit of a laser is easily understood, and these patients are more than happy to pay for the benefit.

As many colleagues know, it takes years to build a reputation as a premium provider, and maintaining the premium lead is vital. Femtosecond laser surgery is an important value proposition in the mindset of these patients, and, for a premium provider, being a laggard can potentially harm the practice. Patients come to organizations like ours expecting us to offer the best, and to succeed we must deliver what our patients want. In the United Kingdom, we sadly have wound up with commoditization of laser eye surgery, with chains (nonophthalmologist ownership) doing the bulk of surgery. As refractive lens exchange and cataract surgery are now being performed at considerable volumes, these chains will look to adopt the technology required to perform laser cataract surgery as well. For a top-end premium provider, staying one step ahead of the laser chains is a major driver, and acquiring the Victus now has been an obvious decision for me.

Cost. The issue of capital and running costs has been a major argument of the naysayers against acquisition. I suppose the same was probably true when phacoemulsification surfaced. I recall one well-known ophthalmologist at the time saying that phacoemulsification was “akin to using an ICBM to drive a nail into a piece of wood.” I wonder what this person would think of femtosecond lasers for cataract surgery.

I cannot deny that the cost is high, and admittedly I have been trying to figure out the best way forward in terms of a business model. However, I am now convinced that the procedure is better than conventional surgery, and I believe all my patients should undergo the procedure when possible. This means prices have to increase for all, but because the subsequent volume of use will be higher, the cost increase per case will not be as high as it would be if the laser were used selectively. Cost is also defrayed by its use for refractive surgery and flap creation. I shall, at a future date and perhaps in a similar point/counterpoint discussion, inform the readership...

**TAKE-HOME MESSAGE**

- With the femtosecond laser, perfect capsulotomies can be created repeatedly and reliably, and the hardest crystalline lenses fragmented.
- However, at this time and in this economy, it may be hard to make a reasonable business case to purchase a laser platform for cataract surgery.

(Continued on page 72)
Speed and volume. Another criticism is the turmoil and surgical delay that the addition of laser cataract surgery causes. For naysayers, it is yet another procedural step to integrate, with patients having to move from the laser to the operating table, resulting in delay and a reduction in overall volume. Yes, this was true in the early days, but like anything else, once one is adept at using the laser and with the cooperation of the surgical team, speed actually picks up; it is likely even higher than conventional cataract surgery, as demonstrated by Pavel Stodulka, MD, in the Czech Republic, who recently performed 92 cases in 1 day.

CONCLUSION
Approximately 6 months ago, there was a lot of negative feedback about femtosecond lasers among a group of UK key opinion leaders during an industry advisory meeting. Interestingly, though, when I recently asked how many would like to have a femtosecond laser in their hospitals now, almost all put their hand up. There is general acceptance that femtosecond lasers for cataract surgery are here to stay. The only issue left to debate is the best time to adopt the technology. My answer is that now is as good as—if not better than—any other time.

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1. Daya S. Real world clinical results and applications: Victus. Paper presented at: the XXX Congress of the European Society of Cataract and Refractive Surgeons; September 10, 2012; Milan, Italy.

CONCLUSION
I am not positioning myself as a naysayer to laser cataract surgery, and I readily acknowledge that the procedure has the potential to create a paradigm shift in current treatment protocols. However, at this time, it financially does not make sense for me to adopt this technology. I plan to keep a close eye on the clinical refractive outcomes of other surgeons and will continue to weigh the benefits of this technology against its associated surgical upcharges.

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