The Operating Room Experience with Femtosecond Laser Refractive Cataract Surgery

A major concern with any new surgical procedure is gaining experience with the novel technology and then incorporating it into a practice. Over the past year, we’ve been dealing with this challenge/opportunity at our surgicenter and practice, where 15 surgeons have been trained in the use of the LenSx® femtosecond laser and approximately 600 cases have been performed.

Femtosecond Laser OR Goals

One of the most important considerations of this new technology has been the impact on chair time, but equally important has been the adjustments to patient flow in the operating room (OR) with our initial use of the laser. Femtosecond laser refractive cataract surgery changes the established patient flow and patient experience in the operating room. As we worked to adapt to this technology, we’ve adhered to several basic principles. With any new procedure there are certain goals that must be defined by the OR staff and the surgeon. The overwhelming interest continues to be ensuring patient safety and delivering optimal patient outcomes. After this prerequisite, a second goal is to provide surgeons with appropriate access to the OR so patients can have their operations performed in a timely manner. We also strive to maximize the efficiency of the OR — both in terms of time, staff and materials. Finally, a tertiary goal in the OR is to be cost-effective.

Finding a Place

With these goals in mind, there were four different laser placement options we considered. The first possibility was to place the laser in a different building than the OR. The second option was to place it on a different floor of the same building that contains the OR. We also considered placing the laser outside the OR on the same floor or placing it in the OR. We ultimately decided that our laser should be located in one of our three operating rooms. I discovered very quickly that I was approximately 50% slower in performing femtosecond refractive laser cataract surgery in one room with the increased turnover and procedural time. By using two rooms, I was 35% slower. The additional time taken by positioning the patient under the laser, performing the surgery (which takes approximately 1 minute) was minimal, but moving the patient and clearing the room was a different story.

All operating rooms have challenges in space utilization. After analyzing our experience, I believe the optimal placement for the femtosecond laser is just outside the OR. This allows maximal use of the operating rooms without slowing down patient access. With this scenario, we would be able to ensure quality of care and efficiency with only two rooms. Unfortunately, due to space limitations, this isn’t an option for us. As such, we now use three rooms. I use the femtosecond laser in one room, and use the other two rooms to perform the remainder of the procedure, which increases my surgical time by 20% as compared to traditional cataract surgery (Figure 1).

A Dedicated Specialist

After performing more than 200 cases and finding a greater demand from my patients to undergo femtosecond laser refractive cataract surgery, I found that having a dedicated laser specialist dramatically increased efficiency, and in fact, makes me more efficient while maintaining superlative outcomes. The specialist who assists me in performing...
laser surgery is either a senior associate ophthalmologist who is dedicated to performing laser surgery or a surgical fellow who has watched me perform several hundred cases.

**Patient Experience**

I greet the patient and tell him during the initial consultation and in the OR that he will have two specialists performing the surgery. The laser specialist performs the laser and I perform the cataract extraction and intraocular lens implantation. This has improved my efficiency by approximately 20%, as the laser performs steps that allow me to perform the cataract surgery more expeditiously, including the incision, capsulorhexis and lens disruption. Most importantly, because of the digital precision of the LenSx® laser, patient outcomes have been more predictable with this system.

With any surgery, we want to offer the patient a premium experience. To that end, we look for minimal patient manipulation, keeping the patient on the same stretcher, if possible. We sedate mildly for laser, as well as for the cataract surgery, and we avoid putting the laser on a different floor.

Patients have overwhelmingly embraced the new premium procedure, including the LenSx® laser. I had expected about 15 to 20% of patients to request femtosecond laser refractive cataract surgery, but it’s actually closer to 60% of eligible patients.

**The Future for Femtosecond Lasers**

I believe femtosecond laser refractive cataract surgery will allow senior ophthalmologists to stay active in cataract surgery longer, while allowing younger associates to perform the manual aspects of the procedure.

The patient flow issues have been addressed nicely (in fact, we’re much more efficient) and we feel that we’re giving our patients a superlative surgical experience and an excellent surgical outcome with the use of femtosecond laser for refractive cataract surgery.

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