

Senior Residents' Perspectives on Cataract Surgery

A deceptively simple procedure.

By Matthew M. Wessel, MD



During my medical school subinternships, my intern-year electives, and my first 2 years of residency, I watched attending surgeons perform dozens of cataract extractions. Other than the occasional floppy iris, the procedures all went

perfectly, were usually completed in less than 5 minutes, and achieved excellent visual outcomes. As I dropped balanced salt solution onto all of those corneas, I had a hard time imagining that it would be difficult to learn and master cataract surgery.

NOT SO SIMPLE

Between those assists and my first real cataract surgery, I had many opportunities to practice, including instructional manuals, videos, pig eyes, and wet labs. Although cataract surgery was definitely harder than I had anticipated, it was easy to blame any difficulties on poor-quality tissue and nonhuman lenses until my first real case, which took place at the beginning of my third year. Immediately beforehand, I assisted my attending surgeon on her private patient, and to ease me into the day, she offered me the opportunity to create a paracentesis. I guided the 15° blade through the cornea at an appropriate angle. Just when I thought I had completed an adequate incision, my blade went a little too far and pierced the anterior lens capsule. It was a small hole but just peripheral enough to complicate the capsulorhexis, which my attending tried unsuccessfully to save. The surgery immediately became much more involved.

LESSONS LEARNED

What I learned—and what is reinforced by each new case—is that cataract surgery is far from simple. The procedure is a combination of hundreds of minute steps and motions that all build on each other to a final outcome. One misstep in this series can lead to a poor result. I was fortunate to train with very dedicated, talented instruc-

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tors who instilled in me the determination to learn from the aforementioned case and develop from there. I gained confidence and slowly began to understand and perform the cataract procedure's difficult steps and motions.

Just when I think that I have mastered a certain technique, however, I am humbled again by an odd lens capsule, an unpredictable iris, or a new phaco setting. As similar as those first surgeries I watched might have seemed, innumerable variations continue to challenge me as a beginning cataract surgeon. It is through this slow, deferential process of learning how to deal with these challenges that residents become competent surgeons. Again, my patient teachers have been instrumental in guiding me through this phase.

A final lesson that I have learned is that, at no point—from when the patient enters the OR to when he or she leaves—is the surgery over. Each step, whether simple or complex, can have important implications. In a recent case, I watched a surgeon attempt to recover a lens that I had bowled out in an eye with a floppy iris. The surgeon did a tremendous job. The cataract was out, the bag was intact, the lens implant was in, and the viscoelastic had been removed. During stromal hydration, however, the iris suddenly plugged the main incision. A cyclodialysis spatula was not immediately available, so the surgeon used a viscoelastic cannula instead to reposition the iris. Being less thick and rigid, however, the cannula snagged the wound and then sprang free, tearing the iris and an iris vessel. The eye of this borderline coagulopathic patient started to bleed profusely into the anterior chamber. The case had instantly

gone from routine and nearly complete to an acutely complex situation requiring an extra hour of surgery to remedy.

CONCLUSION

Despite the speed bumps and pitfalls, I look forward to my next 6 months of cataract surgery, as I am able to apply the lessons learned from my first cases to all of my upcoming ones. At times, everything goes better than expected: the cataract is out in a few minutes, and the patient sees 20/20 the very next day. This outcome is what surgeons work so hard to achieve for all patients. I hope that, with practice and study, I will be able to make cataract surgery look easy to the medical students, interns, and residents who now observe me.

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Advice for young residents.

By Gregory Nettune, MD



My first year of ophthalmology residency was overwhelming at times. Just as I began to feel comfortable learning this new discipline and preparing for conferences and grand rounds, a new challenge loomed: my first cataract surgery.

I approached the day of my first cataract procedure with excitement and a little trepidation. Even knowing that a highly supportive staff would be there to guide me, it was important to be overly prepared. The main challenges I faced when starting to perform cataract surgery included knowing where my hands were when I was looking through the microscope, working in the eye without pushing or pulling up on the surgical incision, and controlling the foot pedals with confidence and ease. I would like to share with young residents five points that helped me to prepare for cataract surgery.

BUILD YOUR KNOWLEDGE

There is much to learn before your first case, and there are many ways to prepare. Just spending time in the OR before it was my show increased my comfort level. Being available and enthusiastic to perform minor procedures in clinic allowed me to develop my microsurgical skills and to practice suturing. Getting into the OR to watch upper-levels or staff operate allowed me to see the proper way in which to perform cataract surgery and to deal with the unexpected. At Baylor College of Medicine in Houston, surgical videos of Douglas Koch, MD, performing phacoemulsifica-

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tion are available to first-year residents and are an excellent preparation for practicing in the wet lab and for operating.

PRACTICE

Nothing better prepared me for cataract surgery than old-fashioned practice. Perhaps most useful was suturing and tying square knots and slipknots at home. If you are fortunate enough to have a residency wet lab, practice on pig eyes under a microscope. In the beginning, it is hard to bring a surgical instrument into position without looking away from the microscope. I found it useful to practice with an upper-level resident who could instruct and hand instruments to me. This assistance allowed me to learn where my hands were without looking away from the microscope and eventually to move instruments instinctively into and out of the magnified surgical field.

At my residency program, I was fortunate to have access to a surgical simulator. I found I could more realistically practice some steps, especially the capsulorhexis, on the simulator than on pig eyes. This practice prepared me to assist in the cases of upper-level residents in a stepwise approach that built my surgical confidence and skill before my first case.

During my first cataract surgery, I realized that I could not proficiently drive the microscope. Spending time in the OR after hours learning how to drive the microscope and adjust its many settings made me more comfortable while operating.

As a musician, I considered my nondominant left hand to be fairly dexterous. Even so, switching to my left hand for activities of daily living like brushing my teeth and shaving improved my ability to use both hands during surgery.

Although sutureless cataract surgery is the standard, learning to suture with both hands made me a better, more confident surgeon. Being able to place sutures with your nondominant hand becomes particularly useful when performing a penetrating keratoplasty or fixing an open globe.

DRAPE CAREFULLY

Dr. Koch and other staff at Baylor stress the importance of draping. Each step in cataract surgery builds on the prior step. If the patient is not positioned well under the micro-

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scope, every step becomes a struggle. Experiment with the height of the bed and make sure you can comfortably sit with your feet on the pedals and your knees under the patient.

HAVE A REASON FOR EVERYTHING YOU DO

Know the reason for every step of every case. It helps when staff questions you and keeps you on your toes, but you can also question yourself. If you do not know the answer, find out. Always know why you are using a particular viscoelastic, instrument, or technique.

ASK FOR FEEDBACK

Eventually, cataract surgery can start to feel routine. Staff may comment on a good job and leave it at that, but they can teach you something new. In my experience, the most helpful pearls often come only when I ask for criticism. After a particularly difficult part of a case, I ask specifically for guidance on that issue. I also find I am able to improve my efficiency by watching my own surgical videos and having others critique them. Once at the end of my first year of operating, I mentioned to my staff that I always felt like I was “operating in the nose,” as I tended to push the eye away. He said, “Drop your shoulders.” That simple instruction made all the difference.

CONCLUSION

My final piece of advice is never to worry about how long it takes to complete your early cases. Speed will come with experience.

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The resident-mentor relationship.

By R. Duncan Johnson, MD



Each year in July, another group of residents joins the ranks of training ophthalmologists. This is a time of excitement as well as trepidation for all those involved. Ophthalmology residency in the United States is a short but intense 3 years of medical, clinical, and surgical training. Having a mentor to depend on for guidance is essential.

Over the past few years, I have relied on many mentors for advice on surviving residency and getting the most out of my experiences. This article describes how my residency has helped me to grow and become a better physician, surgeon, and person.

SURGICAL EXPERIENCE

Nowhere is the mentoring relationship more personal than in the OR (Figure 1). Only a small fraction of residents' time is actually spent in the OR, which makes it difficult to learn—much less master—the skills necessary to succeed in a busy surgical practice. For those reasons, mentors should set high standards for residents' preparation so that they can maximize their time in the OR learning higher-level concepts and skills.

One of my mentors, Uday Devgan, MD, gives residents a list of the things he expects them to know prior to entering the OR.¹ He also encourages residents to



Figure 1. The author and one of his mentors, Uday Devgan, MD, in the OR.

watch “game film,” just as any professional athlete watches videos of his or her performances to improve. Studying my own videos as well as many other surgeons’ online expanded my awareness in the OR.

After a surgical case, I was often given various assignments to help strengthen whatever weaknesses my mentor had observed. Usually, these consisted of wet lab assignments like tying sutures, loading various types of lenses, or practicing the capsulorhexis on a virtual reality simulator. To improve my bimanual dexterity, Dr. Devgan would urge me to use my nondominant hand to perform many daily tasks, including brushing my teeth, eating, and shaving. Although I often came to work with multiple cuts on my cheeks, I believe the practice made me more nimble-fingered and allowed me to safely learn more advanced maneuvers earlier.

My mentors’ enthusiasm and passion for perfection inspire me to work harder to become a better surgeon and clinician. It is important for a mentor not only to be a skilled and confident surgeon but also an effective communicator and teacher. I vividly recall my first phaco procedure. My pulse was racing, and my nervous tremor was magnified under the microscope. My attending jokingly asked if I

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“It takes special skill, patience, and even courage to attend beginning residents in the OR, but the lessons taught will guide them through their careers.”

wanted fries with that shake. Through humor and expressed confidence, he got me to relax and made the experience a positive one. Over time, my skills and confidence have improved, and I am well on my way to becoming the surgeon I want to be. It takes special skill, patience, and even courage to attend beginning residents in the OR, but the lessons taught will guide them through their careers.

CLINICAL EXPERIENCE

Ophthalmologists are constantly expanding their knowledge of the eye. I have learned much of this information from my mentors. More importantly, however, they have taught me proper bedside manner, methods for dealing with demanding patients, how to break bad news, and ways to interact with coworkers. These skills cannot be learned from books. Some of my best learning moments have occurred when an attending sat me down and taught some of the finer points of preoperative planning, surgical approach, or setting reasonable expectations for patients.

Observing my mentors’ interactions and relationships with patients was extremely important. Hearing that we should treat every patient with the same high level of care we would want for ourselves is one thing. Seeing it in practice motivates me to be better. This is the art of medicine that residents are trying to master.

THANKS

I would hope that mentors reading this article realize the power that they have to shape budding ophthalmologists. As a resident in training, I can say that my mentors have changed the course of my education, my career, and even my life. I am sure that the friendships I have forged with them during the formative years of my residency will continue to grow and help guide me throughout my professional life. ■

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1. Sperber L, Braunstein RE, Devgan U. Reducing complication rates: strategies for beginning cataract surgeons. *Cataract & Refractive Surgery Today*. June 2009;9(6):1-6.