Learning to use the non-dominant hand

Linda M. Tsai, M.D.

Cataract surgery is one of the most technical procedures to perform, necessitating the use of both hands and feet simultaneously. In fact, the additional use of the senses of sight, touch, and hearing are required during phacoemulsification. The ability to use both hands adeptly is a necessity for excellent cataract surgical technique.

In much of cataract surgery, one hand is needed to manipulate an instrument. The second hand is needed for stabilization or manipulation of a second instrument. Even when it is not actively being used, the second instrument must be stable. Care must be taken to ensure the second instrument hand does not cause problems during the procedure due to inattention. Using both hands during bimanual irrigation and aspiration and bimanual vitrectomy allows access to 360 degrees of the eye. Rarely, due to physical architecture challenges of the eye and face, it may be necessary to switch hands.

It has been clearly shown that dexterity can be developed with practice. Handedness is believed to be innately determined from birth, although there are studies of effective “coerced” training of the non-dominant hand, particularly in left-handed individuals who are trained to write with their right hand. This training is believed to effect cortical reorganization of the brain.

What can you do to improve your non-dominant hand? You can practice as much as possible. Try using your non-dominant hand during the day for daily activities such as brushing your teeth, combing your hair, locking and unlocking doors, eating with utensils, opening screw-top containers, and picking up small objects. Fine motor skills, such as writing and drawing, are usually reserved for your dominant hand, but attempt these with your non-dominant hand. Some even advocate writing from right to left in an effort to stimulate brain development.

Doing things in tandem, such as swirling both hands in water or throwing two balls at the same time and juggling, can be ways to stimulate development. Practicing or learning musical instruments can be helpful. Playing sports with an effort to use both hands is challenging.

Once you are able to use both hands effectively in cataract surgery, you will be well on your way to perfecting your technique.

Kenneth L. Cohen, M.D.

Phacoemulsification is now the most successful operation performed in the United States. For the novice surgeon to become a competent surgeon, the path is complex. There are many acceptable techniques for each stage of the operation. One constant is that the novice must learn to coordinate two hands and two feet. Practice in the wet-lab is essential.

To become comfortable using the non-dominant hand, my approach is to eliminate the use of the foot pedals. The novice resident focuses on using the microscope at the location of the corneal incisions. Only then is the resident handed a fixation ring and a blade. The resident concentrates on using both hands to create incisions. Sculpting is performed by placing two hands on the phaco handpiece, the non-dominant hand stabilizing the handpiece.

After creating a groove, the handpiece is handed to the scrub tech and viscoelastic is injected. Then, the non-dominant hand uses a Drysdale nucleus manipulator placed through the side port incision to rotate the nucleus 90 degrees. A crossing groove is sculpted. For cracking the grooves, the handpiece is again given to the scrub tech and viscoelastic is injected. Using two Drysdales, one placed through the side port incision, the crossing grooves are cracked and the nucleus rotated. The novice does not have to think about fluidics. The novice concentrates on using the dominant hand and the non-dominant hand in a stable intraocular environment.

As the resident progresses from novice to advanced beginner, emphasis increases on using the dominant and non-dominant hands together. After cracking the nucleus, using aspiration, each quadrant is safely brought to the center of the pupil for emulsification. If the phaco needle becomes embedded in the quadrant in a lollipop fashion, the non-dominant hand inserts a Seibel nucleus chopper through the side port incision to gently disengage the quadrant, allowing carouseling and emulsification of the quadrant using partial-occlusion phaco. A useful maneuver to improve the use of the non-dominant hand with the dominant hand is bimanual irrigation and aspiration to remove viscoelastic. The IOL optic protects the posterior capsule. The resident is instructed to keep the irrigation and aspiration instruments on the surface of the IOL optic.

The advanced beginner needs 25 procedures to feel comfortable using both hands and one foot pedal so that learning chopping can begin.

Evan L. Waxman, M.D.

Fully formed surgeons take use of their non-dominant hand for granted. We use our second instruments to help hold back and protect the posterior capsule, to manipulate nuclear pieces into the phaco tip, and to rotate, crack, and chop. We use the shaft of the second instrument to assist with eye position. We take for granted that our second instrument will not wander off and become an implement of destruction, wreaking havoc on the iris, anterior capsular rim, zonules, or posterior capsule.

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The ophthalmic surgeon in training (OSIT) can be so entranced by the action at the business end of the phaco tip that he or she loses track of the second instrument. In the best circumstances this results in a longer case. In the worst circumstances this results in a consultation with a retina colleague.

So how do we make our OSIT aware of the non-dominant hand and second instrument?

The technique of saying, with increased urgency, “Pay attention to your non-dominant hand” can be effective but is limited by the wakeful state of the patient. Furthermore, in the time it takes for this long phrase to come out of your mouth and make it into the ears and brain of your OSIT, the chopper can find its way halfway back to the optic nerve.

A technique that has helped me with this and other aspects of surgical training is pre-operative focus adjustment—of the resident. Prior to surgery, OSITs are asked to watch surgical videos. They are instructed to watch not as if they were watching the latest episode of American Idol, but instead paying attention to second instrument position and use. They are asked to describe, out loud, what they noticed. Before the case a code word is agreed upon that is used to refocus the resident on the non-dominant hand when attention wanders elsewhere.

After doing a few cases with this in mind it seems to require only occasional reinforcement to keep non-dominant hand awareness issues at bay.

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**Sugar takes on sweet new role**

by Jena Passut EyeWorld Staff Writer

The journal *Cornea* is getting a transplant.

Alan Sugar, M.D., professor of ophthalmology, Kellogg Eye Center, University of Michigan, Ann Arbor, will take over as editor on Jan. 1.

“I’ve been involved with several journals over many years, and I have an interest in that, as well as an interest in clinical research,” Dr. Sugar said.

Dr. Sugar, 67, has served since 2008 as an associate editor of *Cornea*, which is published monthly by Lippincott Williams & Wilkins and has a core audience of corneal specialists and general ophthalmologists interested in the subspecialty. Editors serve in 4-year terms.

Dr. Sugar belongs to more than 20 professional societies and has had 183 articles published in various journals. He also has written or co-written 53 book chapters on ophthalmology.

Gail Reggio, executive director of The Cornea Society, which sponsors the journal, said *Cornea* should benefit from Dr. Sugar’s vast experience, both with the journal and over his distinguished career in ophthalmology.

“Dr. Sugar will continue to provide excellent leadership at *Cornea,*” Ms. Reggio said.