

Skilled surgeon applies electrical engineering to benefit her patients and advance ophthalmic knowledge

Yunhee Lee, M.D., M.P.H.

After completing her first surgery as a resident, Yunhee Lee, M.D., M.P.H., received absolute confirmation that her decision to become an ophthalmologist was the right choice. The confirmation came in the form of words from a grateful patient whose sight had just been restored.



“Bless you doctor; God bless you,” the patient said tearfully as he looked around the room for the first time.

“It’s a really happy thing. You get that feeling so often in this field,” says Lee, assistant professor of clinical ophthalmology and medical director and division chief of Bascom Palmer Eye Institute of the Palm Beaches. “If you can do something for a patient, the results are often very dramatic and very rewarding.”

Lee joined Bascom Palmer in 2001 from the New England Eye Center, Tufts University School of Medicine where she held both clinical and academic positions. She earned her medical degree from Harvard Medical School and a master’s degree in public health from the Harvard School of Public Health. Lee additionally holds a bachelor’s degree in electrical engineering from Massachusetts Institute of Technology. Her engineering degree, she says, helps her to understand computers and the technology used in ophthalmology, thereby helping shape her approach to problem solving.

Though she expected to earn her doctorate degree in electrical engineering, Lee says her work with a bio-engineering professor at MIT sparked the idea of using engineering for medical purposes. “That idea became so interesting to me,” she recalls, adding that ophthalmology provided an area where she could take advantage of her strong engineering background.

Lee, who specializes in corneal and external diseases as well as refractive surgery, was founding director of Bascom Palmer’s Laser Vision Center in Palm Beach Gardens. Her practice today is equally divided between patients with corneal and anterior segment (front of

the cornea) disease patients and refractive surgery patients. Though she spends the majority of her time in Bascom Palmer’s Palm Beach facility, Lee sees patients in Miami as well.

Among the procedures she performs is customized corneal ablation, a relatively new technique that allows for vision correction beyond the 20/20 benchmark. The procedure is based on wavefront analysis, a diagnostic technology adapted from astronomy, which makes it possible to map unique and minute imperfections in the eye. The mapping guides LASIK surgeons as they re-sculpt the cornea for fully customized vision correction.

“We all have naturally occurring optical imperfections in our eyes,” says Lee. “This new technology allows us to measure these imperfections and program the laser to resculpt a new shape for the cornea that neutralizes these imperfections. It allows us to give patients the best quality vision that we can.”

Even so, Lee says patients must have realistic expectations. They need to understand that eyes are living tissue that heal at different rates and can change over time. “If the eye were made out of plastic, we could reshape the surface and essentially



guarantee the outcome," says Lee. "Here, we are tampering with Mother Nature."

Lee's research interests are largely focused on nomogram analysis, a detailed mathematical analysis of patient data to look for trends of overtreatment or undertreatment in refractive surgery patients. The resulting information allows for surgical fine tuning and is helpful for planning and analyzing studies.

She is also investigating ways to enhance the accuracy of tools used in cataract surgery, studying injectable lenses, and lenses that are implanted in front of a patient's natural lens to reduce the need for glasses or contact lenses.

In the summer, Lee and her team will begin the move to Bascom Palmer's new 40,000 square-foot clinical facility. With nearly three times the space and more faculty, she says the Palm Beach operation will be better positioned to meet the increasing demand for service in Palm Beach County. Since opening in 1996, the Palm Beach satellite office has grown by word of mouth at a remarkable pace. "We are an academic center," says Lee. "People are aware of the Bascom Palmer name and the institute."

In addition, with the completion of the center's new 10,000 square-foot stand-alone surgery center, patients will have access to all Bascom Palmer services, including eye surgery, in Palm Beach County.

At the new facility Lee will continue to participate in training and educating future ophthalmologists. "The new facility will have an amphitheater and be set up for advancing the knowledge and skills of ophthalmologists today and for teaching and training the ophthalmologists of tomorrow. "

Keeping up with the changes, says the doctor, who recently married Steven Gedde, M.D., a Bascom Palmer glaucoma specialist, doesn't just apply to students; it applies to practicing doctors as well. "You have to be a student your entire life."