

CLINICAL UPDATE

American Glaucoma Society Meeting Showcases Power of Stein/Doheny Affiliation

The UCLA Department of Ophthalmology glaucoma service has expanded as a result of the long-term affiliation forged in 2013 by UCLA's Stein Eye Institute and the Doheny Eye Institute. And the power of a partnership some ophthalmologists have called "the affiliation of the century" was on full display at the American Glaucoma Society's 25th Annual Meeting, which was held February 26–March 1, 2015, in Coronado, California.

"Everyone on our service played an important part in that meeting—from lecturing at the podium or in poster sessions, to serving on the program committee and chairing sessions," says Brian A. Francis, MD, MS, medical director of the Doheny Eye Center UCLA-Orange County and Glaucoma Division chief at Doheny. "That level of involvement is rare for a program this large, and

it illustrates that our glaucoma service is active, thriving, and having a major impact on the present and future of glaucoma research and patient care."

Under the terms of the agreement—in which the two institutes combined forces to advance ophthalmic patient care, vision research, and education—Doheny Eye Institute researchers and clinicians are now UCLA Department of Ophthalmology faculty members. For patients and referring physicians, this has dramatically expanded patient access to preeminent Doheny and Stein ophthalmologists throughout greater Los Angeles. Doheny Eye Center UCLA locations are now open in Arcadia, Orange County, and Pasadena—operating within UCLA Health along with the Stein Eye Institute in Westwood, the Stein Eye Center-Santa Monica, and the UCLA Department of Ophthalmology-

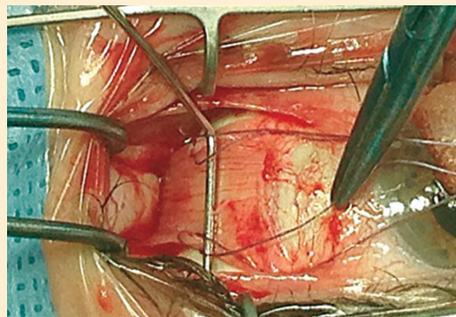
affiliated teaching satellite hospitals: Veterans Affairs Greater Los Angeles Healthcare Center at West Los Angeles and Sepulveda, Harbor-UCLA Medical Center, and Olive View-UCLA Medical Center.

The Doheny/Stein affiliation represents an ideal pairing of two prestigious institutes that share similar visions and histories—both the products of families whose histories are woven into the very fabric of Los Angeles, and both consistently in the top 10 of the *U.S. News & World Report* annual "Best Hospitals" rankings for ophthalmology. The benefits of the pairing can be seen in the synergy it has created for the newly doubled glaucoma service. "It significantly increases the breadth and

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Stein Eye Institute Group Leads Fundamental Change in Muscle-Strengthening Strabismus Surgery in North America

Surgery to tighten and strengthen eye muscles is one of the bread-and-butter operations to correct misaligned eyes in patients with strabismus. Now a UCLA Stein Eye Institute group headed by Joseph L. Demer, MD, PhD, the Leonard Apt Endowed Chair in Pediatric Ophthalmology and chief of Stein Eye's Pediatric Ophthalmology and Strabismus Division, is pioneering the North American introduction of an alternative muscle-



In plication, the anterior extraocular tendon in this elderly patient is folded posteriorly over an iris sweep, rather than being resected.

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depth of our expertise across the glaucoma spectrum in research and clinical care,” says Joseph Caprioli, MD, chief of the Stein Eye Institute’s Glaucoma Division. He notes that the service now boasts leaders in areas ranging from basic-science research to better understand the causes of glaucoma and diagnostic tools such as optical coherence tomography and visual field testing; to traditional surgical methods such as trabeculectomy along with emerging techniques in minimally invasive glaucoma surgery; as well as epidemiology, outcomes studies, and health-care policy issues pertaining to glaucoma.

Through both formal and informal collaborations, this merging of the Stein and Doheny expertise in glaucoma makes for a whole considerably greater than the sum of the two parts when it comes to treating patients, Dr. Caprioli explains. “Since we have everything represented within the group, it becomes easier for us to offer patients the best possible care because they now have the entire experience of this glaucoma service available to them,” he says. “In addition, we’re able to take advantage of each other’s expertise and apply our colleagues’ knowledge to the diagnosis and treatment of our patients, which makes us all better clinicians.” The American Glaucoma Society annual

meeting showcased the influence of the newly expanded glaucoma service. Dr. Francis, who served as program chair for the meeting’s surgery day, and on the general program committee with Dr. Caprioli, notes that Doheny Eye Center UCLA ophthalmologist Alex A. Huang, MD, PhD, received the prestigious Young Physician Scientist Grant, while Stein Eye’s Kourou Nouri-Mahdavi, MD, MSc, received a Mid-Career Physician Scientist Award. “It’s unheard of for two people in the same department to get those awards in the same year,” says Dr. Francis.

Highlights of the meeting included discussions of emerging surgical techniques by Dr. Francis and Vikas Chopra, MD, of Doheny Eye Center UCLA, who discussed endoscopic cyclophotocoagulation (ECP) in the treatment of complex glaucoma. Dr. Caprioli presented on enhancing outcomes with traditional glaucoma-filtering surgery. Meanwhile, Dr. Huang and Doheny Eye Center UCLA ophthalmologist James C. Tan, MD, PhD, gave talks on new basic-science imaging techniques that are enhancing the understanding of patients’ glaucoma anatomy to assist in developing more individually targeted medical and surgical treatment. Other presenters at

the meeting included Doheny Eye Center UCLA ophthalmologist Alfredo A. Sadun, MD, PhD, along with Stein Eye Institute ophthalmologists Anne L. Coleman, MD, PhD, JoAnn A. Giacony, MD, Simon K. Law, MD, and Dr. Nouri-Mahdavi.

While the meeting illustrated the many important current activities of the UCLA Department of Ophthalmology’s glaucoma faculty, Dr. Caprioli believes the true power of the affiliation lies in the synergy that will be created by the merging of the two leading groups saying, “The key to advancing glaucoma care in the future is having groups like ours that have wide-ranging expertise along with the ability to collaborate and otherwise benefit from each other’s knowledge.” Dr. Francis supports this view, adding, “Rather than individuals working on an island, you need a vertically integrated research approach in which all bases are covered—from basic science to diagnosis to clinical research to surgery—and everyone is sharing experiences. That is much more likely to occur when everyone is in the same institution. By bringing us together, this affiliation has made us exponentially stronger.”

Muscle Strengthening Strabismus Surgery continued from cover

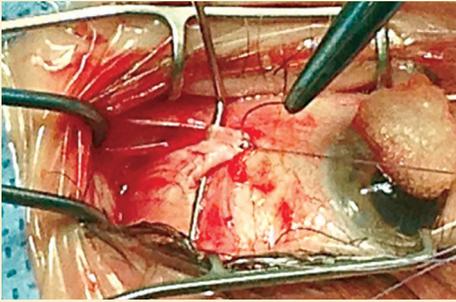
strengthening approach and popularizing a fundamental change in the way strabismus surgery is performed.

The alternative method, known as plication, offers numerous advantages and virtually no disadvantages compared to the approach taught for many decades in the United States, says Dr. Demer, who has performed plication on approximately 70 patients in the last several years and advocates it as a replacement for the traditional technique. At the UCLA Stein Eye Institute, plication is

now the approach being taught to trainees, and Stein Eye strabismus surgeons have almost uniformly moved to its use for tightening muscles to treat strabismus.

“This operation is less traumatic and more potentially reversible,” Dr. Demer explains. “It spares blood vessels, causes less inflammation and bleeding, and is technically easier to perform than resection. We are constantly looking for ways to optimize surgery and make it less invasive. The technical innovation of plication does that, while expanding the options

surgeons have for treating strabismus.” Plication has been practiced in Europe for several decades, Dr. Demer says, but because there has been limited interchange between practitioners on the two continents, the operation never made its way into the mainstream of education and practice in North America. Dr. Demer learned the approach from strabismus surgeons in Heidelberg, Germany, during a visit 10 years ago. Since then, Dr. Demer and his Stein Eye Institute colleagues Stacy L. Pineles, MD, and Federico G. Velez, MD, have performed studies to validate



After the plication is performed, only a tendon fold is visible intraoperatively. There is no interruption of ciliary arteries or bleeding.

plication's beneficial effects, as well as speaking and publishing on its merits.

One objective of strabismus surgery is to shorten an eye muscle so that it pulls harder—analogue to shortening the length of a rubber band so that the elastic material, stretched over the same distance, exerts more tension. “If the eye is crossed, for instance, the lateral rectus muscle can be tightened in this way to correct the crossing,” Dr. Demer explains. In the United States, Canada, and Latin America, eye muscle tightening has traditionally been accomplished through resection—cutting out the tendon and a portion of the front of the muscle, then sewing it back into the eye, with the shortened muscle pulling tighter along the same path as a result. Plication takes an alternative approach—placing sutures through the tendon or muscle an equivalent distance from the attachment point and farther back along the length of the muscle, then sewing those sutures to the wall of the eye at the original insertion point. “The muscle is tightened as much as in resection,” says Dr. Demer, “but instead of amputating the front part of the eye muscle and tendon, in plication the redundant front part is simply folded underneath and left in place.”

Plication carries several advantages. Traditional resection surgery removes blood vessels when the tendon is removed, and this sacrifices

part of the blood supply to the front of the eye. A clinical study spearheaded by Stein Eye pediatric ophthalmology and strabismus fellow Erica Z. Oltra, MD, demonstrated that when the blood vessels are plicated rather than removed, the vessels continue to supply blood to the interior of the eye. Folding, rather than amputating, a chunk of the tendon and muscle also reduces the risk of inflammation and bleeding. And finally, if the sutures break after part of the muscle is removed through resection, the muscle could snap back into the eye socket irreversibly, leaving the patient with a very difficult strabismus to correct.

“Plication is one innovative improvement that can be adopted overnight by any ophthalmologist who has ever learned to operate on the eye muscles.”

“If the sutures break following the plication approach, the worst you'd be is where you started before the surgery,” Dr. Demer says. “The muscle would simply unfold to its original configuration.”

Along with these advantages, plication is technically easier to perform and less invasive than resection, Dr. Demer notes, because while the suturing task is basically the same, plication avoids the extra step of cutting away the muscle through two large incisions. Although not all strabismus patients stand to benefit from a muscle-tightening procedure, Dr. Demer estimates that the approach can be beneficial for up to three-fourths of strabismus patients.

An assumption of many strabismus surgeons in the United States has been that the tissue left folded in the plication procedure would create an unsightly lump on the surface of the eye. “It turns out not to be true,” Dr. Demer says. “If plication is done technically well—and it's not difficult—the lump is undetectable and the eye is less inflamed than after a resection.

The opposition to plication has stemmed from this unfounded cosmetic concern, along with surgeons' unfamiliarity with the approach. Among those who actually try it, that opposition instantly disappears.”

Dr. Demer spoke on plication at the American Academy of Ophthalmology Specialty Day in fall 2014, then again at the Australian and New Zealand Strabismus Society Meeting in April 2015. He published a major paper in *JAMA Ophthalmology* (in collaboration with Dr. Zia Chaudhuri, a professor of ophthalmology in India who worked in Dr. Demer's group after

having also learned plication in Germany) comparing the outcomes of plication with traditional resection. Dr. Velez also headed a group that included Drs. Pineles and Demer on a study showing that adjustable sutures can be used in the plication procedure for additional flexibility in outcomes.

“Much of the research done on eye movements at Stein Eye involves fundamental discoveries and complex technological applications that broadly but slowly improve the field worldwide,” Dr. Demer says. “But, we do not neglect smaller practical improvements that can quickly enhance the practice of ophthalmology. Plication is one innovative improvement that can be adopted overnight by any ophthalmologist who has ever learned to operate on the eye muscles. We have been making an educational push for plication, and the feedback has been uniformly positive. Considering that it is easy to do and has many advantages and essentially no disadvantages compared to resection, I expect that as more strabismus surgeons learn about plication, it will be adopted widely.”

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