



The Eyes Have It

New Technology Brings Life Into Focus

By KATHLEEN CHARTER
Texas Medical Center News

This spring, three Houston patients were the first Texans to receive a novel, custom laser eye surgery at Memorial Hermann Hospital's Hermann Eye Center.

The Food and Drug Administration approved the custom corneal ablation procedure last October.

For the first time, surgeons can measure and treat previously undetected visual abnormalities. This custom laser procedure is the first FDA-approved eye surgery system that can treat each patient's unique visual imperfections. Memorial Hermann Eye Center was the first Texas clinic to offer this treatment and was one of the first 10 offices in the United States to put this new technology in place.

In order to make conventional in-situ keratomileusis, known as LASIK, and laser epithelial keratomileusis, known as LASEK, procedures more precise, a computer called a LADARWave sends low-energy laser light into the eye. The laser creates a personal 3-D map of how the cornea should be shaped. At surgery time, when the map is transferred to the



CUSTOMIZING CORNEAS—Richard W. Yee, M.D., Hermann Eye Center director, performs Texas' first-ever custom corneal ablation on Laura Licato, a researcher who studies alternatives to plastic surgery and who wore corrective lenses for nearly two decades. Licato, who had both eyes customized, could tell a difference in her vision as soon as the procedure was complete.

laser, the laser knows exactly where to cut to achieve the desired results.

"The new technology measures aber-

rations (irregularities in the eye that prevent light from being imaged properly onto the retina)," said Richard W. Yee, M.D., a corneal specialist and refractive surgeon, who is medical director of the Hermann LADARVision Center and professor of ophthalmology and visual science at The University of Texas Health Science Center at Houston.

Yee said custom cornea offers the best quality of vision possible.

"This is the 'haute couture' of laser vision correction," Yee said. "Earlier laser technology was like buying a suit off of a rack. Now, the 'suit' is cus-

tom fit to the patient, and it's personalized for each individual's eye."

The custom procedure can be used with both LASIK and LASEK procedures. Yee prefers to combine LASEK with the new custom treatment because LASEK causes fewer "ripples" that may distort vision. He no longer uses the LASIK procedure. First, rather than cutting the cornea's outer layer as is done with LASIK, he applies an alcohol solution which loosens the cornea's outer layer, allowing him to gently move it out of the way using a motion similar to pulling back a carpet. The laser then sculpts the corneal tissue, and the flap is then returned to its original position. The healing process begins as soon as the 15-minute procedure is complete.

Laura Licato, Ph.D., a researcher who studies alternatives to plastic surgery and wore corrective lenses for nearly two decades, had both eyes customized. She was the Hermann Eye Center's very first custom cornea patient and one of the first 50 patients to undergo this procedure after its FDA approval.

"I could see an immediate difference," Licato said.

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"I'm Still Here"

Heart Transplant Patient "Still Ticking" After Two Decades

By RONDA WENDLER
Texas Medical Center News

As Eva Washington watched the plane taxi down the runway, then gather speed in preparation for takeoff, she said a little prayer. On board was her critically ill husband Charles, on his way to Houston for a heart transplant.

Doctors had warned Eva that her husband would likely die during takeoff. The subtle shift in oxygen levels as the plane rose higher and higher would overburden his failing heart, they said.

On the other hand, if Charles remained hospitalized in his home state of Tennessee, he wouldn't last the week. A

transplant was his only hope.

"The pilot told me if the plane circled in the sky and came back down, Charles died. But if the plane kept going, he survived."

Up and up went the plane in a gradual ascent, until, as Eva recalls, "it leveled off, and took off like a bird."

"That moment, I felt I could jump as high as the sky. I was crying and laughing at the same time... my son had his arms stretched upward and was shouting 'My daddy's going to live!'"

That was 20 years ago. Today, Charles Washington ranks among the top-10 longest survivors of heart transplants in

(See "Still Here" page 27)



YOUNG AT HEART—Charles Washington, center, was the guest of honor at a Texas Heart Institute celebration commemorating the 20th anniversary of his heart transplant. Washington is president of the National Association of Black Chemists and developer of artillery used to penetrate and destroy tanks in the Iraqi war. He is joined by, from left, Edward Massin, M.D., medical director of cardiopulmonary transplantation and O.H. "Bud" Frazier, M.D., chief of cardiopulmonary transplantation and director of surgical research. (Photo by Ken Hoge)

Eyes

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In U.S. and Canadian clinical trials conducted by Alcon, the company which manufactures the LADARWave, patients were given LASIK in the right eye and the custom procedure in the left eye. Results for the custom procedure were overwhelmingly positive.

Yee said patients in years past have commented that although they could clearly see the eye chart following LASIK or LASEK procedures, some images still appeared fuzzy.

"With this custom procedure, patients not only see 20/20," Yee said, "but it's a better 20/20 than has ever before been achieved through conventional LASIK or LASEK procedures."

This wavefront-guided laser treatment corrects nearsightedness, farsightedness and astigmatism, in addition to other abnormalities, said Julie Balza, an Alcon clinical applications manager.

"It is unique, because we're correcting more than the most commonly seen irregularities," she said. "This new system corrects even what glasses and contact lenses and former LASIK and LASEK procedures were unable to fix."

"The LADARWave customizes the laser pattern for each eye, with its particular imperfections," Yee said. "We can now get rid of all of the 'bumps and potholes in the road' that make the 'ride' a

little rougher. We can 'pave' the road perfectly."

Another unique advantage is that the new procedure also smooths out aberrations from older procedures, which cause symptoms such as nighttime "halos." This option was never before available.

Yee first heard of this technology 10 years ago and was involved in some of the early equipment research. Today, with thousands of custom corneal ablations having been performed around the world, more than 100 have taken place at the Hermann Eye Center.

Yee said patients seeking this type of laser refractive surgery should ask the following questions:

1. Does a facility offer wavefront measurement technology?
2. Will wavefront information be used in conjunction with the laser treatment?
3. Are these treatments and measurements FDA approved? (While many facilities and physicians are currently doing studies on this new technology, it may not yet be FDA approved.)

For more information on custom cornea technology, contact the Hermann Eye Center at (713) 704-1839. ■



VISUAL AID—After the LADARWave computer (shown right) makes a 3-D map of how the eye's cornea should be shaped, the image is transferred to a computer that runs the laser, allowing the surgeon and his technicians to view every corneal irregularity, and ultimately ensuring that the eye is accurately sculpted.

EYE EDUCATION—Memorial Hermann Eye Center staff members are trained on the new LADARWave computer, which makes a 3-D map of the cornea's aberrations. This is done prior to the new custom corneal ablation procedure, approved by the FDA last fall. Learning the ropes are Bernice Gilmore, seated, a certified ophthalmic technician and certified laser operator; and standing, from left, Glynneth McClellan, a certified ophthalmic technician and certified laser operator; Wendy Bishop, an Alcon clinical applications specialist; Richard Yee, M.D., Hermann LADARVision Center medical director; and Wilben Sy, M.D., a clinical fellow.

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