Laser Cornea Treatments

Majid Moshirfar, M.D., was the first ophthalmologist in Utah to use a new laser-based procedure for corneal transplantation at University Health Care last April.

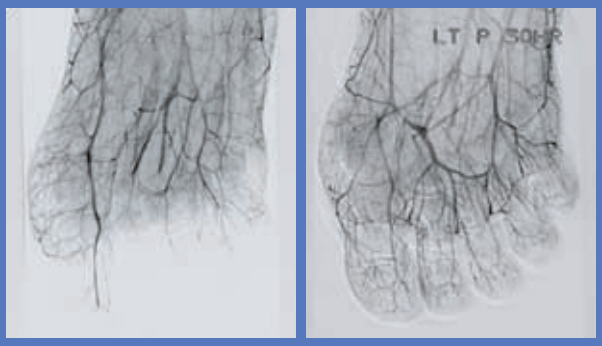
IntraLase-Enabled Keratoplasty (IEK) enables surgeons to create more precise and customized incisions through the cornea, allowing for a better fit between donor and recipient tissues. Five patients at the University's John A. Moran Eye Center have benefited from the procedure so far.

"It creates a more stable exchange, faster recovery, and reduces optical aberrations that can result from the manual technique," said Moshirfar, U professor of ophthalmology and visual sciences, and director of the cornea and refractive surgery division at the Moran Eye Center.

Using a new ultra-fast laser, ophthalmologists at the University's John A. Moran Eye Center precisely shape incisions during corneal transplantation surgery, so donor and recipient tissue fit together like a puzzle.

Previously, damaged tissue was excised manually and a new cornea stitched in place. This approach can require several months of recovery and the use of specialized contact lenses to correct astigmatism.

Although IEK may be suitable for only 30-40 percent of patients requiring transplantation, it can be used to treat a broad spectrum of corneal disease, according to Moshirfar. As the technique is refined, he envisions transplantations customized so precisely that stitches may no longer be required.



Before-and-after images of frostbitten toes show how effective treatment with tissue plasminogen activator (tPA) proved for patients at University Hospital's Intermountain Burn Center. At left, damaged toes look as if they'd already been amputated: a common consequence of severe frostbite. At right, 30 hours after treatment, blood flow was restored.

New Treatment for Frostbite

Damage to frostbitten tissue is often so severe that fingers and limbs require amputation. In a recent study at University of Utah Hospital, however, physicians used a unique treatment—an anti-clotting drug that restores blood flow after strokes—which significantly reduced the need for amputation.

"Cold injury results in the narrowing of small blood vessels in the extremities, creates more viscous blood, and looks like small-vessel disease," said Amalia Cochran, M.D., assistant professor of surgery and study co-author.

Six patients treated in University Hospital's Intermountain Burn Center between 2000 and 2006 received tissue plasminogen activator (tPA), a drug commonly used in the treatment of blood clots. Although this approach has been used before, the Utah study is the first to make comparisons between patients receiving tPA, in addition to conventional interventions such as re-warming, and those who did not receive tPA.

Patients treated with tPA within 24 hours of their initial injury experienced a much lower amputation rate of fingers and toes—10 percent—compared with 41 percent in patients who did not receive tPA.

Cochran hopes the Utah study will lead to a larger multi-center trial. No single treatment center receives enough frostbite cases to conduct a larger study in a timely manner, she noted.

Spine Stabilization System, Procedure

Since November 2006—when Andrew Dailey, M.D., implanted the nation's first Stabilimax Bar Spine Stabilization System into a patient at University of Utah Hospital to bring his spine into proper alignment—more than a half-dozen patients have received the device.

Kenneth S. Yonemura, assistant professor of neurosurgery, also premiered a new procedure at University Hospital last November: Xclose, in which a specially designed surgical tool is used to help close the wound when repairing weakened tissue in a patient with a herniated disk. Xclose is expected to prevent excess scar tissue, reducing the need for further surgery.

Spinal injuries and conditions such as arthritis or scoliosis can be chronically painful and restrict movement. The most common treatment is to fuse the affected vertebrae, which may reduce pain but hinders full movement. It also can cause degeneration of the spinal column above and below the point of fusion, according to Dailey, U associate professor of neurosurgery in the School of Medicine.

APPLIED SPINE TECHNOLOGIES

Rather than fuse affected vertebrae, neurosurgeons at University of Utah Hospital implanted the Stabilimax Bar Spine Stabilization System in a patient to bring his spine into proper alignment. The system provides greater movement than fusion and prevents later degeneration of the spinal column.

With the Stabilimax system, metal hardware is placed between the affected vertebrae: a less invasive stabilization and alignment of the spine without major restrictions on movement, according to Dailey. An added benefit is the prevention of later degeneration. "If you don't make the spine rigid, you prevent the breakdown above and below the point of stabilization," he explained.