

## Cornea Transplants

*By Bill Hobby*

If you need a cornea transplant, you live in one of the best places in the world to have it done. About 100 Texans a month, including me last January, need the surgery.

Favorable laws, cooperative medical examiners, and the Lions Eye Bank make it that way. Without any one of these factors, Texans would not be able to have their vision restored as promptly as they do.

Cornea transplants have been done with various levels of success for more than a century. Techniques were once crude. They are now so well refined the operation is routine out-patient surgery. The last half-century -- marked by the opening of the first cornea bank in the world, the Eye Bank for Sight Restoration in Manhattan in 1944 -- has been the Age of the cornea transplant.

Key reasons for today's success are: 1) The discovery of tissue culture media which allows corneas to be preserved and makes eye banks possible; 2) Newer surgical devices which allow surgeons to cut perfect circles in the eye's center; 3) New suturing techniques; 4) The development of hyaluronic acid, a visco-elastic which is placed in the eye to protect the fine tissue during surgery.

The cornea is the clear dome of tissue that covers and protects the center of the eye. It is about 13 millimeters in diameter, a little smaller than the head of a thumbtack. It contains no blood vessels and so the risk of tissue rejection is very small.

The procedure of transplanting a cornea is known as keratoplasty. Thirty percent of those needing the surgery suffer from degeneration of the corneal tissue; another 30 percent suffer from complications from cataract surgery; forty percent of the transplants are due to trauma.

The entire cornea is not transplanted in keratoplasty. Only an area of 6.5 to 8 millimeters wide is replaced. Surgeons save as much of the original cornea tissue as is possible. Of course, the smaller the tissue transplant, the less chance of rejection. Also, surgeons transplant as thin a slice of the corneal tissue as is possible. Only the damaged cells are replaced with new tissue.

Even though the surgery is now routine, with a 99 percent success rate and an 80 percent chance of improving vision, the dexterity required seems incredible to me. The surgeon is sewing into your eye a piece of tissue the size of your little fingernail and about as thick as a piece of Saran wrap.

Texas is one of the few states to have passed laws that have kept up with the medical advances by making donated corneas readily available. New York, for instance, must import corneas because of unfavorable laws.

In 1977, the Legislature passed a law allowing county medical examiners to remove and donate corneal tissue to eye banks in the absence of family objection.

That statute applied only to those whose deaths required a ruling from the medical examiner or justice of the peace. In 1987, the Legislature moved to facilitate donations from all patients who died in hospitals. The Routine Inquiry Act by Representative Nancy McDonald and Senator Ray Farabee, requires hospitals to train one employee to ask family members if they wish to donate corneas or other organs.

Rep. McDonald of El Paso is a nurse. She was aware of the number of useful organs that were ignored and not used in transplants because no one had bothered to inquire of surviving family members. This law, passed with the help of the Texas Hospital Association, requires hospitals to train one employee to make such inquiries of families.

These laws, of course, apply all over Texas. But only in Houston has their full potential been reached. Houston, in fact, leads the world in the availability of cornea transplants. It does so for two reasons: the Lions Eye Bank and Dr. Joseph A. Jachimczyk, the Harris County Medical Examiner.

The Lion's Eye Bank in Houston is the biggest in the world. Under the direction of E.J. Farge, in 1991 it

supplied almost 2,500 corneas to patients all over the world. Of these, 763 corneas went to Houston-area patients (Harris and 25 surrounding counties). Another 414 corneas were delivered by the Lion's Eye Bank of Houston for use in other Texas locations.

Another 906 went to other parts of the U.S. and 408 to foreign countries. The eye bank reserves 10 percent of its corneas for less fortunate countries, most of them in Latin America. There are three reasons for the success story in Houston; good state laws, the Lions Club, and Dr. Jachimczyk. Without any one of those three, Texans needing new corneas would not be so lucky. (Hobby teaches at Rice University and at the LBJ School of Public Affairs at The University of Texas at Austin. He was Lieutenant Governor of Texas from 1973 to 1991.)

*Written November 1992.*