Lamellar Procedures

DEEP LAMELLAR ANTERIOR KERATOPLASTY (DALK) AND I.E.K.

In DALK the bottom layer of the cornea is spared this results in less chance of rejection. We perform this technique with all of our I.E.K. surgeries to minimize the chance of rejection. It should be remembered however that in some instances the separation of the bottom layers of the cornea and the upper parts might be uneven which would result in poorer visual outcomes. In these instances we will convert the DALK procedure combined with I.E.K. to an I.E.K. only procedure. We encourage our patients to discuss with us in detail the risks and benefits of each procedure and the combined D.A.L.K. and I.E.K. procedure. Of course we always perform the procedure that is safest with the best visual outcome for all of our patients.

DESCEMET'S STRIPPING ENDOTHELIAL KERATOPLASTY (DSEK)

The human cornea is composed of three layers, the outer or epithelial layer, the middle or stromal layer (which comprises about 90% of the total corneal thickness), and the inner or endothelial layer. The endothelial layer is composed of a single layer of thousands of small pump cells. These endothelial pump cells are responsible for pumping fluid out of the cornea so it can remain clear and thin and provide good vision for the eye. If the pump cells should become dysfunctional, damaged, or destroyed, the cornea fills up with fluid and becomes swollen and cloudy, and causes blurry vision.

The endothelial cells can be lost due to aging, from inherited diseases (such as Fuchs' Corneal Dystrophy), from trauma, or from previous intraocular surgery. If a critical number of endothelial cells are lost, and the cornea becomes swollen and cloudy, medical therapy is usually not helpful and a corneal transplant operation is indicated. The remainder of the corneal layers, the stroma and the outer epithelium, are usually healthy. A large number of patients requiring corneal transplant surgery have these sorts of problems where only the endothelial cells have been injured or lost.

In DSEK the endothelial layer is selectively replaced leaving the other corneal layers in tact, this is often a much safer procedure for many patients.