

## First DSAEK Procedure in Lane County Performed at Oregon Eye Institute

*Richard S. Hoffman*

The first DSAEK (Descemet's Stripping Automated Endothelial Keratoplasty) in Lane County was performed at the Oregon Eye Institute in December of 2005. The DSAEK procedure is slightly different than the posterior lamellar transplant technique that was described in our last newsletter.

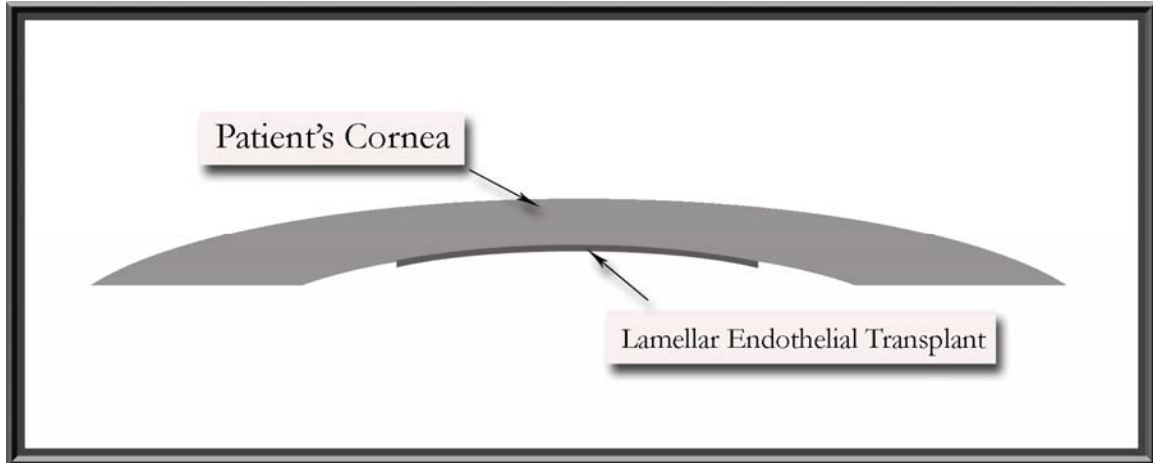
Rather than dissecting the back surface of the patient's cornea to make a space for the donor transplant, the thin membrane (Descemet's membrane) on the back of the cornea is stripped away using a fine surgical instrument. This allows the surface where the transplanted tissue will lie to be much smoother than would occur if the patient's cornea was dissected. In addition, the donor corneal tissue is dissected using an automated microkeratome similar to the devices we utilize to create a LASIK flap for refractive surgery.



Microkeratome-assisted dissection of the donor lamellar endothelial tissue on a Moria artificial anterior chamber

The microkeratome cuts a very thin piece off of the back surface of the donor corneal tissue that includes the corneal endothelium and a thin layer of cornea collagen.

This lamellar (partial thickness) tissue is then folded and inserted into the eye and positioned with special instruments. An air bubble is placed in the eye to hold the transplanted tissue in place and after 1 day the air is absorbed and disappears.



Schematic representation of Lamellar Endothelial Transplant in place

The advantages of utilizing a microkeratome to prepare the donor transplant are that it can guarantee a smooth surface and a consistent thickness to the donor tissue. It is much more precise than hand-dissection.

These procedures that transplant only the back surface of the cornea have great advantages. The entire procedure can be performed through small incisions that require just one or two fine stitches or in some cases no stitches at all. By not creating a full-thickness circular incision in the cornea for a traditional transplant, the cornea remains stronger and there is much less astigmatism induced by the surgery. This translates into much faster visual recovery with many patients having driving vision of 20/40 within several months of the procedure.

The DSAEK procedure is only performed for individuals who have disease or trauma specifically to the back surface or endothelium of the cornea. This includes patients with Fuchs dystrophy, endothelial cell loss from traumatic cataract surgery, and rejected corneal transplants.