

Creating a DSAEK Donor Button with the Gebauer SL Microkeratome

by Professor Dr. Thomas Neuhann

One of the most crucial requirements for a successful DSAEK procedure is creating a suitable donor button prior to the actual transplantation.

A good DSAEK lamella is characterized primarily by:

- precise and predictable thickness
- full cut over a predictable minimum diameter
- pristine and smooth corneal surface

In my OR I use the Gebauer SL Microkeratome System for DSAEK (Gebauer Medizintechnik GmbH, Neuhausen, Germany).

The SL cutting heads are intended as sterile, single-use products, with a wide range of cutting thicknesses (from 160µm to 400µm) available. When generating the DSAEK lamella I use the 300, 350 or 400 variant, depending on the given thickness of the donor cornea. In this way I repeatedly obtain DSAEK buttons with optimum thickness between 150 and 200µm.

Prior to cutting the donor cornea is mounted into the artificial anterior chamber of the Gebauer SL system. Subsequently, the artificial anterior chamber is pumped to a moderate pressure of an 880mm pillar of water.

One of Gebauer SL's advantages is its inherent option to precisely adjust the lamella's desired diameter prior to the cut. A transparent visual applanation plate is used, which can be moved upwards or downwards until achieving the desired diameter. Thus, cutting "blindly" is avoided--I do not have to realize later in the process, before the trephination of the button, that the corneal cut surface is too small and that the donor lamella gets much too thick peripherally.

Thereafter, I clamp the infusion tubing near the anterior chamber adapter shut. This action induces a high contact pressure of the device during the cut.

As soon as the desired cut diameter is set (in my practice >9.0mm), I put the handpiece together with the assembled cutting head into the guiding piece of the artificial anterior chamber. The cut itself is carried out by pressing an automatized foot switch, whereby the blade oscillation and the transversal blade motion are controlled independently from one another by two precise motors. The Gebauer SL provides nice homogeneous stromal surfaces with cleanly-cut flap edges.

Before removing the cornea from the artificial anterior chamber, I reattach the dissected anterior lamella on top of the residual cornea and use a trephine to punch the desired lamella diameter out. Thereby the re-applied frontal lamella protects the interface during the trephination. In our practice, transplant diameters of 8.0 and 8.5 are most frequent.

The one aspect of the Gebauer SL system that convinces me the most is that while I continuously obtain my desired lamella dimensions, at the same time the handling of the device is easy and intuitive.

Until now I have created more than 50 DSAEK buttons with Gebauer SL and have always achieved very good surgical outcomes.

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