

INNOVATION
MADE BY GEUDER®

NEW

DMEK

Descemet Membrane
Endothelial Keratoplasty



Geuder®
Precision made in Germany

THE INNOVATIVE SYSTEM
FOR TREATING
ENDOTHELIAL CORNEAL
DISEASES

THE NEW DMEK INSTRUMENT LINE

THE REVOLUTIONARY SYSTEM FOR TREATING ENDOTHELIAL CORNEAL DISEASES

Corneal grafts are the most common tissue transplants of all. Perforating keratoplasty has meanwhile become clinical routine in many centers.

Transplantation techniques have evolved in recent years and are moving away from perforation toward lamellar keratoplasty.

Endothelial corneal diseases comprise after all 40% of all keratoplasty indications. In many cases, perforating keratoplasty is excessive since the simple transplantation of vital endothelial cells would often suffice. This is why posterior lamellar techniques have been able to establish themselves in recent years as an alternative solution for endothelial corneal diseases.

In DSAEK (Descemet Stripping Automated Endothelial Keratoplasty) endothelial cells and stroma with a thickness of approx. 150 µm are transplanted whereas DMEK (Descemet Membrane Endothelial Keratoplasty) is limited to the isolated Descemet membrane and endothelial cells without stroma, with a thickness of only approx. 15µm.



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CLINICAL ADVANTAGES OF DMEK

Transplanting extremely thin lamella promotes considerably faster visual recovery than DSAEK. DMEK prevents interface problems, causes neither postoperative astigmatism nor myopia, and substitutes more endothelial cells (up to 9.5 mm graft size). As a result, visual acuity improves in many cases by 0.8 or better after only one week. Due to these very good results, DMEK might become the standard therapeutic technique for treating endothelial corneal diseases.

INSTRUMENTS FOR STANDARDIZATION OF DMEK

The success of this elegant technique is largely dependent on the quality of the fragile graft and the gentle manipulation thereof. It is important that the fragile endothelial cells are not touched or stressed mechanically during preparation or implantation. In order to achieve reproducible results, a standardized technique and specific instruments which ensure a no-touch surgical procedure are necessary.

On the following pages we would like to introduce a new surgical set which will permit experienced surgeons to perform DMEK in the clinical routine. This set allows the no-touch preparation of a Descemet lamella and its subsequent transplantation through a 3.0 mm clear cornea incision. I hope that the promising advantages of DMEK will be confirmed in many procedures and that DMEK will assert itself as the method of choice.

Prof. Peter Szurman, MD

Literature :

1. Melles GR, Ong TS, Ververs B, van der Wees J (2006) Descemet membrane endothelial keratoplasty (DMEK). *Cornea* 2006; 25: 987-90
2. Cursiefen C, Kruse FE (2009) Descemet's stripping automated endothelial keratoplasty (DSAEK). *Ophthalmologe*. 106: 939-952
3. Szurman P, Yörük E (2010) DMEK-Step by Step. ESCRS, Paris
4. Yörük E, Szurman P (2010) DMEK Keratoplastik. *Augenspiegel* 11/2010
5. Yörük E, Szurman P (2011) Autologous Descemet's Membrane Endothelial Keratoplasty. *Cornea*; in press



BRILLIANTLY SIMPLE: THE IMPLANTATION CARTRIDGE

Simplification and Standardization of DMEK Surgery

- The large rounded opening of the cartridge allows for the safe and easy intake of the graft



- Injection into the anterior chamber over the small opening is gentle and atraumatic

EXTREMELY SAFE: THE IMPLANTATION PROCEDURE

NO TOUCH

- Safe and easy intake of the graft through the large rounded opening of the cartridge
- Reduced risk of damage to the fragile graft and less endothelial cell loss

NO FRICTION

- Smooth sliding of the graft in liquid into the anterior chamber
- Safe flow of the graft through the streamlined design of the glass cartridge

NO SUTURE

- Small incision size (3 mm) thanks to slender opening of the cartridge
- Reduction in surgically induced astigmatism

HIGHLY COMFORTABLE: THE ACCESSORIES



- Single-use DMEK Cartridge
- Tubing
- Standard single-use syringe (not part of the set)

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Precision made in Germany

PREPARING THE DONOR EYE

1 Preparing the Donor Cornea

In order to prepare the donor cornea, the eye must be fixated securely.



G-38620
SZURMAN
DMEK GRAFT RETAINER
for preparation of DMEK graft



G-38623
REMKY
**DMEK
KERATOPLASTY FORCEPS**
modified by Szurman
to hold donor eye during
preparation

2 Preparing the Descemet Lamella

In order to prepare the Descemet lamella, the membrane is scraped 360° starting at the periphery. Around 20-40 % of the underlying stroma is lifted away.



G-38621
SZURMAN
**DMEK
PREPARATION SCRAPER**
for removal of Descemet layer
of graft



G-38622
SZURMAN
**DMEK
PREPARATION SPATULA**
for removal of Descemet layer
of graft



G-38624
SZURMAN
**DMEK
PREPARATION FORCEPS**
for removal of Descemet layer



3 Staining the Descemet Lamella with Dye

In order to recognize the Descemet side of the graft, it is advisable to stain it during preparation.



G-38625
SZURMAN
DMEK MARKER
to mark Descemet layer during preparation

4 Punching out the Donor Cornea

The last step involves punching out the desired size. The graft should then be stored in liquid so that its fragile structure is not stressed.



G-32672
SILICONE BLOCK
for graft cornea



G-20085
KERATOPLASTY TREPHINE
HAMBURG MODEL
8.5 mm

Trephines are also available in other sizes and models



G-51-900-900
SINGLE USE
STANDARD TREPHINE
9.0 mm, **sterile**

PREPARING THE PATIENT'S EYE AND IMPLANTING THE GRAFT

1 Making the Main Incision, Paracentesis and Iridectomy

Due to the slender design of the DMEK cartridge, only a sutureless 3.0 mm clear cornea incision is necessary. The 25 gauge hybrid scissors are optimal for manipulation of the iris.



NANOEDGE PHACO SLIT KNIFE
angled, 3.0 mm, bevel up,
6 pcs. per box, **sterile**



G-34194 SINGLE-USE STILETTO (MCR) KNIFE
23 gauge, angled
6 pcs. per box, **sterile**



G-32948 HATTENBACH HYBRID SCISSORS
for the anterior chamber
25 gauge / 0.5 mm

2 Preparing the Anterior Chamber

Conventional hydrodissection cannulas are used to prepare the anterior chamber.



G-32167 SAUTTER HYDRODISSECTION CANNULA
rotation of 90°,
27 gauge / 0.40 mm



G-34245 SAUTTER SINGLE-USE HYDRODISSECTION CANNULA
27 gauge / 0.4 x 22 mm
10 pcs. per box, **sterile**

3 Descemetorhexis

Incision hooks and the Descemet scraper enable a safe circular incision and subsequent polish.



G-38607 DESCEMET INCISION HOOK
diameter of hook: 0.3 mm
total length: 103 mm



G-38608
DESCEMET SCRAPER
 total length 103 mm

4 Injecting the Graft

For better visualization, the Descemet lamella should be stained with a suitable dye before loading the cartridge. The graft is loaded into the DMEK cartridge over its large posterior opening which ensures an atraumatic intake of the Descemet lamella. To carry this out, the accompanying tube is connected on one end to the small opening of the cartridge and on the other end to a syringe which facilitates the gentle intake of the membrane through aspiration.

A controlled implantation of the graft into the anterior chamber can then be performed by injecting BSS into the larger opening of the cartridge with a syringe. A double irrigation set enables the touch-free unfolding and positioning of the Descemet lamella. The injection of air helps to attach the Descemet membrane to the cornea.



M 1:1

G-38630
 SZURMAN
SINGLE-USE DMEK-CARTRIDGE
 Cartridge for Descemet Membrane Endothelial Keratoplasty incl. tube connection for loading the cartridge, **sterile**



G-38631
 SZURMAN
DMEK IRRIGATION HANDPIECE
 curved, closed tip
 side port 0.3 mm
 tube 23 gauge / 0.6 mm



G-38633
Y SILICONE TUBE
 to connect to DMEK irrigation handpieces G-38631 and G-38632



G-38632
 SZURMAN
DMEK IRRIGATION HANDPIECE
 curved, front opening
 tube 23 gauge / 0.6 mm



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Illustrationen not drawn to scale (Some illustrations are reduced to 80%).



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