



Al-Azhar University



Egyptian Ophthalmological Society

DMEK Graft Preparation New Approach

Prof. Mahmoud Ismail
Al-Azhar University
Cairo – Egypt

Penetrating

Lamellar

Anterior

Posterior

**Femto Ant.
Lamellar
Keratoplasty
FALK**

**Deep Ant Lamellar
Keratoplasty
DAIK**

**Descemet's
Membrane Endoth.
Keratoplasty
DMEK**

**Pre-Descemet's
Endoth.
PDEK / DSAEK**

Endothelial Analysis

- Polymegathism (coefficient of variation)
- Pleomorphism (% of hexagonal cells)
- Cell density (cells/mm) & cell area (μm)

Cataract < 1800 Cells/mm

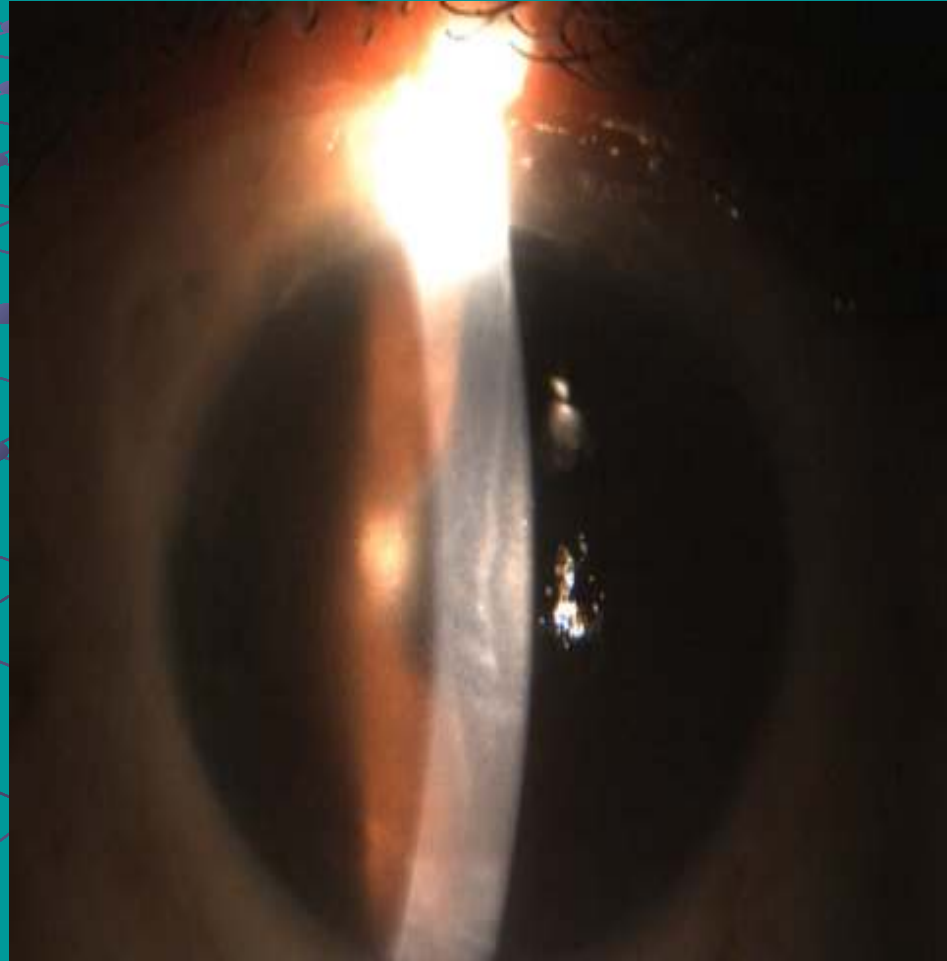
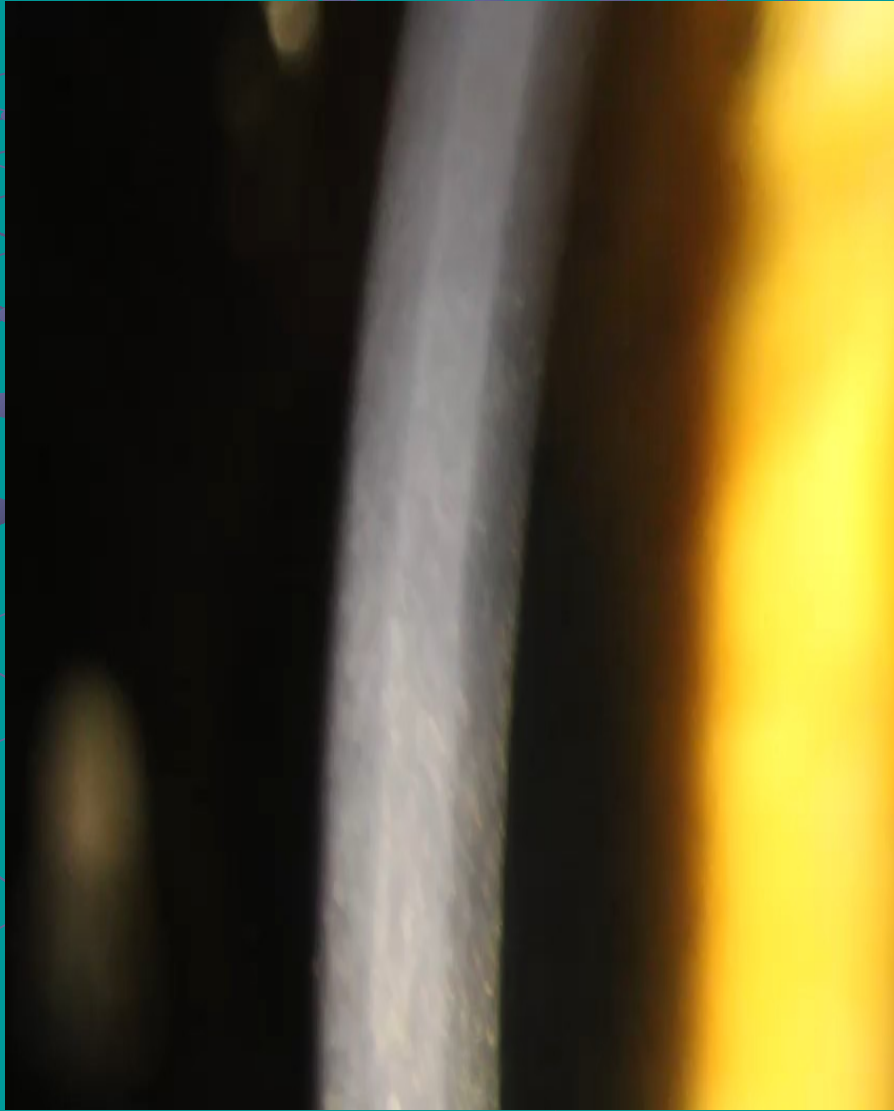
Phaco + DMEK

- Significant Guttae
- Pachymetry > 650 μ
- ↑↑↑ Hexagonality

Phaco Only

- Few Guttae
- Pachymetry < 650 μ
- ↑ Hexagonality

Que Sera Sera ?????

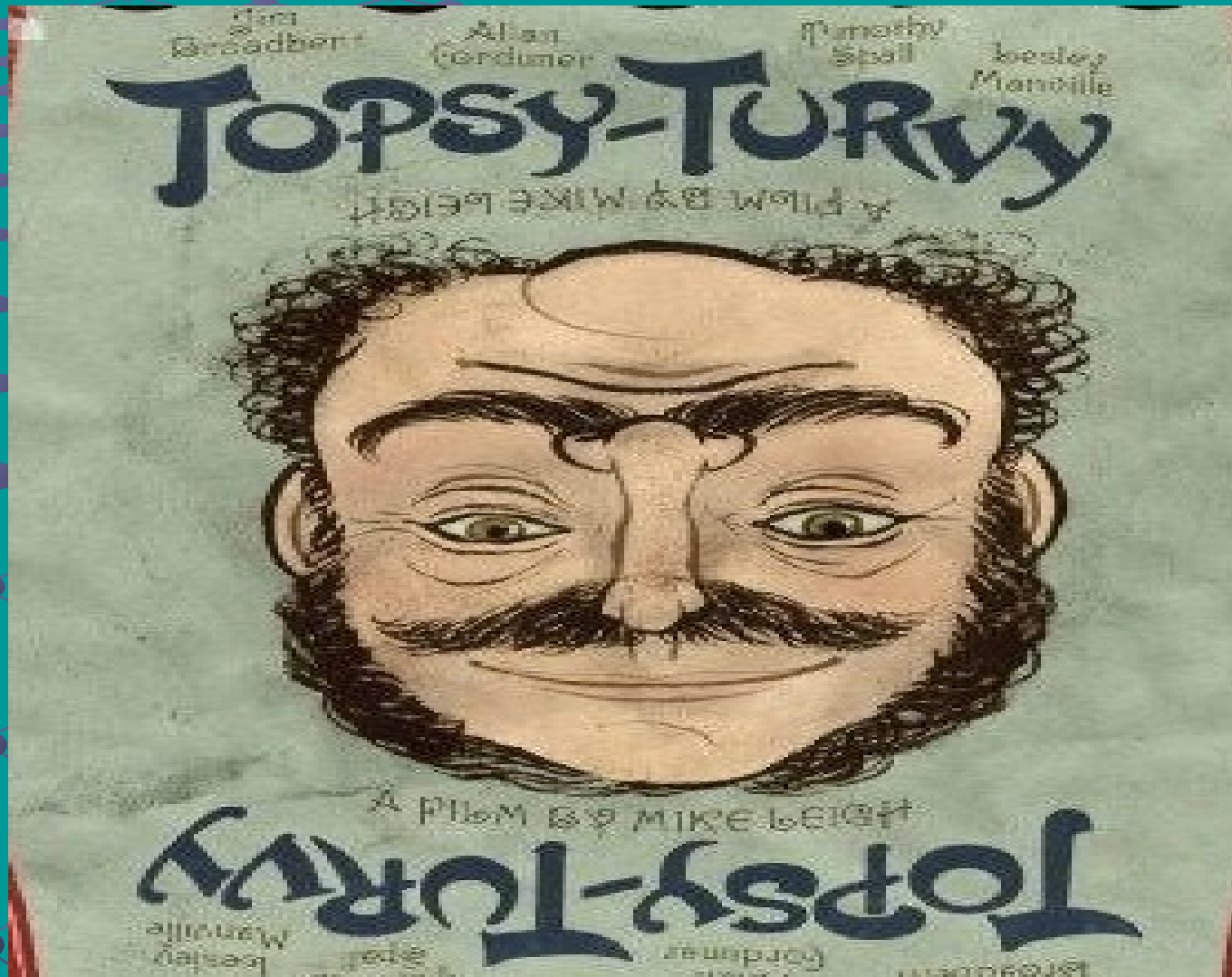


No Need for Corneal Surgery Experience



- No Sutturrrrrring ... !!
- No Follow-Upsss ... !!
- No Rejectionooooon !!

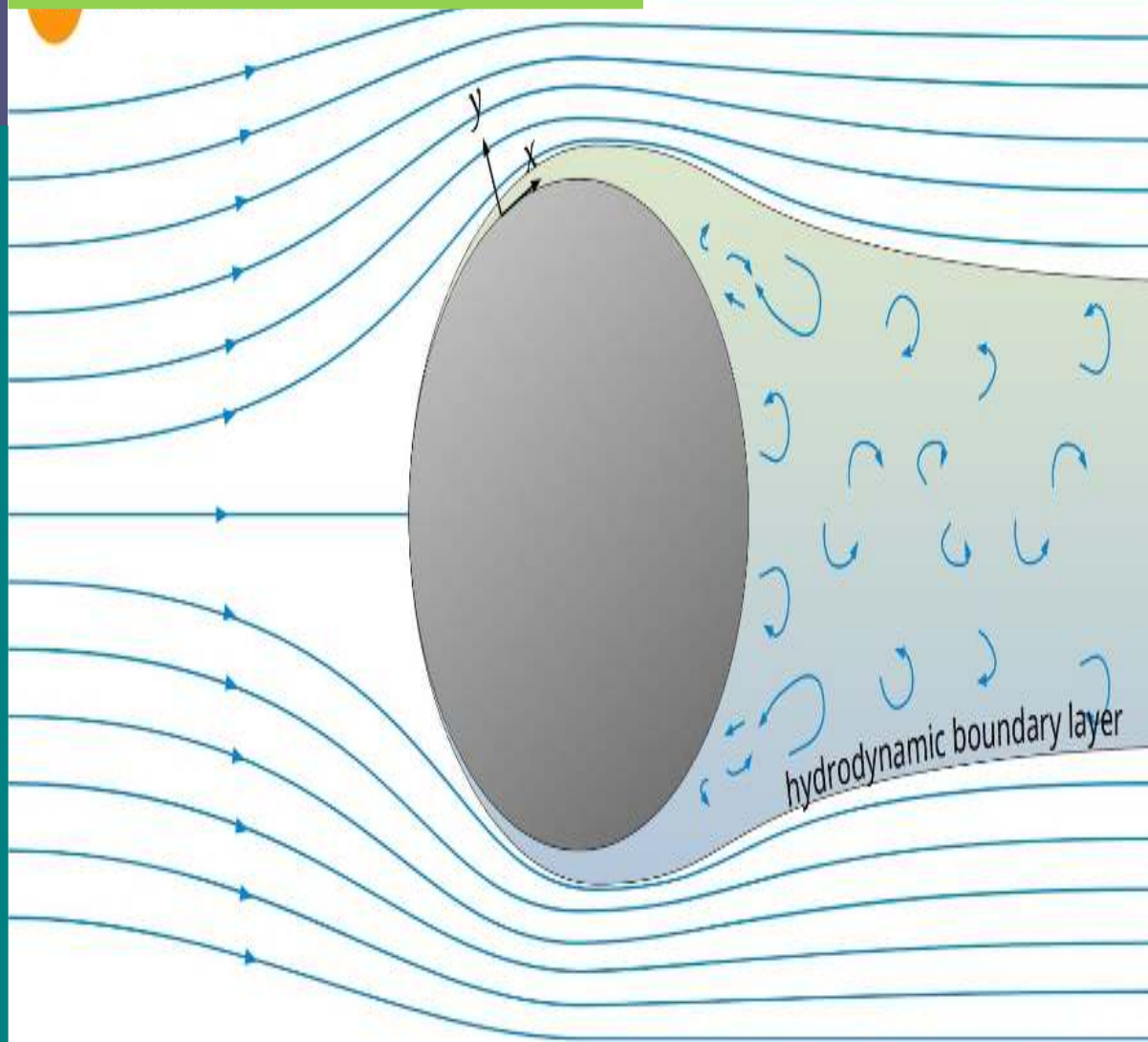
Upside Down



DMEK Graft Preparation

- Easy
- Safe
- Reproducible

Smooth Separation



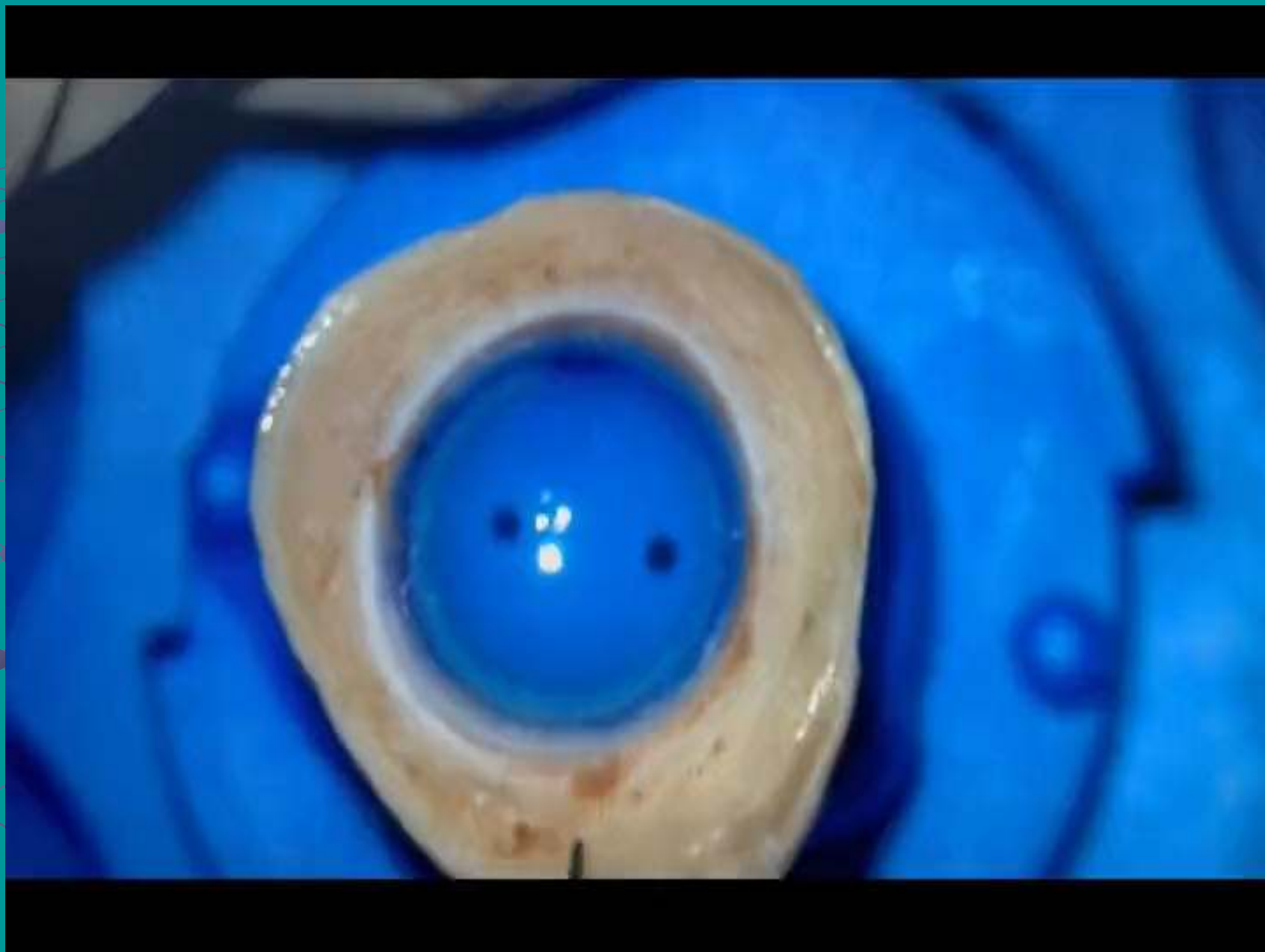
New Device Non Clinical trial

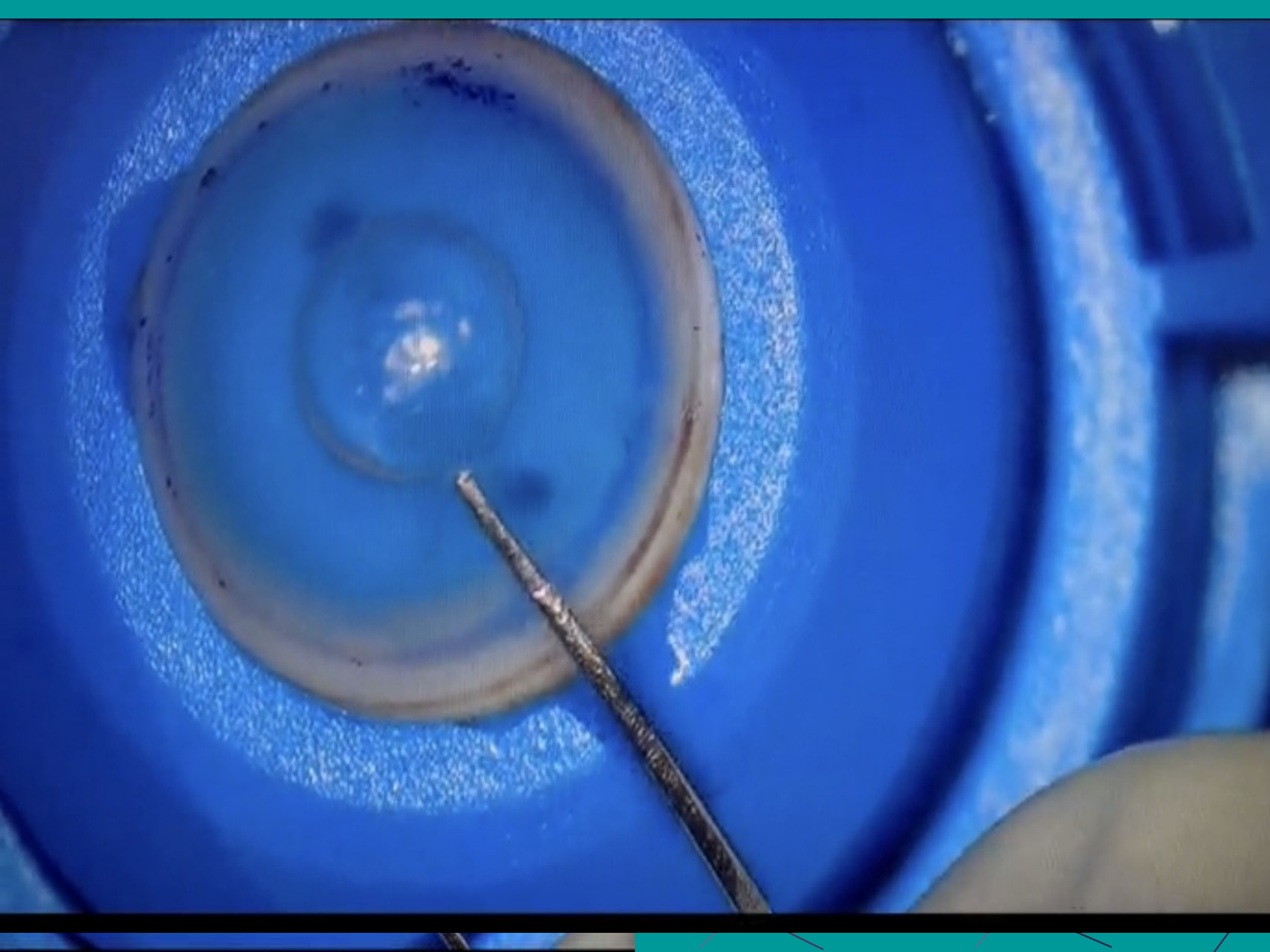
► Cureus. 2025 Jan 2;17(1):e76817. doi:

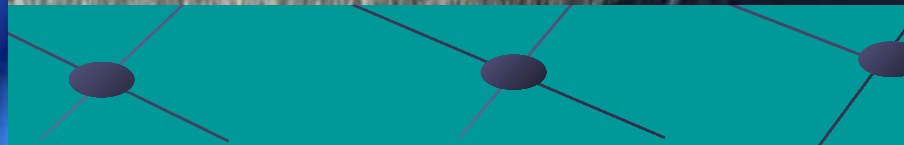
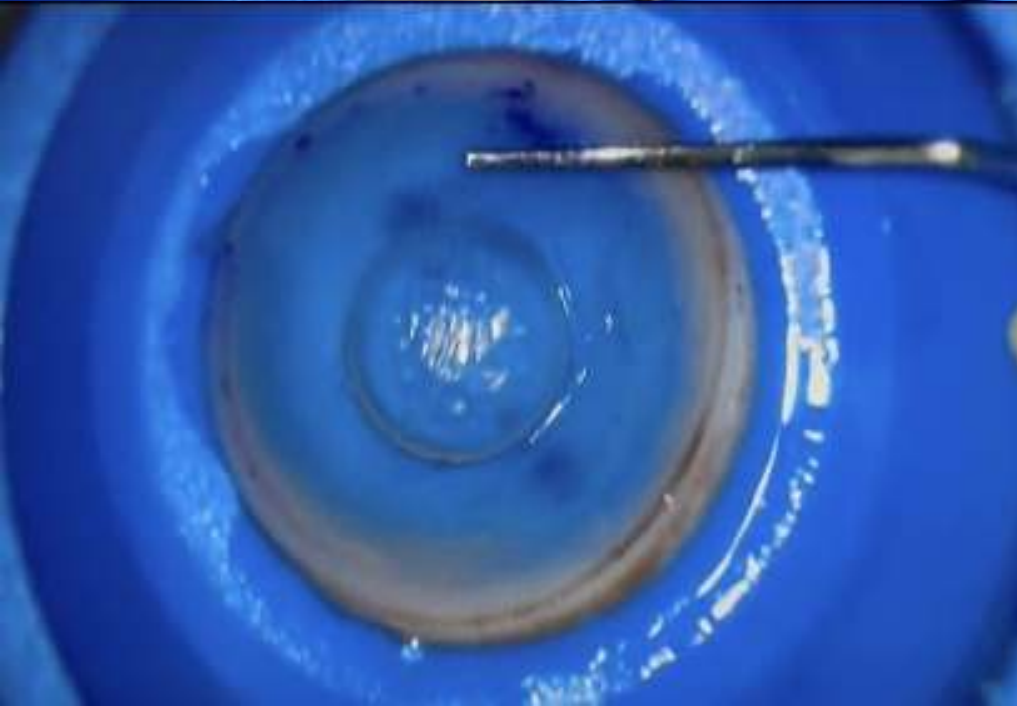
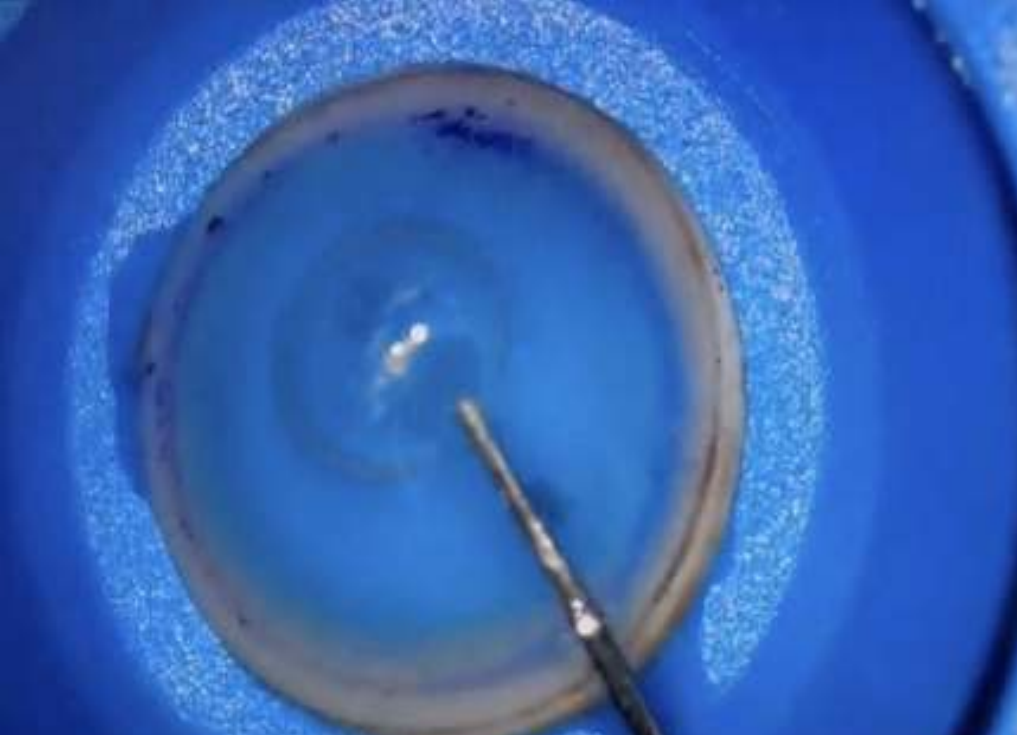
[10.7759/cureus.76817](https://doi.org/10.7759/cureus.76817) 

A New Device and Method for Endothelial Graft Preparation in Descemet Membrane Endothelial Keratoplasty (DMEK): A Preliminary Feasibility and Technical Evaluation

[Leiser Franco de Moraes Filho](#)¹, [Cláudia Gomide Vilela de Sousa Franco](#)¹, [David Leonardo Cruvinel Isaac](#)¹, [Ricardo Nogueira Louzada](#)², , [Marcos Pereira de Ávila](#)¹, [Leopoldo Magacho](#)¹





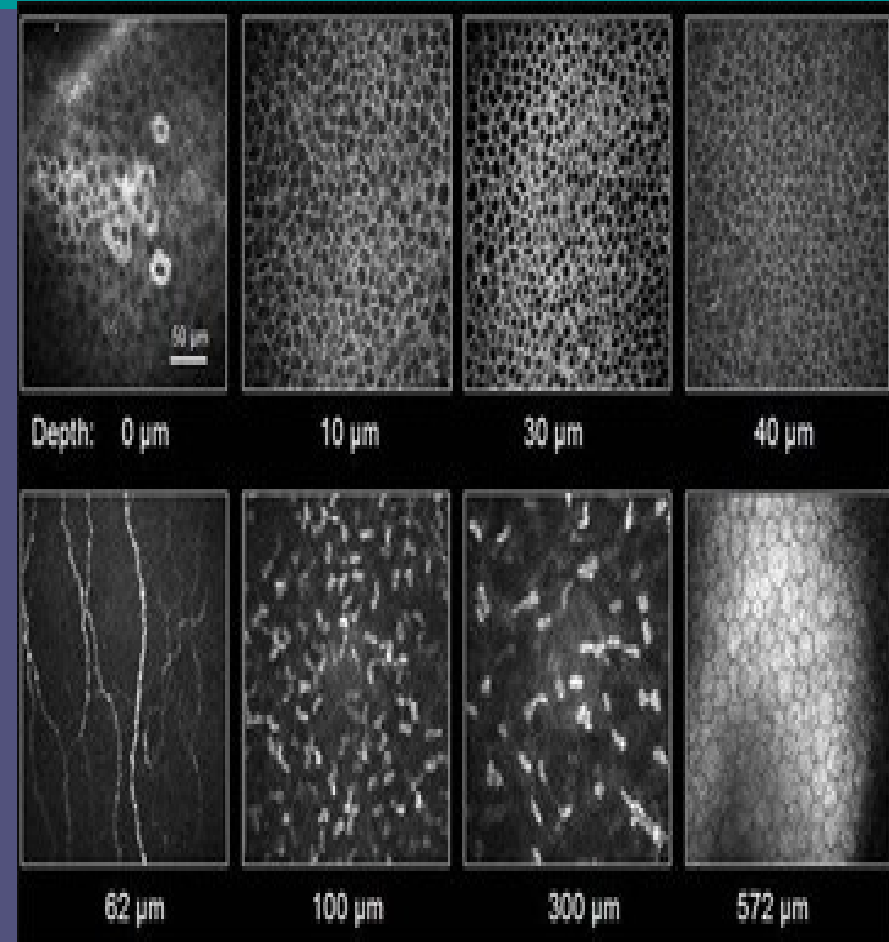


PG2 + leukotrans

Ismail MM, Kaufman H.

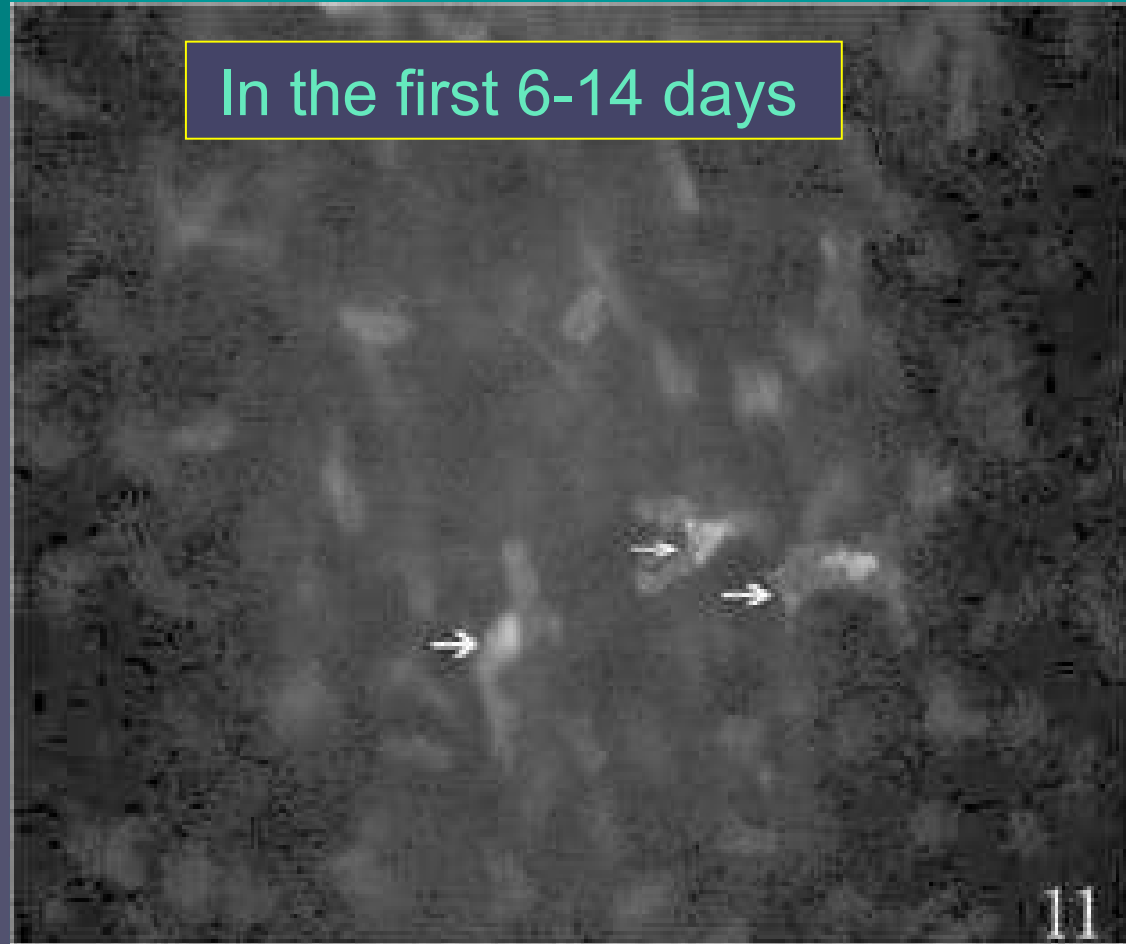
Manual versus Microkeratome Flap
Ophtha Archives 2001

- Keratocytic Proliferation
&
- Fibroblastic deposition

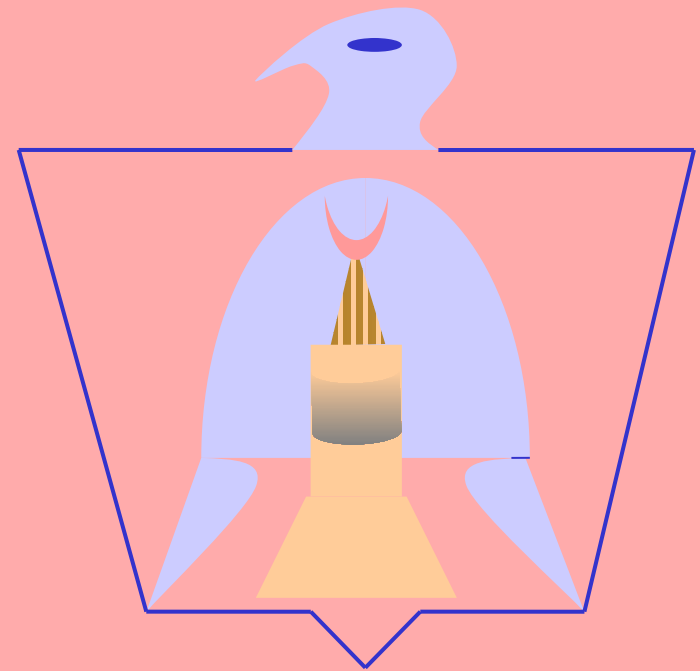


Confocal images

- Keratocytic proliferation
 - Activation of prosthesis & Nucleus
 - Fibroblastic transformation
 - Deposition of Fibrous tissue
- = **HAZE**



YES : Ant. Segment Practice



Al-Azhar University

Endothelial Dysfunction

```
graph TD; A[Endothelial Dysfunction] --> B[With Cataract]; A --> C[Without Cataract]; B --> D["Minimal Guttae  
Pachymetry < 650 M"]; B --> E["Significant Guttae  
Pachymetry > 650 M"]; C --> F["< 50 Yrs"]; C --> G["> 50 Yrs"]; D --> H[Phaco Only]; E --> I[Phaco + DMEK]; F --> J[DMEK Only]; G --> K[Phaco + DMEK];
```

With
Cataract

Without
Cataract

Minimal Guttae
Pachymetry
< 650 M

Significant Guttae
Pachymetry
> 650 M

< 50 Yrs

> 50 Yrs

Phaco
Only

Phaco
+
DMEK

DMEK
Only

Phaco
+
DMEK