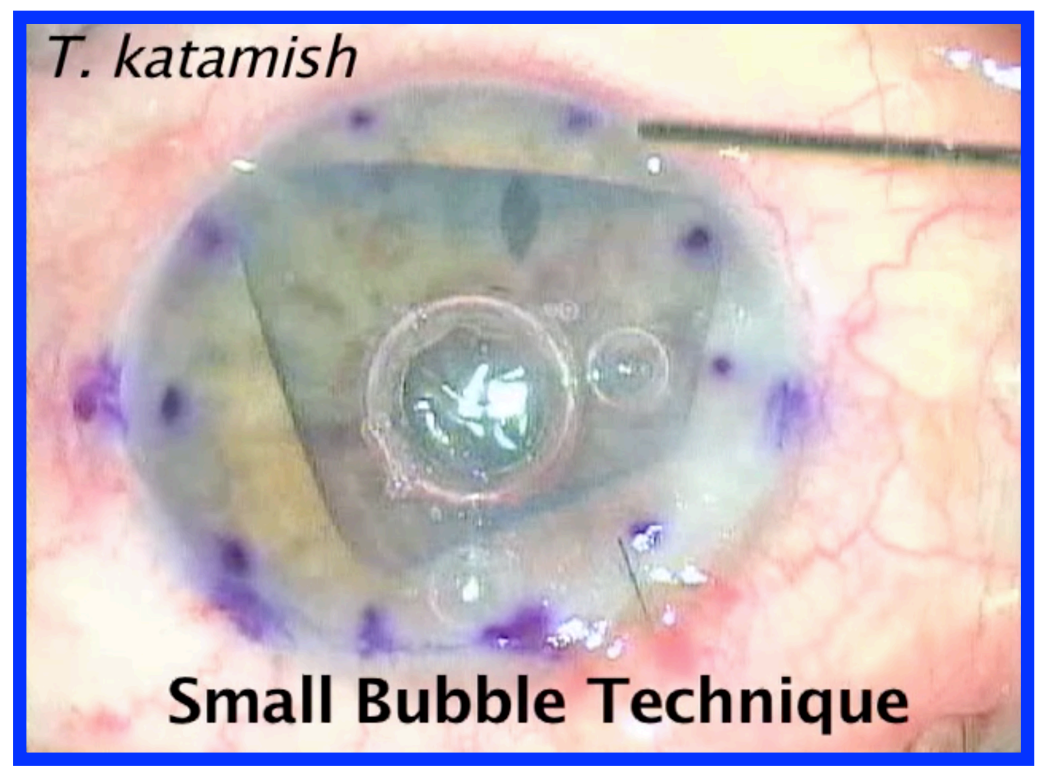
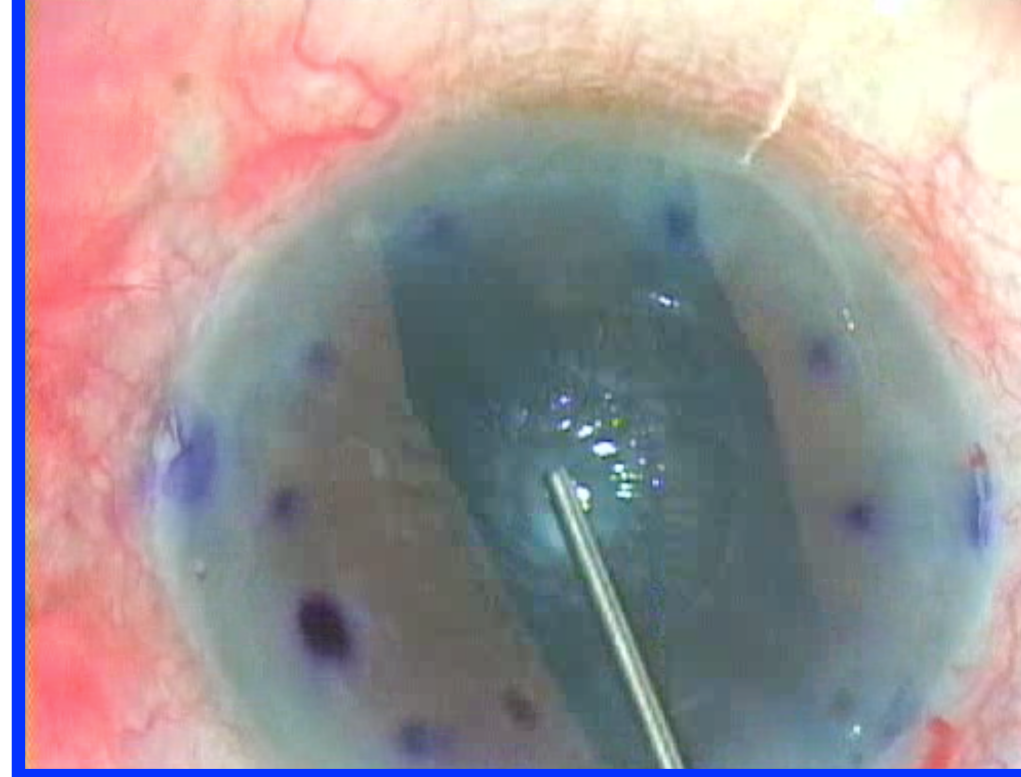
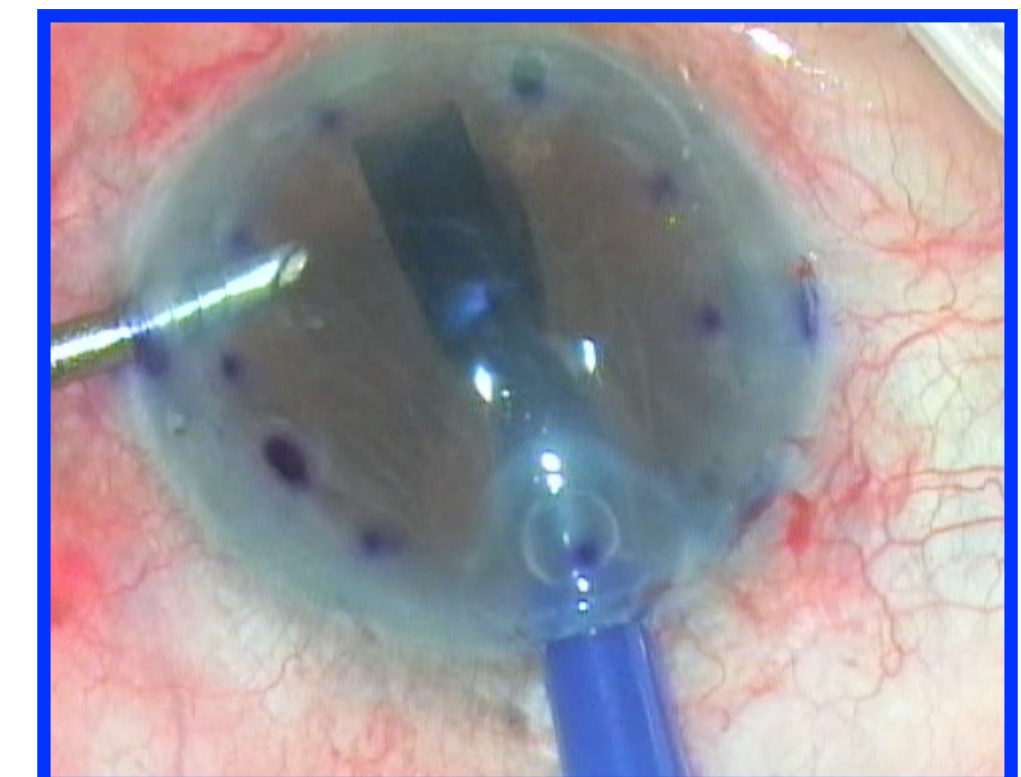
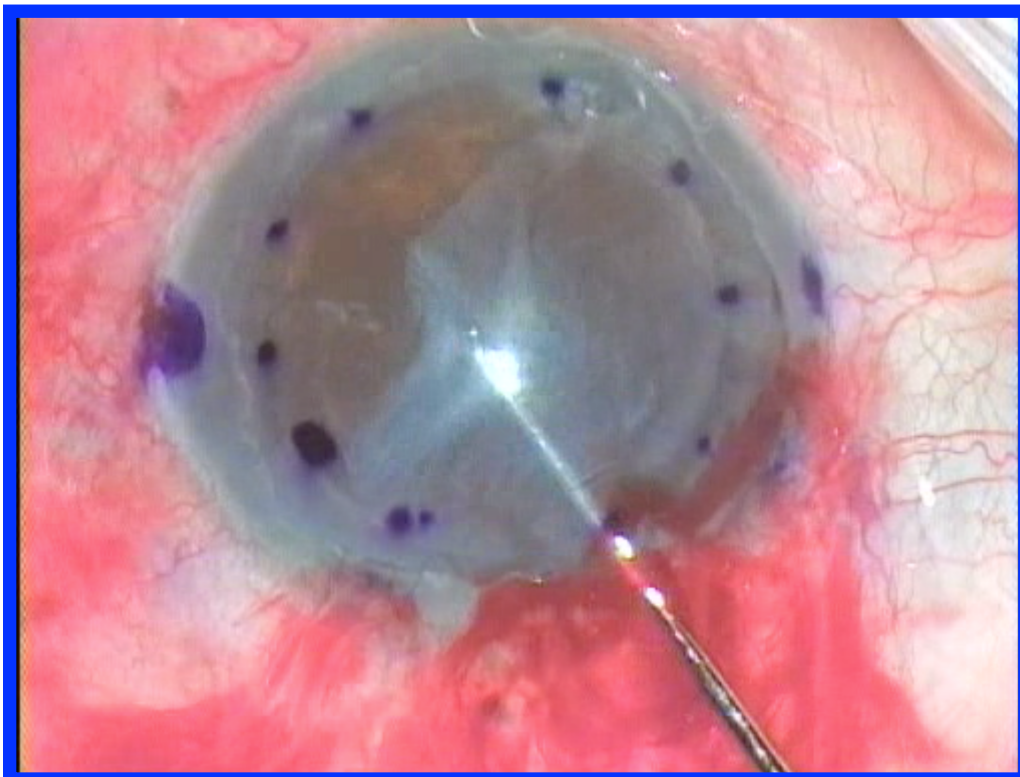
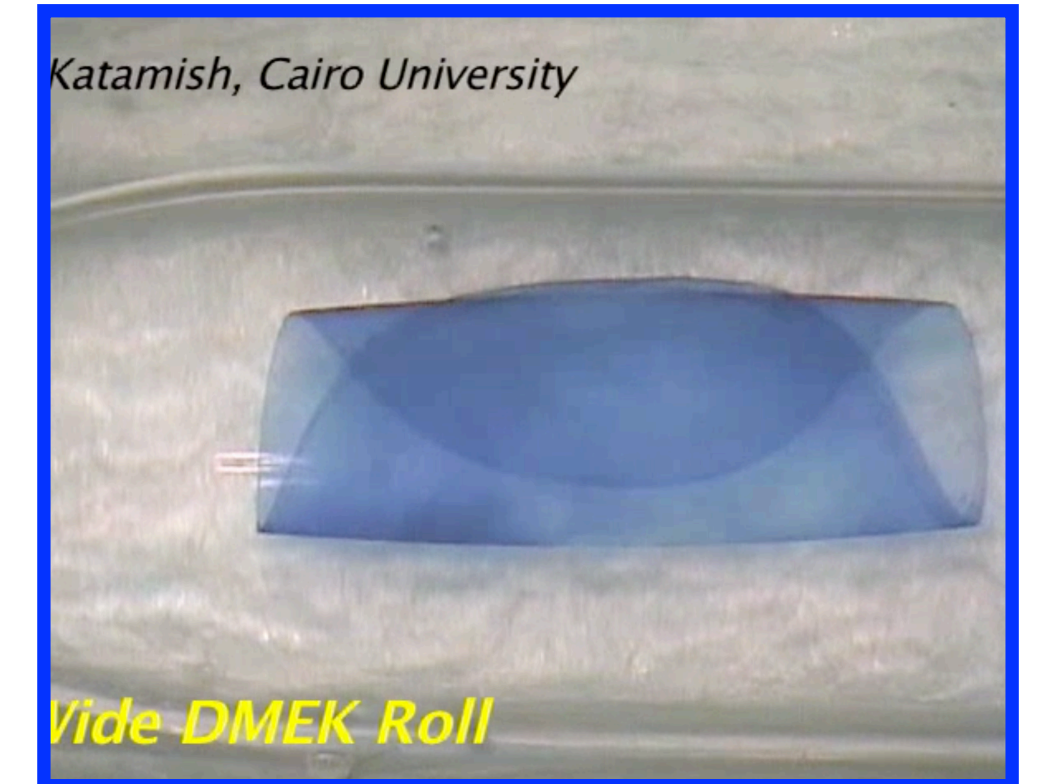
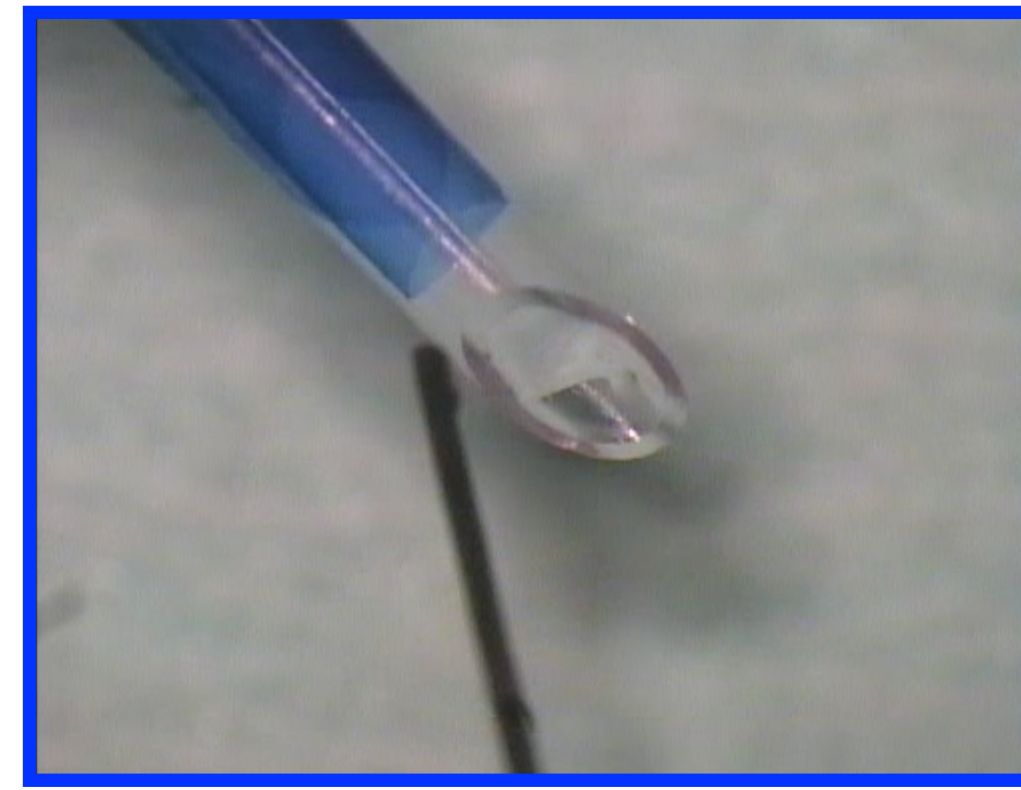
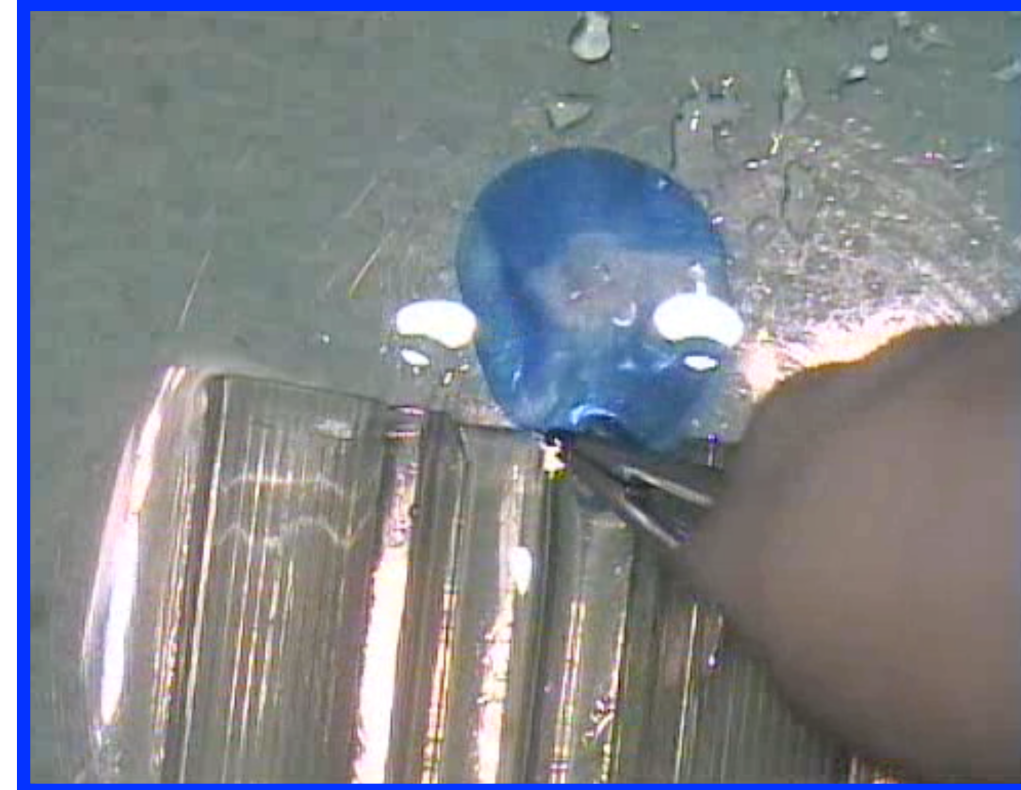
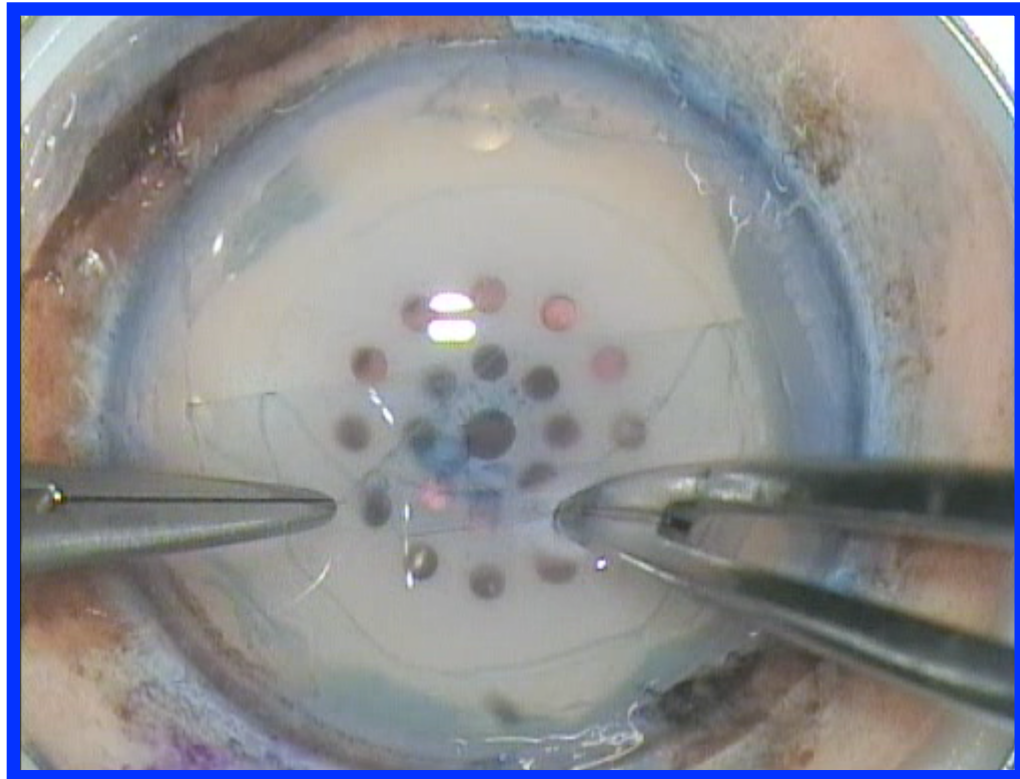


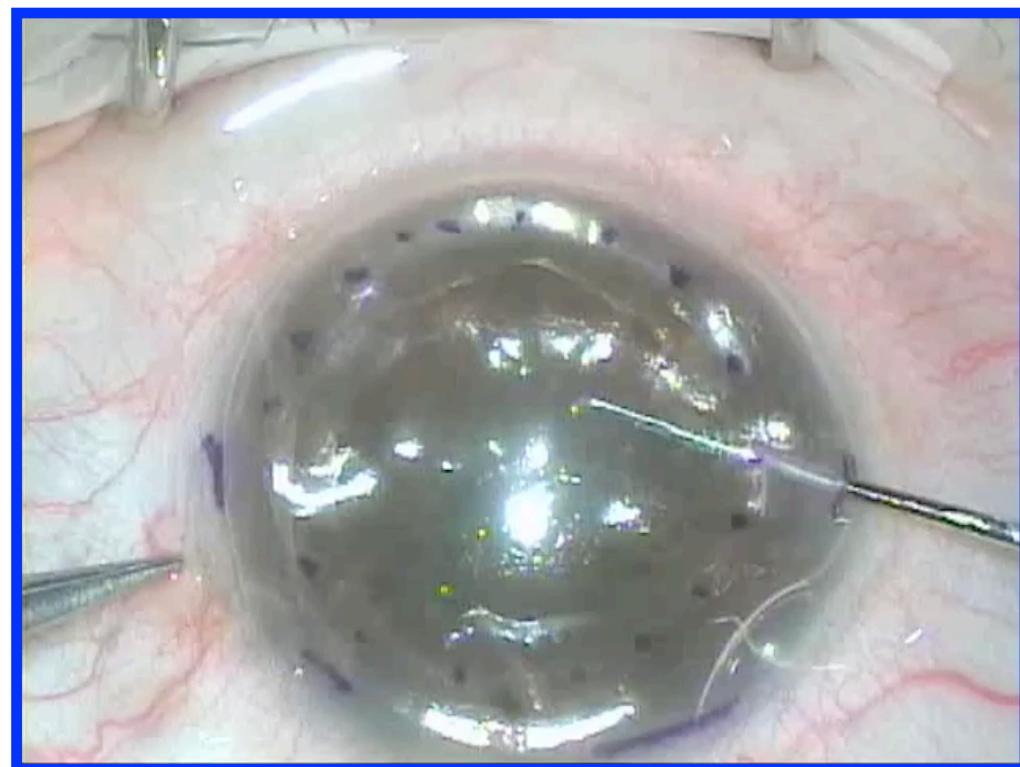
# My 10 DMEK Tips



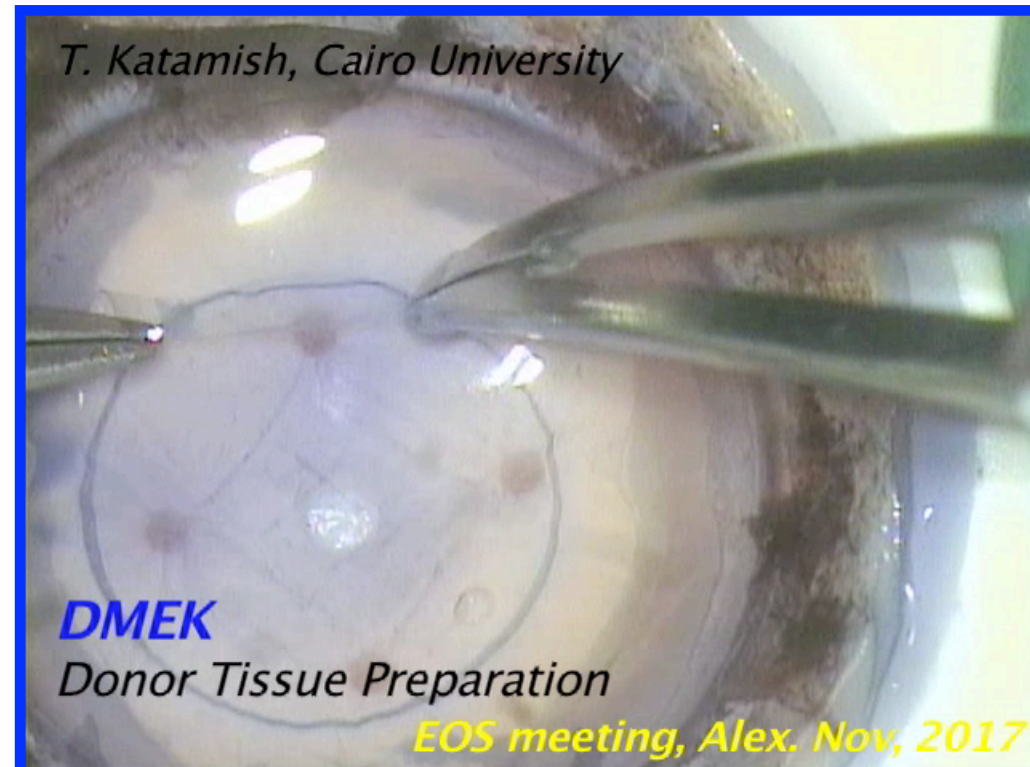
**PROF. DR. TAREK KATAMISH**  
**CAIRO UNIVERSITY**  
**RIO MEETING 2020**



# DMEK



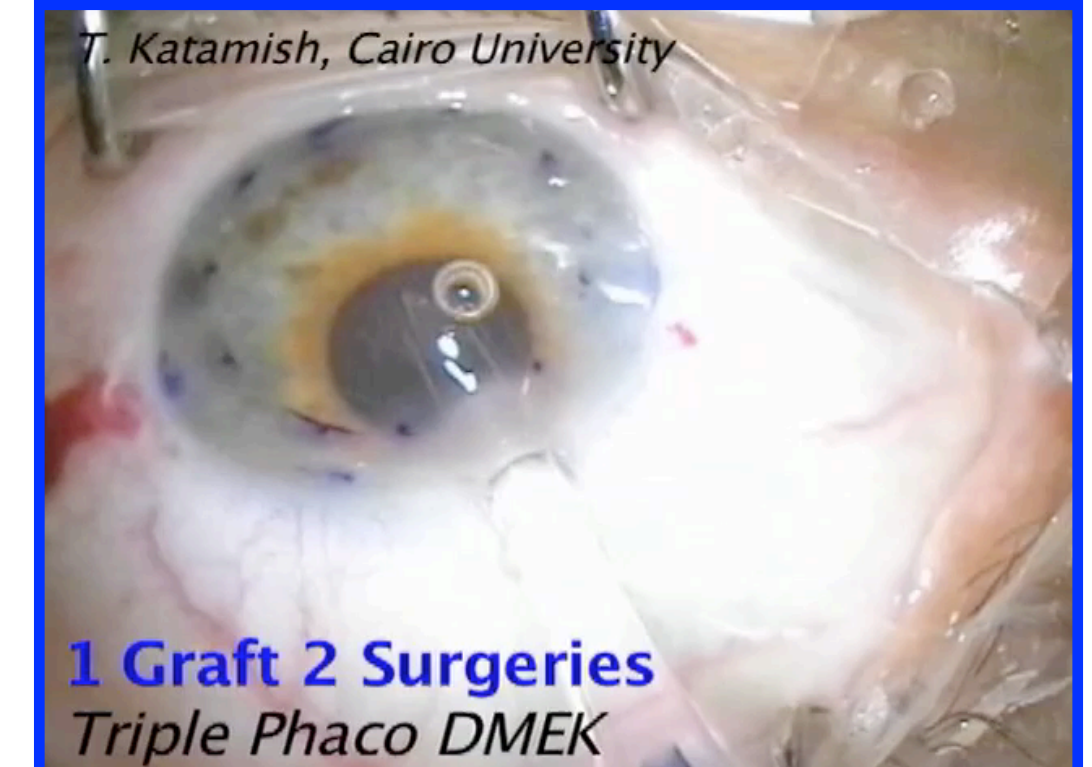
**DM-Rhexis**



**Donor Tissue Prep.**



**Donor Tissue Loading**



**Orientation & Unfolding**



# 1

# DMEK Case Selection

**\*PBK (DMEK alone)**   **\*Inferior PI before (Yag)**

- **No gross iris synichae**
- **No vitreous in AC**
- **No distortion of pupil**
- **No tubes**
- **No Iris defects**
- **No high myope with deep AC**
- **No Aphakia**
- **No previous vitrectomy**
- **No Unstable IOL**
- **No hazy view**

***Avoid* 10 NOs**



# 2

## DMEK Tissue Preparation

- \* **CRITICAL** step.

- \* Donor tissue is prone to:

**TEARS**

**and**

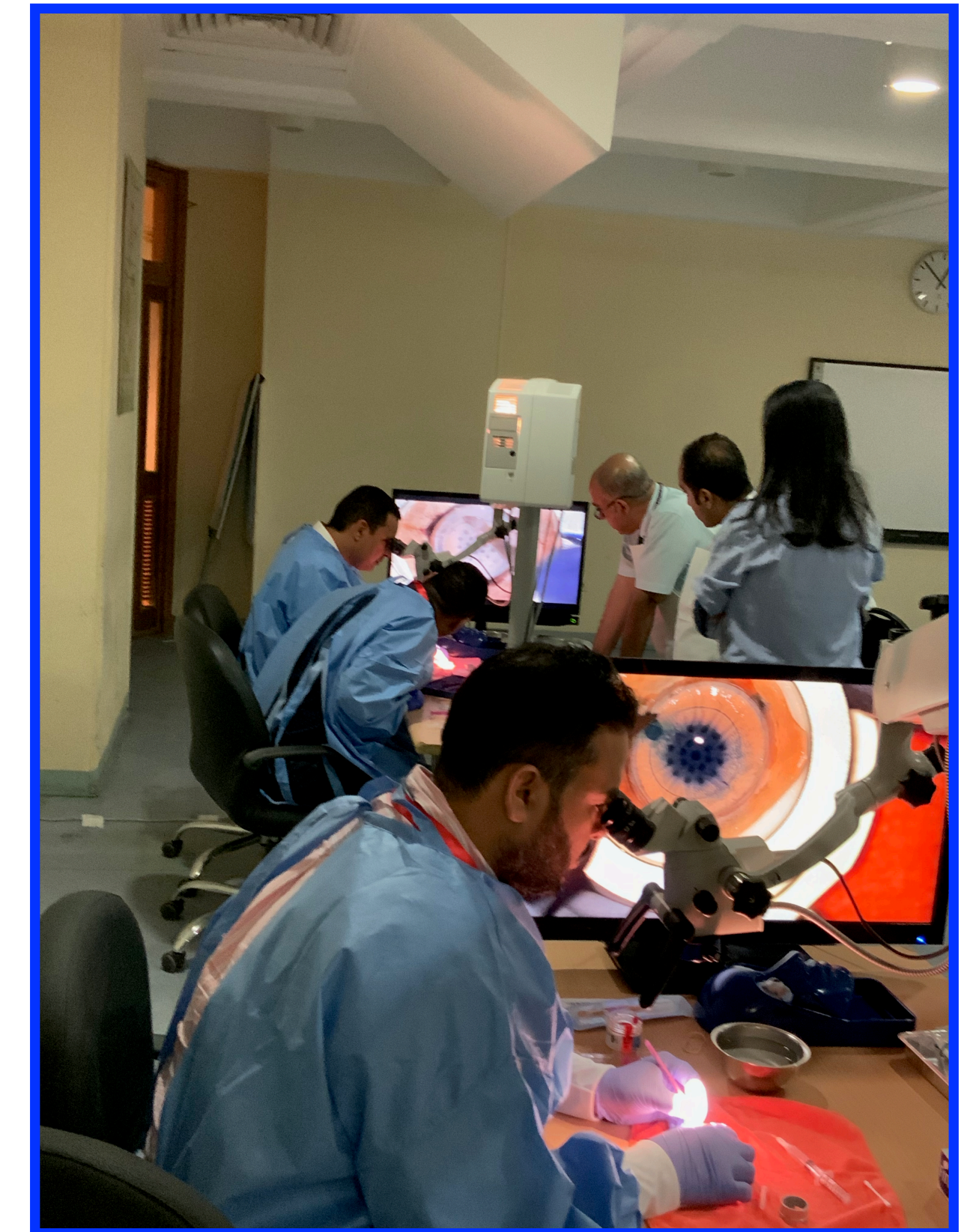
**ENDOTHELIAL CELL LOSS**



2

# DMEK Tissue Preparation

**A- Start in the WET LAB**

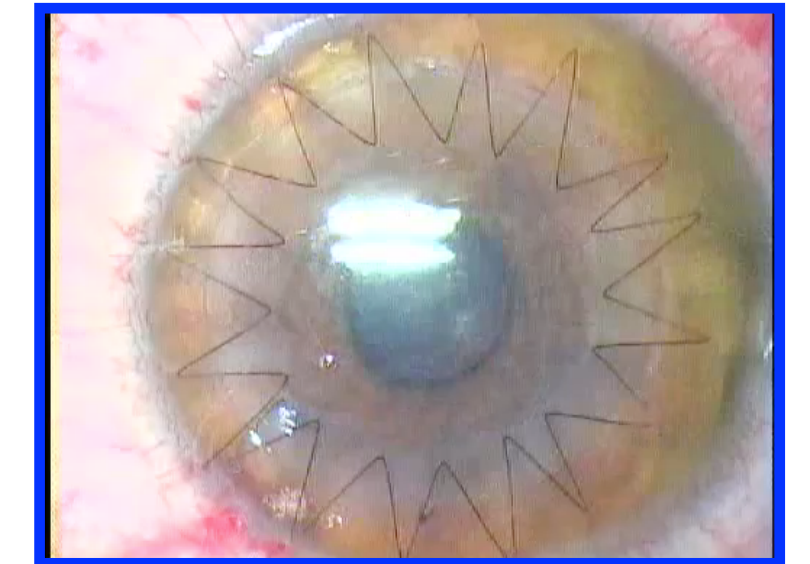
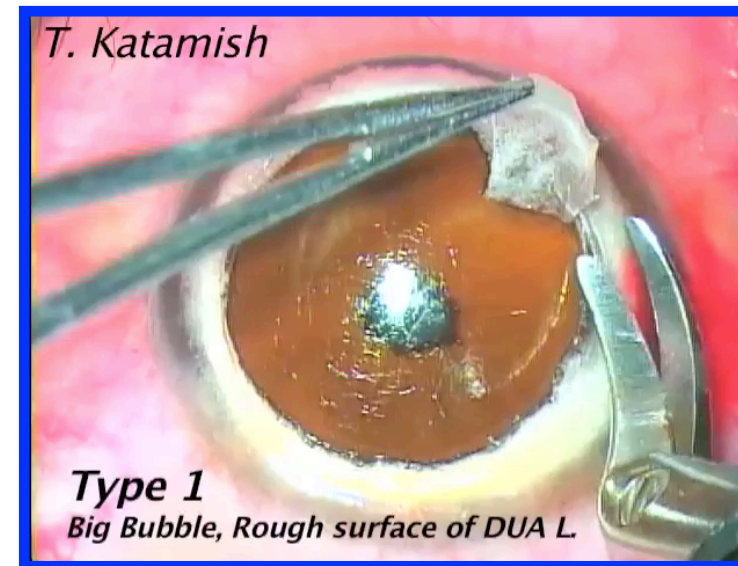
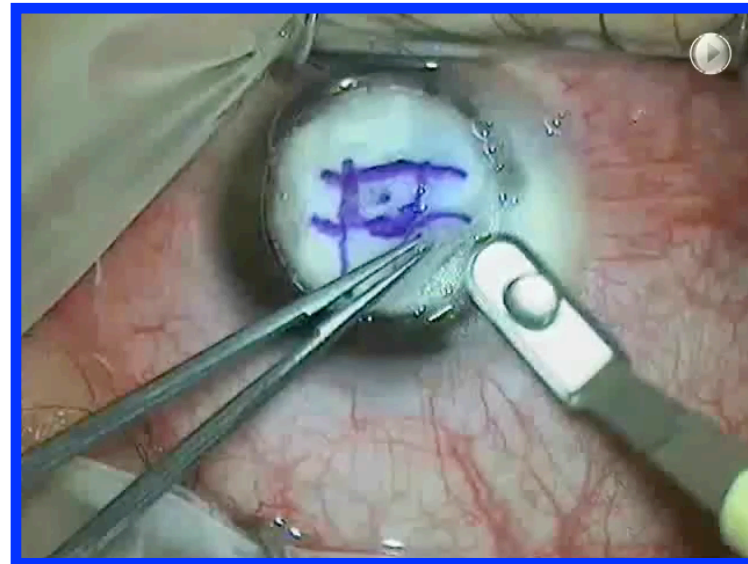
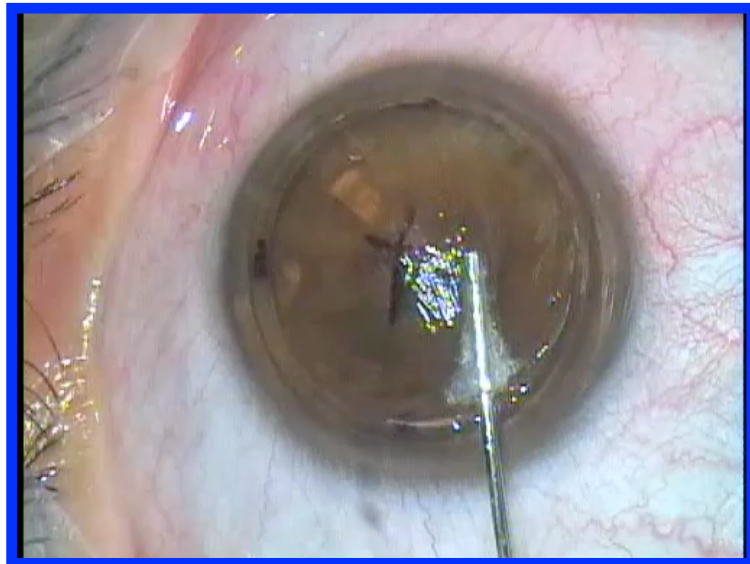




# 2

# DMEK Tissue Preparation

**B- Train yourself during  
DALK learning curve**



**Usual method of  
DM Stripping**



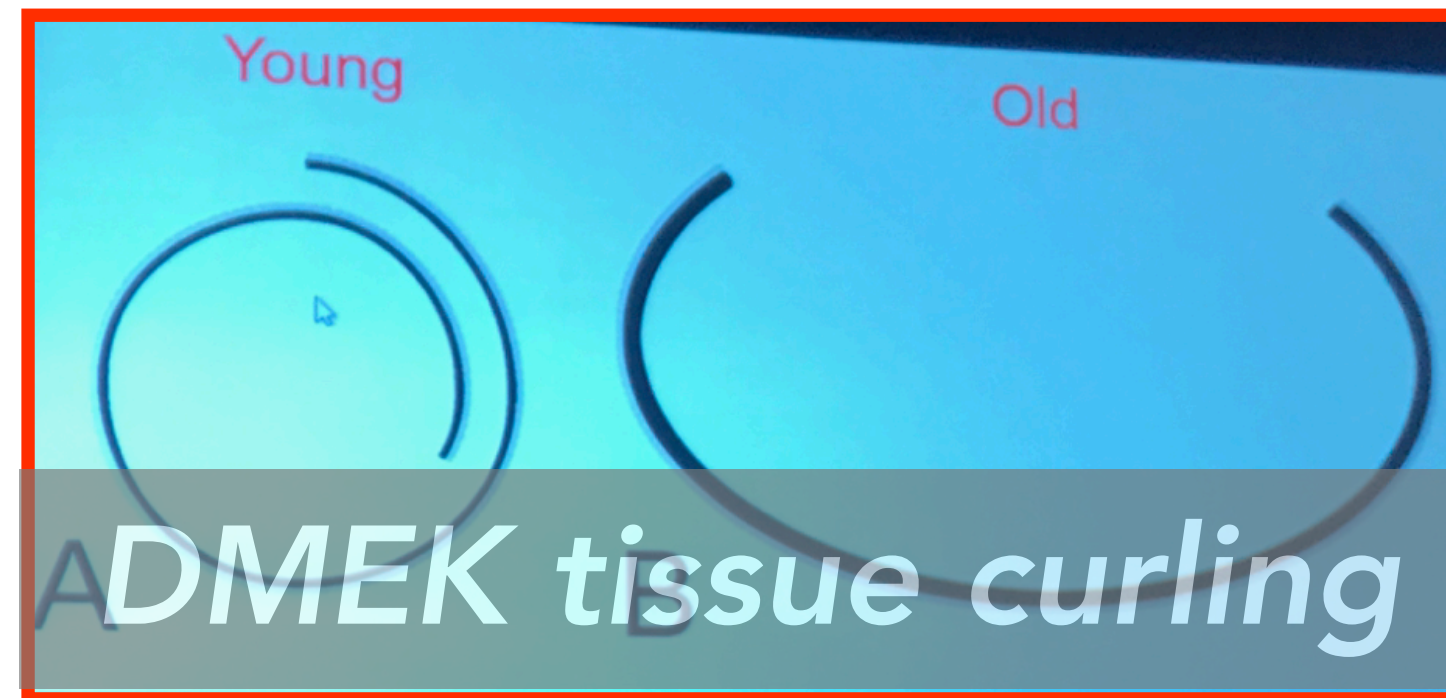
**DMEK Tissue  
Stripping**



2

# DMEK Tissue Preparation

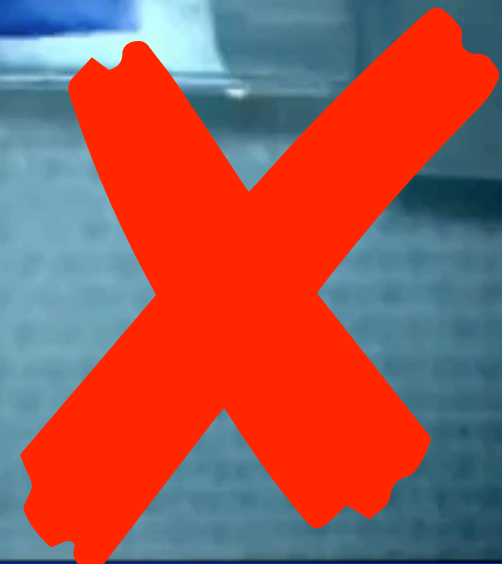
Choose OLDER tissue



*T. Katamish, Cairo University*

**Young Donor**

*Tight DMEK Roll*



*T. Katamish, Cairo University*

**Old Donor**

*Wide DMEK Roll*

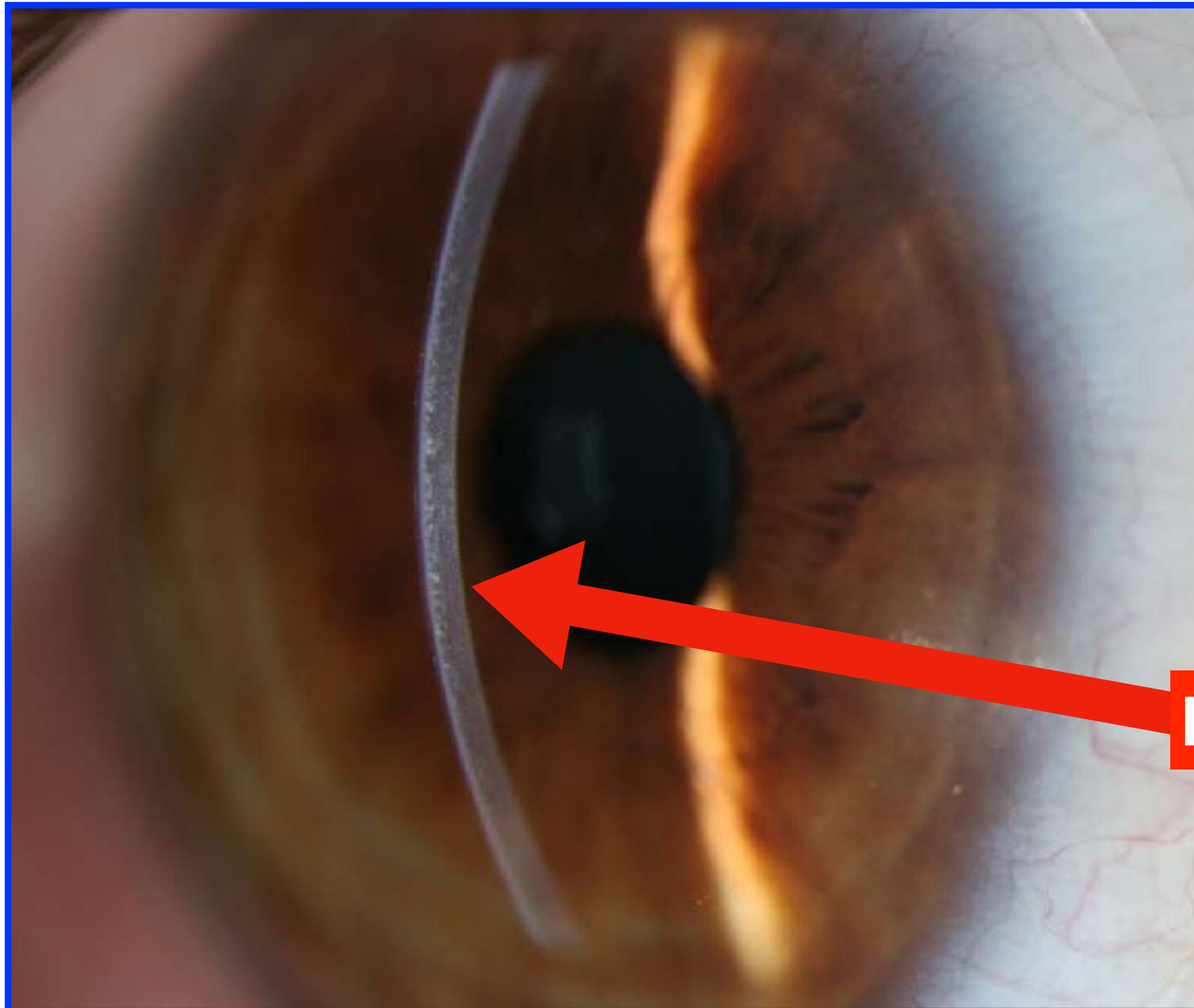




2

# DMEK Tissue Preparation

**SIZE** the graft before operation



It is not  
**STANDARD**  
graft size

Project slit-lamp beam





2

# DMEK Tissue Preparation

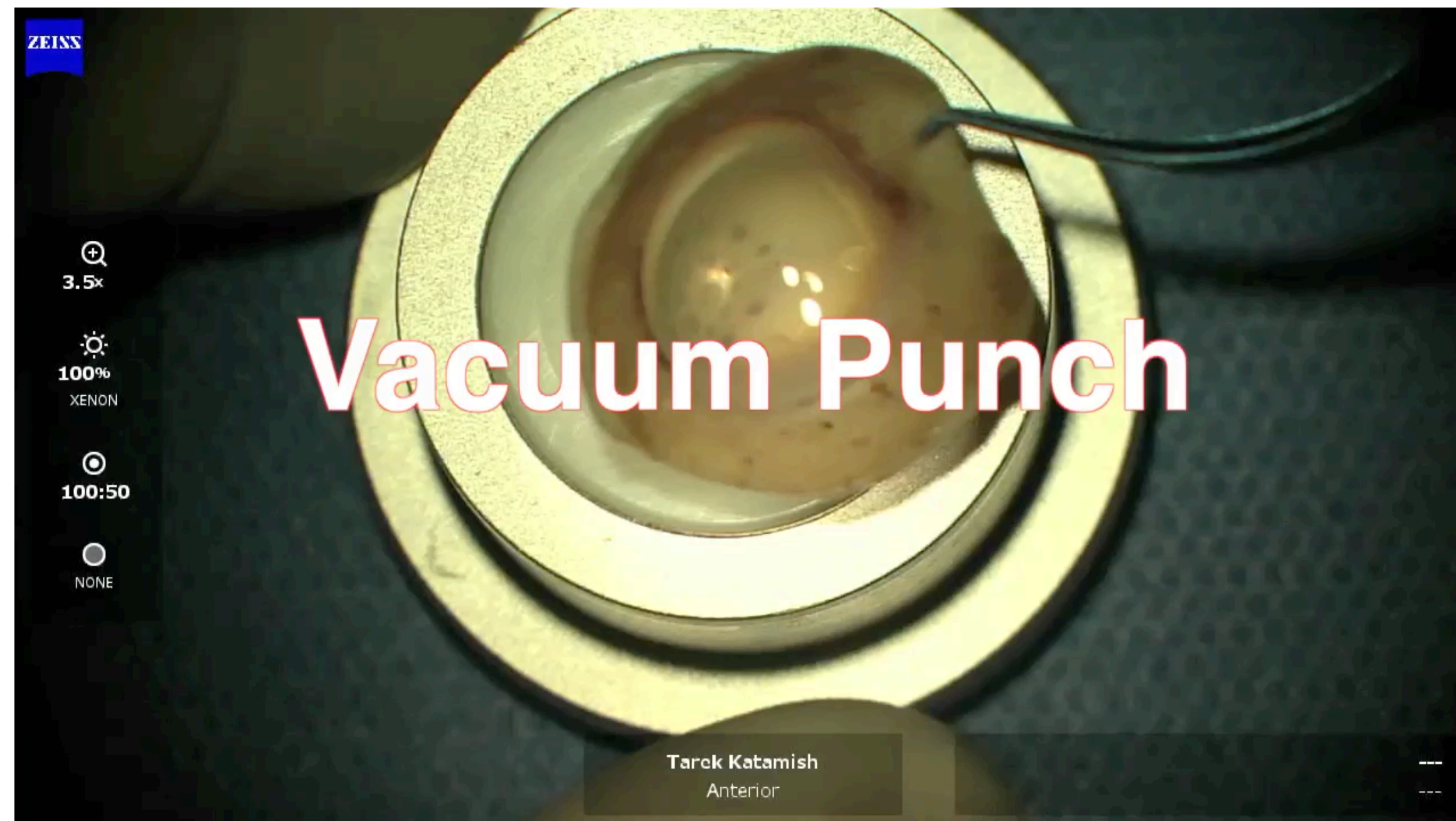
Use

VACUUM Punch

for proper donor holding



**MORIA**



**KATENA**



# 2

## DMEK Tissue Preparation

- HIGH magnification
- Works under BSS



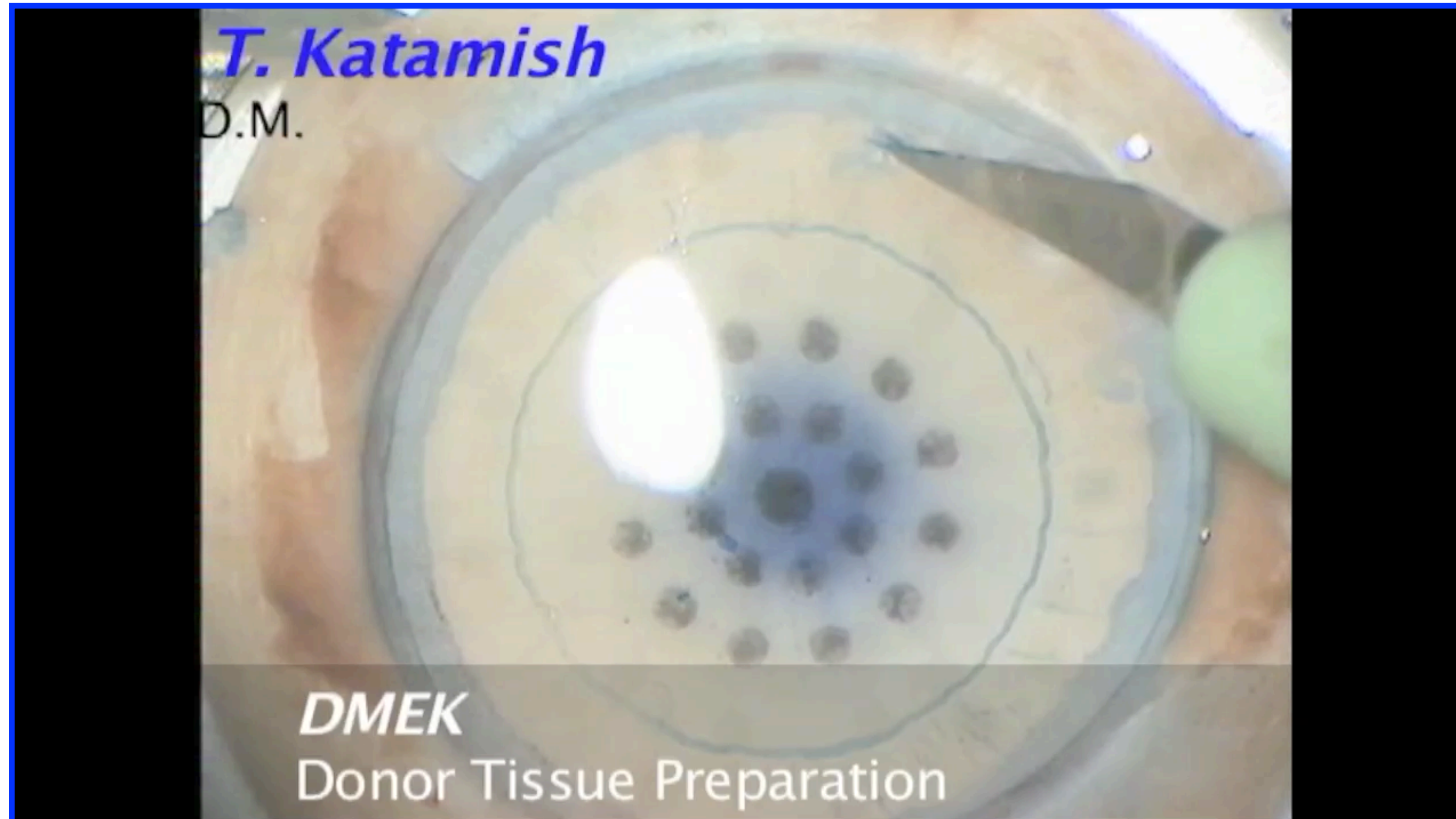


# 2

# DMEK Tissue Preparation

## General Rules

- Start Dissection from PERIPHERY to center
- Leave SAFETY margin from the 8.00 mm mark
- Make SUPERFICIAL scratches in DM
- Don't include Dua's layer



## DUA'S LAYER

- Blue in colour and
- firmly adherent to stroma.

## D.M.

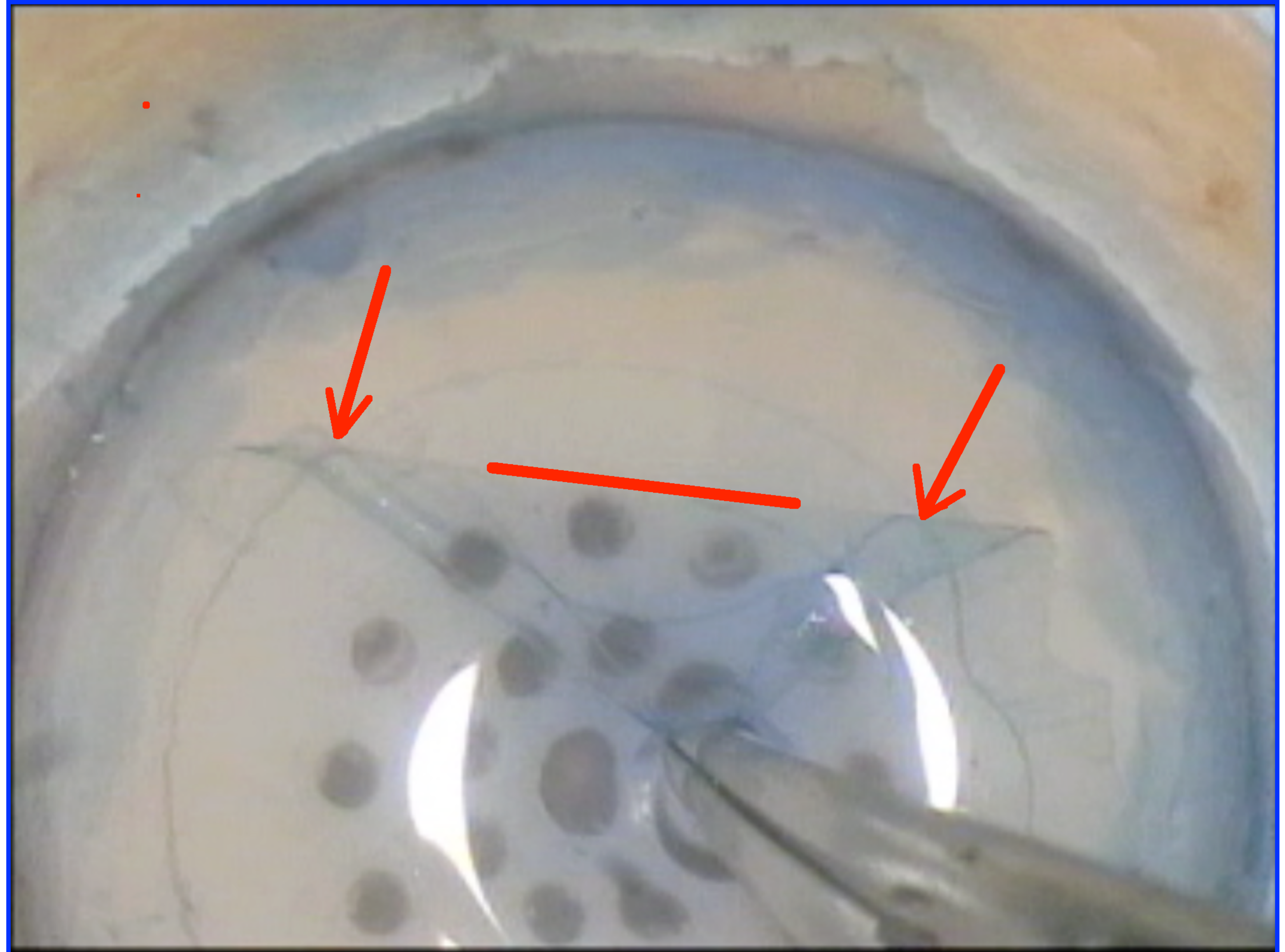
- Transparent and
- peeled easily from stroma.



2

# DMEK Tissue Preparation

Always keep an eye  
on THESES POINTS

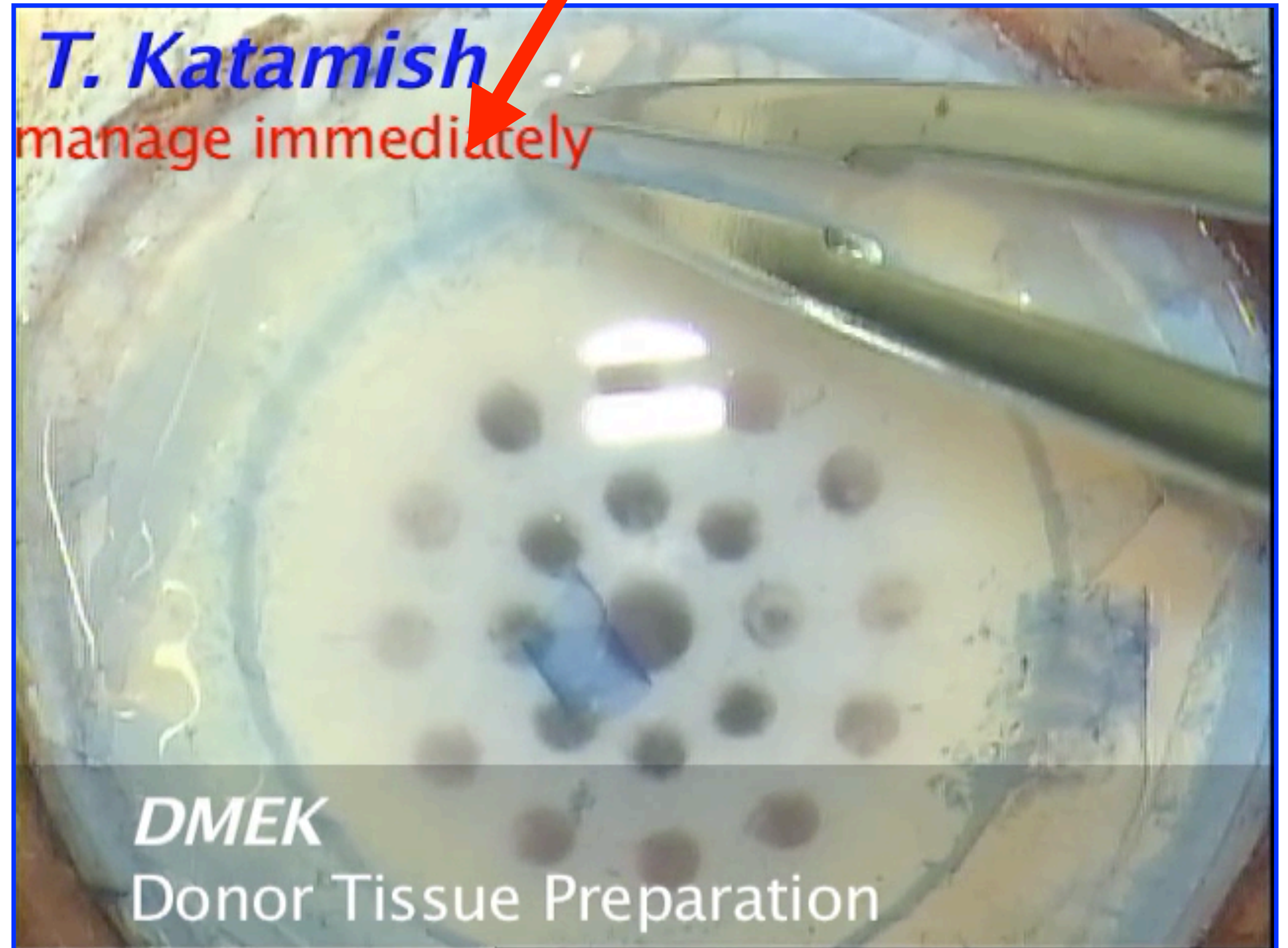




2

# DMEK Tissue Preparation

Be aware of **DM TEARS**  
and manage **IMMEDIATELY**





# 2

# DMEK Tissue Preparation

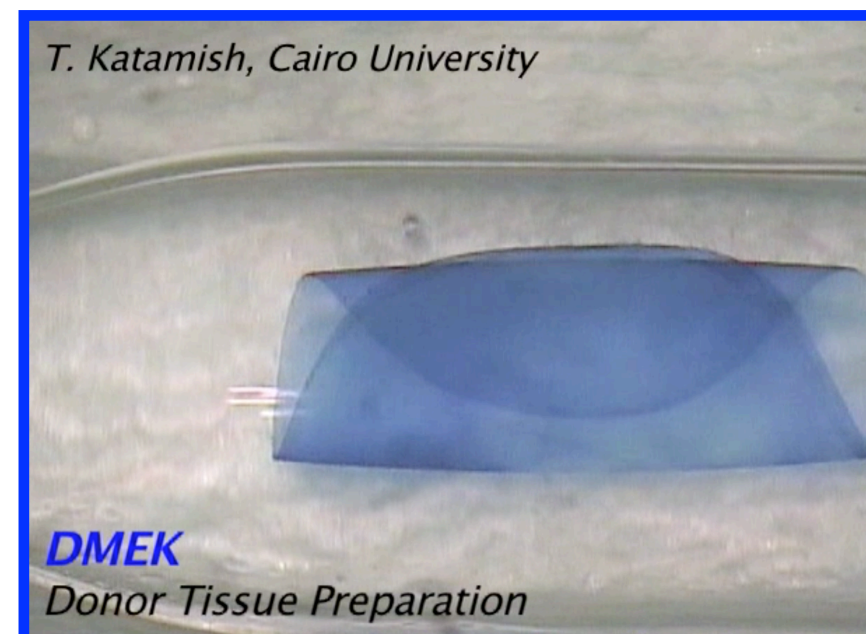
## *Corneal Splitting*



**1st Graft: Epithelium + Stroma**

**2nd Graft: D.M. + Endothelium**

15  $\mu$



*DALK*

*DMEK*

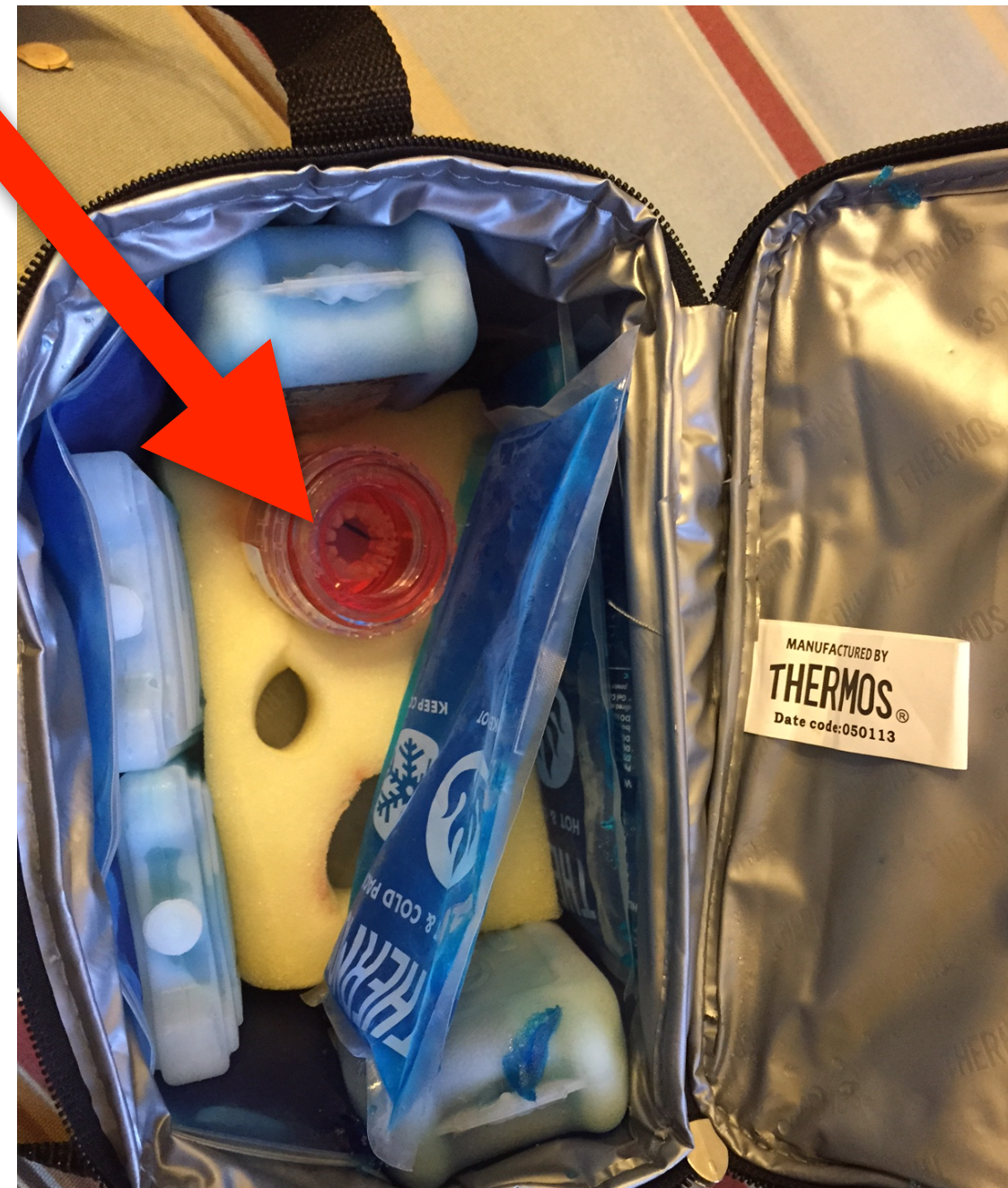
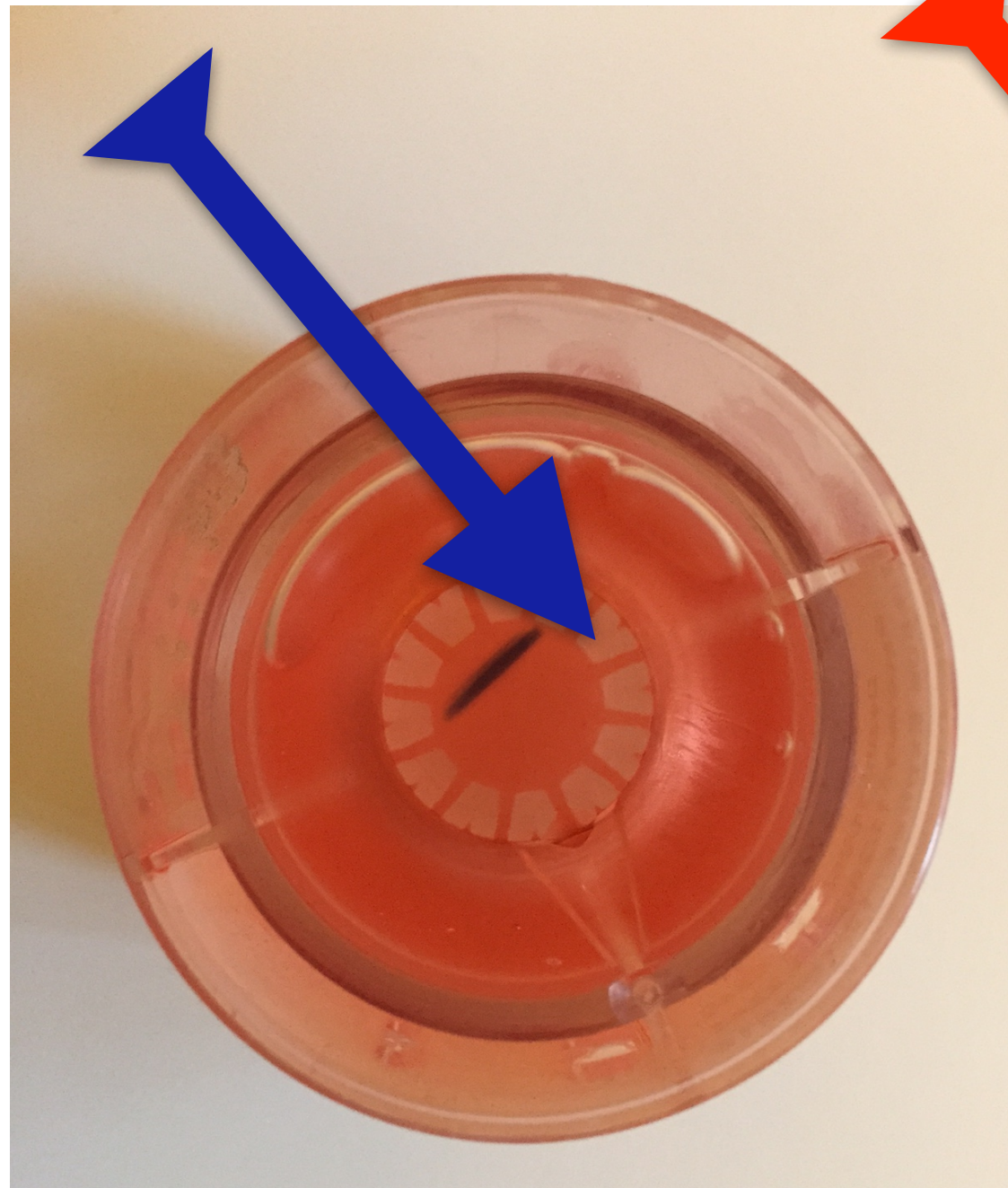


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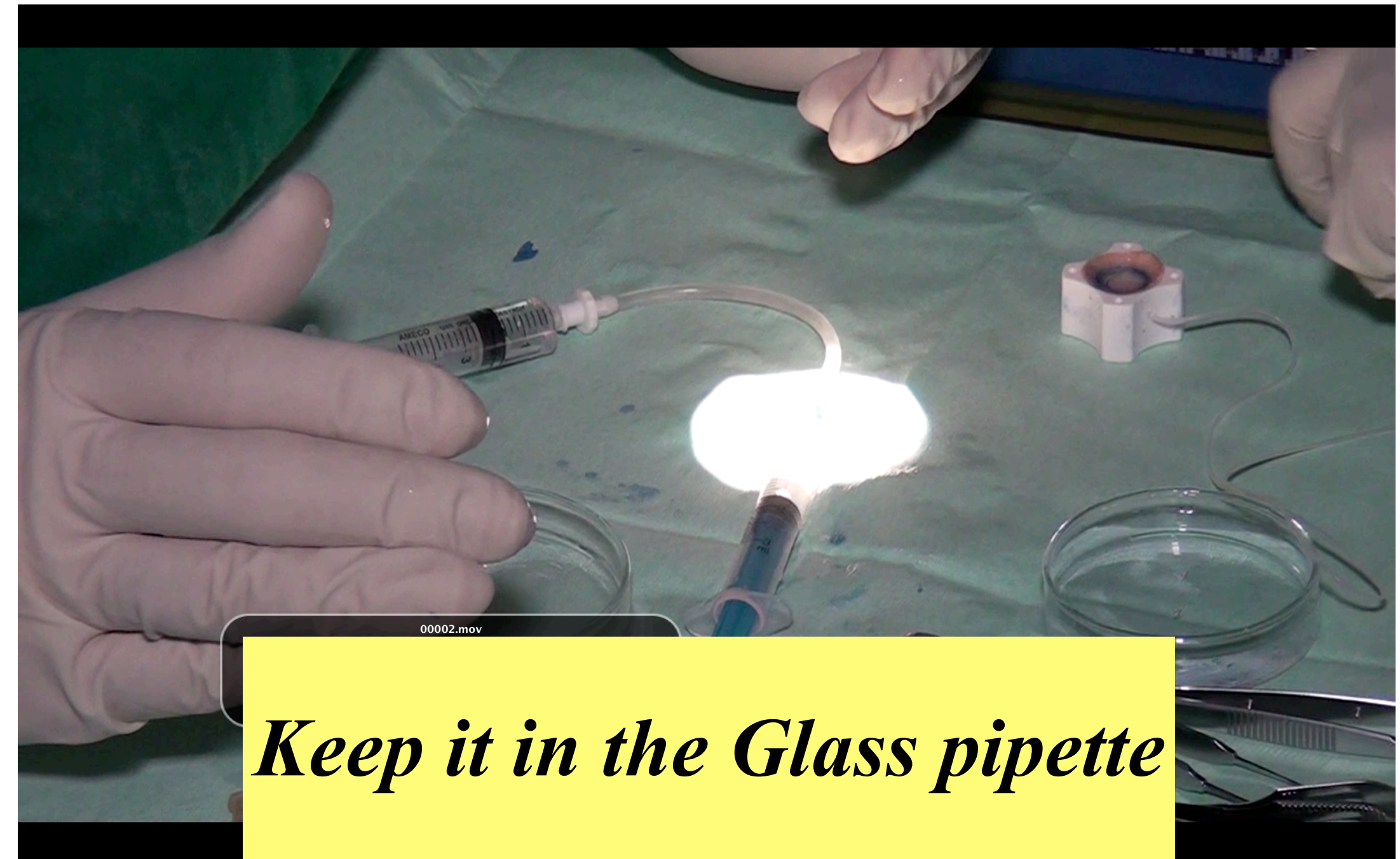
# DMEK Tissue Preparation

***TRANSFER:*** - *ANOTHER DAY*  
- *ANOTHER HOSPITAL*

***TRANSFER:*** *SAME DAY*



***Keep it in the Preservation Medium***



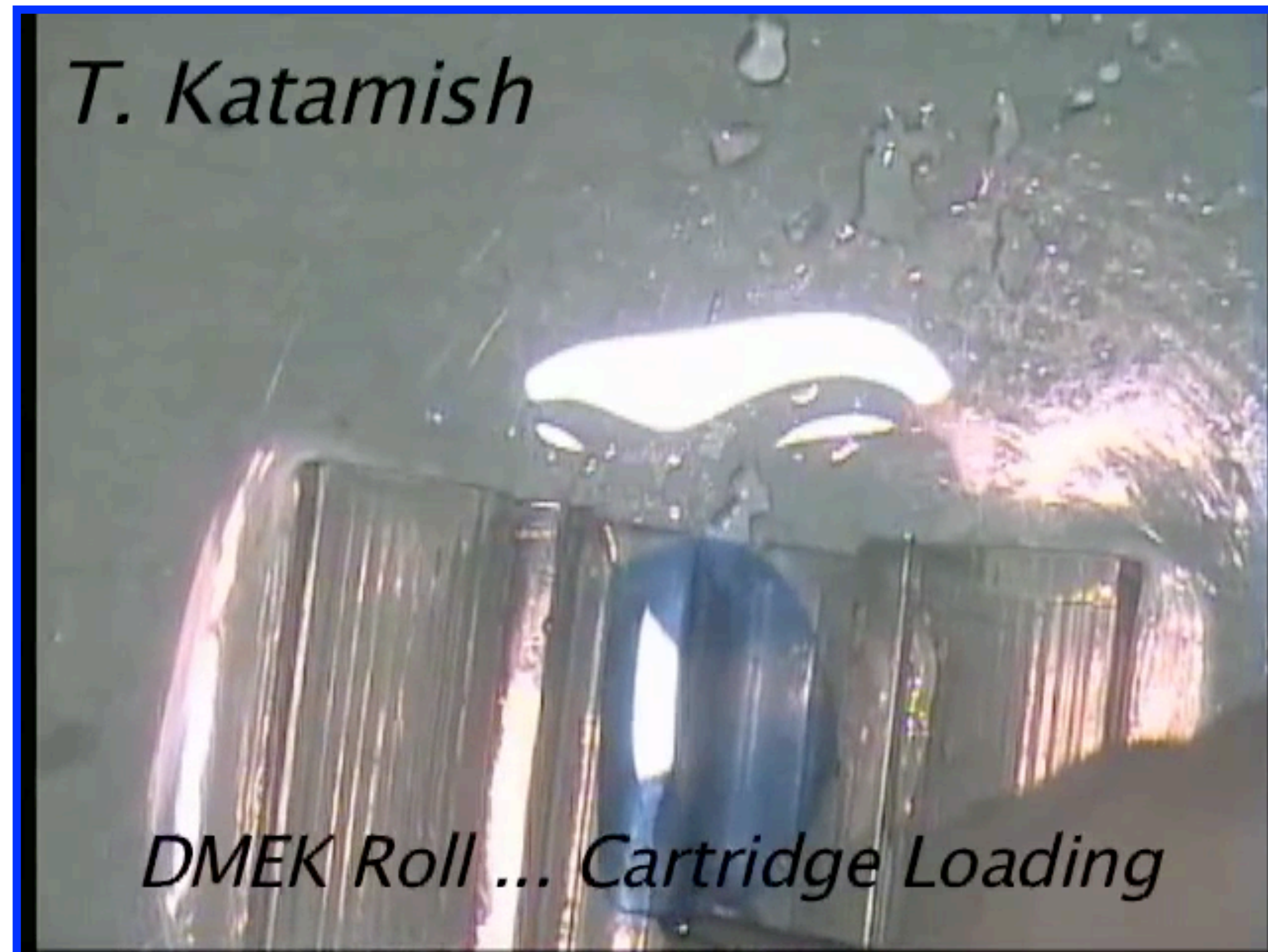
***Keep it in the Glass pipette***



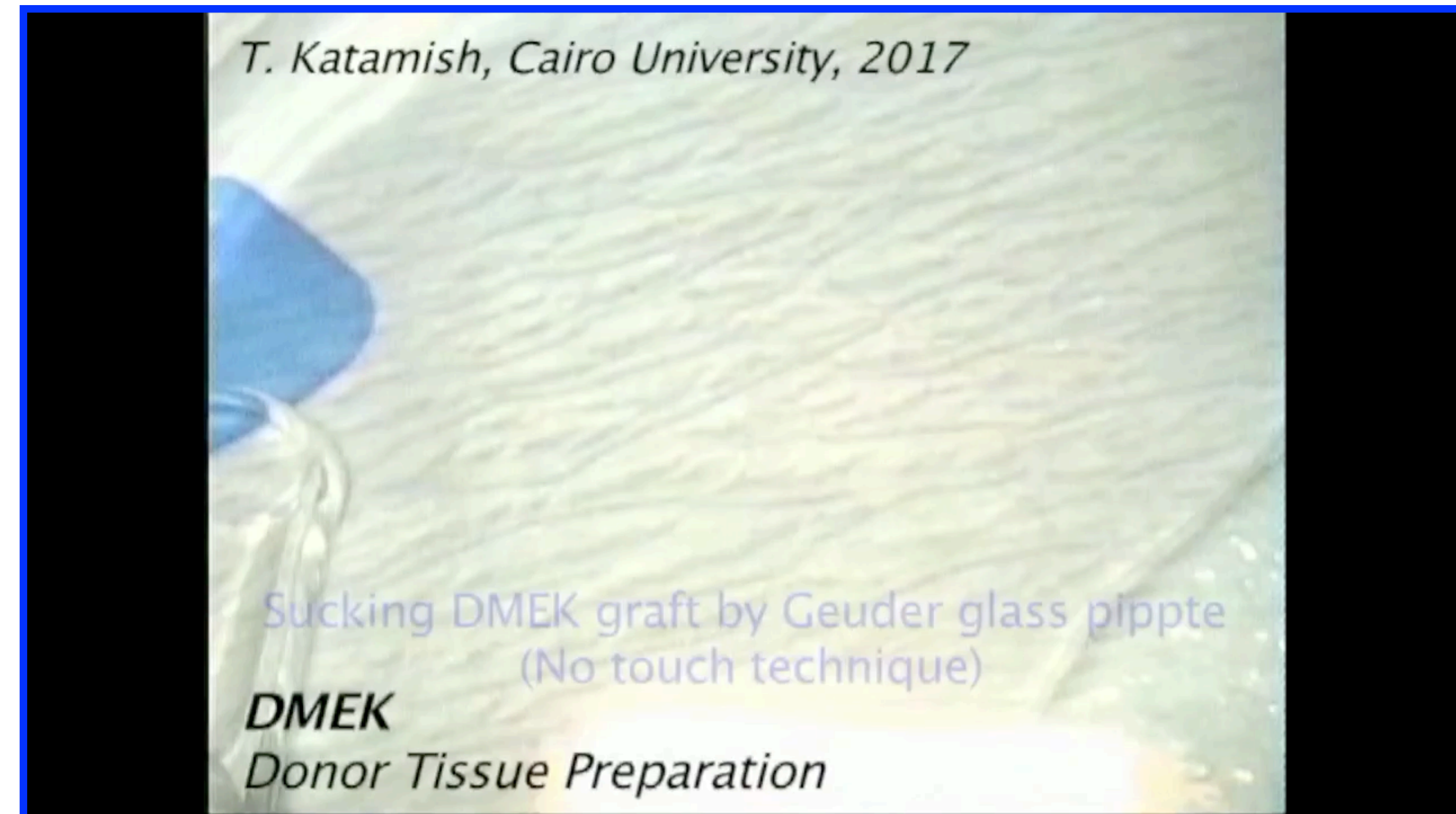
3

# DMEK Graft Loading

- SUBMERGE IOL Cartridge in BSS
- AVOID AIR Bubbles



IOL CARTRIDGE



GLASS PIPETTE  
(NO TOUCH TECHNIQUE)



4

# Improve Visualization

**A- Epithelium peeling**

**B- Trypan blue staining 2-3 minutes**  
**\*\* High quality Trypan Blue stain**



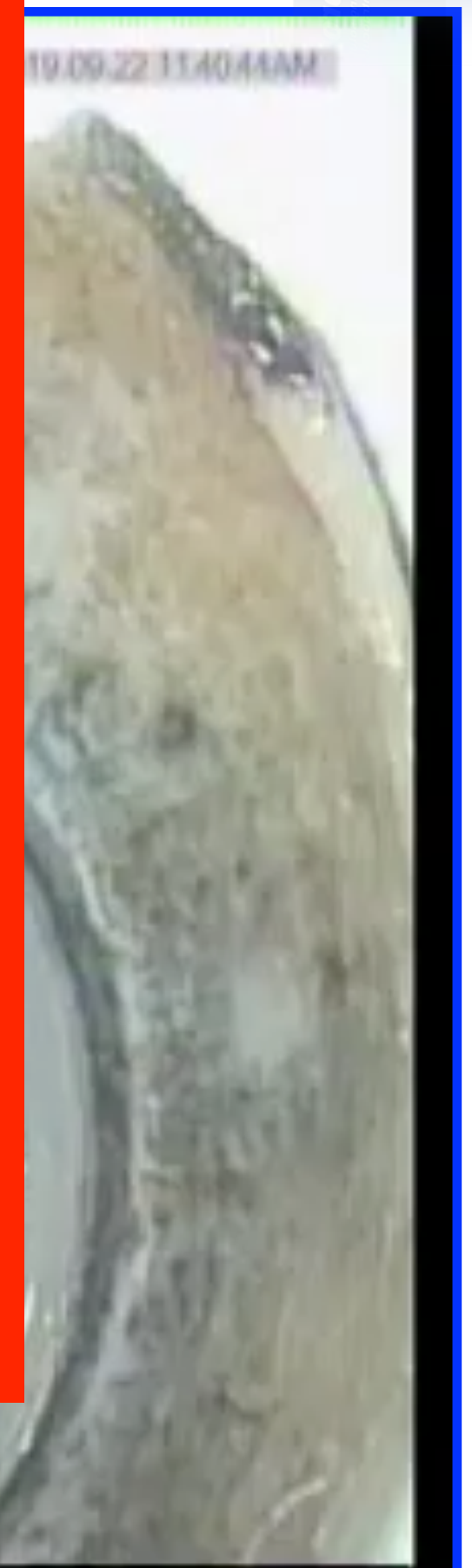
**N.B.**

**The S-Stamp**  
**is not for visualization**  
**it is for**  
**Orientation Only**

T.  
D  
Ep

T. A

*DMEK  
Epithelium Peeling*





# 5

## Wound Construction & Marking

### WOUND CONSTRUCTION & MARKING

Main wound

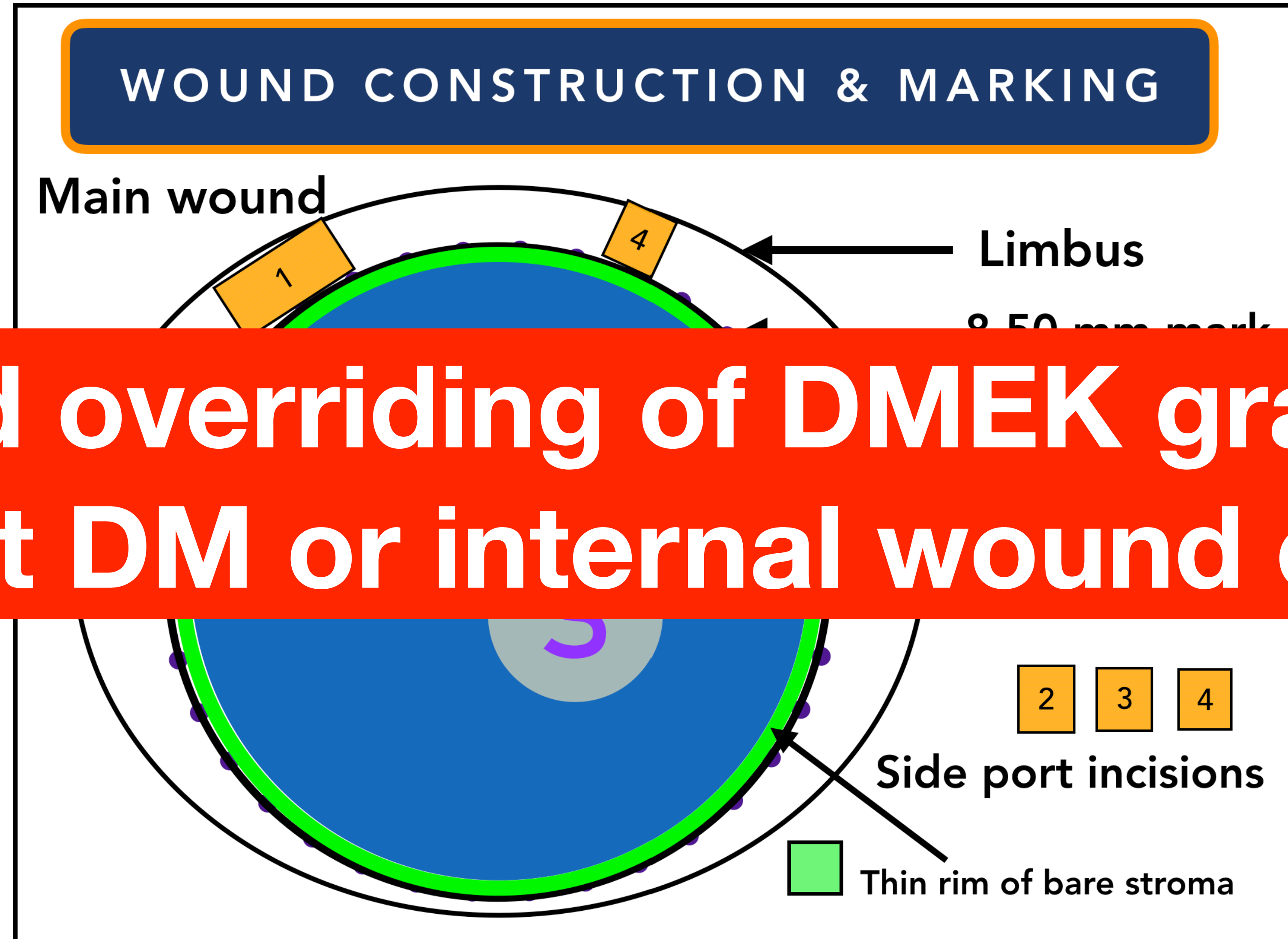
Limbus

8-50 mm mark

**Avoid overriding of DMEK graft over host DM or internal wound edges**

Side port incisions

Thin rim of bare stroma





# 6

## DM - Rhexsis

- Air is better than Viscoelastic

- Start with 1 side port only then do remaining ports

***Excellent Visibility***

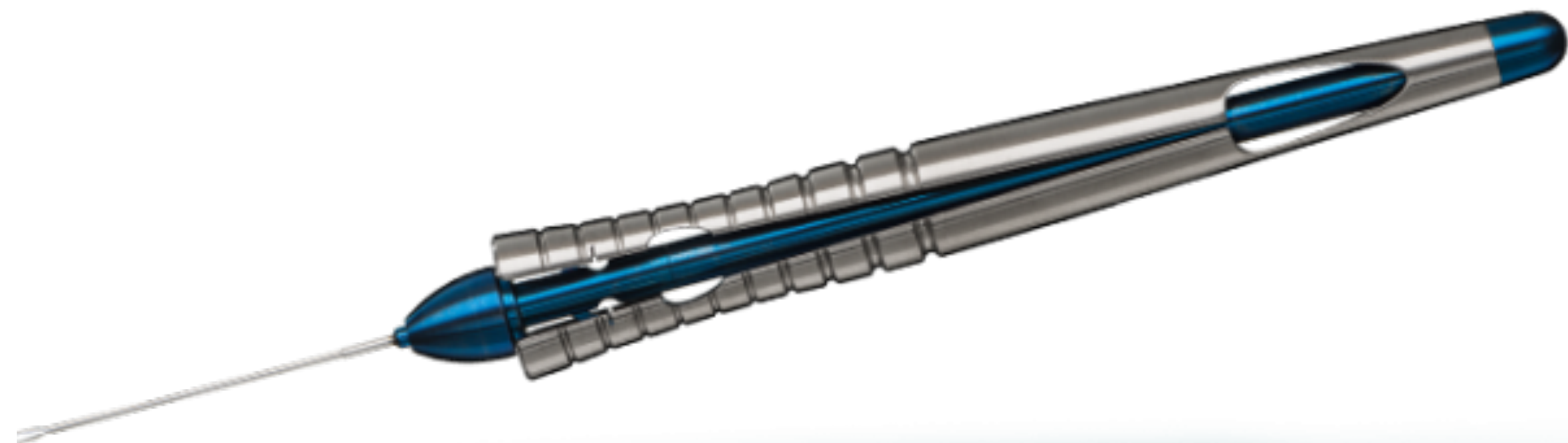




6

# DM - Rhexsis

(Using **Cohesive** Viscoelastic)



Ensure complete stripping of D.M.  
Dont leave any tags behind you  
be ready with Vitrectomy micro forceps





7

# Inferior PI

Cutting  
Vacuum

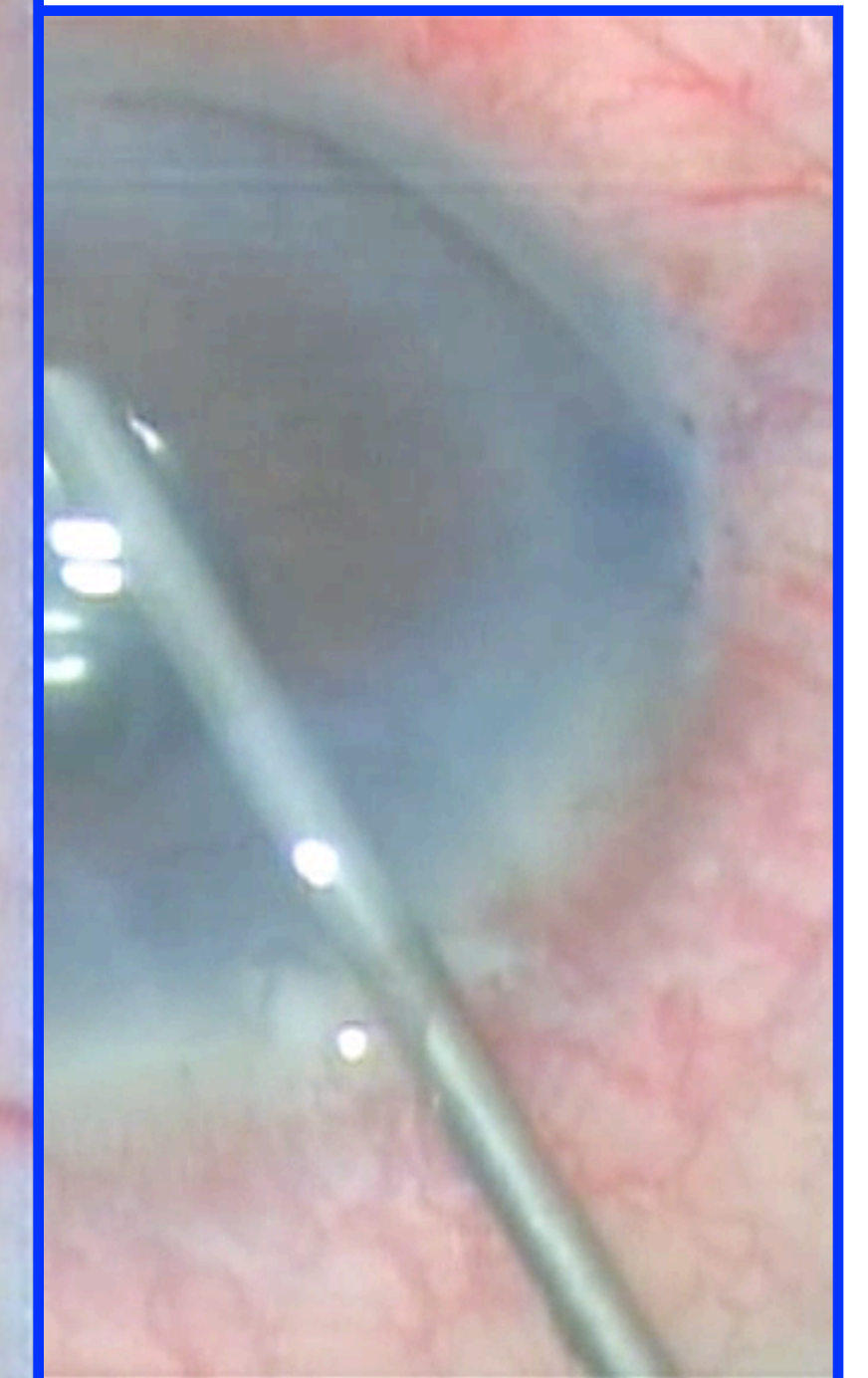
- Be Patient ...
- Make PERFECT Homeostasis ... & then continue your op.
- Blood & Fibrin are Enemies to DMEK ROLL unfolding ...

ce of the iris  
ugh the  
ous

*T. katamish*

**DMEK**  
*Inferior Iridecto*

**BLEEDING**



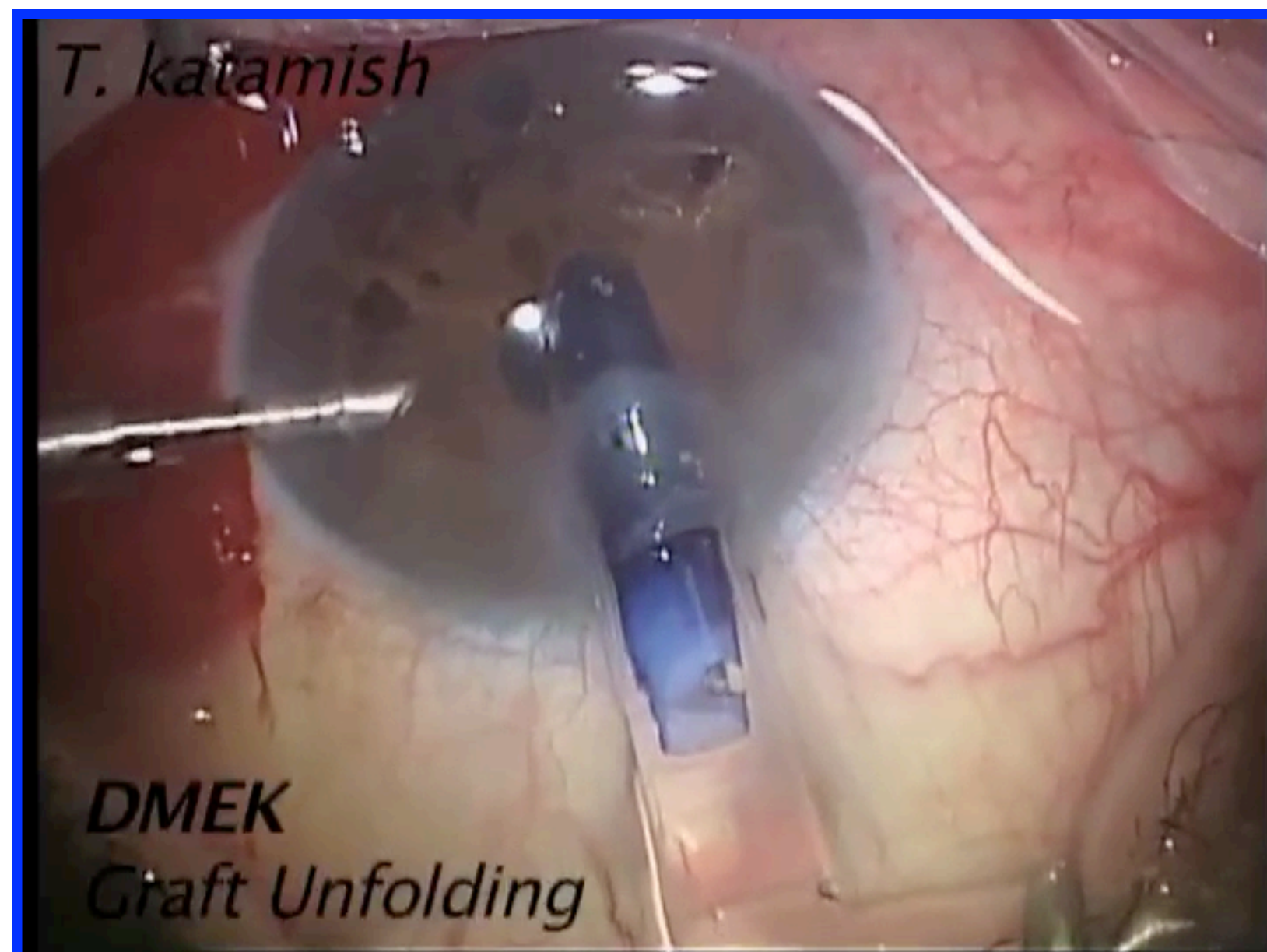


# 8

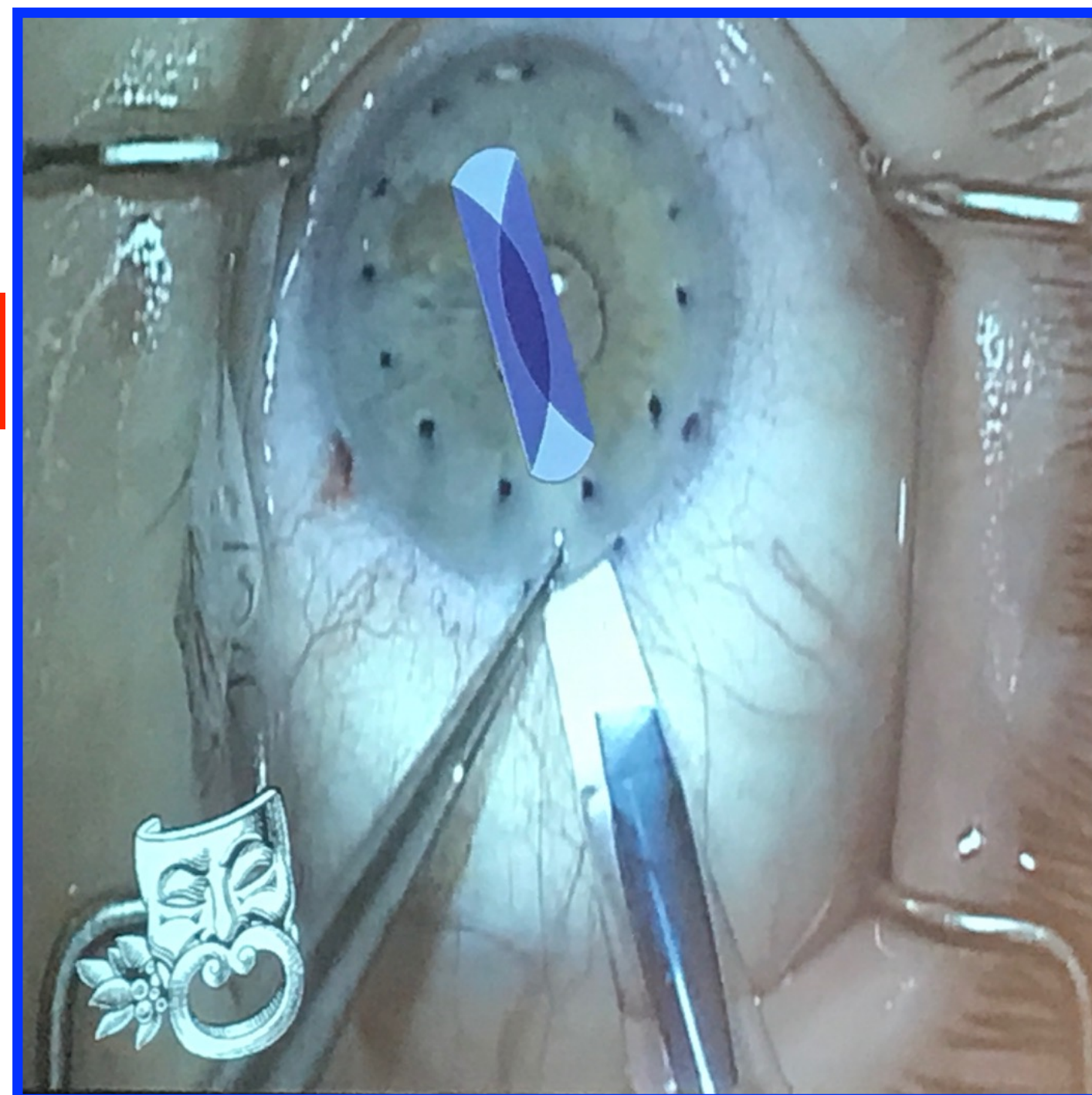
## Injection Of DMEK Graft In The AC

A. C. Maintainer is essential

little amount of fluid in cartridge

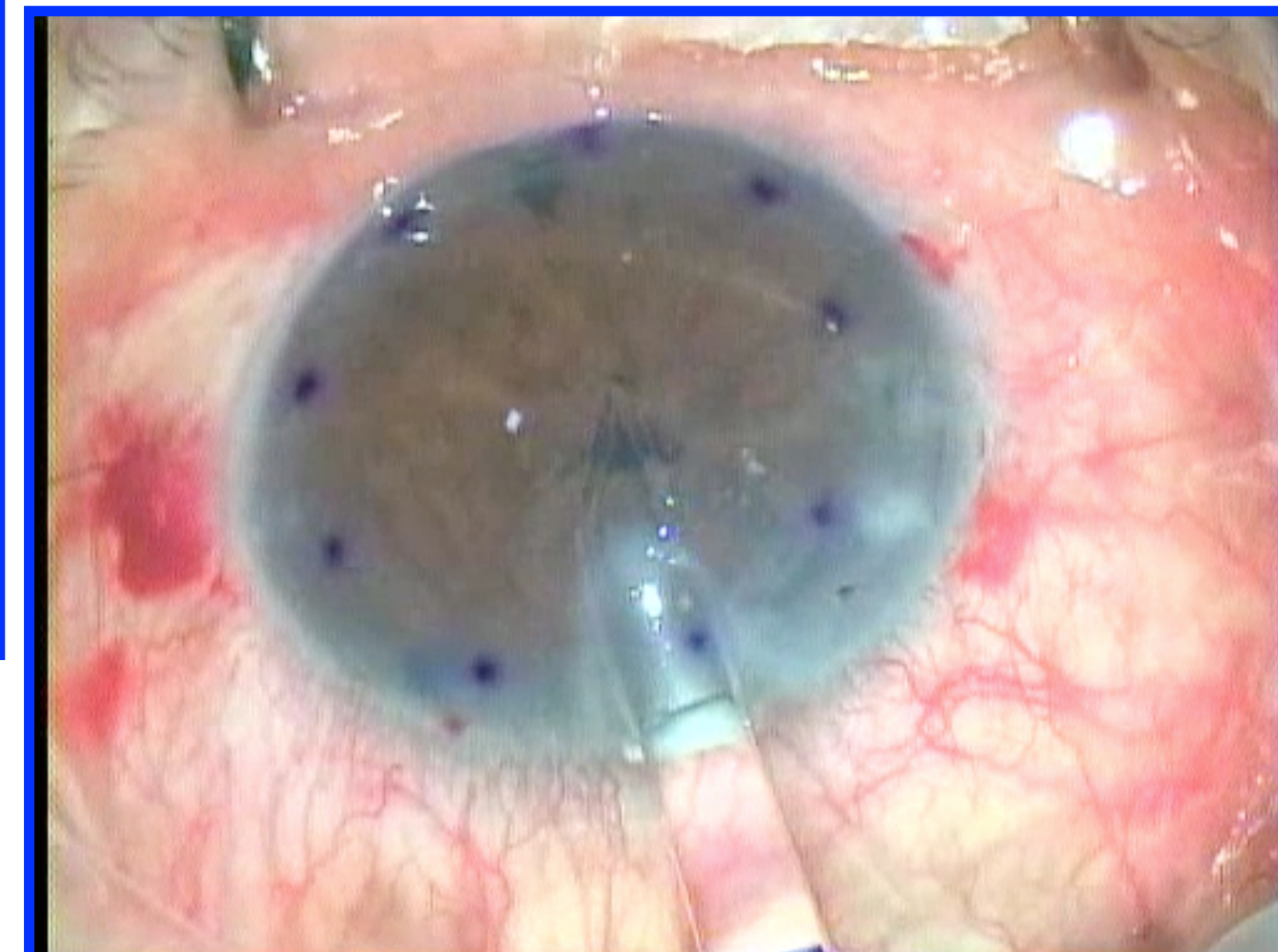


IOL Cartridge



No need for A. C. Maintainer

A lot of fluid in glass pipette



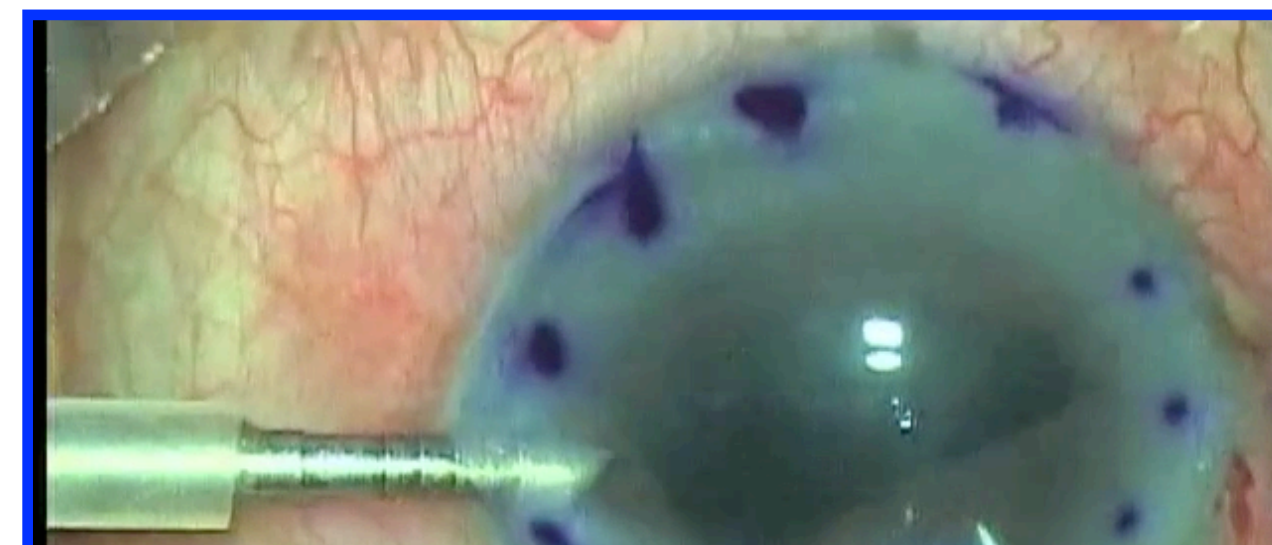
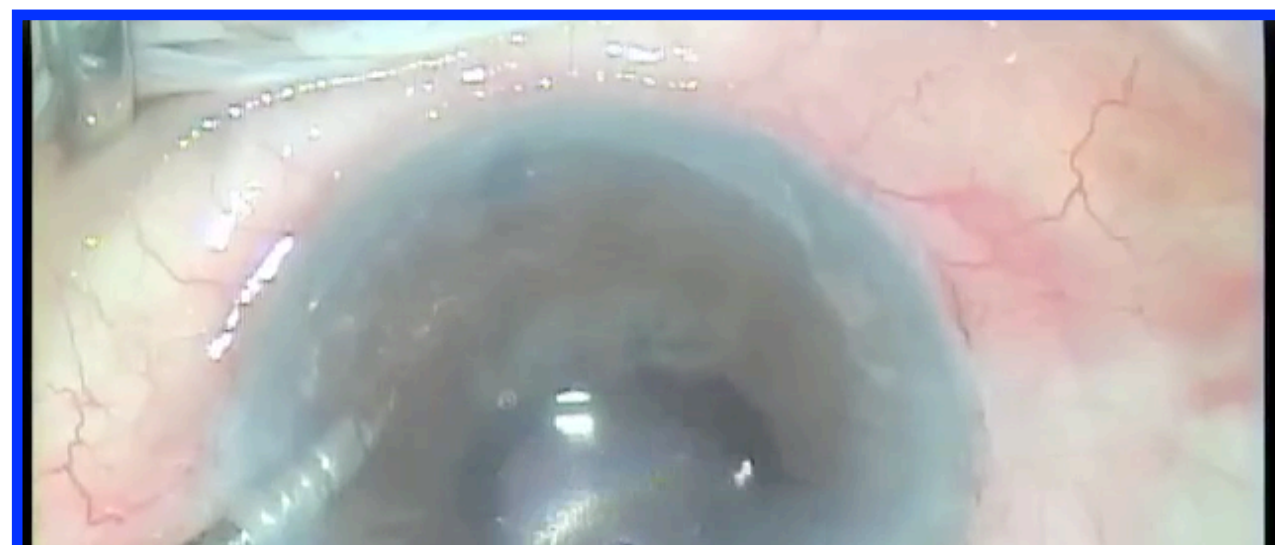
Glass Pipette



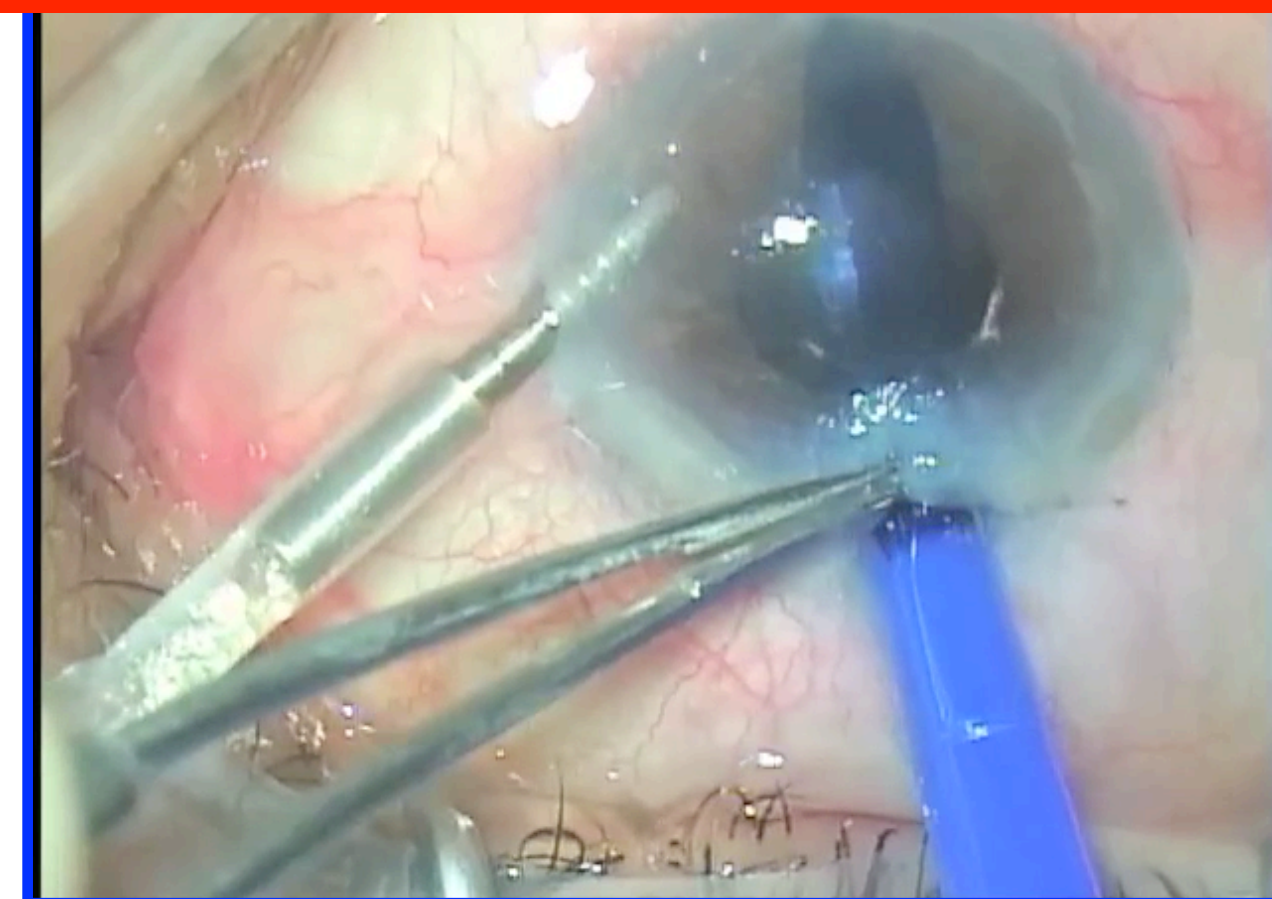
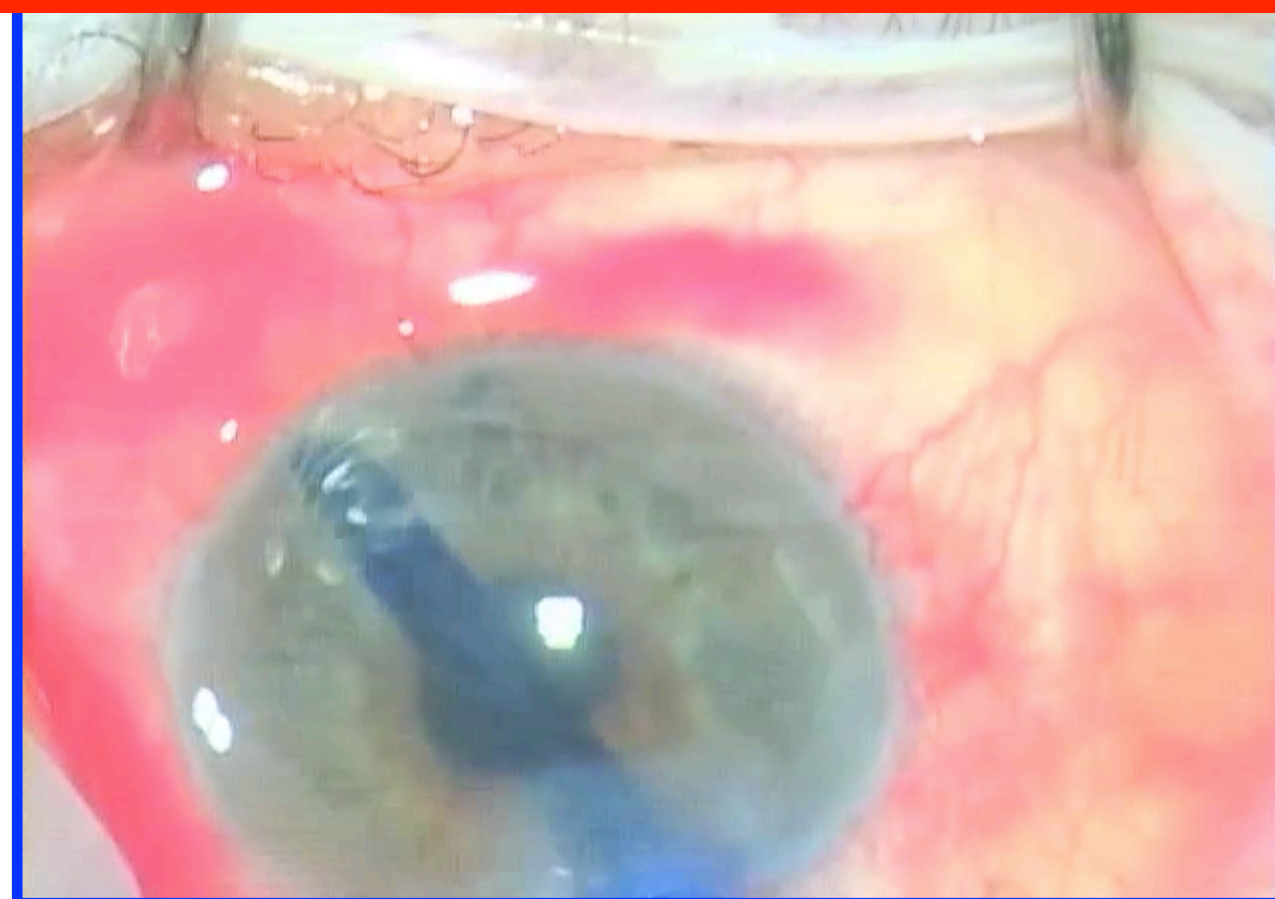
# 8

## Injection Of DMEK Graft In The AC

### IOL Cartridge mishaps



**So don't be upset  
be ready & prepared to face such mishaps !!!**





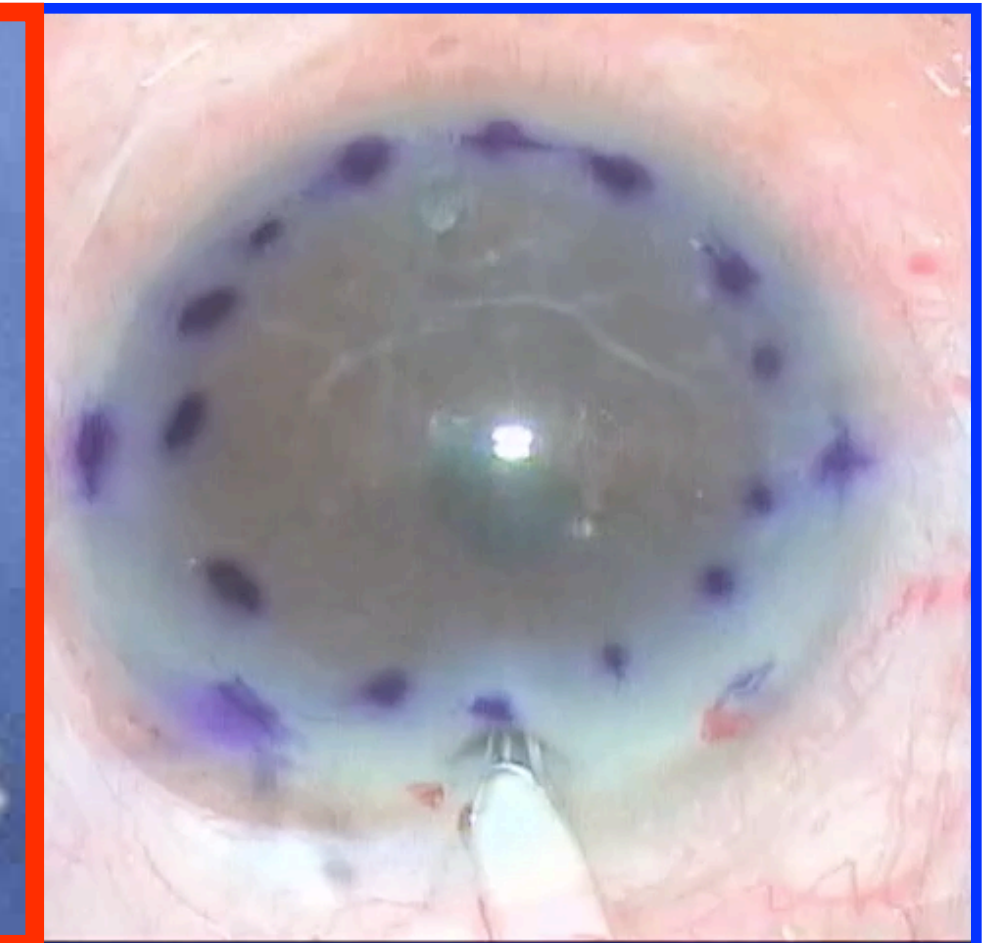
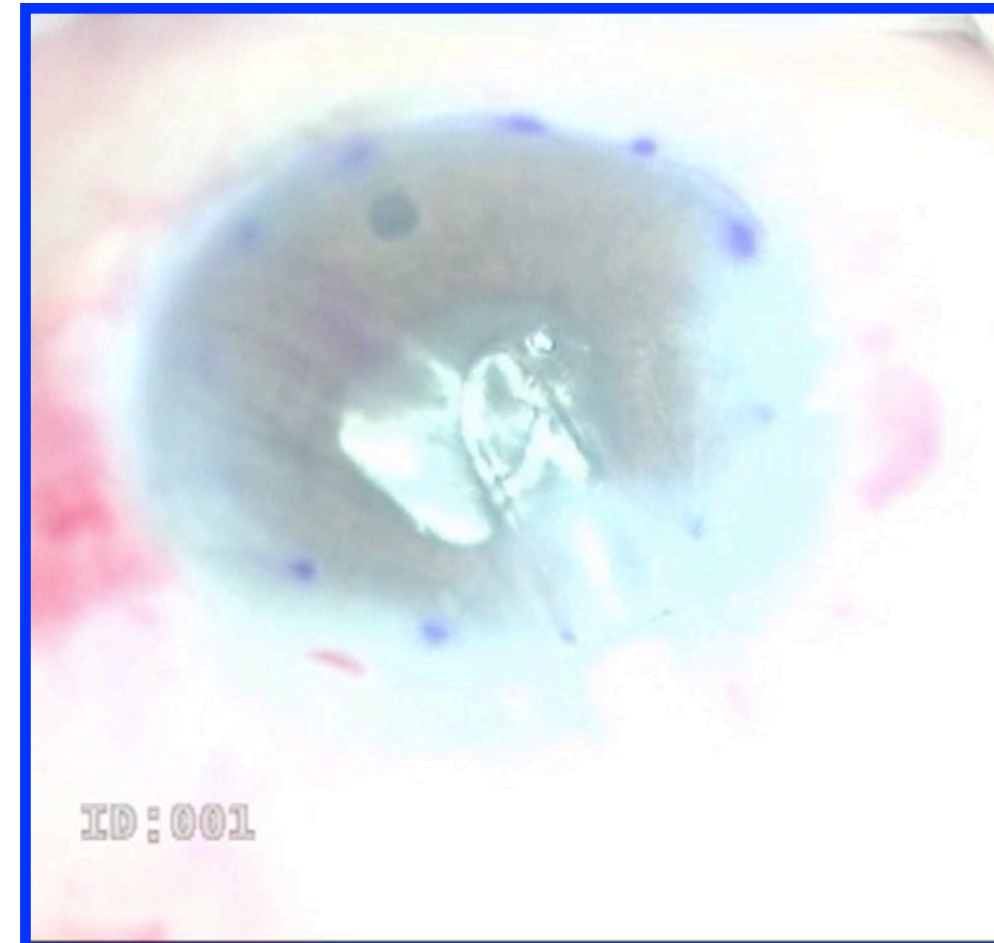
8

# Injection of DMEK roll in AC

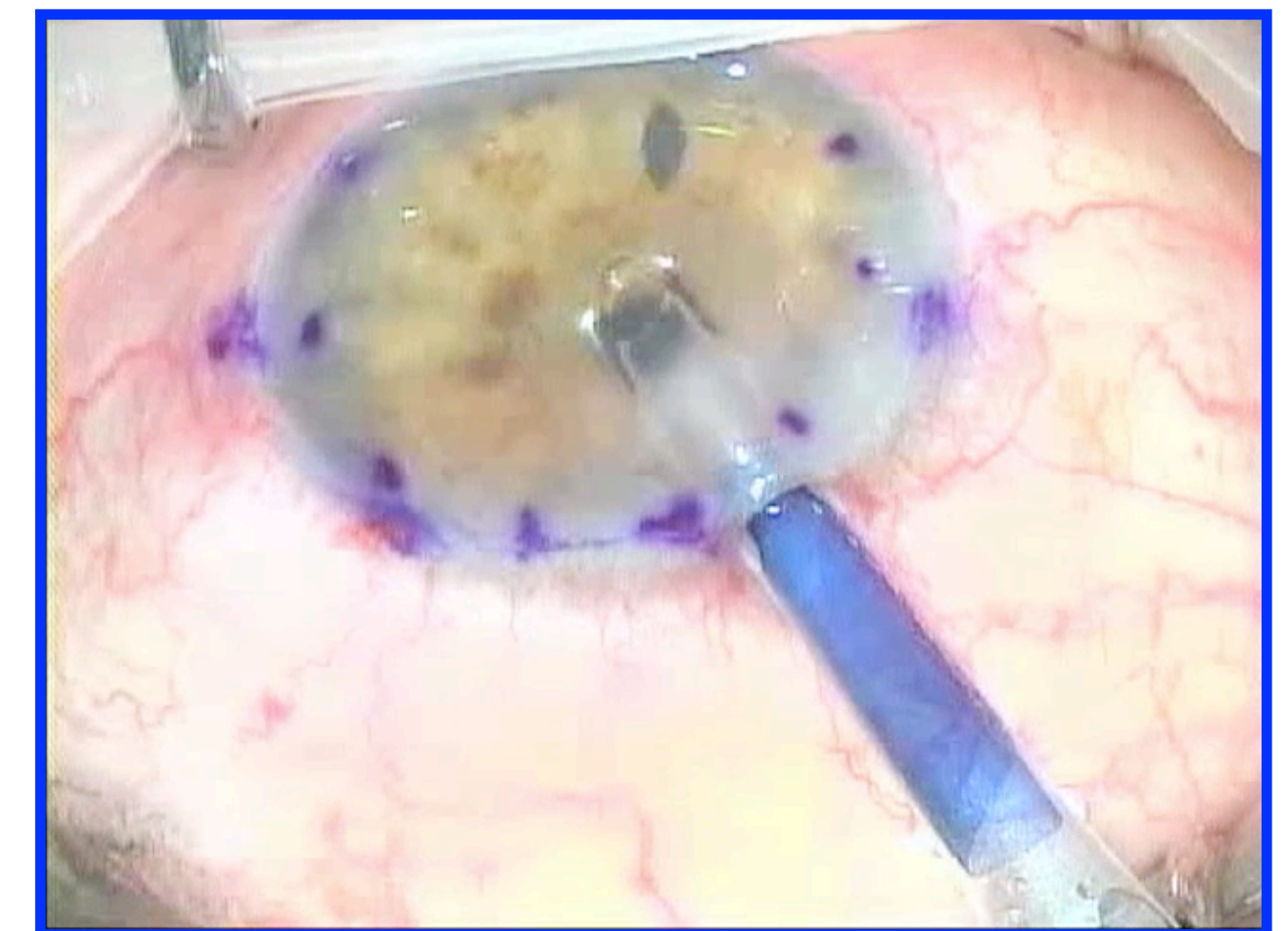
## Glass Pipette



*Bullet-like  
injection*



*Smooth controlled  
injection*





# 9

## DMEK Roll Unfolding

### General Rules

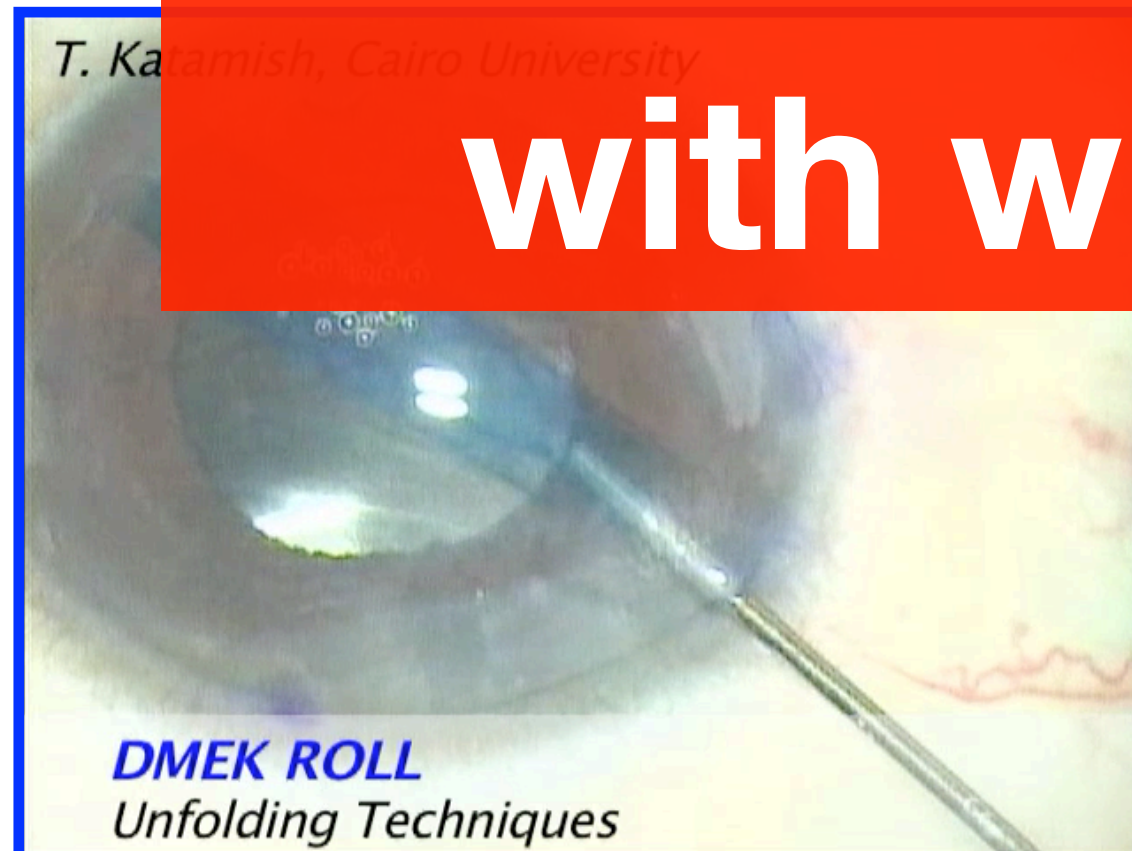
1. The AC should be **shallow** but not flat.
2. Use **short jets** of fluid and **tapping** on the corneal surface.
3. It is best to maintain gross **centration** of the graft while unfolding it.



# 9

## DMEK Roll Unfolding

Change your tactics along the way  
Use all your techniques you got  
with whatever situation at hand



Large bubble technique



Repeated fluid injection



Spatula technique



10

# Avoid Upside Down Graft

UPSIDE  
DOWN  
GRAFT

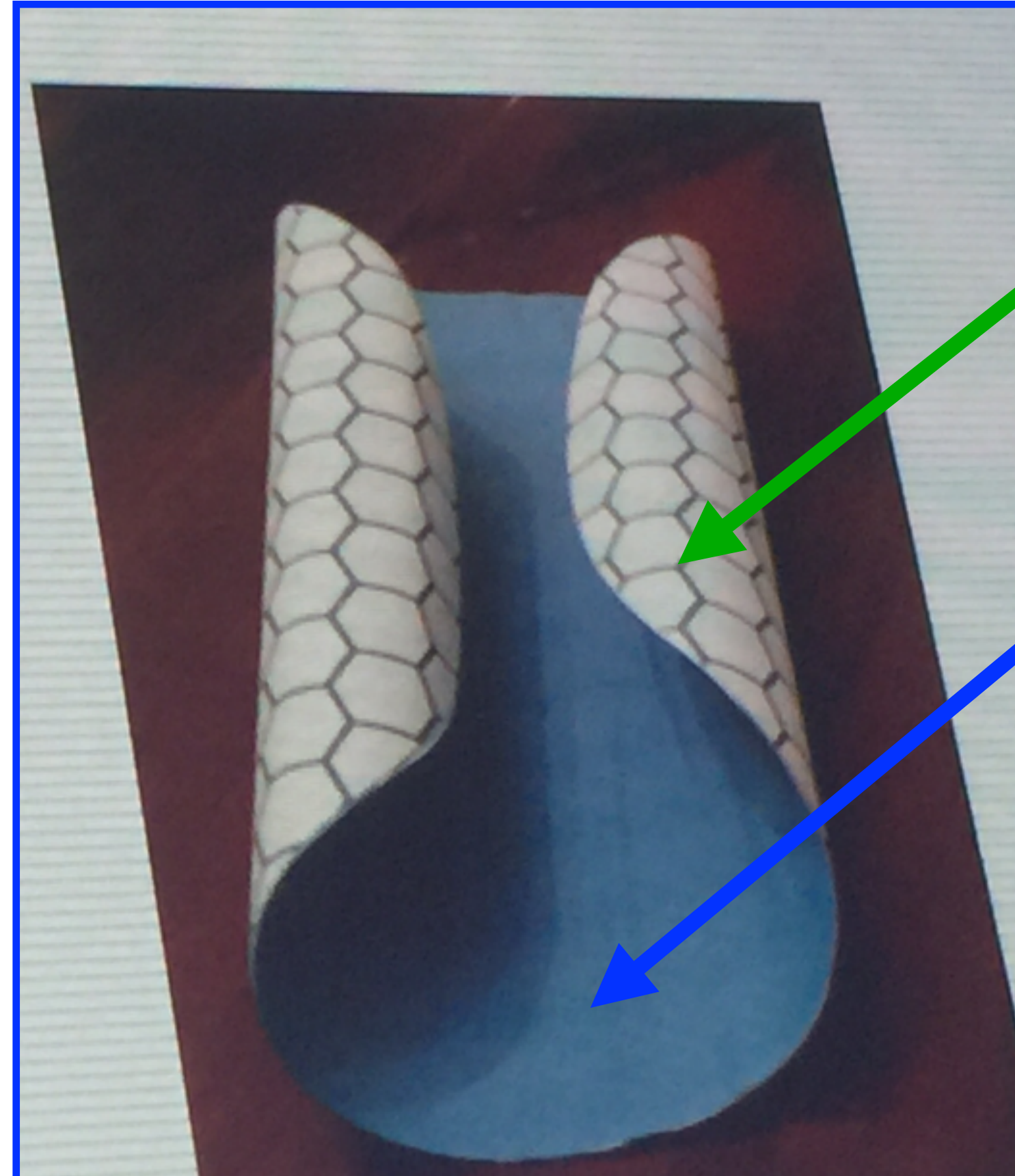
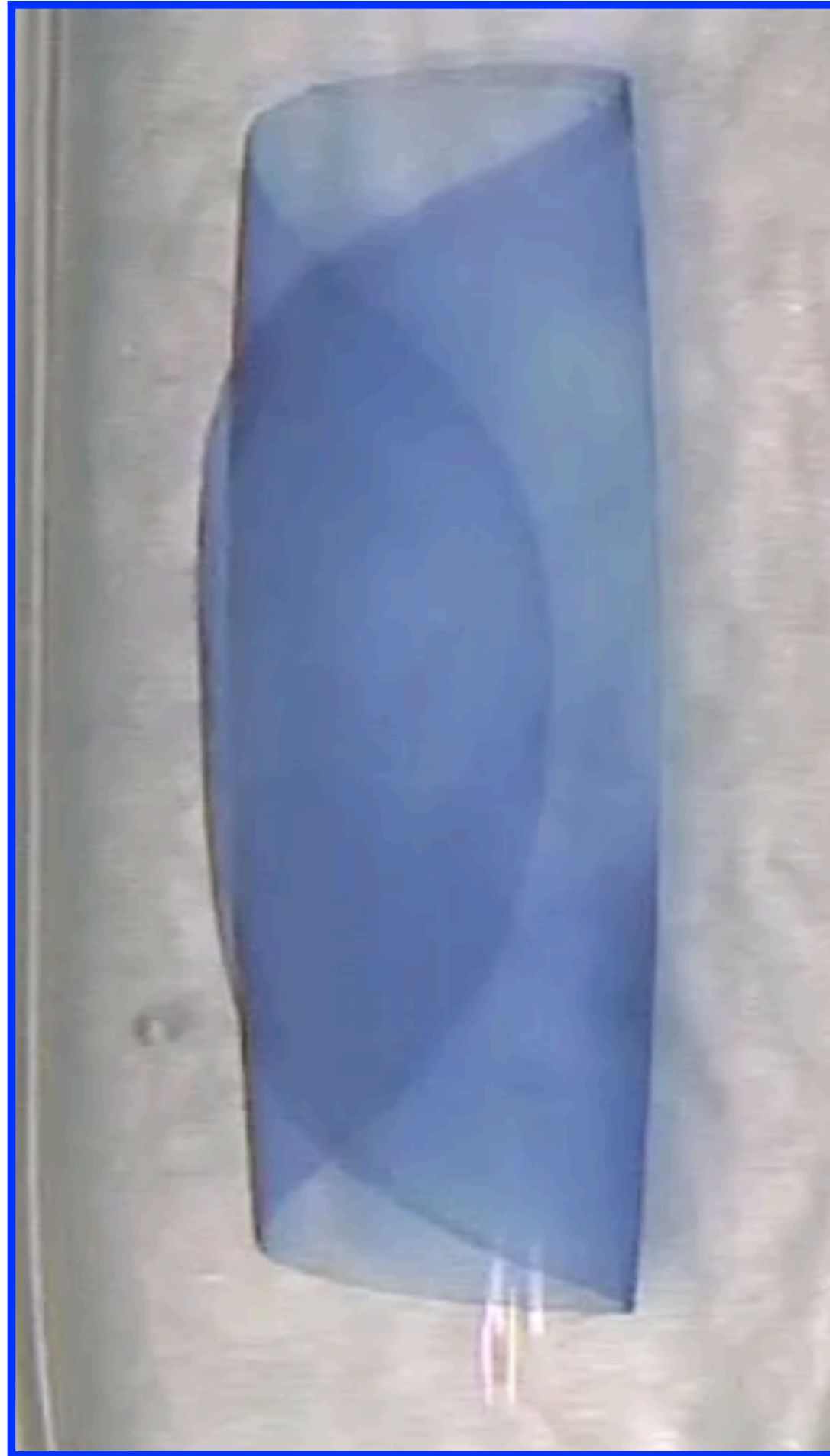


PRIMARY  
GRAFT  
FAILURE

NO WAY



# Natural behavior of DMEK roll



Endothelium  
outside

D.M. (elastic)  
Inside

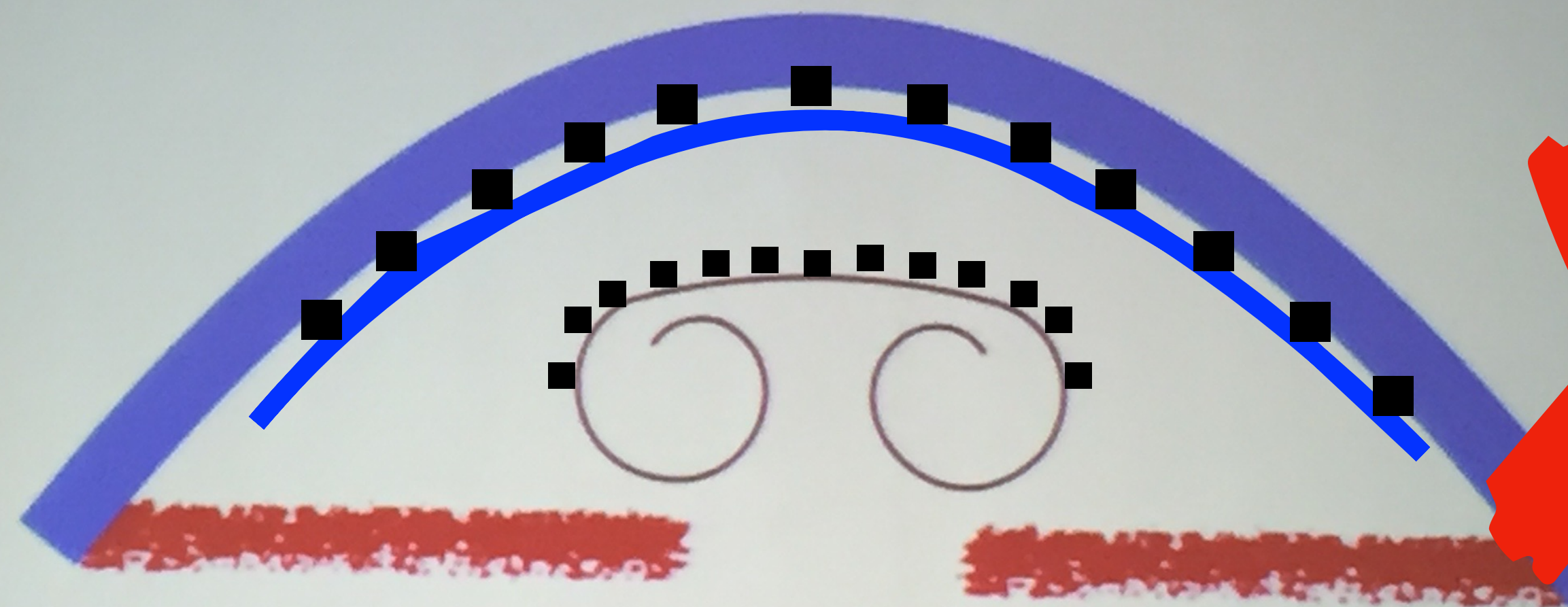
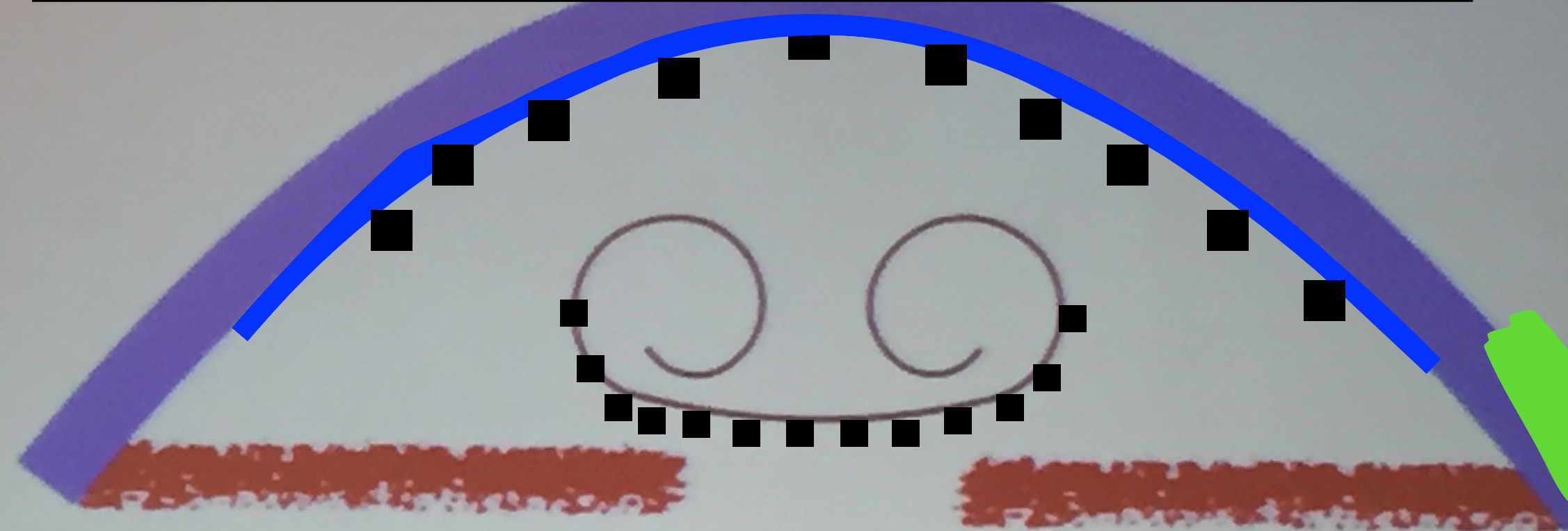
in 100% of cases



# Correct DMEK graft orientation



- Endothelium facing toward the iris
- Tissue scrolling up toward the stroma





# 10

## Avoid Upside Down Graft

- Before injection of DMEK roll:

Proper orientation in cartridge.

- After injection of DMEK roll:

- “Moutsouris sign”: Blue cannula sign

- During unfolding DMEK roll:

Intra-operative **AS-OCT**

- After fixing DMEK roll to stroma:

“S” **Stromal stamp**

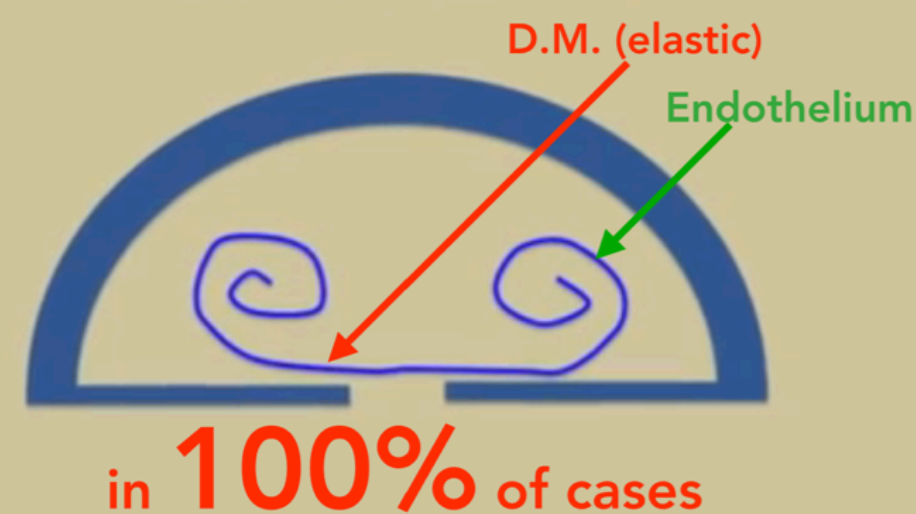


# 10

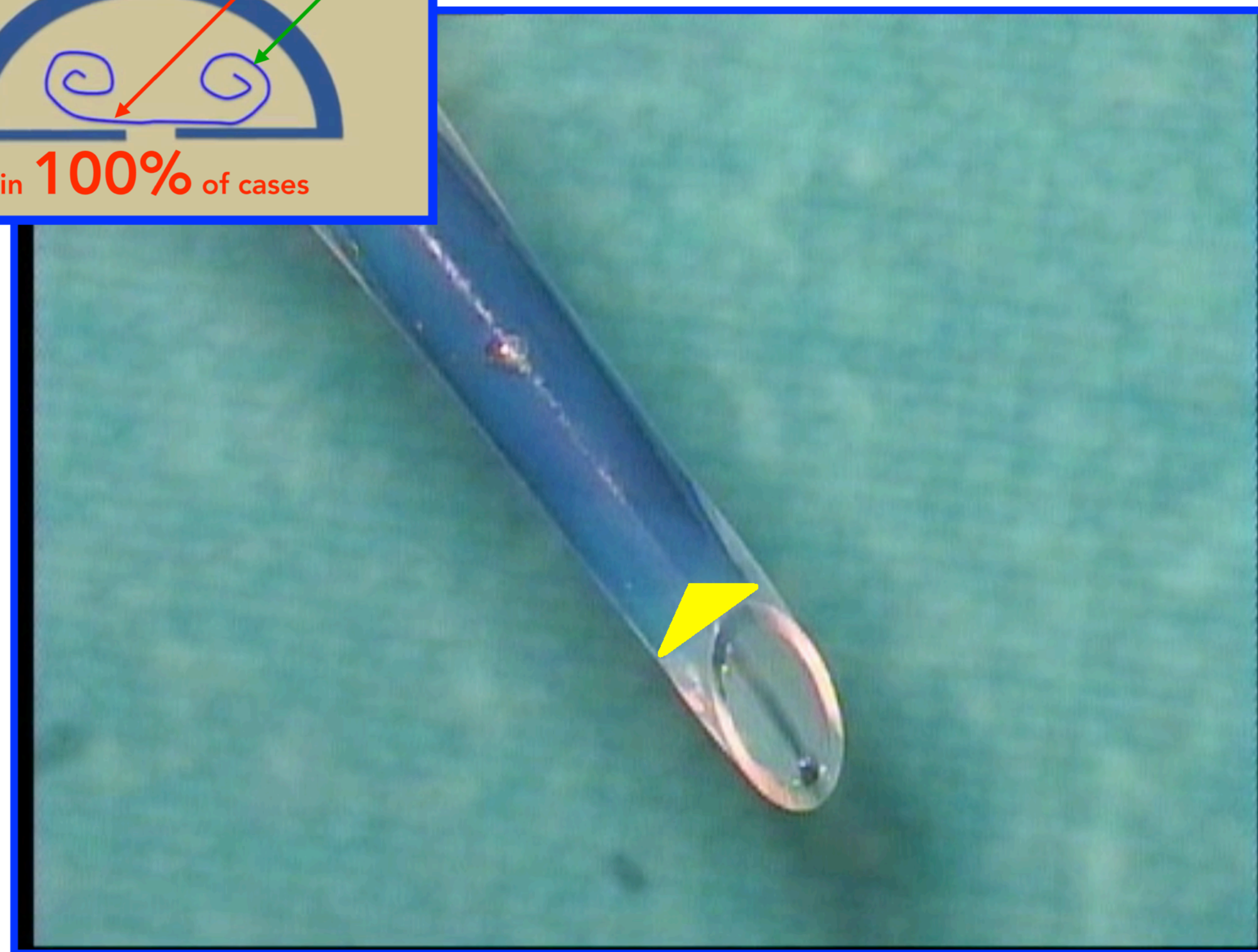
## Avoid Upside Down Graft

- Before injection of DMEK roll:  
Proper orientation in cartridge.

CORRECT GRAFT  
ORIENTATION



DMEK ROLL ORIENTATION

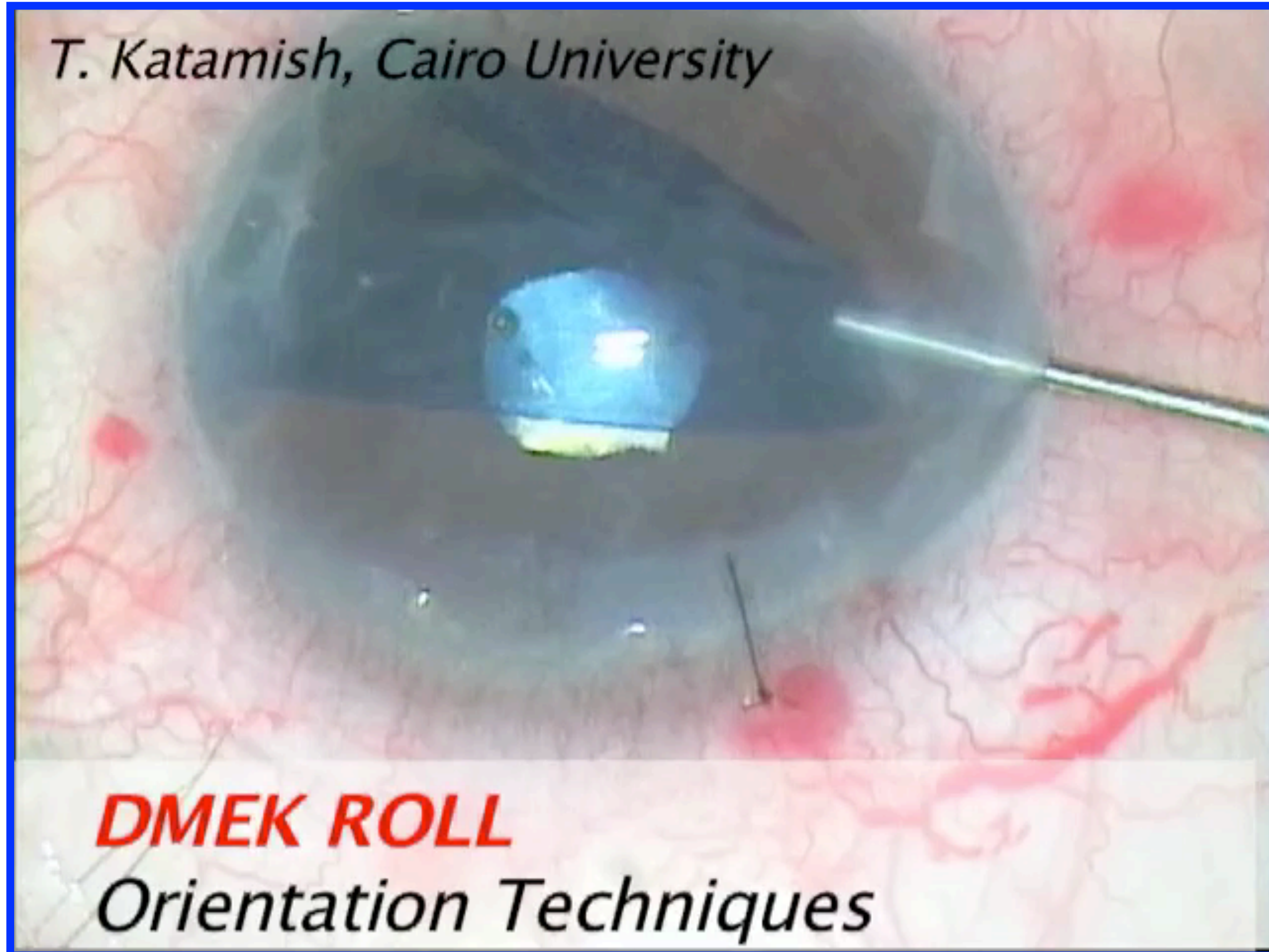
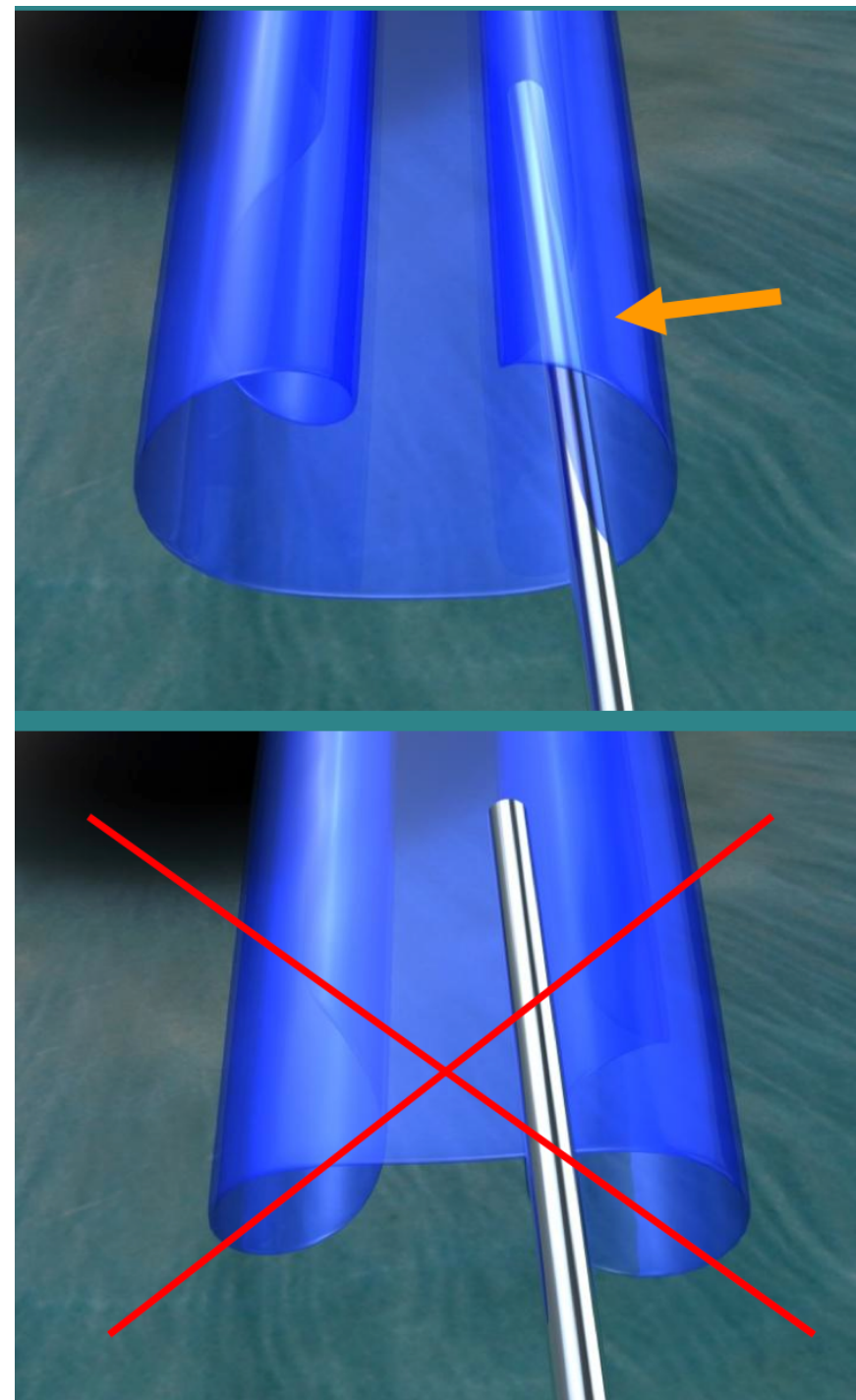




# 10

## Avoid Upside Down Graft

- After injection of DMEK roll:
  - “Moutsouris sign”: Blue cannula sign

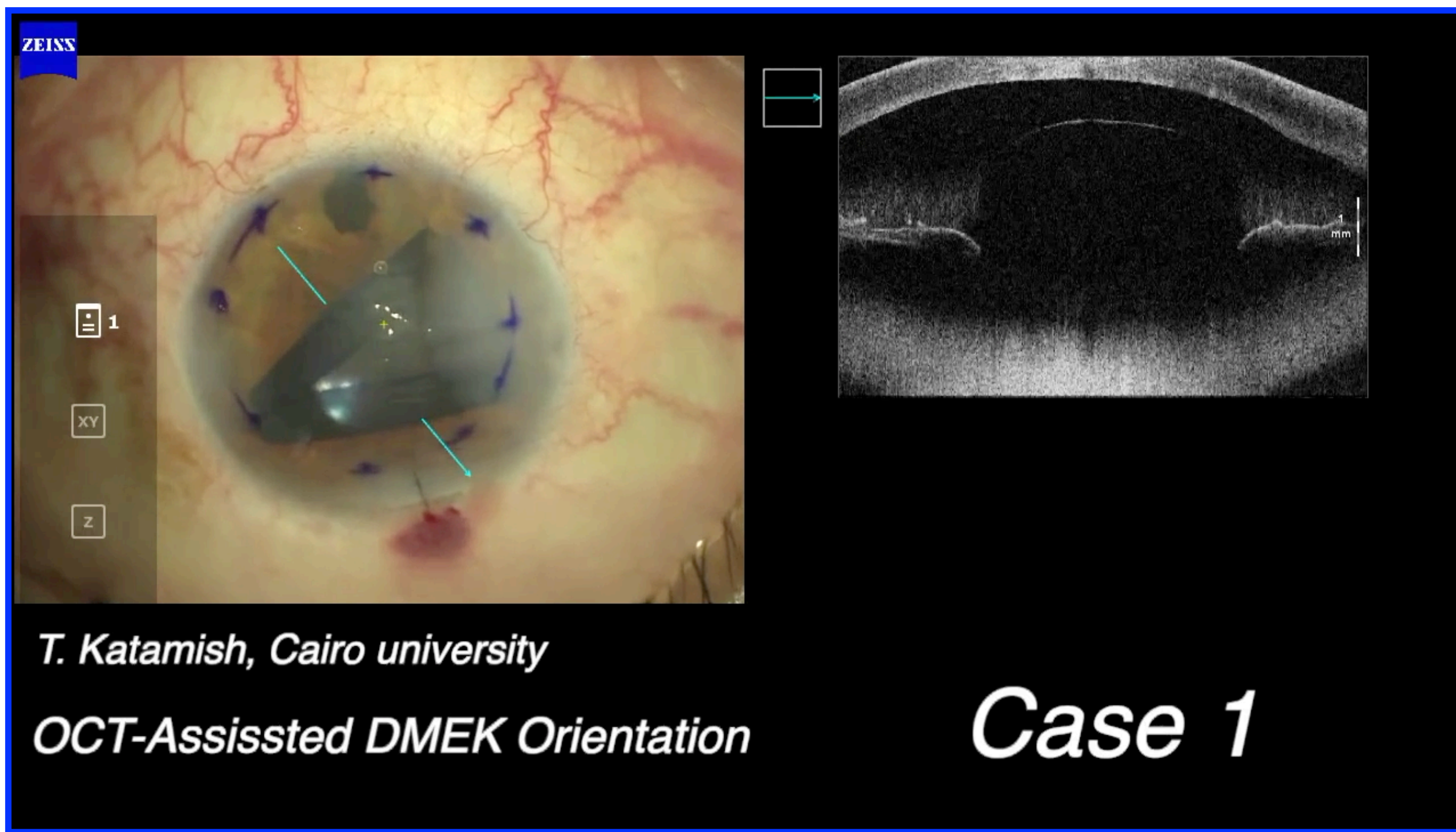




# 10

## Avoid Upside Down Graft

- During unfolding DMEK roll:  
Intra-operative **AS-OCT**





# 10

## Avoid Upside Down Graft

► After fixing DMEK roll to stroma:

“S” Stromal stamp

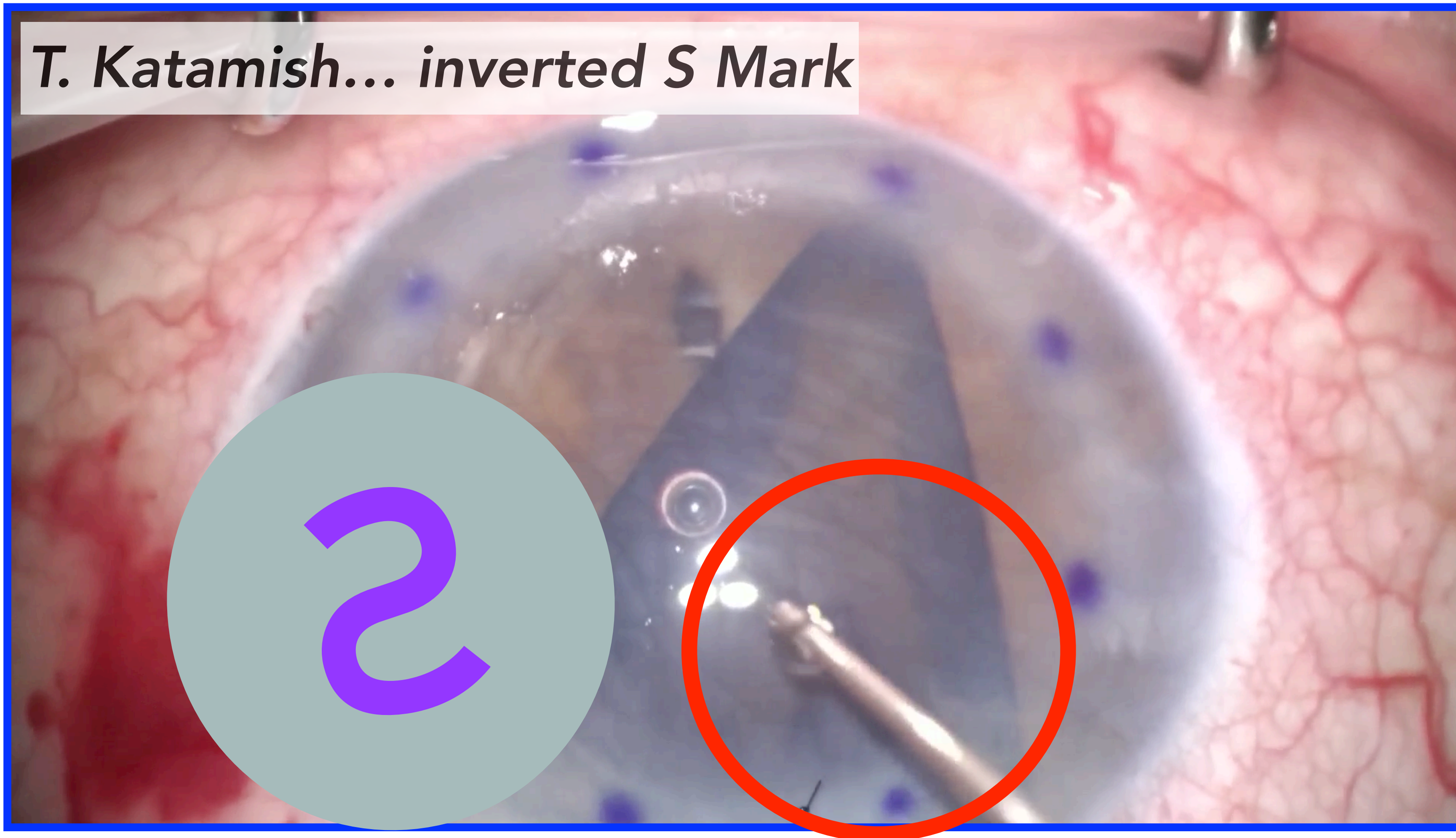




10

# Avoid Upside Down Graft

*T. Katamish... inverted S Mark*

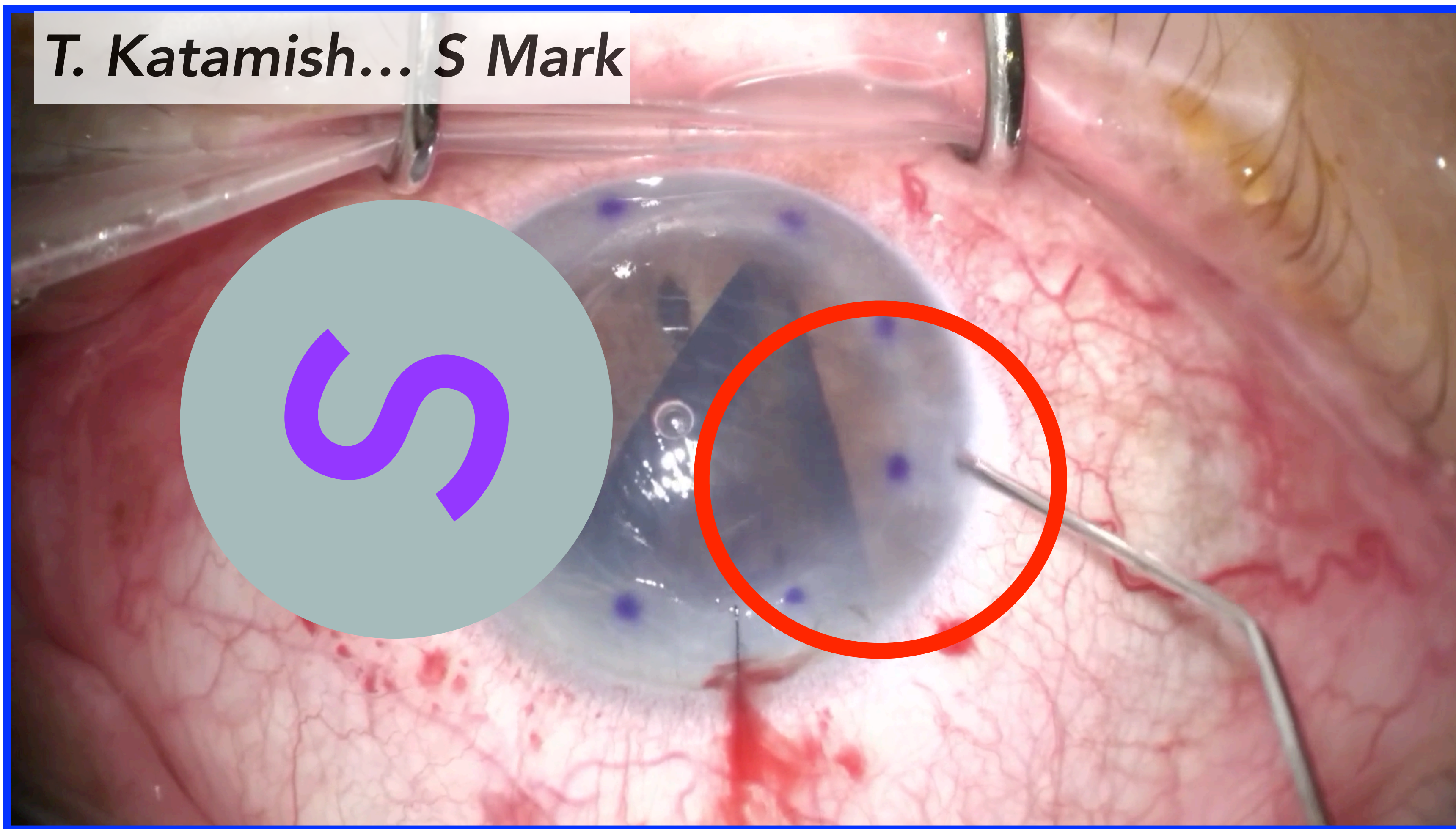




10

# Avoid Upside Down Graft

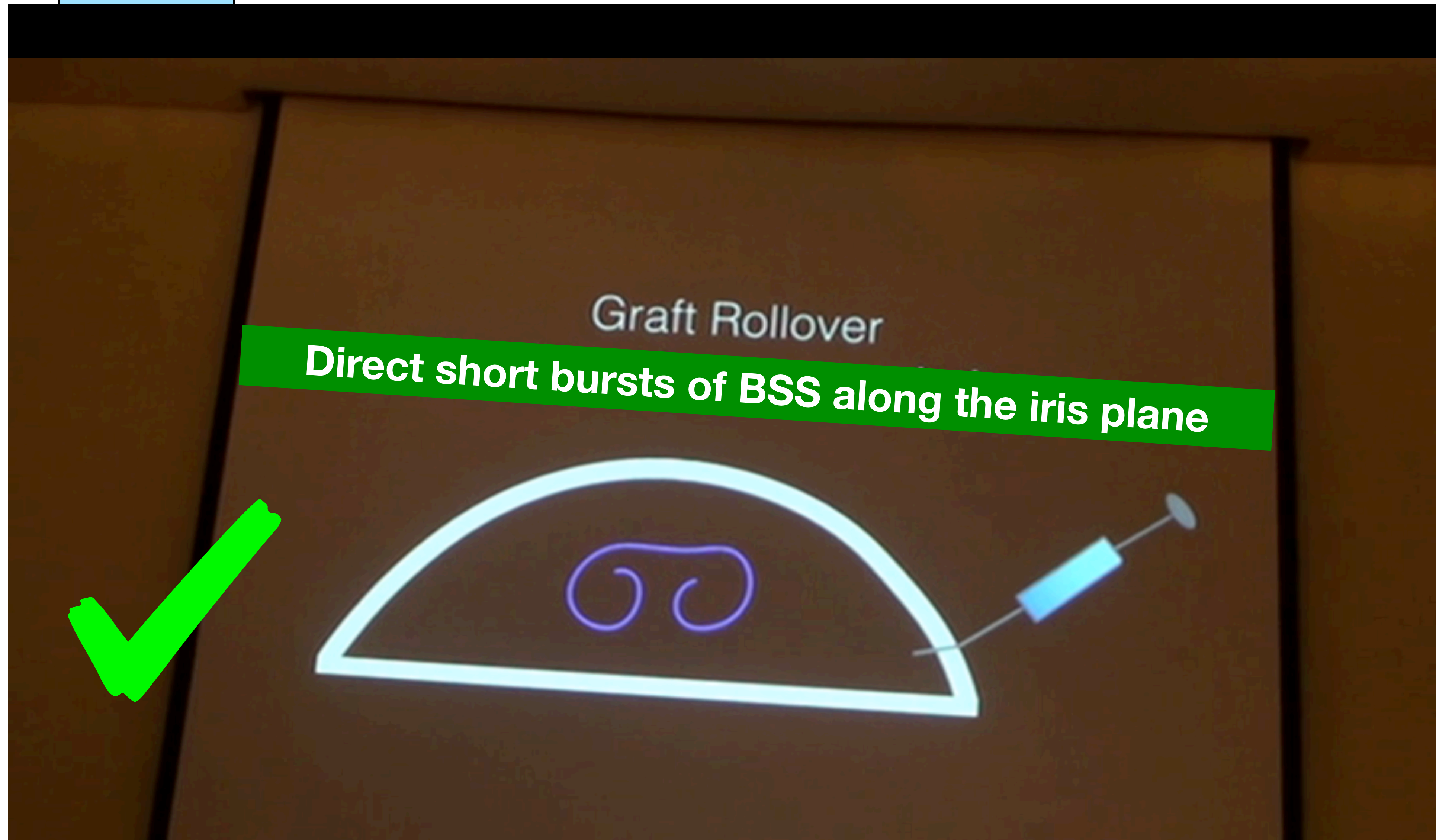
T. Katamish... S Mark





10

# ROLLING OVER INVERTED GRAFT

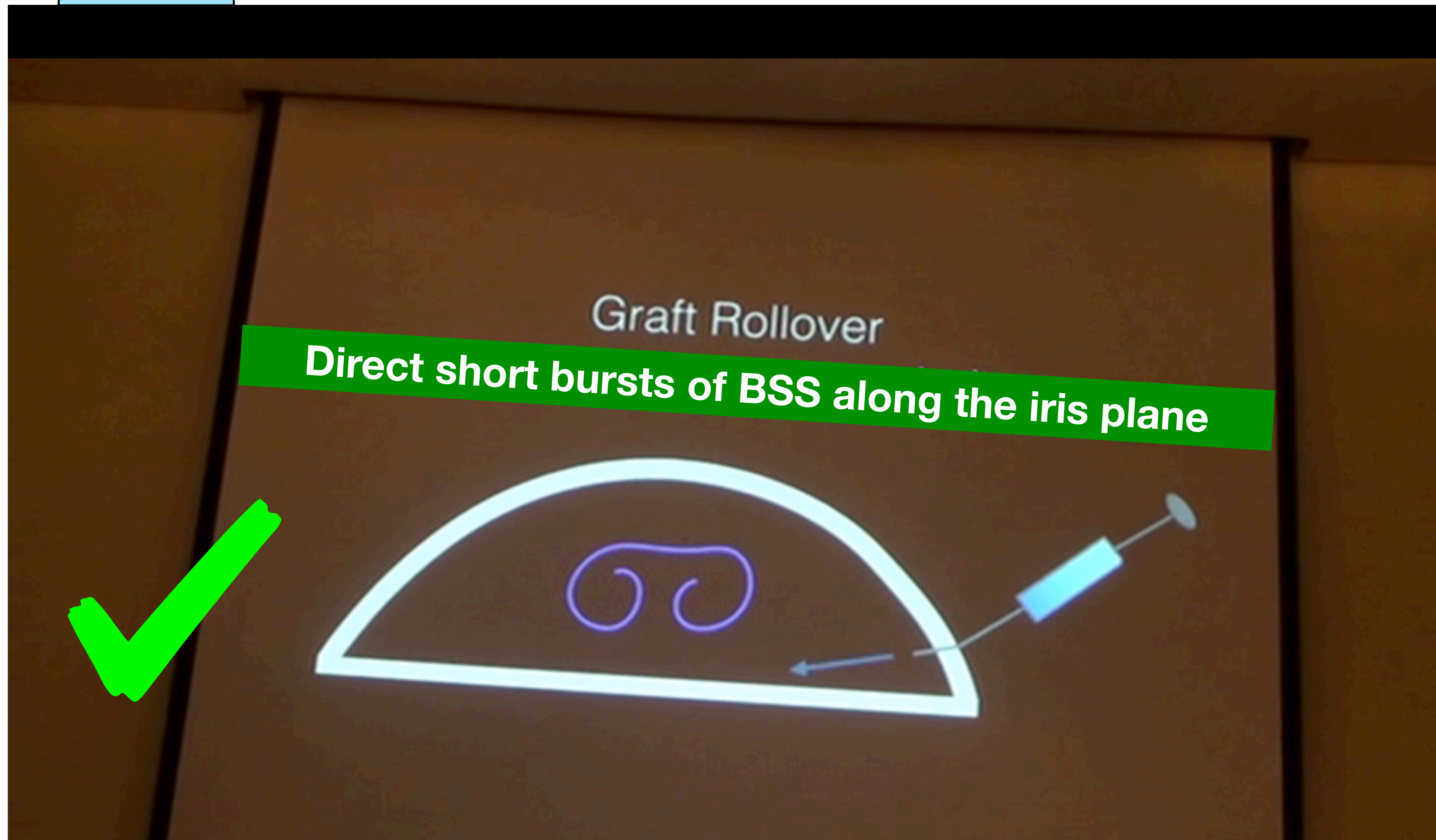


(Courtesy to Dr Michael Straiko)



10

# ROLLING OVER INVERTED GRAFT



(Courtesy to Dr Michael Straiko)

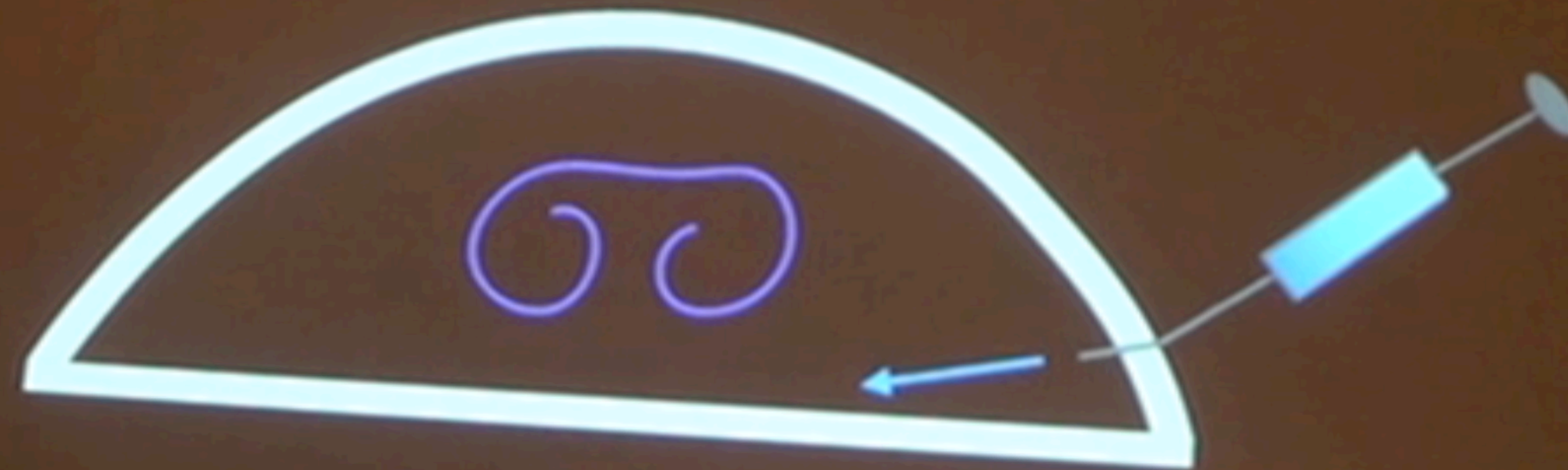


10

# ROLLING OVER INVERTED GRAFT

Graft Rollover

Direct short bursts of BSS along the iris plane

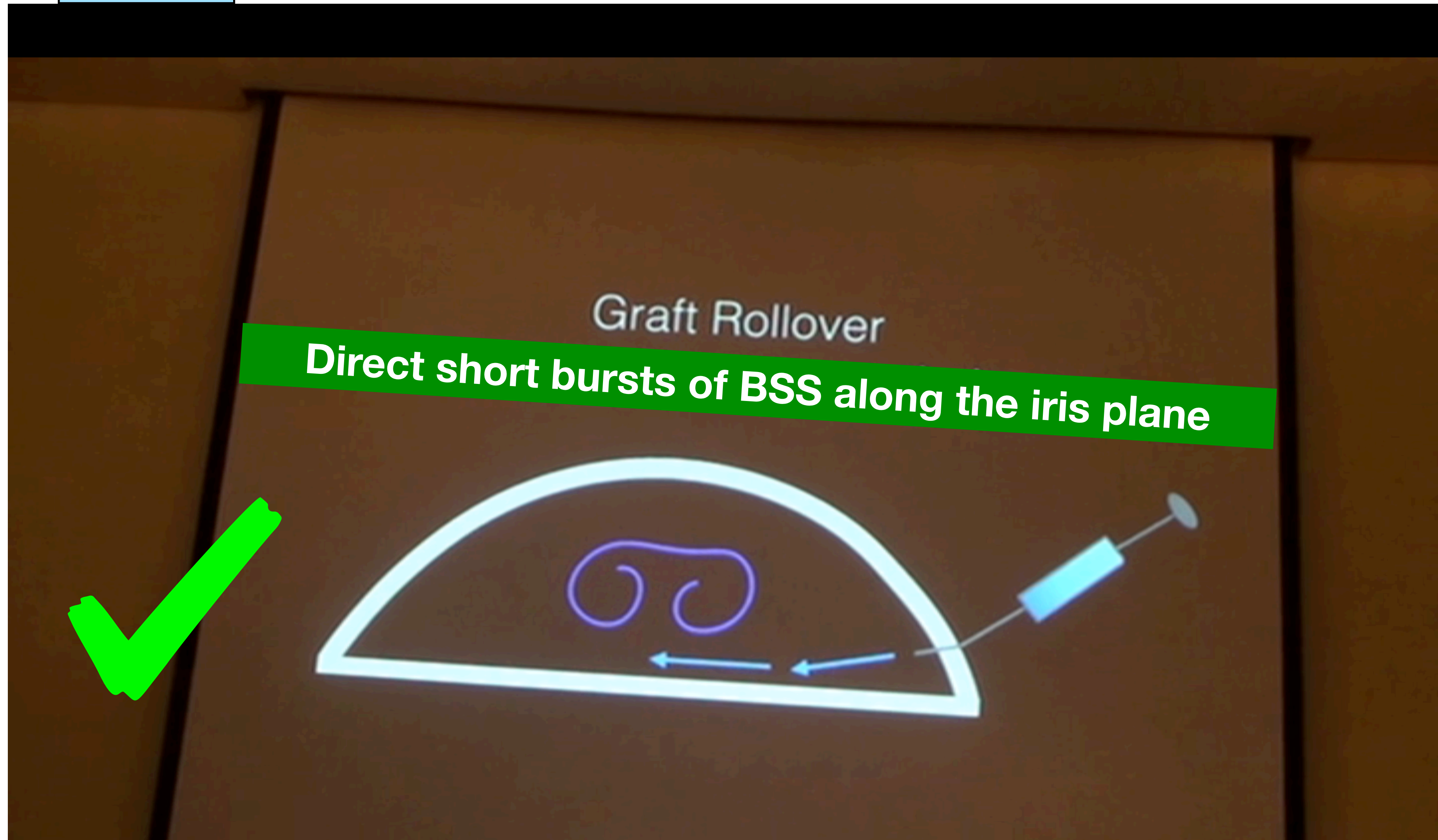


(Courtesy to Dr Michael Straiko)



10

# ROLLING OVER INVERTED GRAFT



(Courtesy to Dr Michael Straiko)

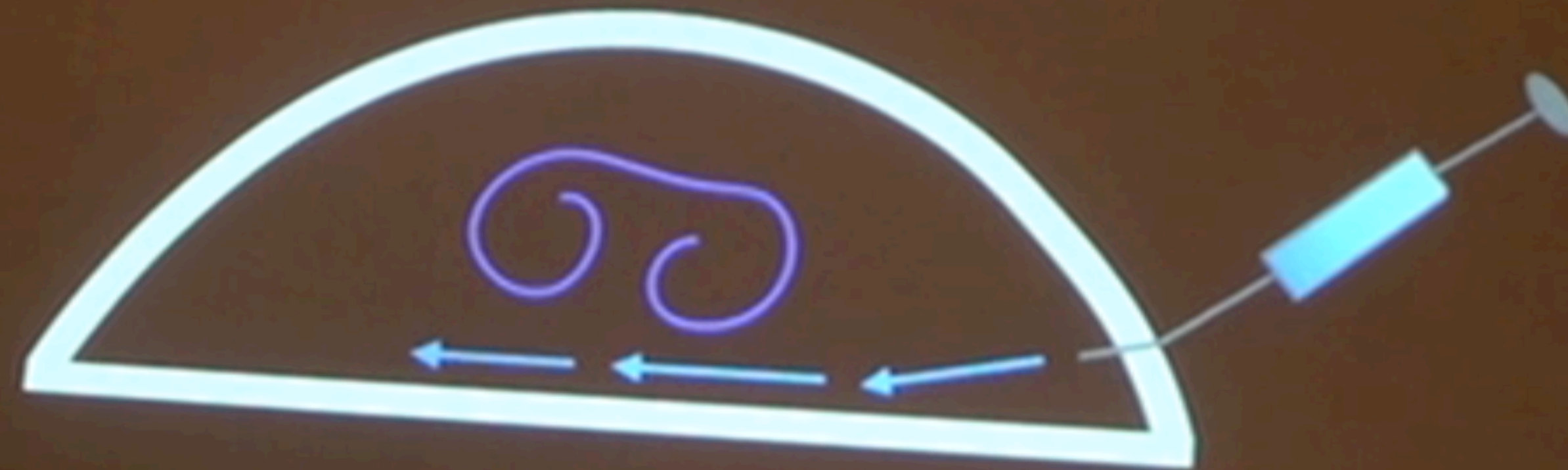


10

# ROLLING OVER INVERTED GRAFT

Graft Rollover

Direct short bursts of BSS along the iris plane



(Courtesy to Dr Michael Straiko)

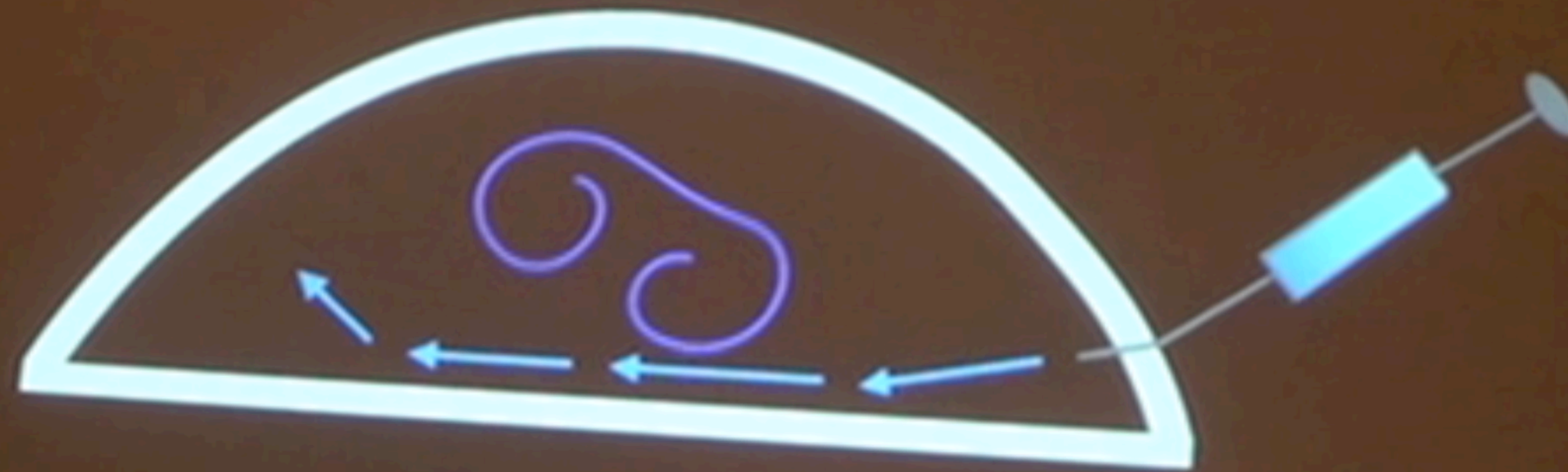


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# ROLLING OVER INVERTED GRAFT

Graft Rollover

Direct short bursts of BSS along the iris plane

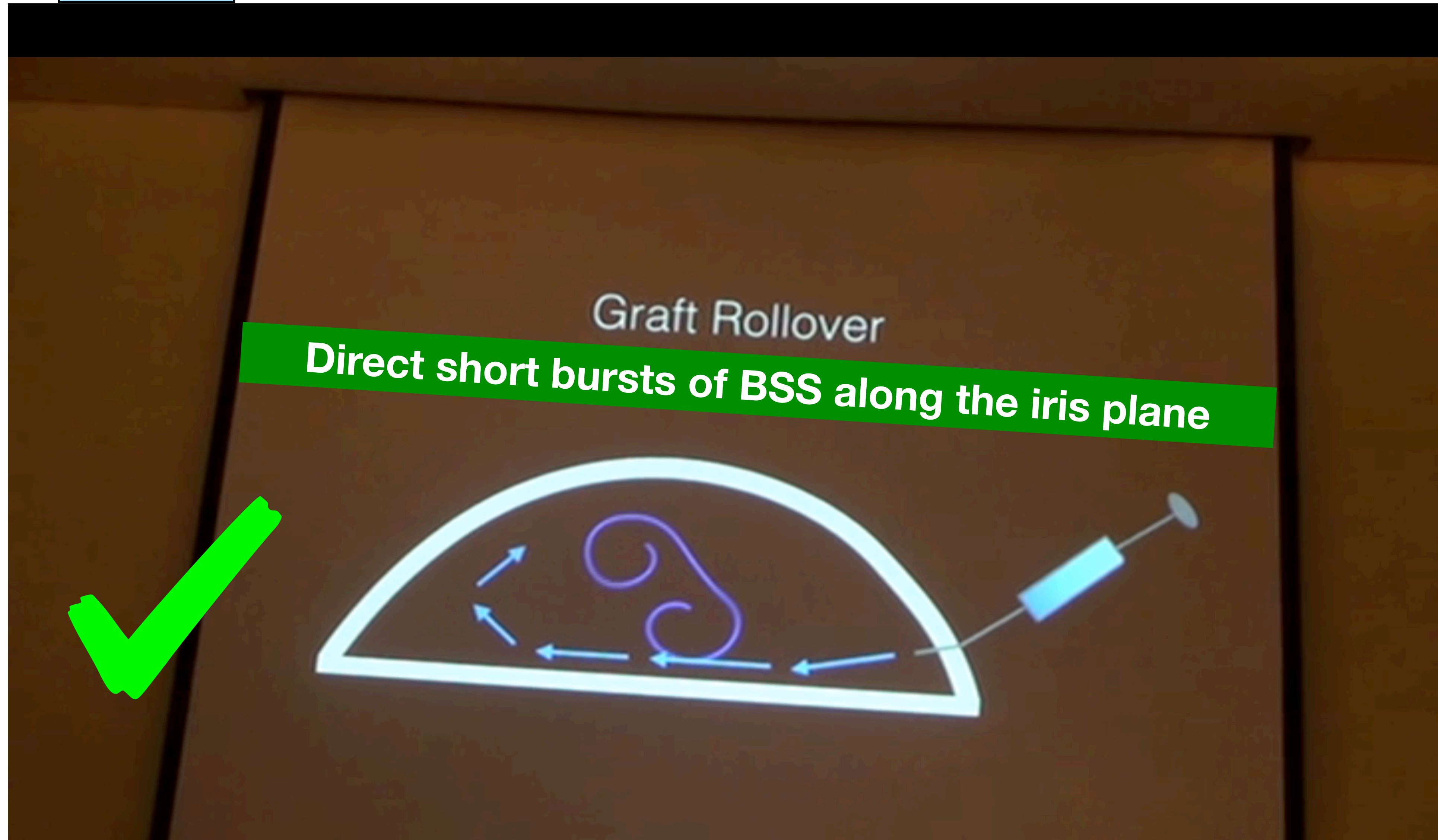


(Courtesy to Dr Michael Straiko)



10

# ROLLING OVER INVERTED GRAFT



(Courtesy to Dr Michael Straiko)

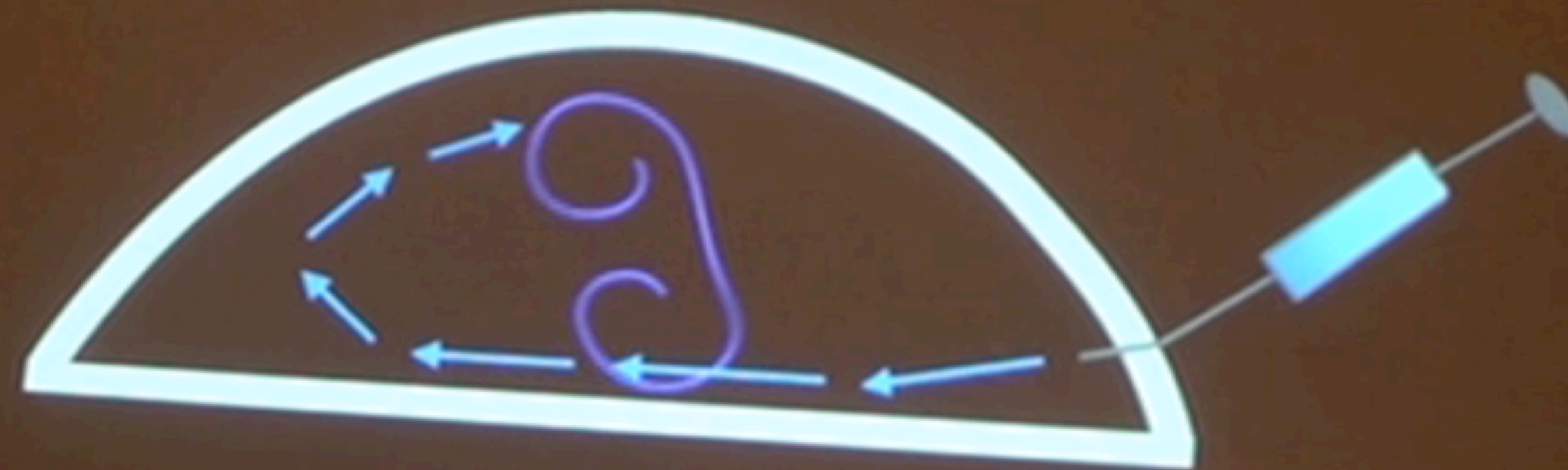


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Graft Rollover

Direct short bursts of BSS along the iris plane



(Courtesy to Dr Michael Straiko)

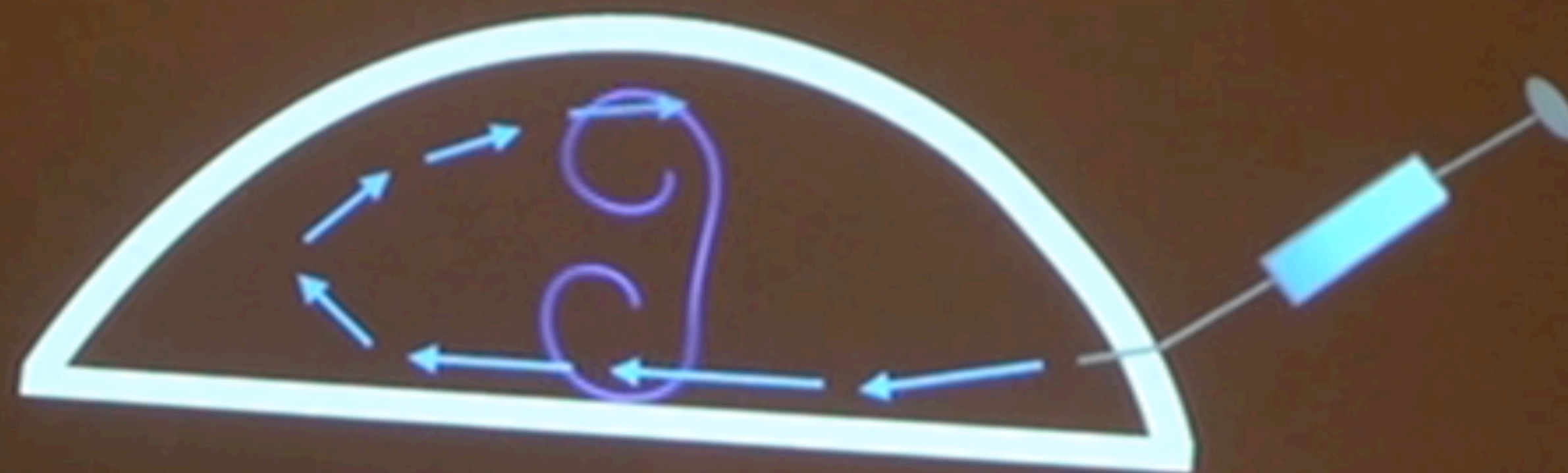


10

# ROLLING OVER INVERTED GRAFT

Graft Rollover

Direct short bursts of BSS along the iris plane

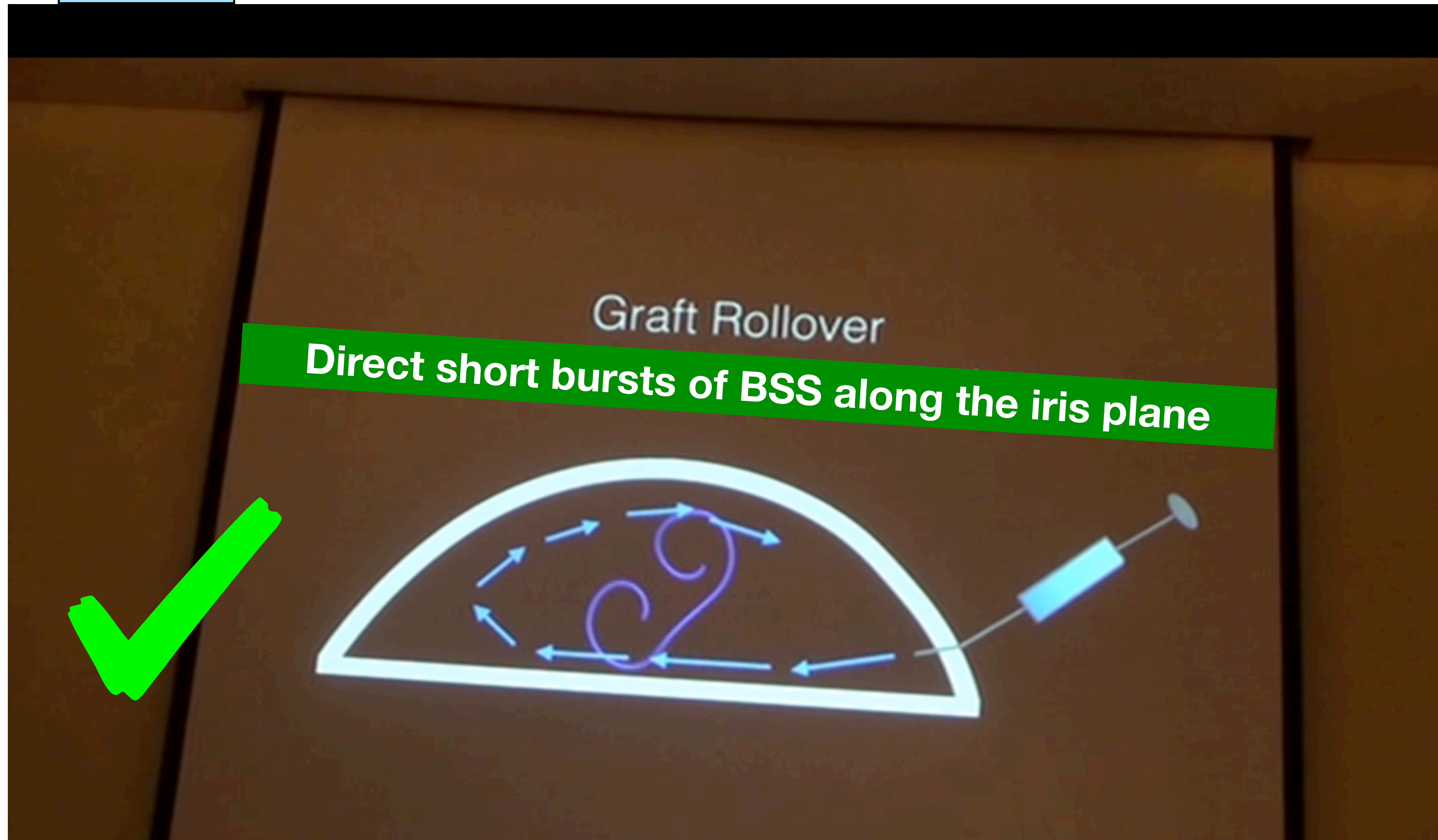


(Courtesy to Dr Michael Straiko)



10

# ROLLING OVER INVERTED GRAFT



(Courtesy to Dr Michael Straiko)

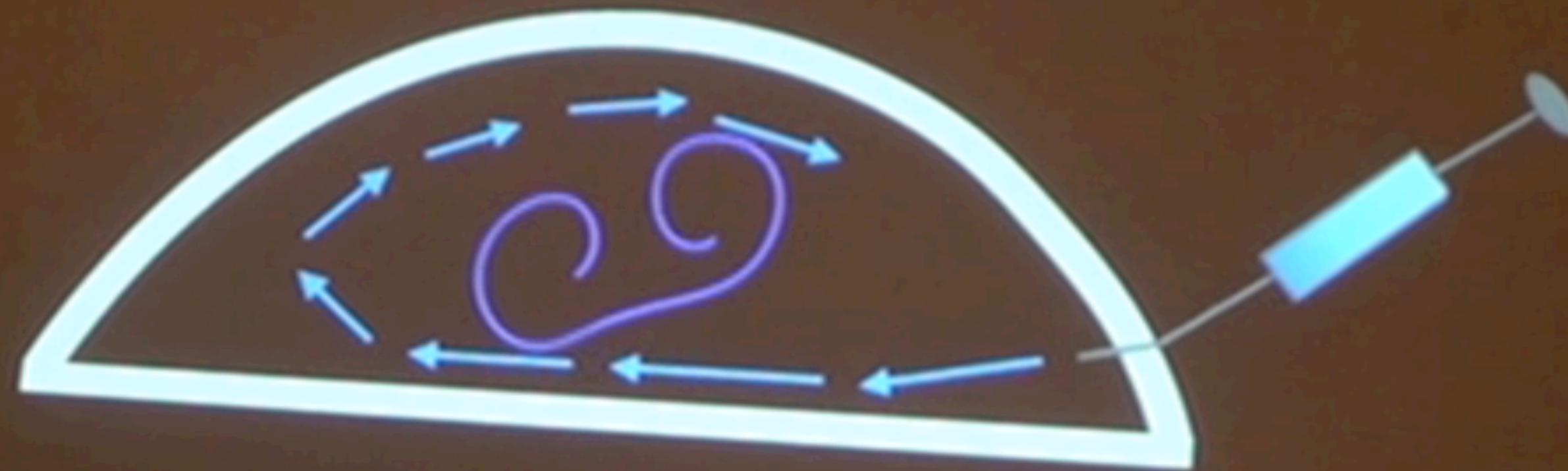


10

# ROLLING OVER INVERTED GRAFT

Graft Rollover

Direct short bursts of BSS along the iris plane



(Courtesy to Dr Michael Straiko)



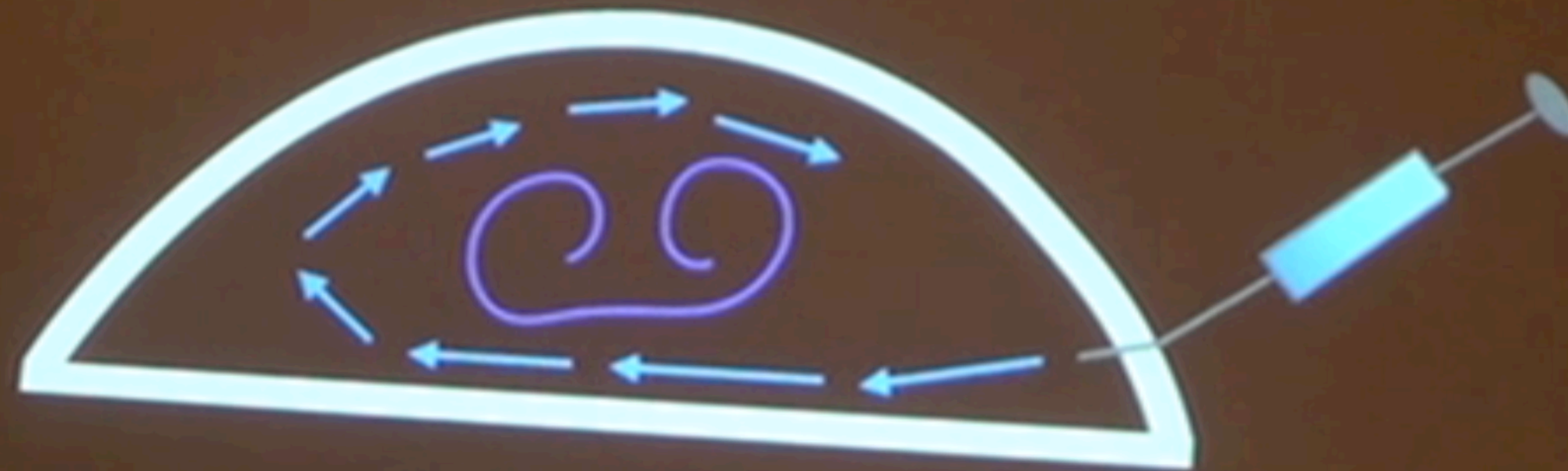
10

# ROLLING OVER INVERTED GRAFT



Graft Rollover

Direct short bursts of BSS along the iris plane

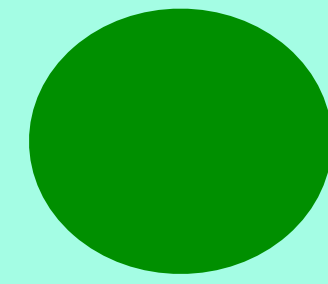


(Courtesy to Dr Michael Straiko)



10

# ROLLING OVER INVERTED GRAFT



Graft Rollover

Direct short bursts of BSS along the iris plane



(Courtesy to Dr Michael Straiko)



10

# ROLLING OVER INVERTED GRAFT



(Courtesy to Dr Michael Straiko)



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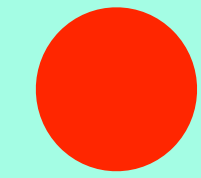


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**Despite all these tips & tricks**

**DMEK**

**still has hundreds of tips**

**It is a very delicate operation**

**and needs attention to**

**every minute details**



# CHOOSE

Complications of Full-thickness graft

PKP

Graft

Triple PKP +

Dis

Stit

Long Recovery Time

sky ECCE

ction

A

**Easy** PK

T. Kate

**Marvellous outcome**

**Challenging** DMEK





**Thanks**  
*for this delicate DMEK Roll*

**Thanks**  
*for your kind attention*