

المؤتمر السنوي الدولي للجمعية الرمدية المصرية  
INTERNATIONAL CONGRESS OF THE  
**EGYPTIAN OPHTHALMOLOGICAL SOCIETY**  
**EOS 2023**

**Reintroducing the art of  
Manual DALK:  
an insight into my personal technique**

*Prof. Dr. Tarek Katamish*  
Cairo University



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**EOS 2023**



**President**

# Introduction

## Manual Dissection in the old days



**Prof Dr  
Momtaz Hegazy**



**Resident  
Tarek Katamish**

# Introduction

Nowadays

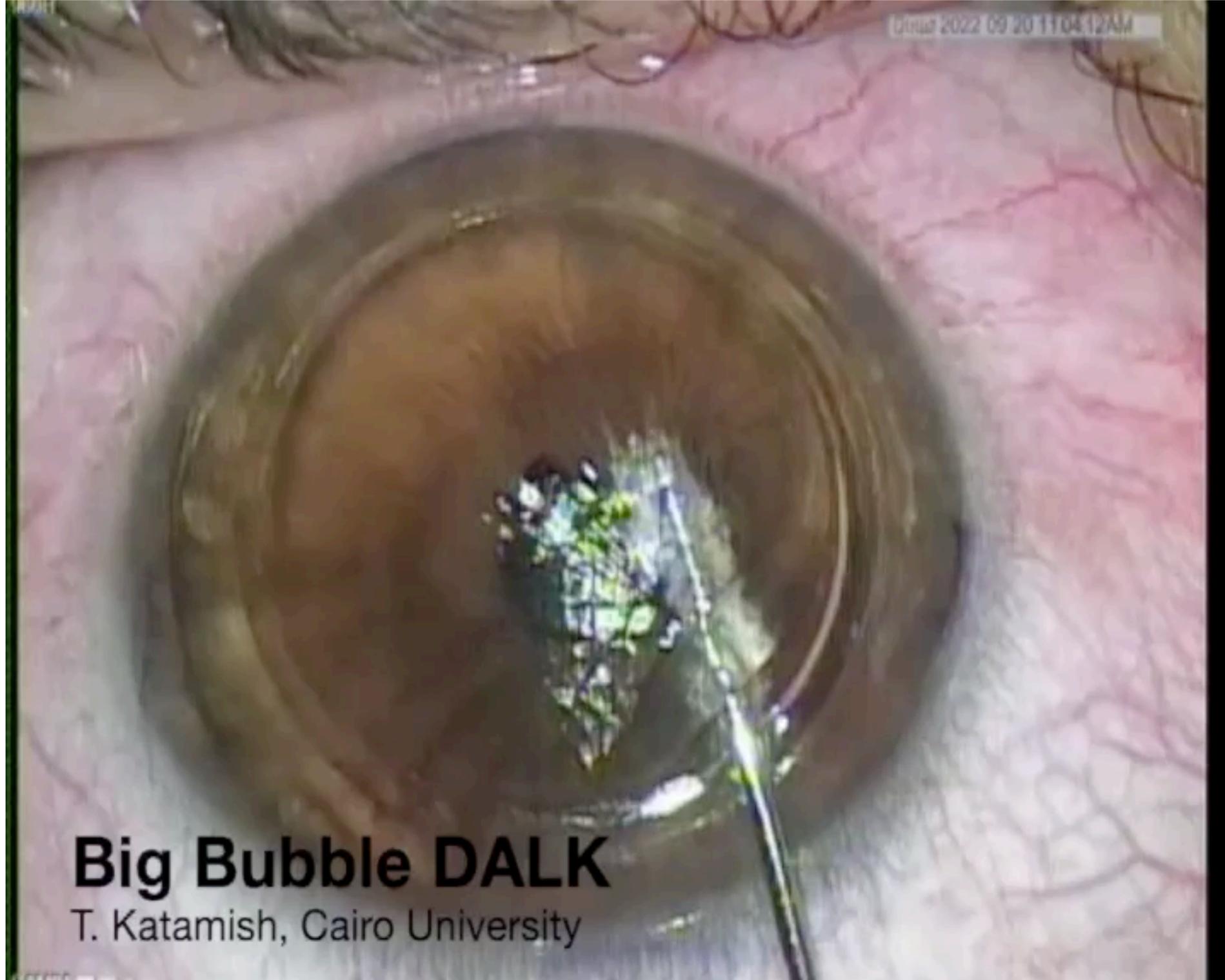
**The Big Bubble Technique**

appears to be the  
best surgical approach to

**DALK**



# Introduction



**Big Bubble DALK**  
T. Katamish, Cairo University



# Introduction

## Indications for Manual dissection

- To avoid conversion to PKP in the event of:
  - Failure to get the big bubble after repeated air injections!!
- Alternative to the BB technique:
  - **KC** with previous hydrops
  - **KC** with deep scars involving **DM**



# The big question?

How to get the Big Bubble  
consistently



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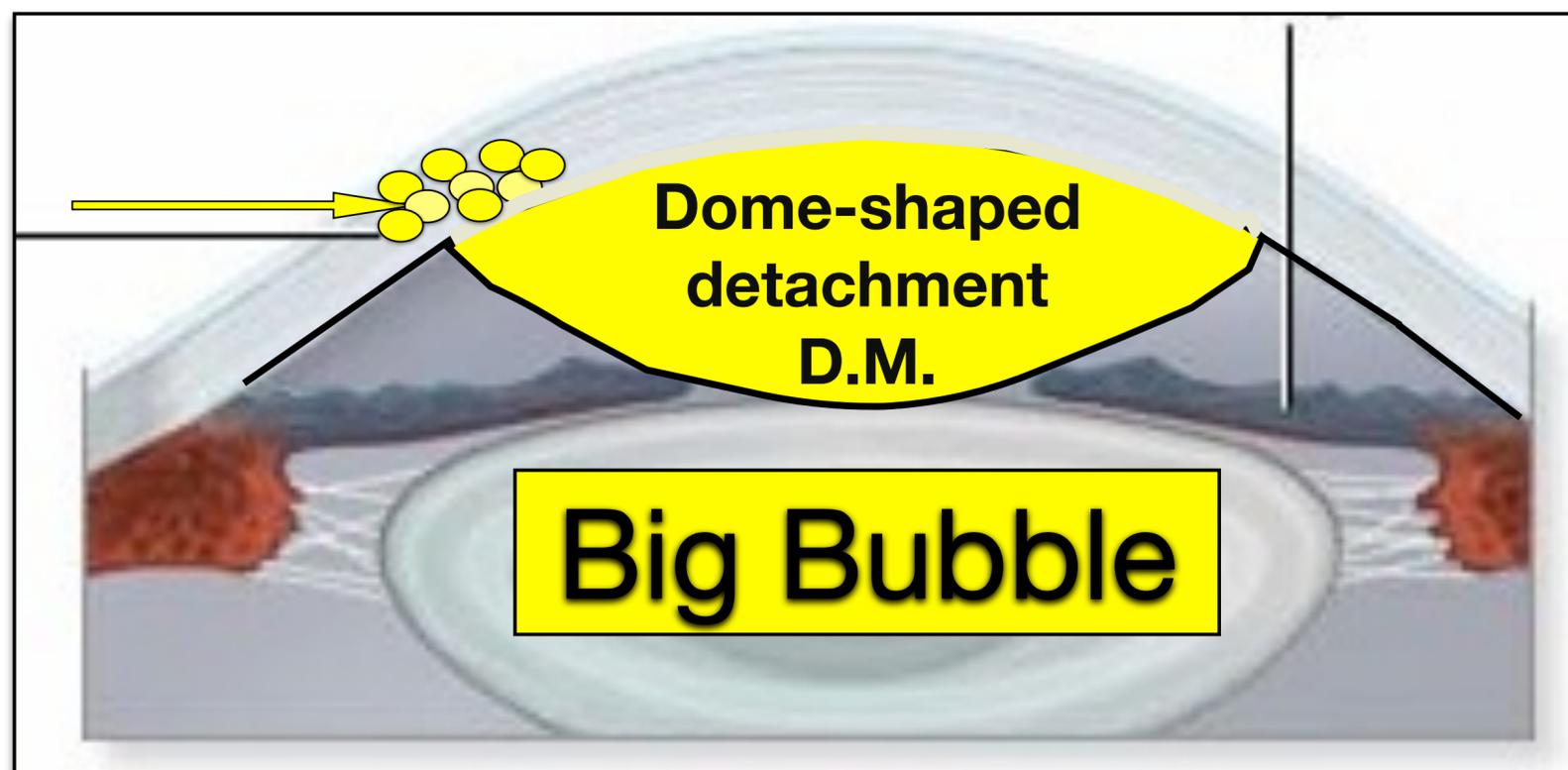




**A Key Step**

# Big Bubble Formation

## How the Big Bubble forms



So, the secret of success is to inject air **very deep very near to DM**

So,

# How to inject air very deep very near to DM

**VERY Deep**

**Partial thickness trephination**

1

**- Blunt Cannula**

2

**- Deep Placement**

3

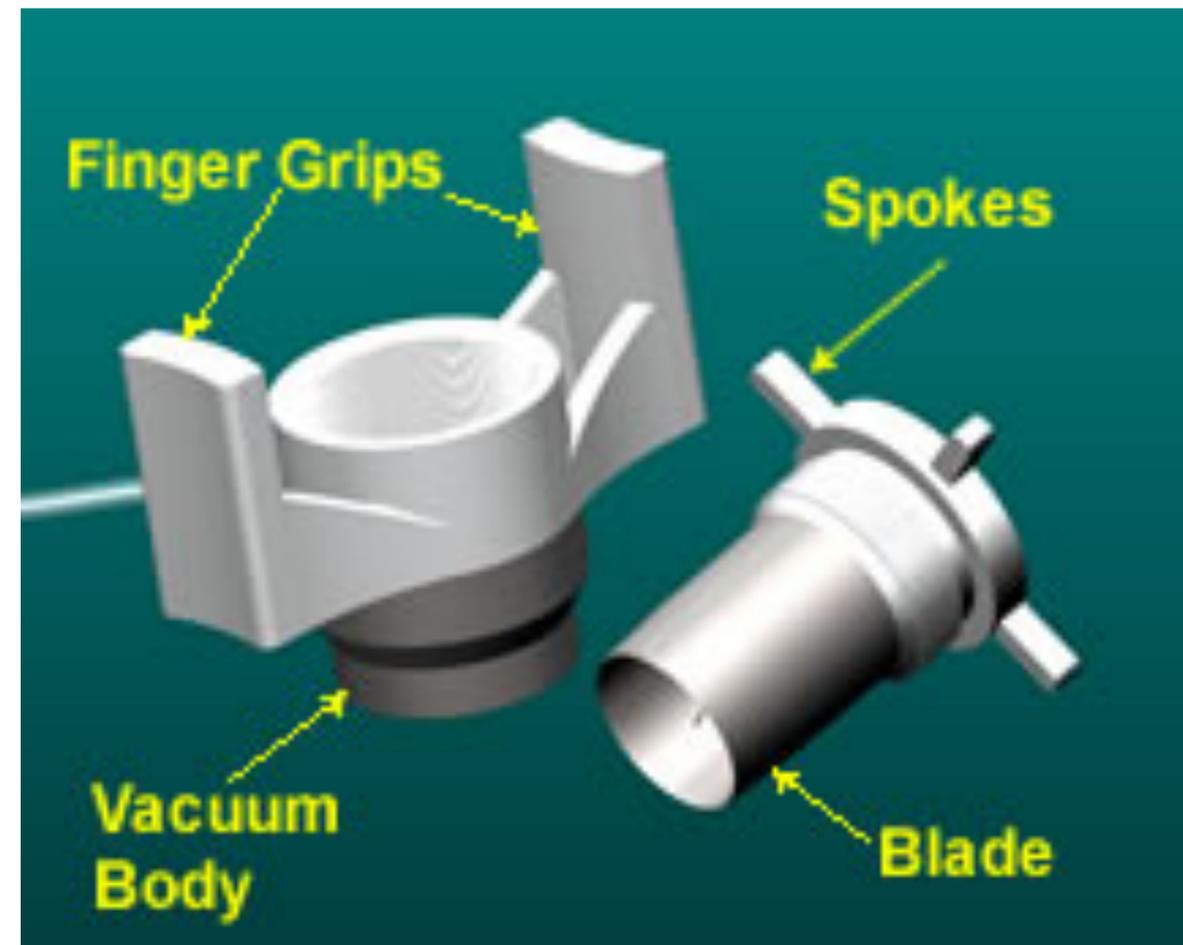
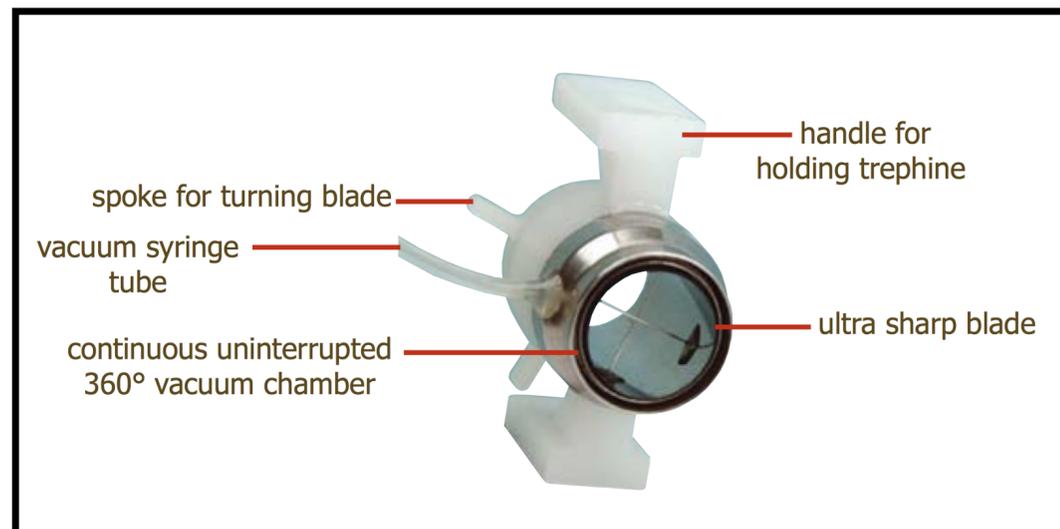
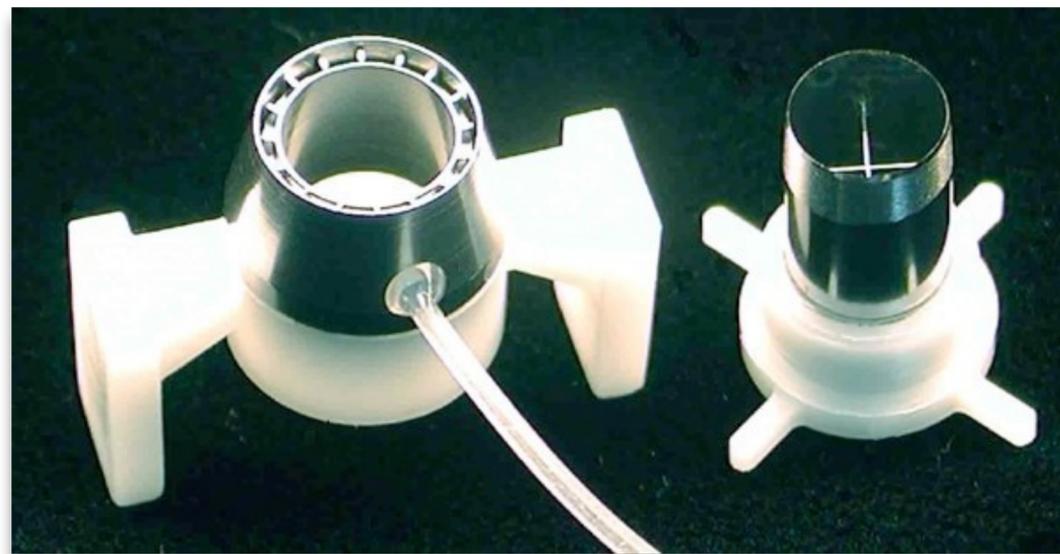
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# How to get the big bubble consistently

## Trephine adjustment

***You have to know your trephine***

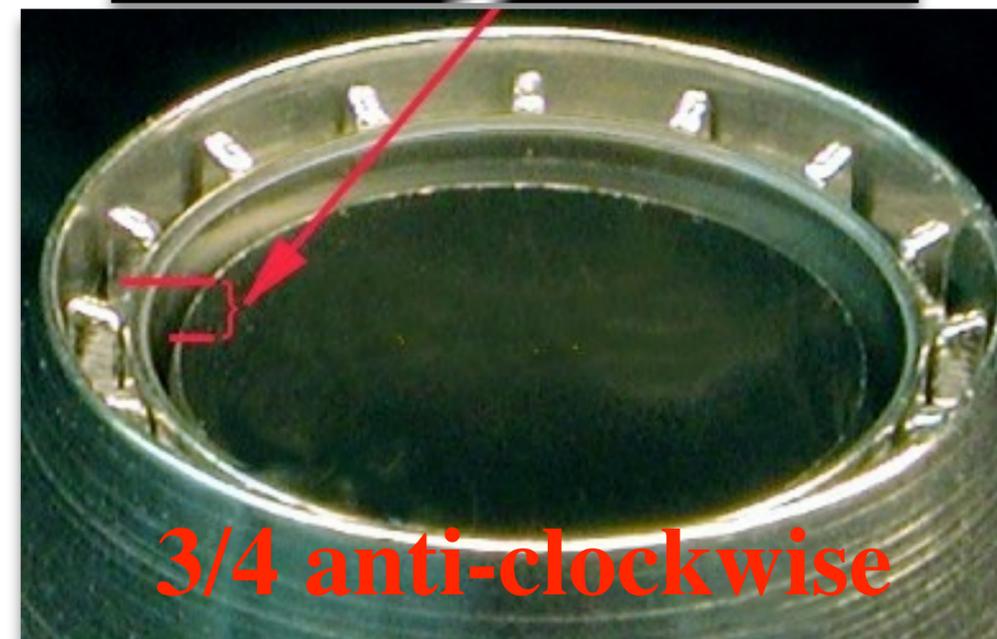
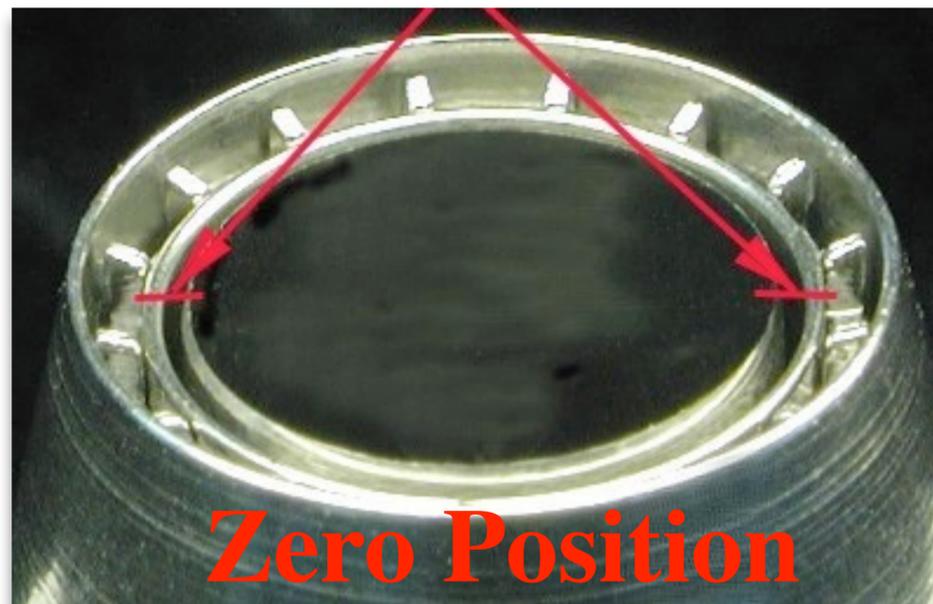
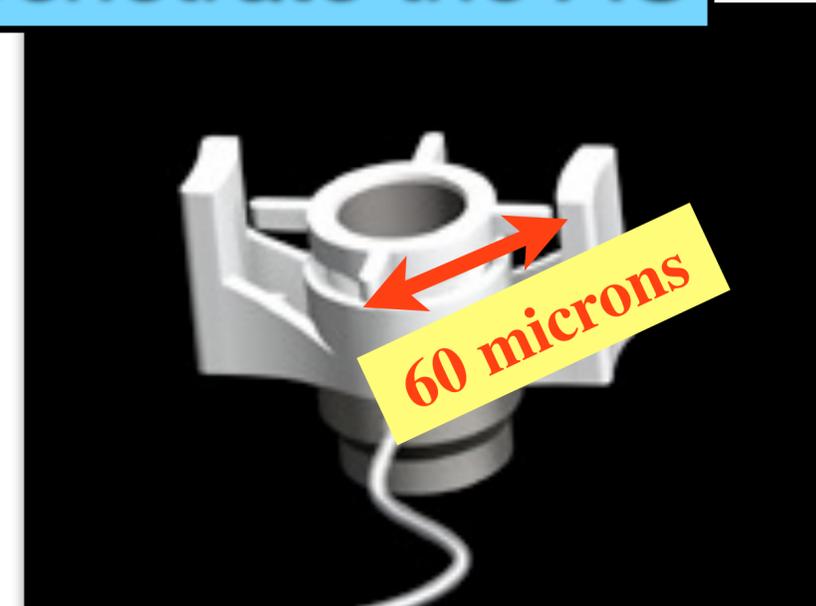
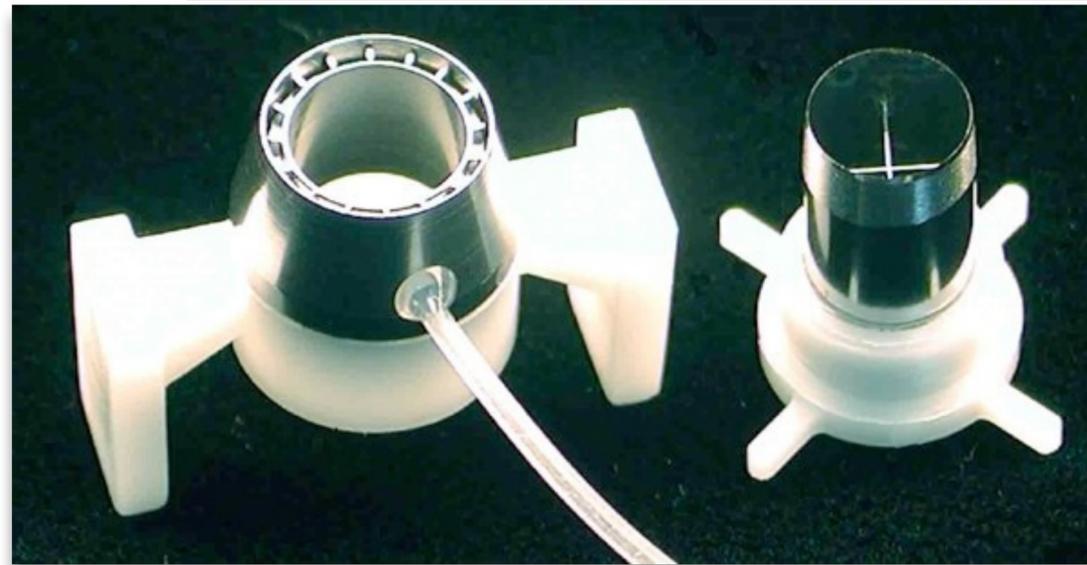


# How to get the big bubble consistently

Trephine adjustment

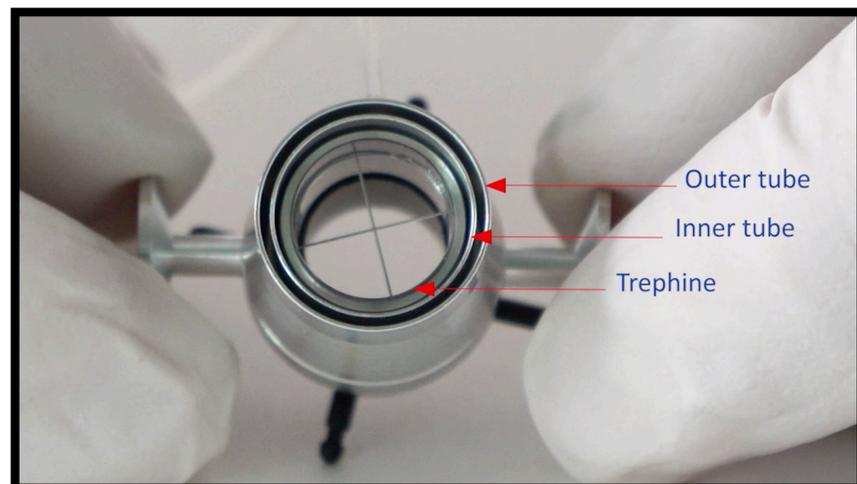
Zero Position

*Certain depth and not to penetrate the AC*



# How to get the big bubble consistently

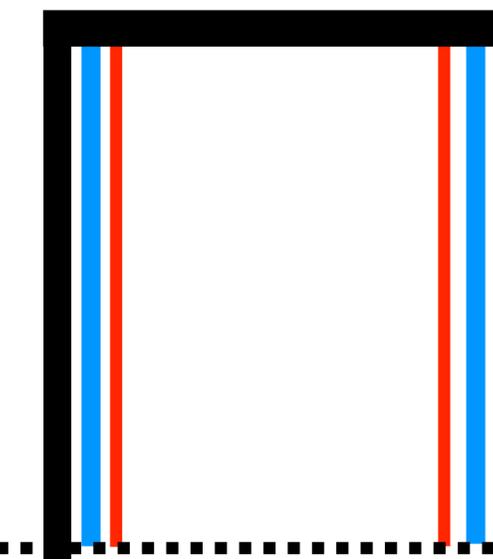
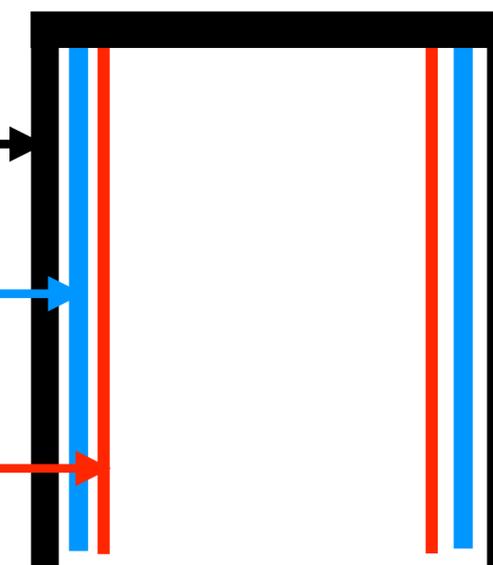
## Trephine adjustment



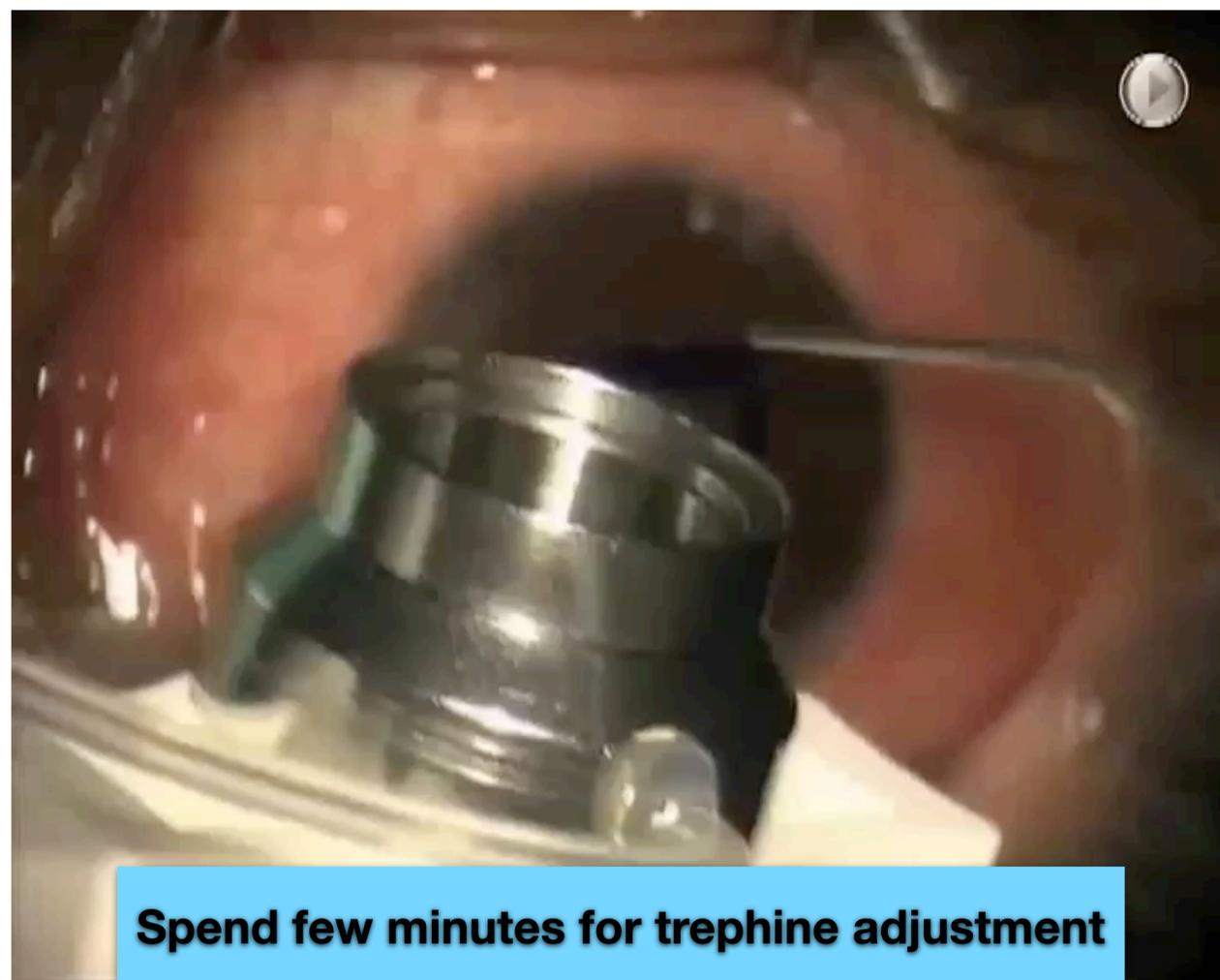
Outer Tube

Inner Tube  
(Vacuum Chamber)

Trephine



**Zero Level**



# How to get the big bubble consistently

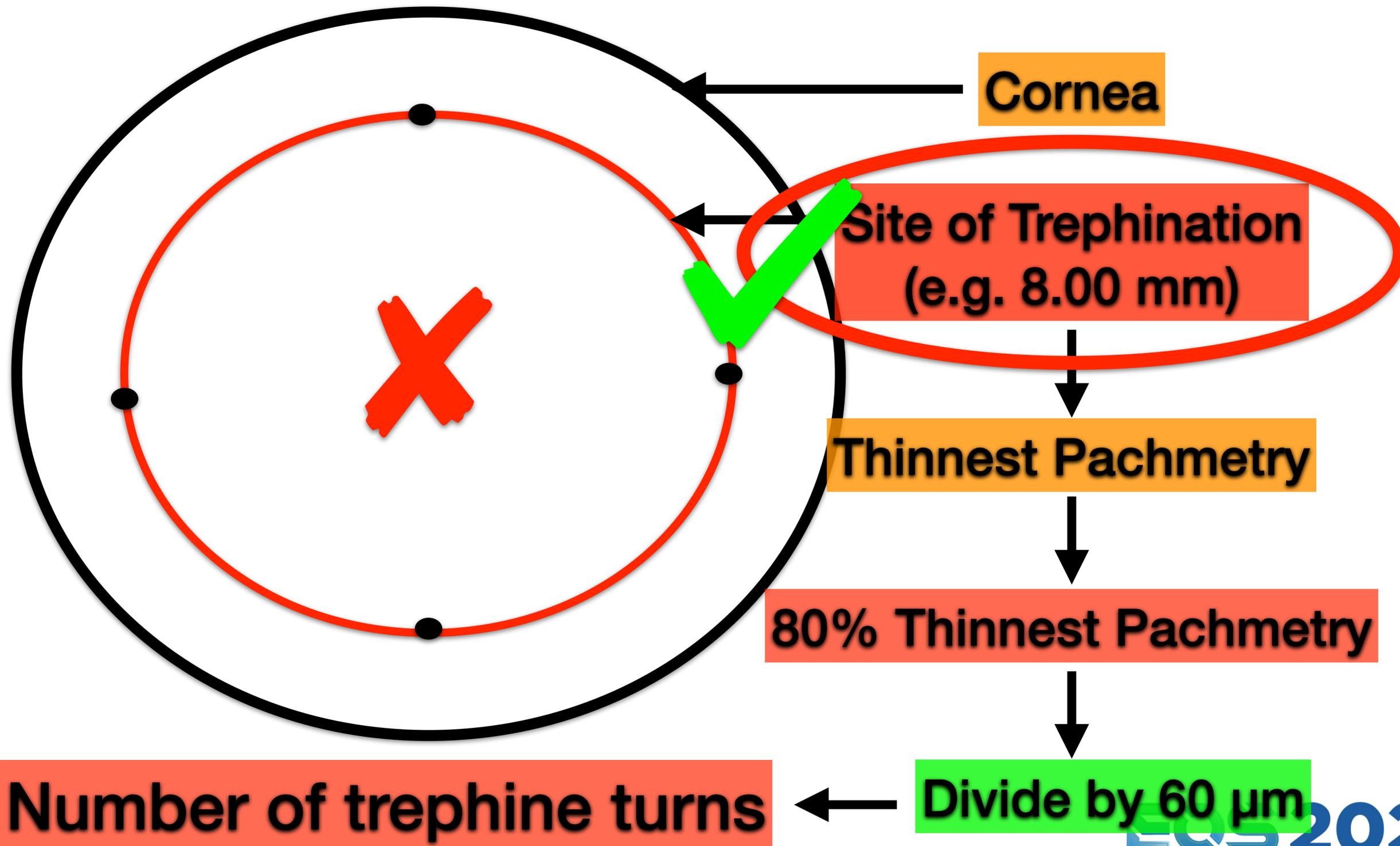
**DEEP** Partial-thickness Trephination

**How many 1/4 turns  
I am supposed to do ???!**

*It is  
Variable  
from case to case*

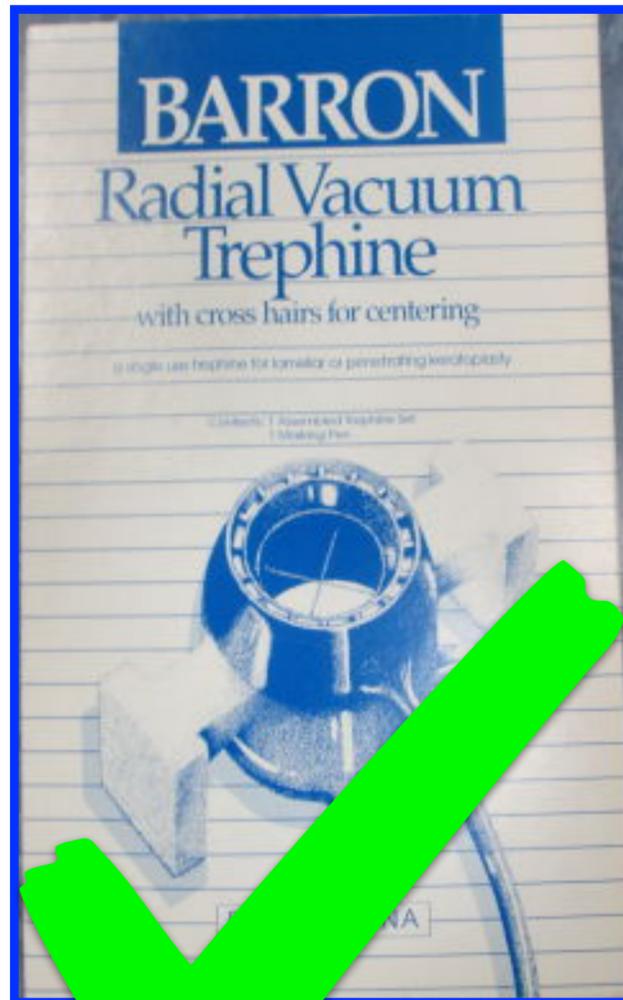
# How to get the big bubble consistently

## DEEP Partial-thickness Trephination



# How to get the big bubble consistently

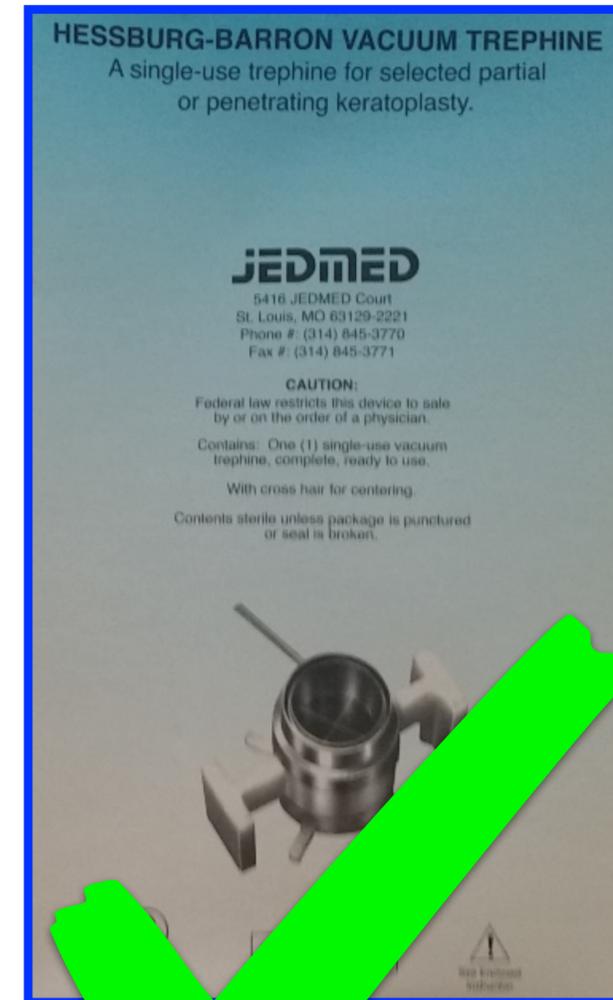
## DEEP Partial-thickness Trephination



**Katena**



**Coronet**



**JedMed**



# How to get the big bubble consistently

## **DEEP** Partial-thickness Trephination

*T. Katamish*

**GO UP TO**

**80%**

**CORNEAL THICKNESS  
AT SITE OF TREPHINATION**

*Deep Partial-thickness Trephination*

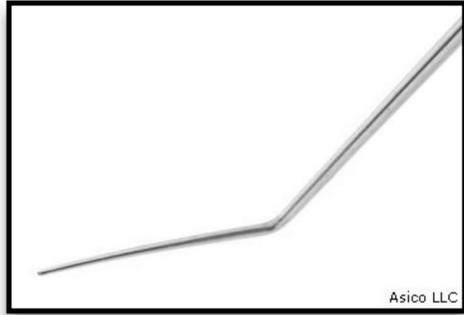


**2023**



# How to get the big bubble consistently

You have to inject air with blunt cannula

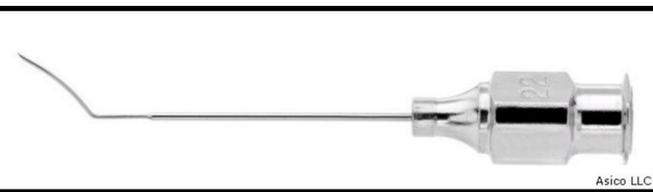


Asico LLC

Blunt Spatula



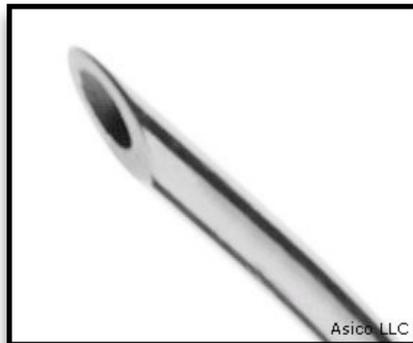
***Now: we have done a very deep groove  
BUT we need to place the injecting Cannula  
deep as well***



Asico LLC

Blunt DALK Cannula 27g

***It does not make sense that we did  
a  
deep groove  
and then to inject superficially***



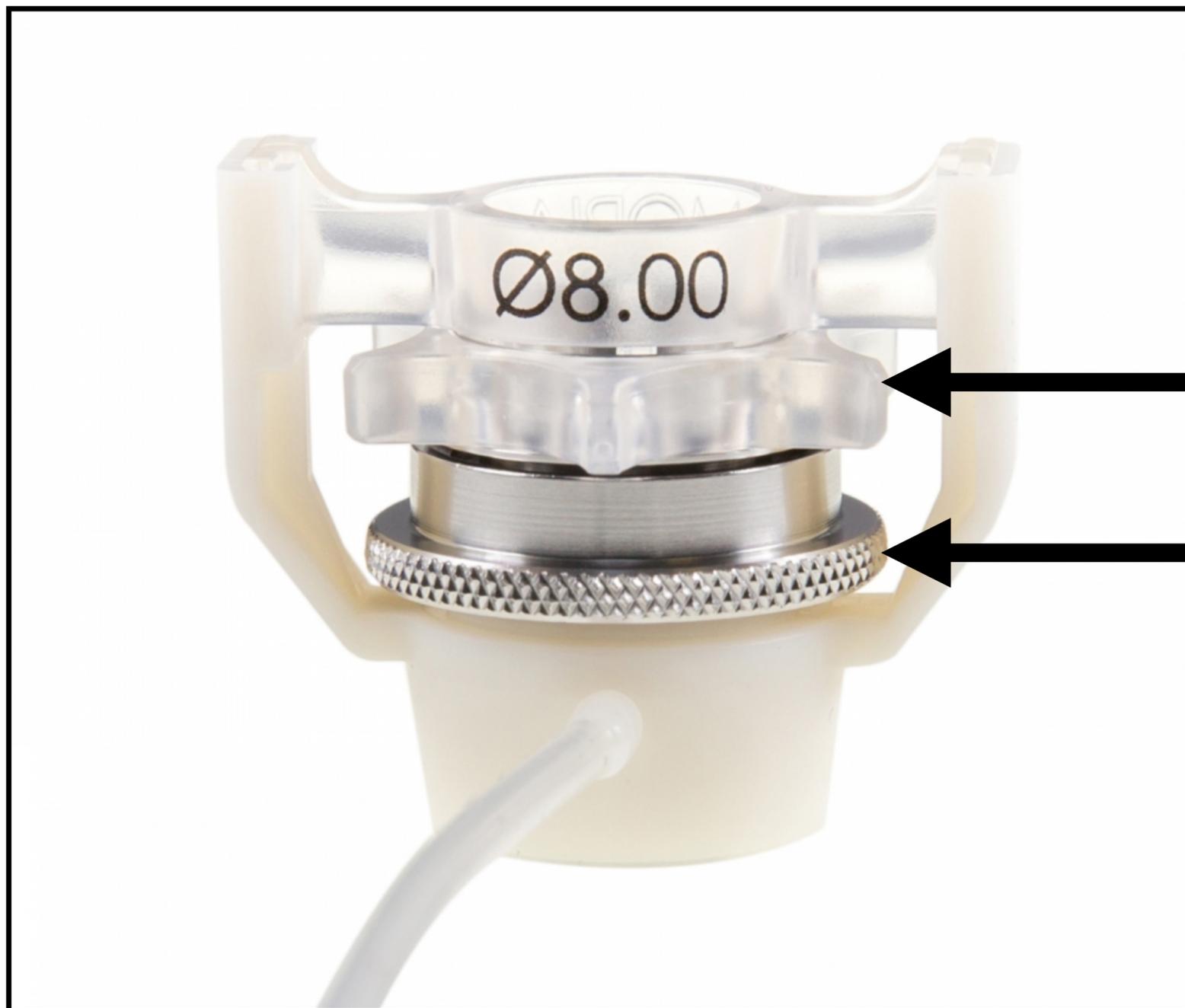
Asico LLC

Tip of Cannula



How to get the big bubble consistently

# Moria Adjustable Trephine

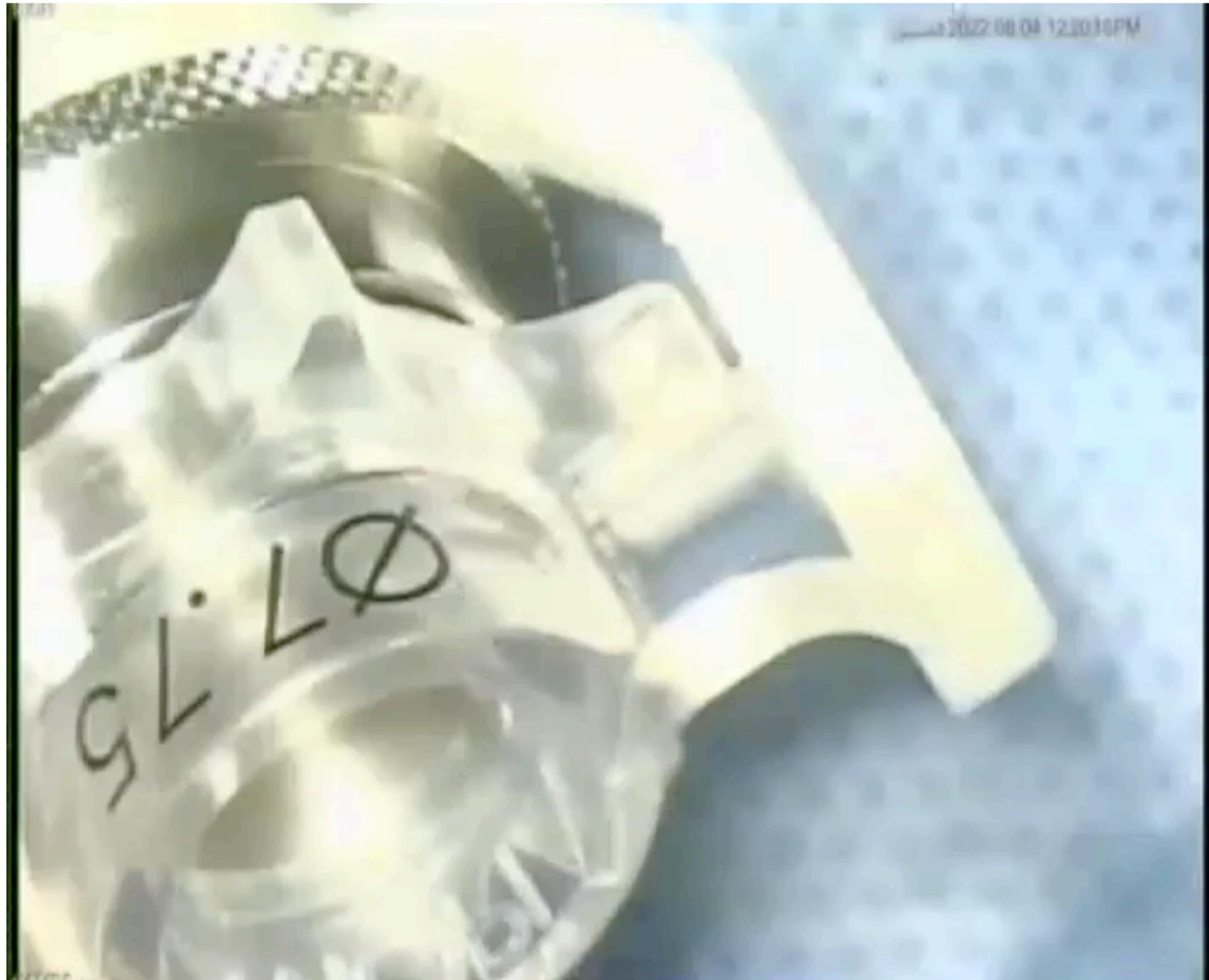


**Blade**

**Adjusting ring**

How to get the big bubble consistently

# Moria Adjustable Trephine



# Summary

## How to get the big bubble consistently

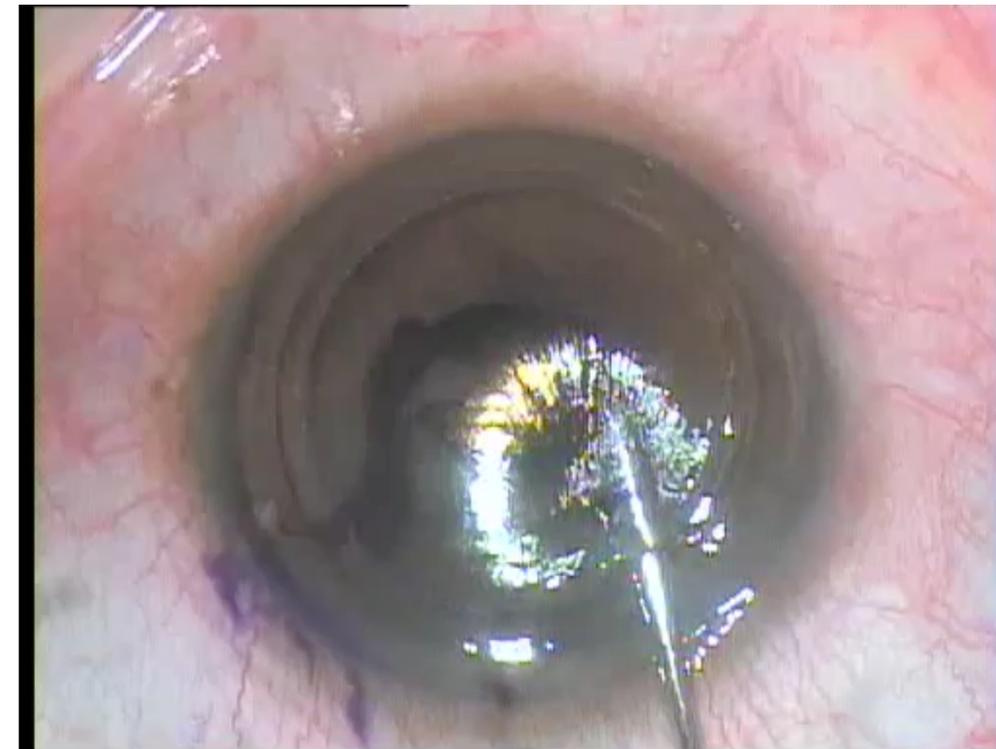
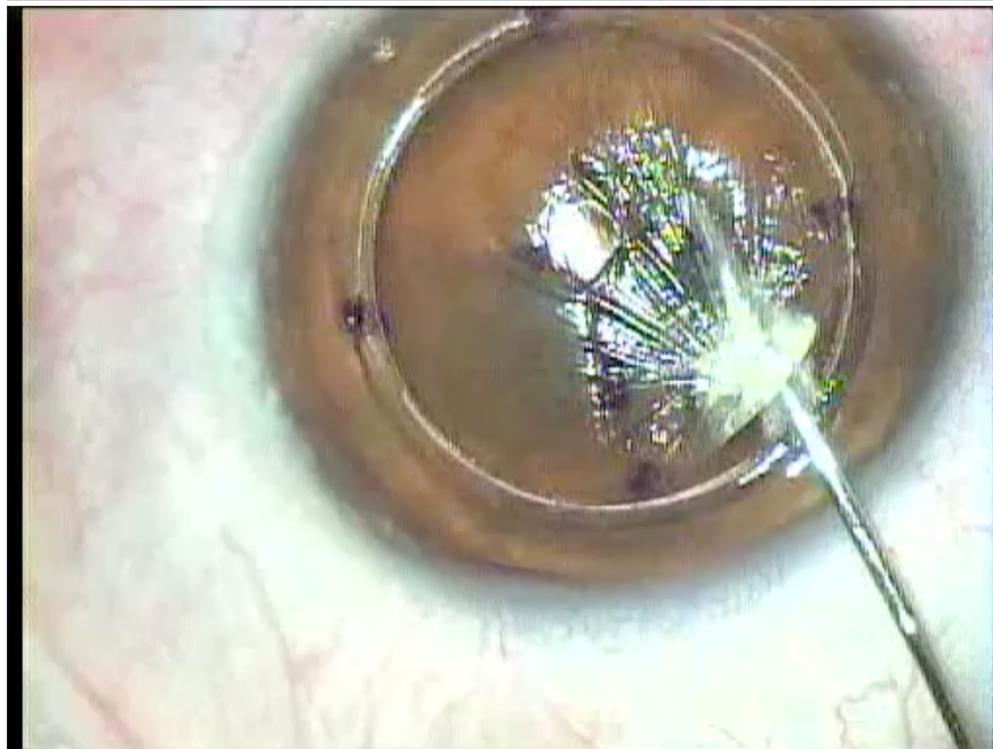
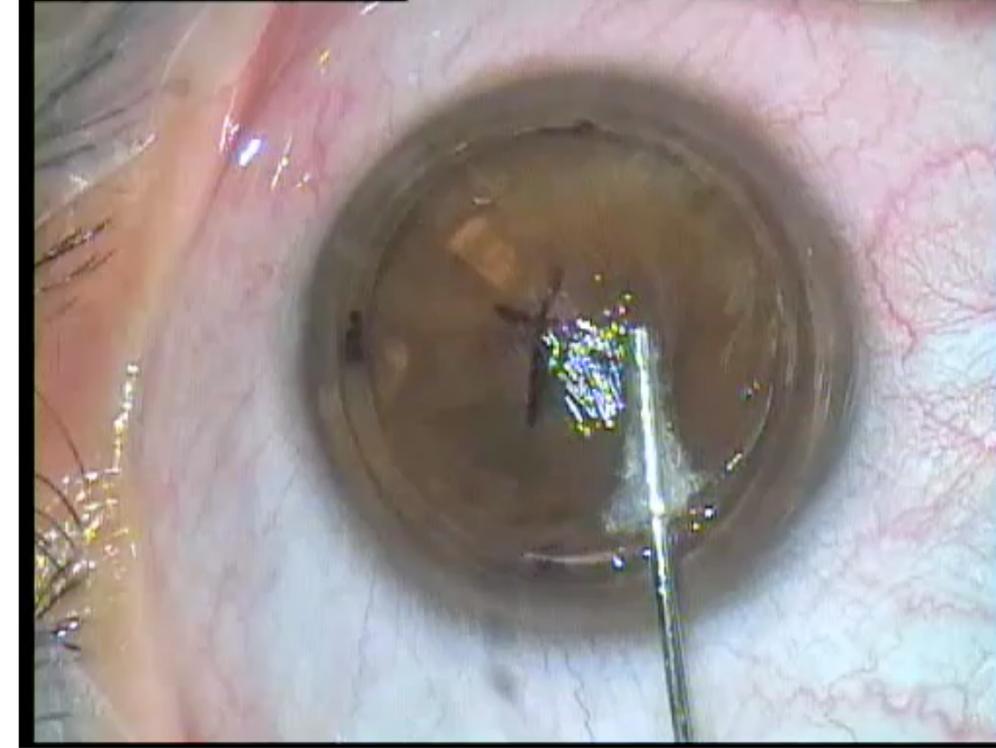
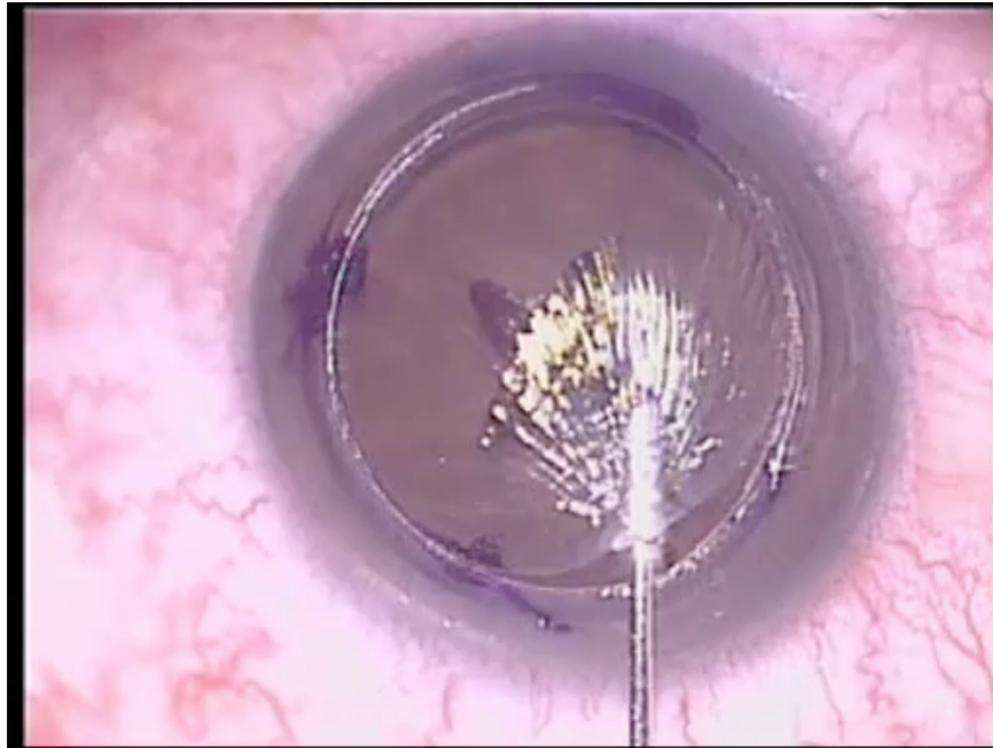
- look carefully at the pentacam map:  
**thinnest C. thickness at site of trephination**
- You have to know how to adjust trephine at **Zero mark**

- You should make a very **deep** trephination
- You should inject air very **deep** as well
- Use **blunt cannula** & not the needle anymore



# How to get the big bubble consistently

It is always a reproducible technique



2023

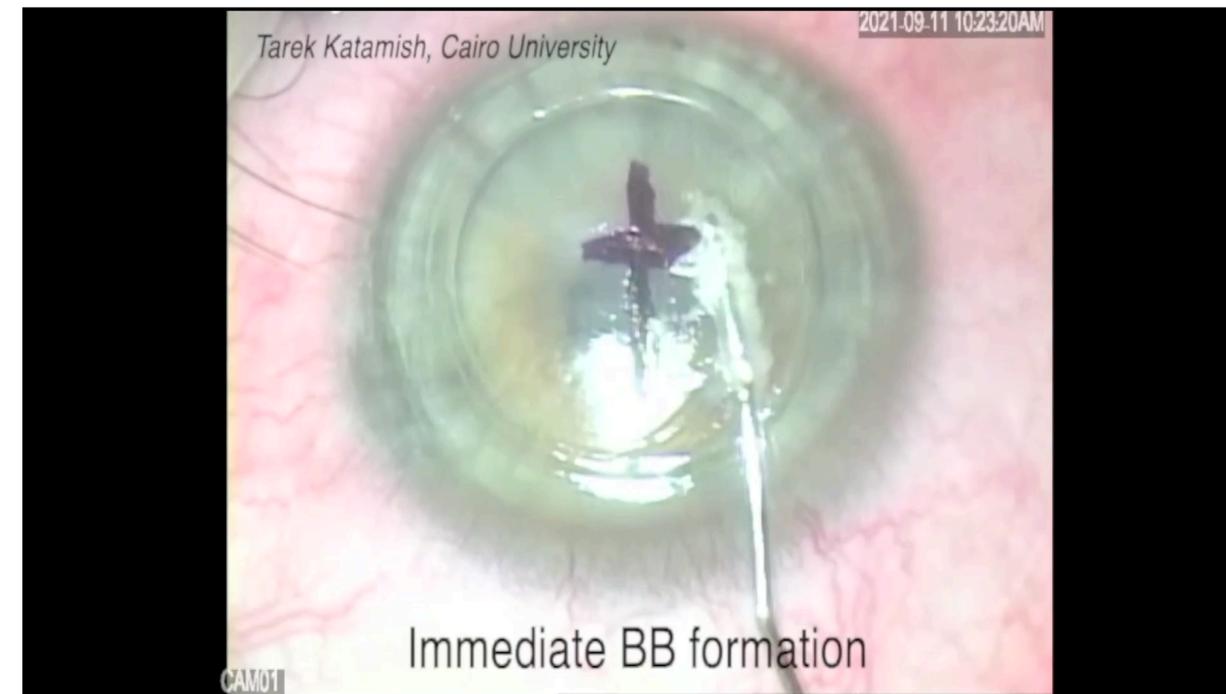
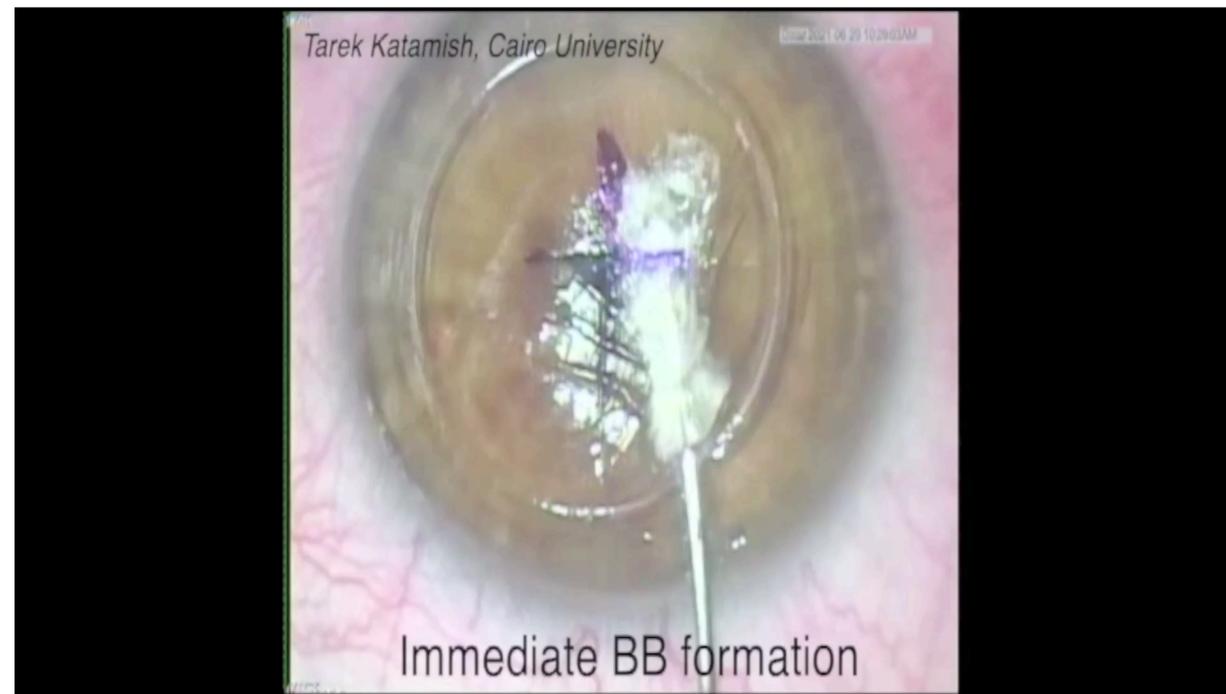


Moreover;

The aim changed  
Not only getting the BB  
from first injection  
  
but **immediate** bubble formation  
without even stromal emphysema

# How to get the big bubble consistently

## Immediate BB formation without stromal emphysema



# CONCLUSION

**Big Bubble formation is a key step in any DALK operation and should spare no effort to obtain the BB consistently**

# DALK

## Manual dissection technique

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but what if BB formation is  
impossible

either due to Intraoperative complications  
or as a preoperative decision in some special cases like

\*\* Keratoconus with previous hydrops

\*\* Trauma with deep scars involving DM



# Manual dissection



# Manual DALK

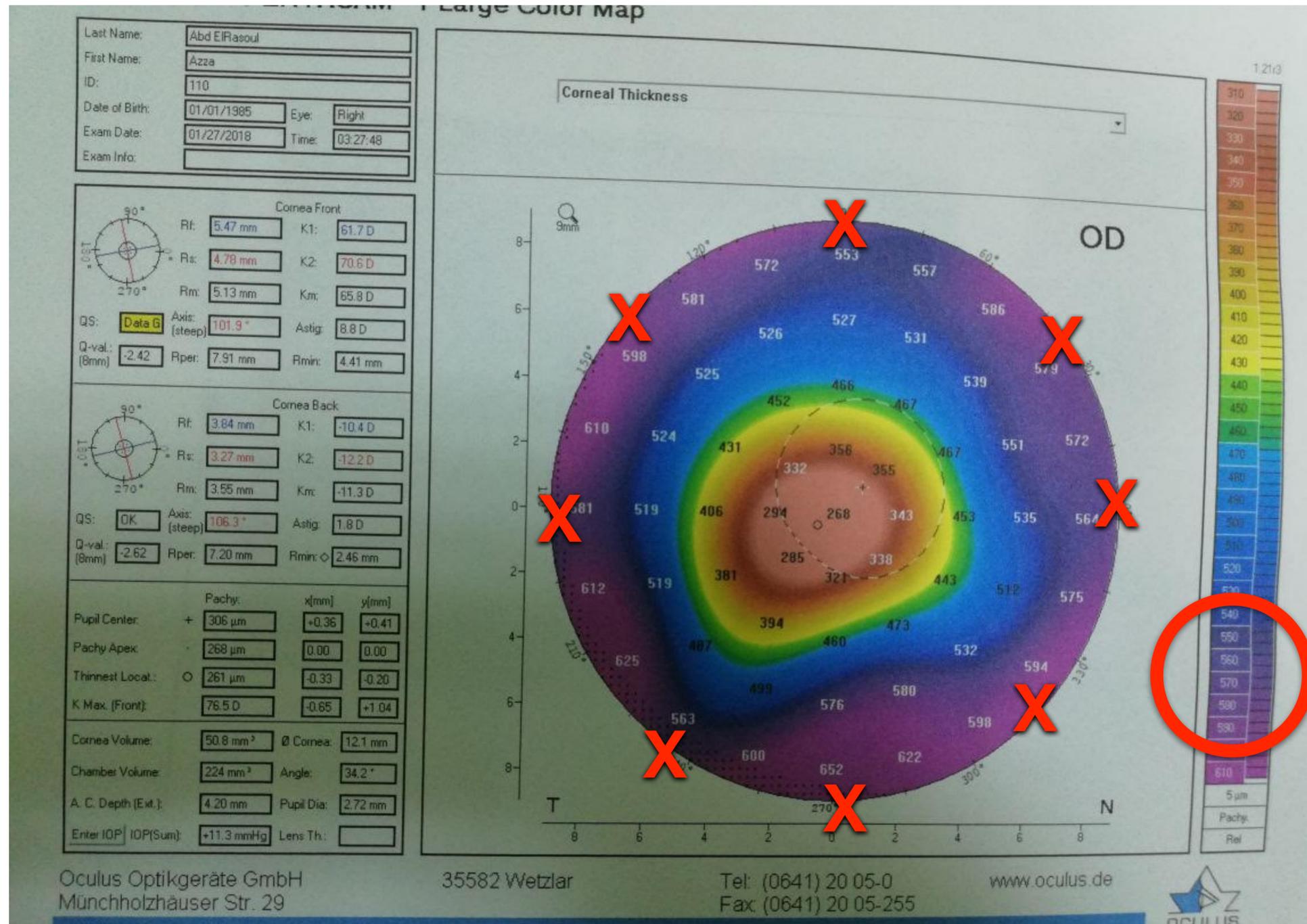
## Landmarks of my technique

- **Deep** Partial thickness trephination up to **85%** is essential
- **Spiral** dissection in periphery using **blunt-tip scissors**
- **No need of** Air bubble in AC
- **Peeling of** deep stroma at center
- **Crescent knife** may help in final dissection
- Be ready for minute **DM perforation**

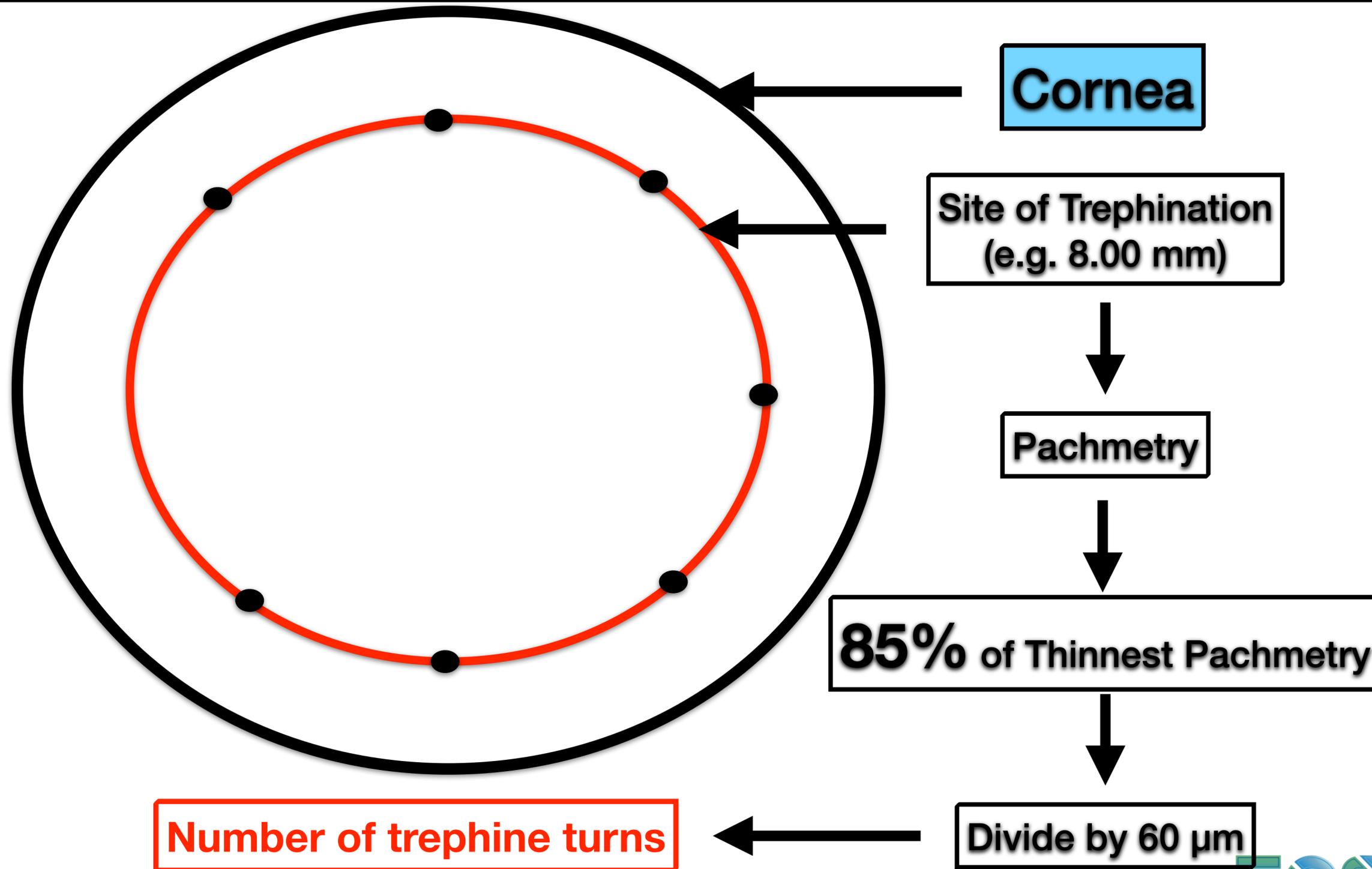


# Look carefully at the pentacam map C. thickness at site of trephination

# 85%



# Deep Partial-thickness trephination



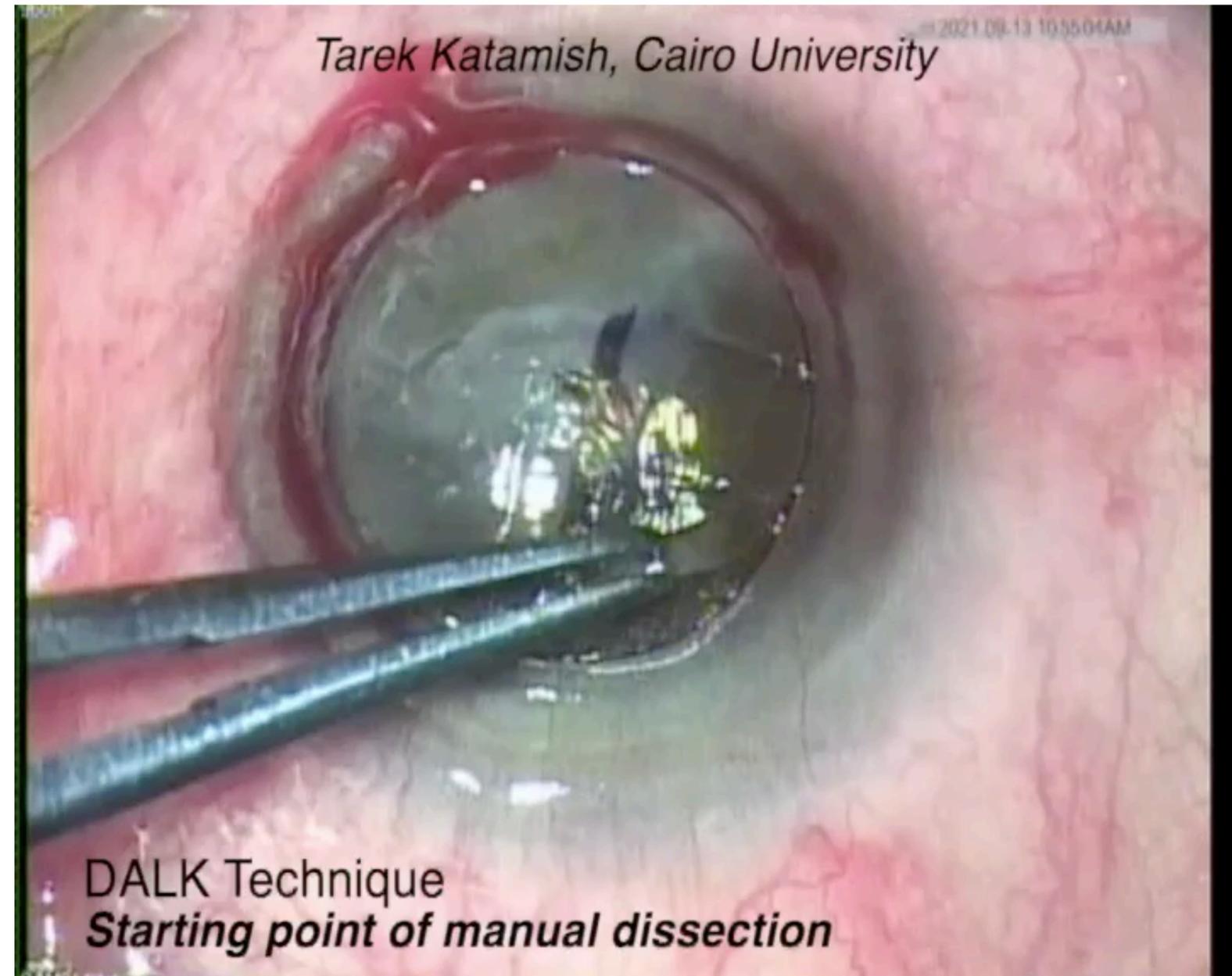
# Manual dissection technique **(starting point)**

- 80-85% depth trephination
- Define the deepest plane of the groove by crescent knife
- Then start manual dissection by blunt-tip scissor



# Manual dissection technique (starting point)

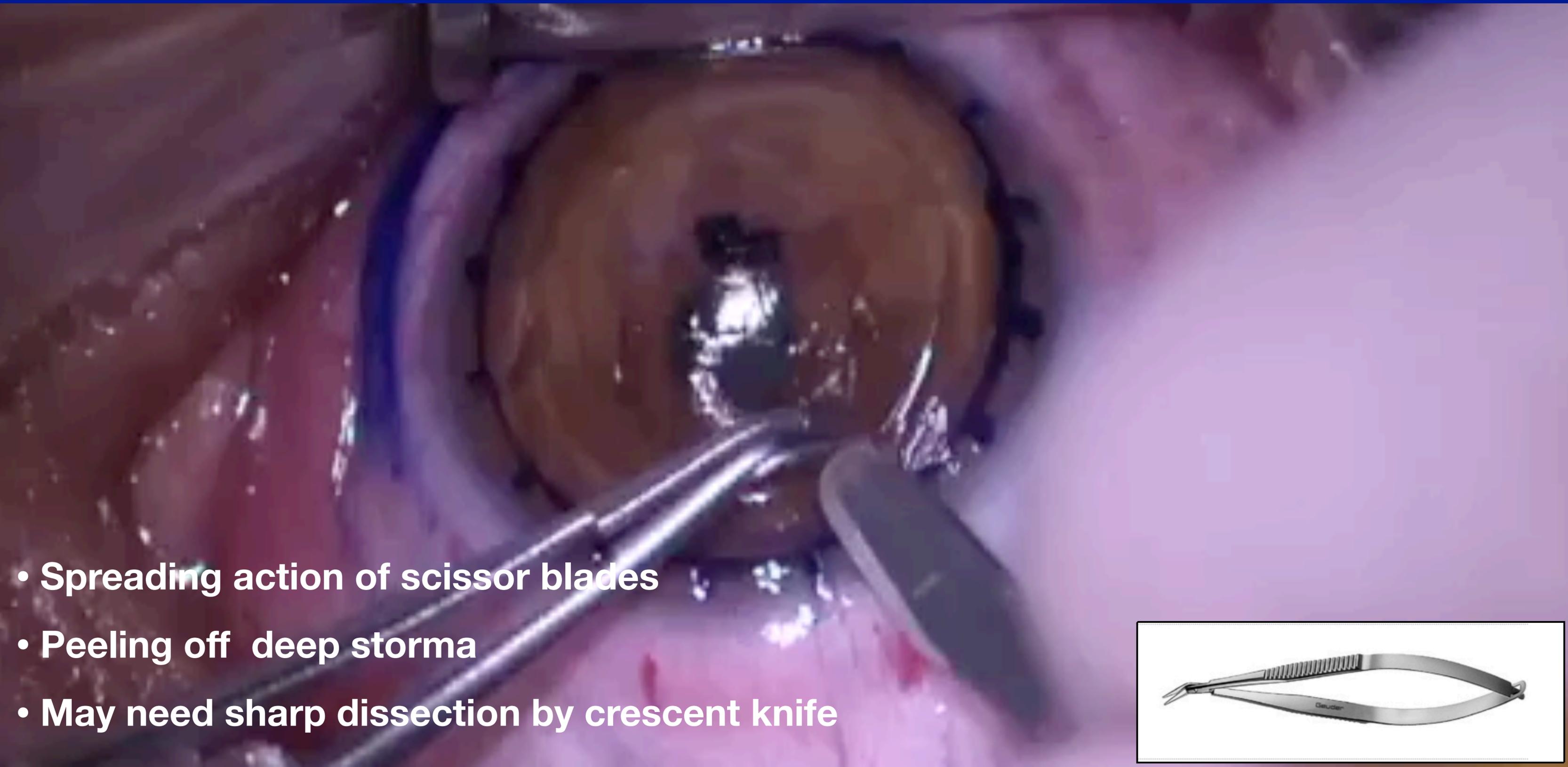
- 80-85% depth trephination
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# Technique of Manual DALK



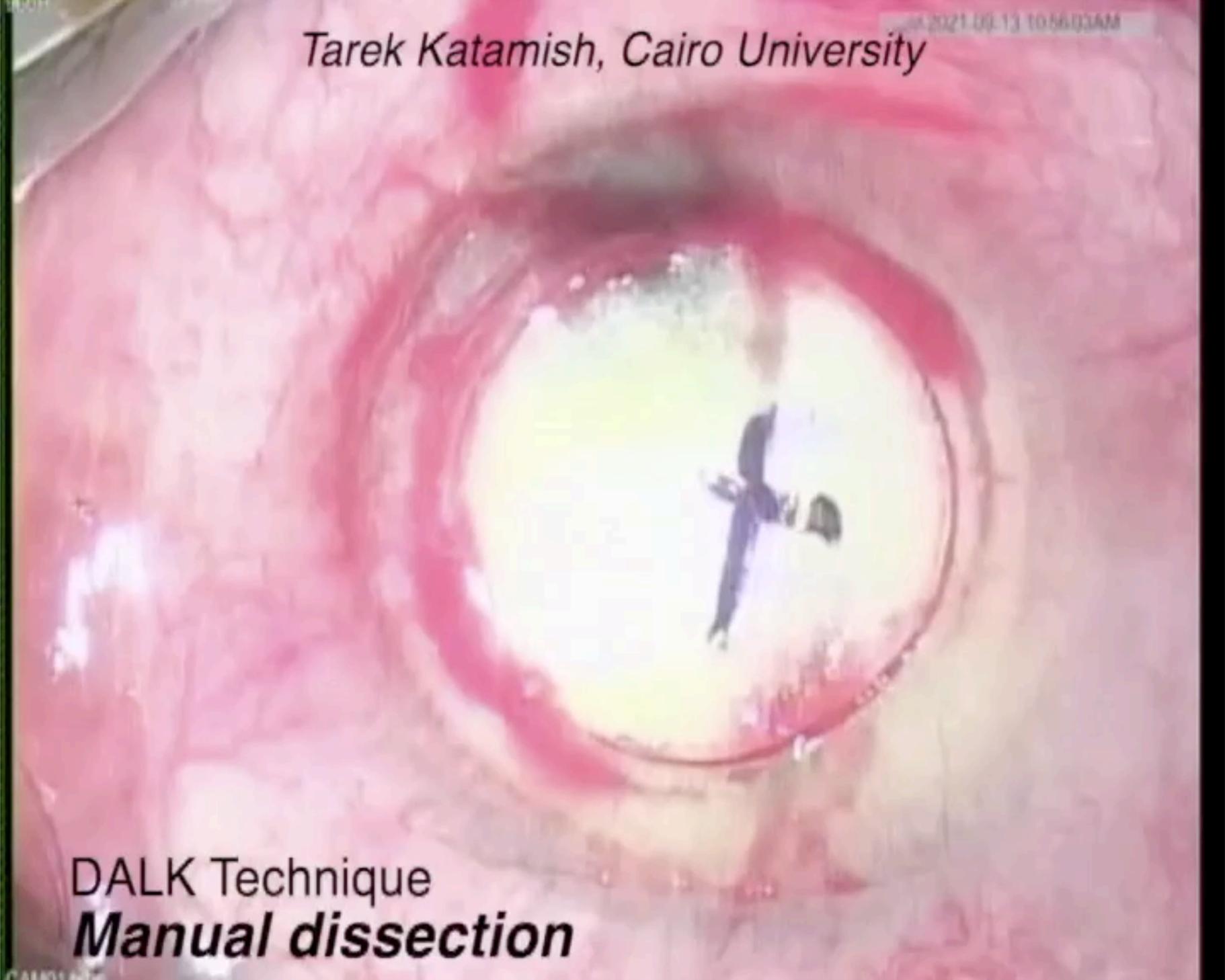
# Technique of Manual DALK, 1ry procedure



- Spreading action of scissor blades
- Peeling off deep stroma
- May need sharp dissection by crescent knife

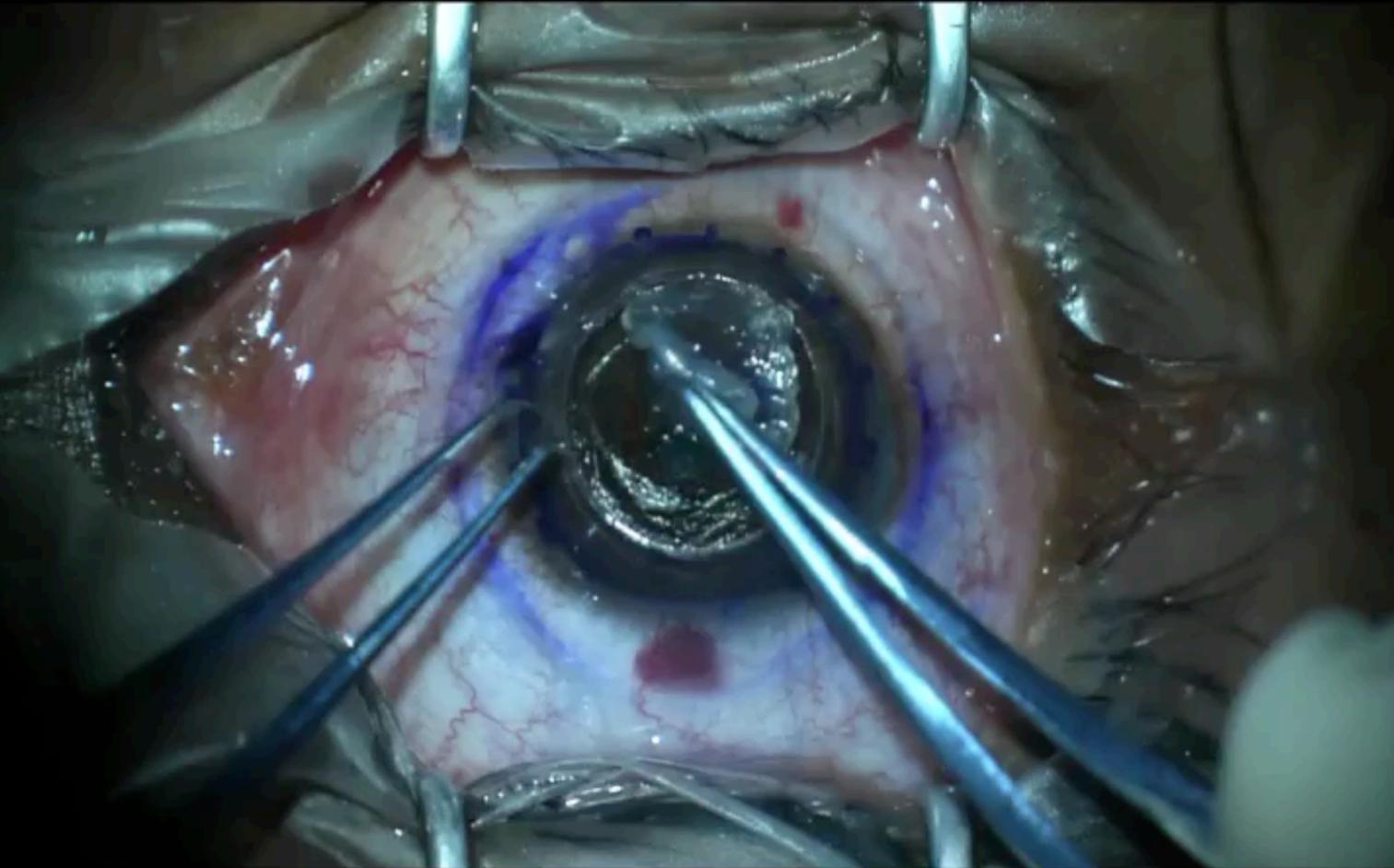


# Technique of Manual DALK, 2ry procedure



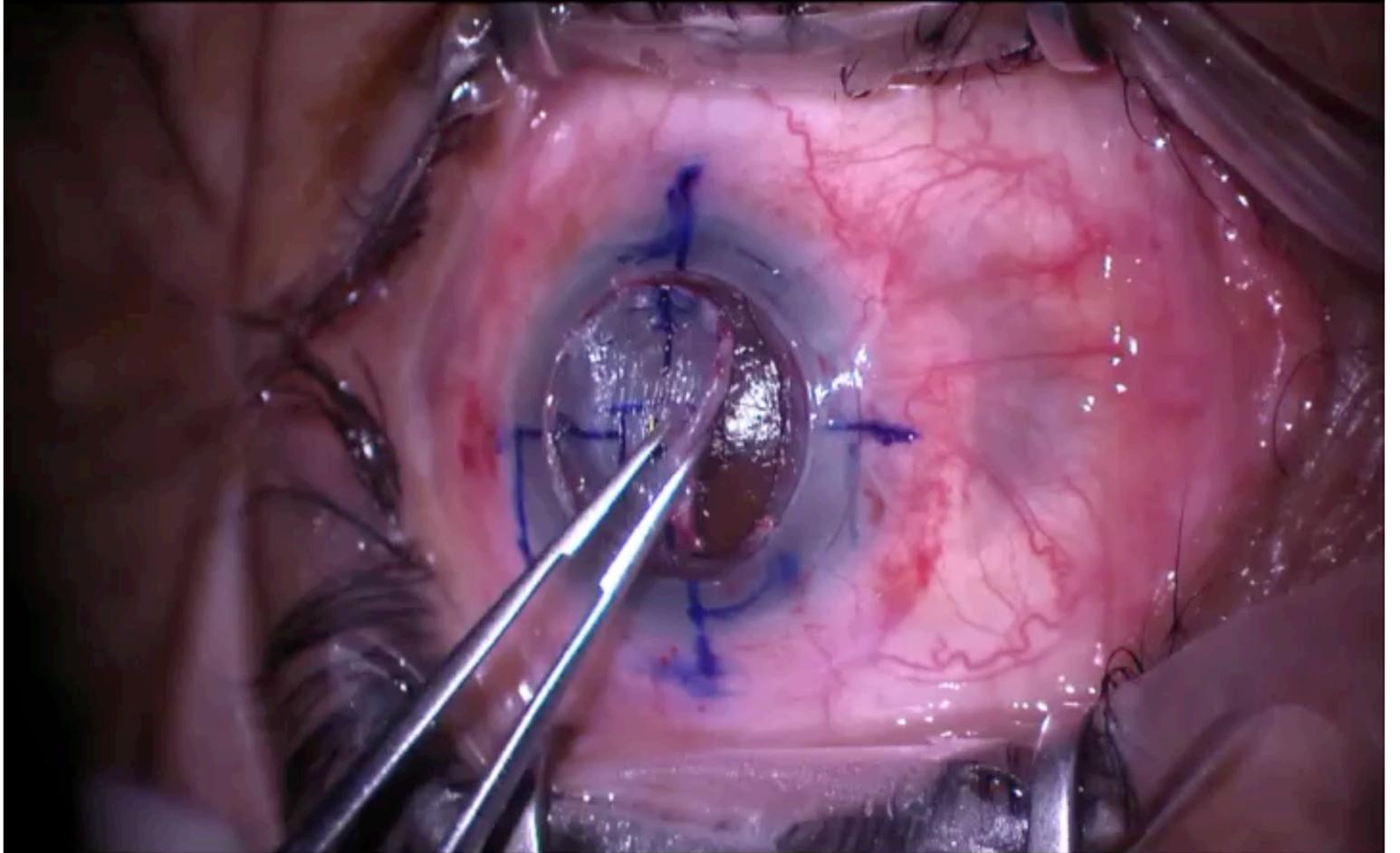
# Peeling of technique

*Tarek Katamish, Cairo University*



**Manual DALK**

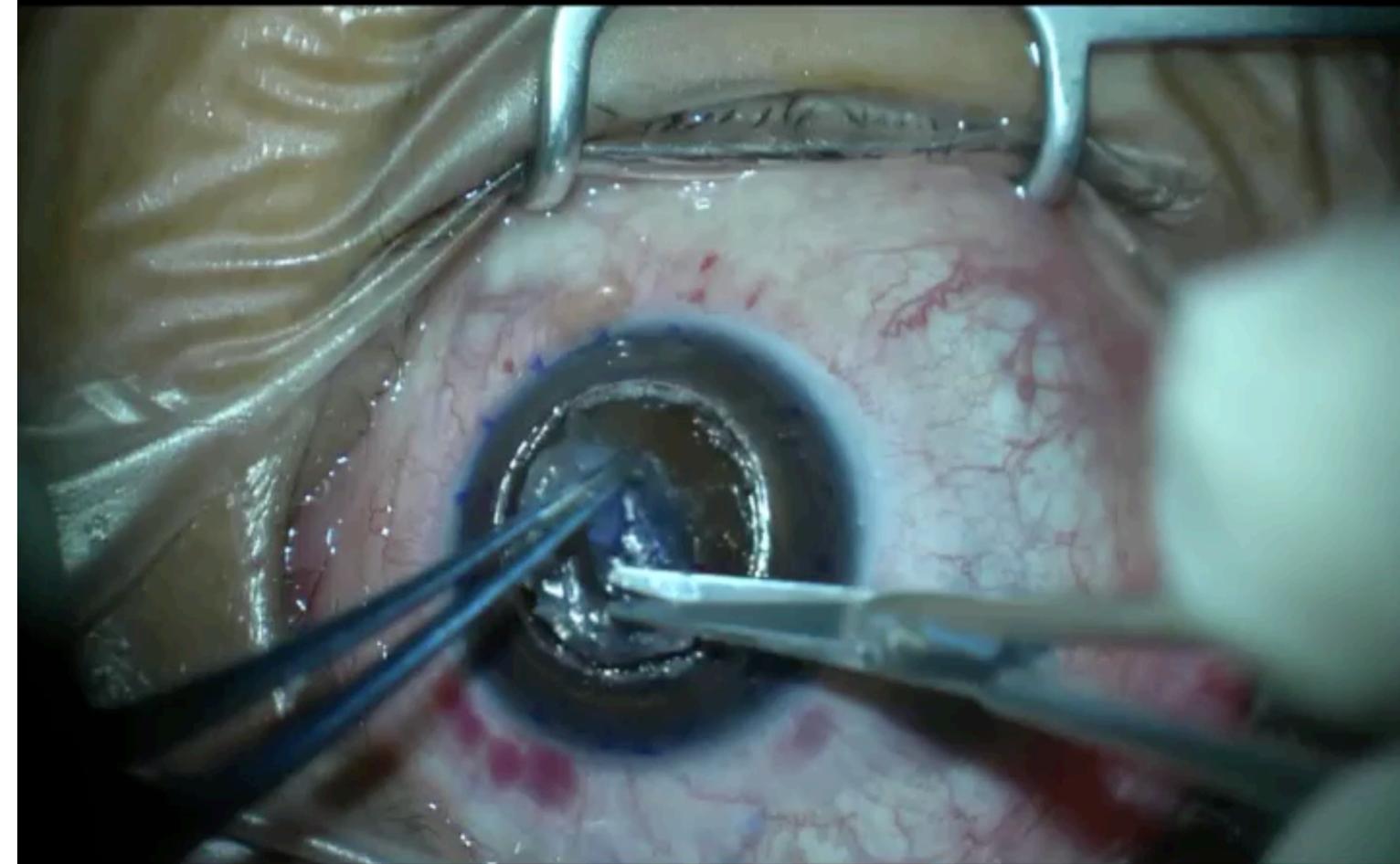
*Tarek Katamish, Cairo University*



**Manual DALK**

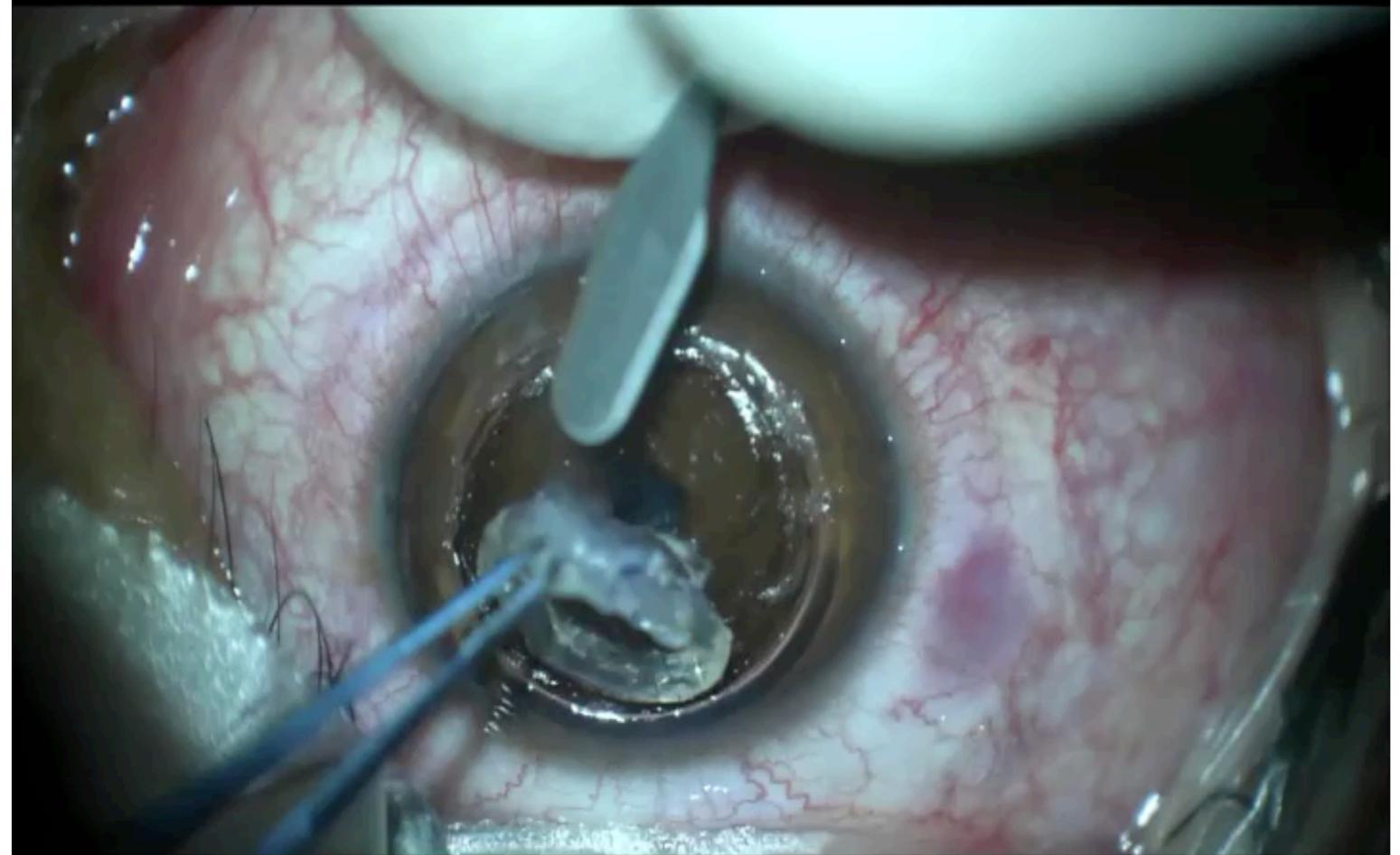
# Crescent knife dissection

*Tarek Katamish, Cairo University*



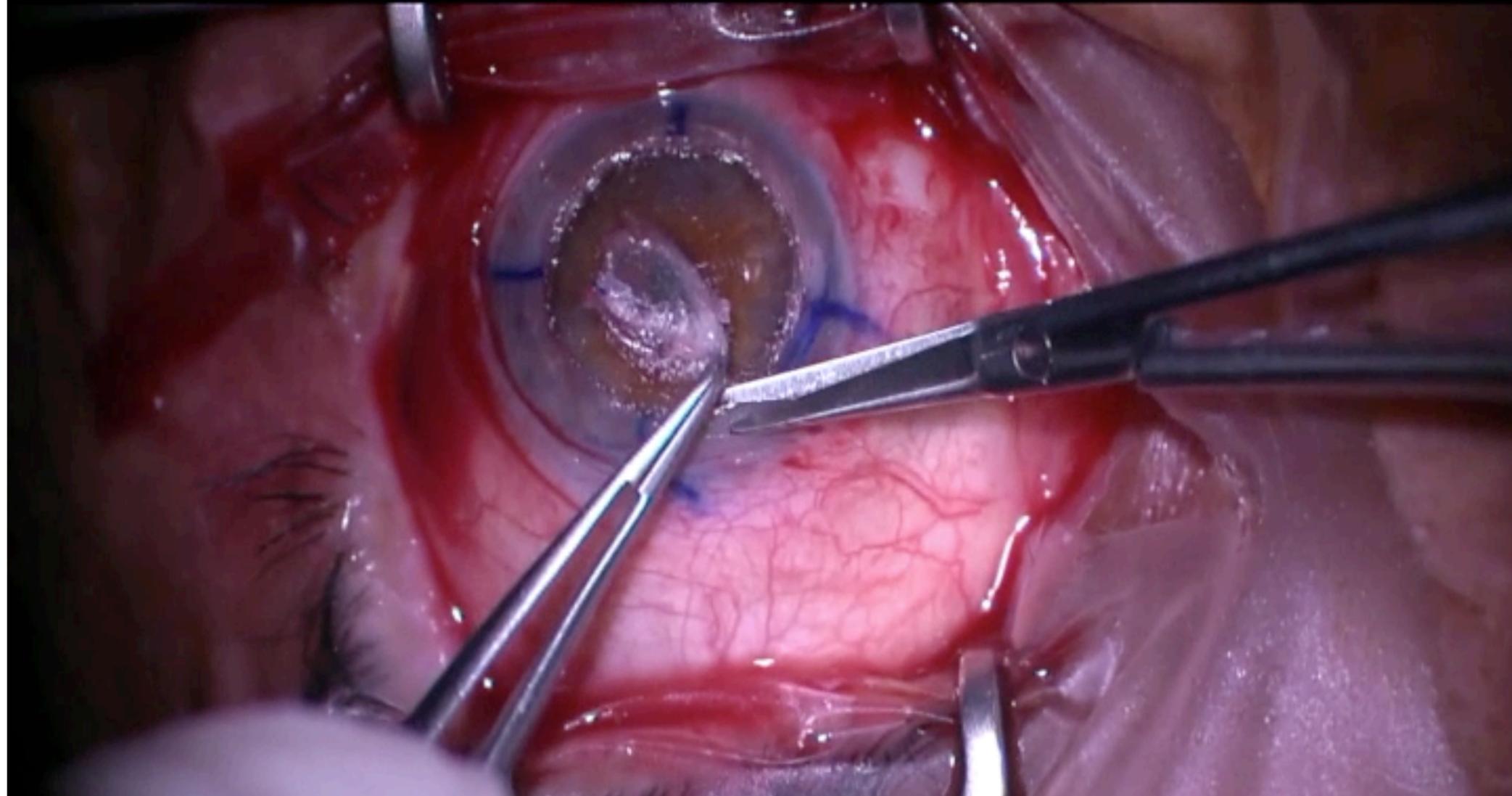
**Manual DALK**

*Tarek Katamish, Cairo University*



**Manual DALK**

*Tarek Katamish, Cairo University*

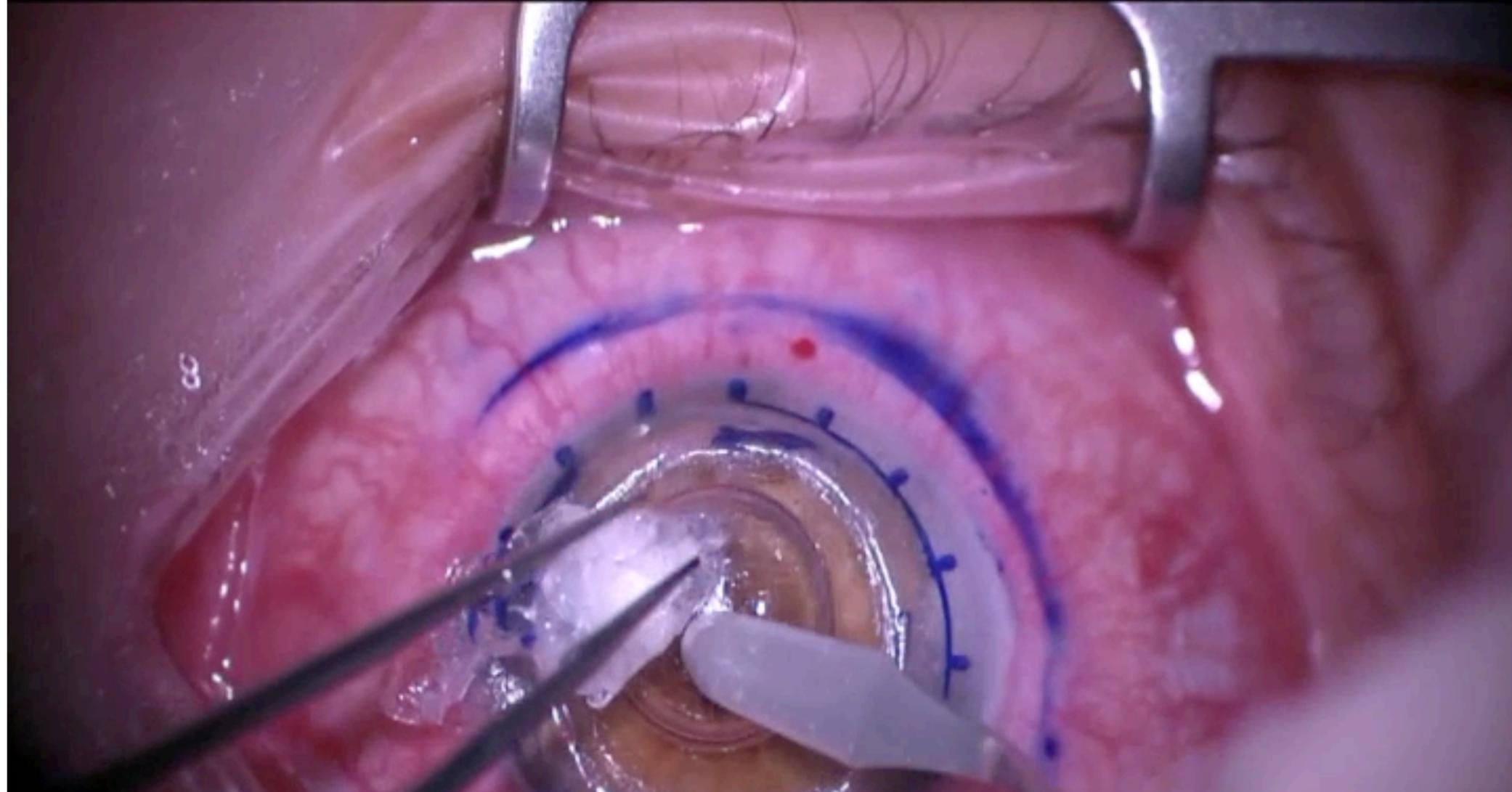


# DM perforation: Scissors

## Manual DALK



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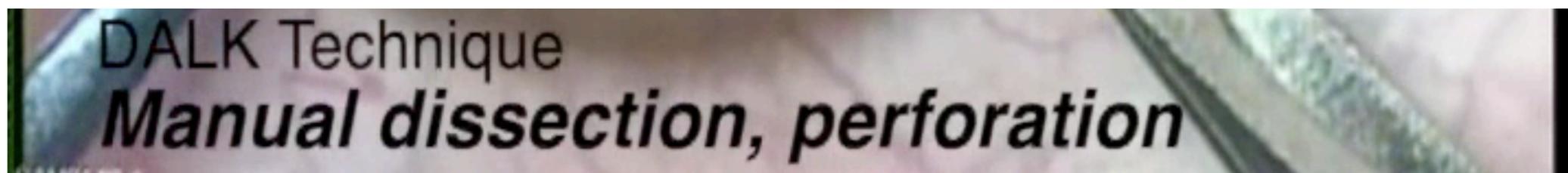
**DM perforation: Crescent knife**

**Manual DALK**



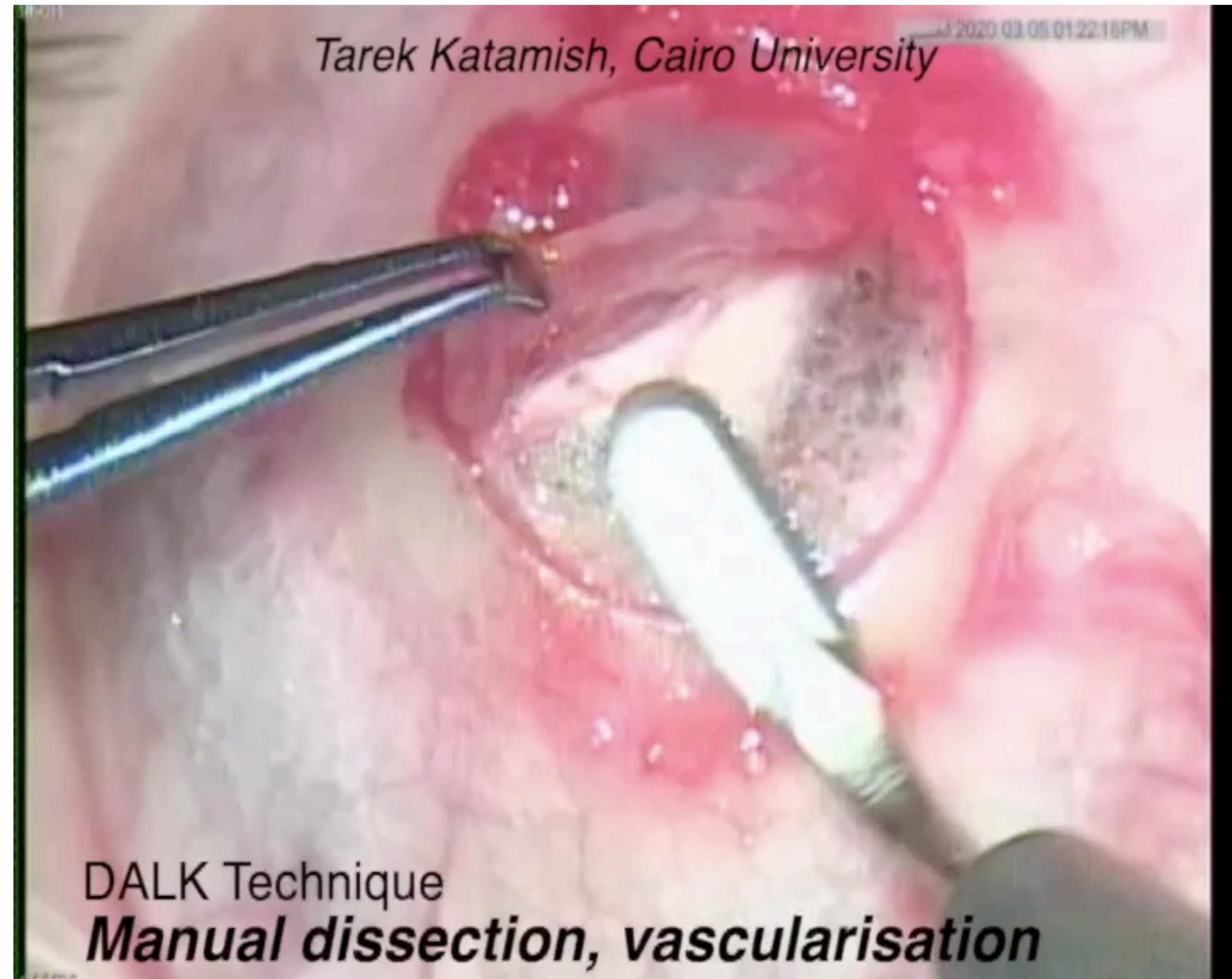


## DM perforation: Peeling off



# Manual dissection technique

- Imagine the outcome of this case of highly vascular cornea with a high risk of rejection if we performed **PKP**



# CONCLUSION

you have to master the technique of

**Manual DALK**

and spare no effort

to learn it to avoid

**conversion to PKP**





# THANK YOU

*See you next year*

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