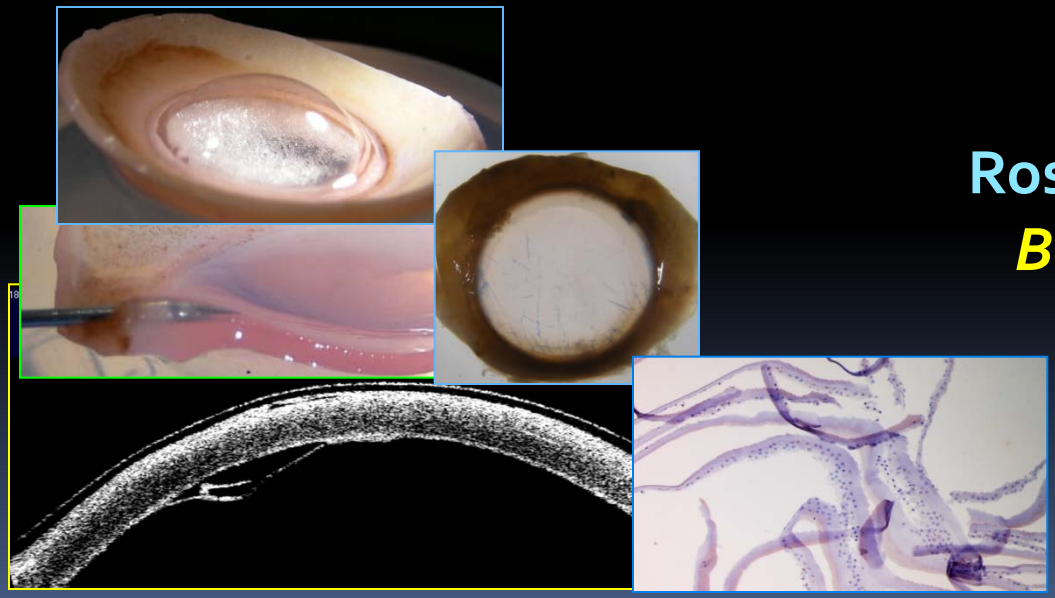
S.I.T R A.C.
SOCIETA' ITALIANA TRAPIANTO DI CORNEA

Banca degli Occhi
Centro di riferimento regionale del Lazio
COMPLESSO OSPEDALIERO
S. GIOVANNI - ADDOLORATA

E' possibile preparare in Banca degli Occhi "rolls" di Descemet – endotelio per DMEK?

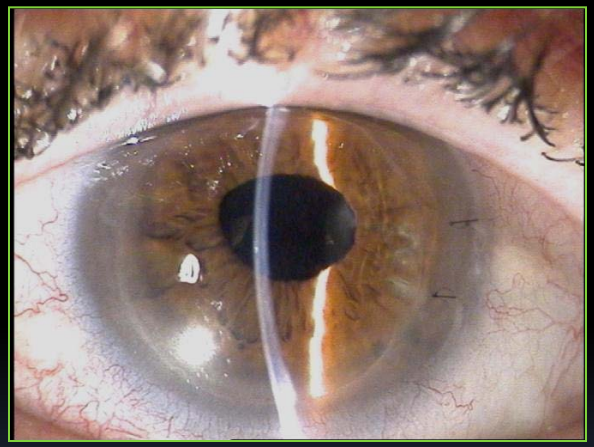


Rossella A.M. Colabelli Gisoldi
Banca degli Occhi di Roma

Surgical treatment of endothelial diseases

PK DSAEK DMEK

Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK) is a stroma-sparing transplant technique that selectively replaces dysfunctional corneal endothelium



Advantages: DSAEK vs PK

- ✓Faster visual recovery
- ✓Minimal refractive change
- ✓Minimal postoperative ocular surface complications
- ✓Better postoperative corneal integrity

Endothelial keratoplasty: DSEK/DSAEK or DMEK - the thinner the better?

Isabel Dapena[a,b], Lisanne Ham[a,c] and Gerrit R.J. Melles[a,b,c]

Current Opinion in Ophthalmology 2009, 20:299–307

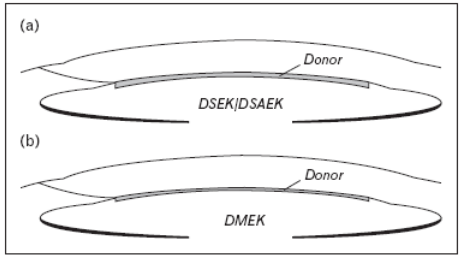
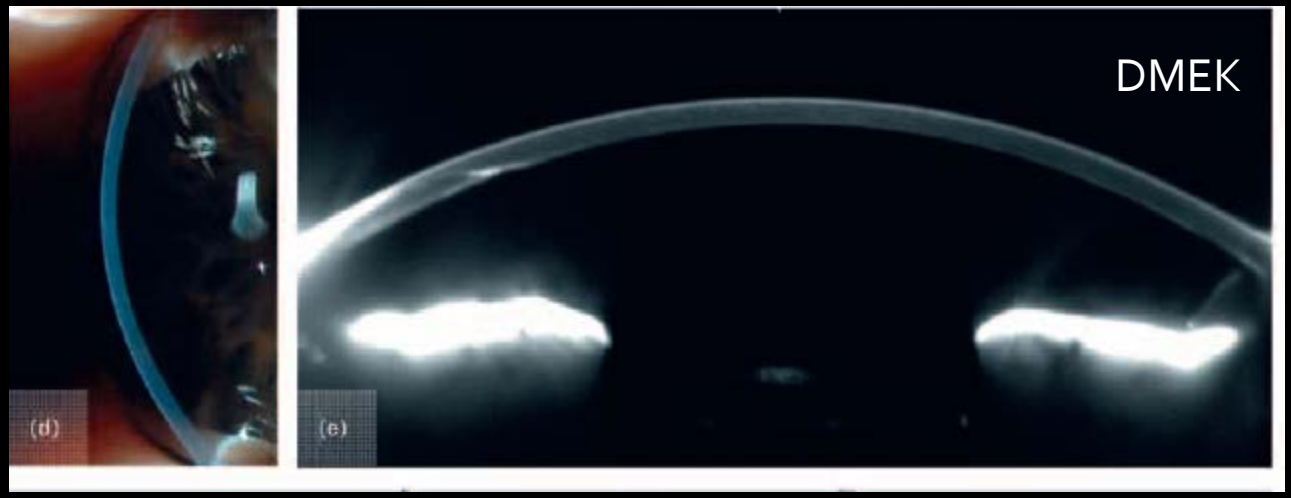
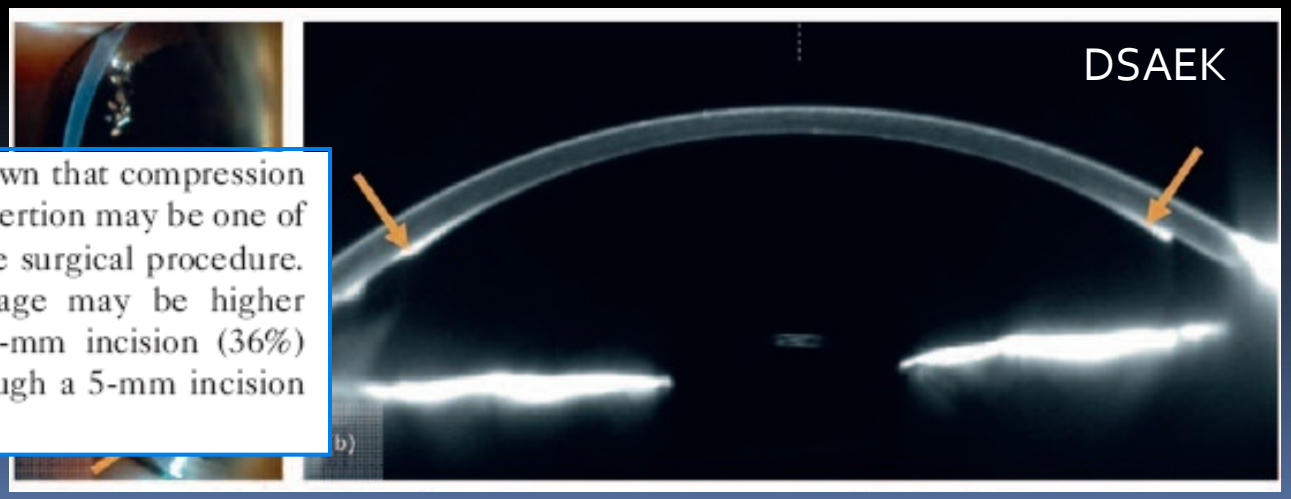


Diagram displaying (a) DSEK/DSAEK and (b) DMEK procedures. In both techniques, the recipient Descemet membrane is excised by descemetorhexis. In DSEK/DSAEK, a donor posterior lamellar disk consisting of posterior stroma, Descemet membrane, and its endothelium is transplanted, whereas in DMEK only an isolated donor Descemet membrane with its endothelium is transplanted. In DSEK, donor stromal dissection is performed manually, and in DSAEK, with the use of a microkeratome. In DMEK, the donor Descemet membrane is stripped off from a corneoscleral button. DMEK, Descemet membrane endothelial keratoplasty; DSAEK, Descemet stripping automated endothelial keratoplasty; DSEK, Descemet stripping endothelial keratoplasty.





Several studies [21•,47,48] have shown that compression of the donor lenticule during the insertion may be one of the most traumatic steps during the surgical procedure. In DSAEK, endothelial cell damage may be higher with 'trifolded' grafts through a 3-mm incision (36%) than 'bifolded' taco lenticules through a 5-mm incision (19%) [47].

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The Association for Research in Vision and Ophthalmology
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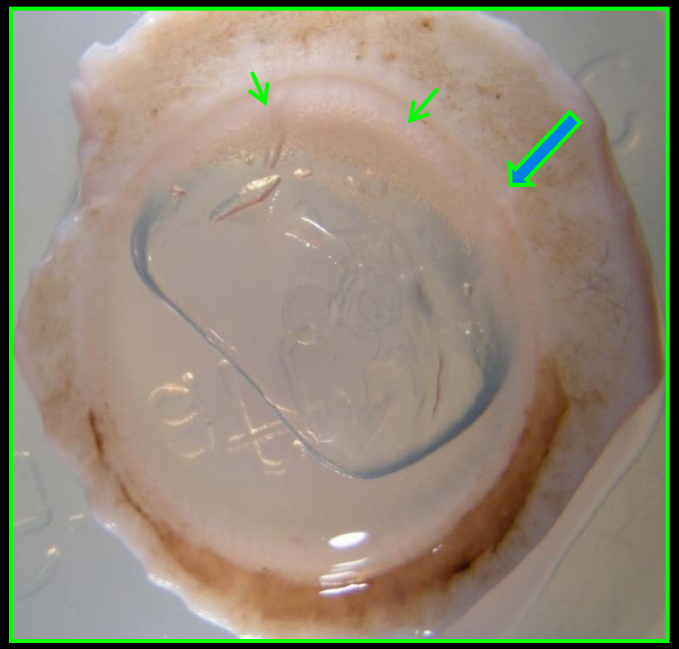
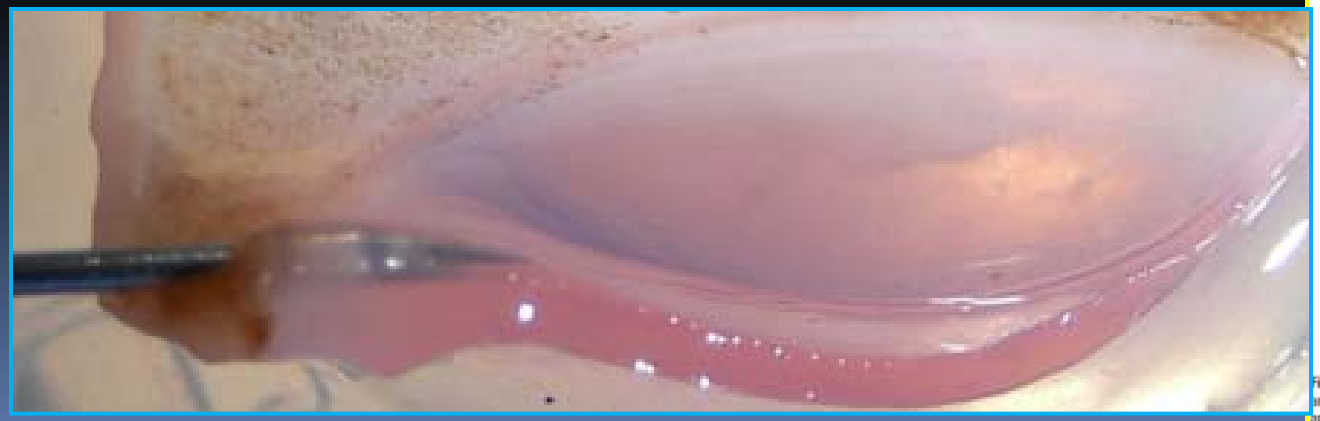
Descemet Stripping Automated Endothelial Keratoplasty (DSAEK): The Tenuous Relationship Between Graft Thickness And Visual Results

Mark A. Terry[1,2], *Jennifer Y. Li*[1], *Jeffrey Goshe*[1], *David L. Davis-Boozer*[2]. [1]Corneal Services, Devers Eye Institute, Portland, OR; [2]Vision Research Laboratory, Lions Eye Bank of Oregon, Portland, OR.

The 38 grafts that were thicker than 200 microns had a mean LogMAR vision of 0.245 (20/35), which was significantly worse than the grafts 200 microns or less (Mann-Whitney: p=0.003).



E’ possibile prepare “rolls” per DMEK in banca degli occhi?



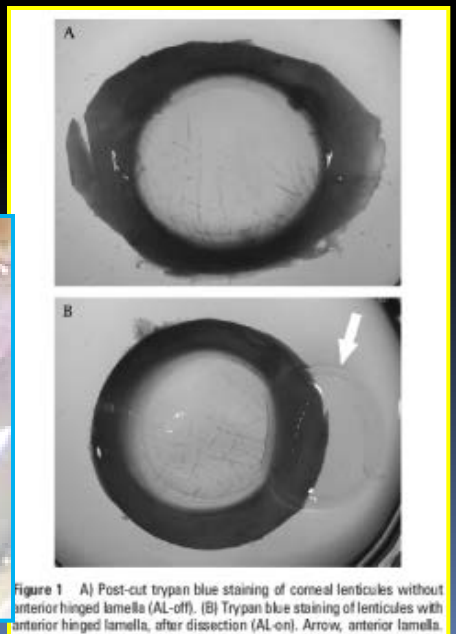
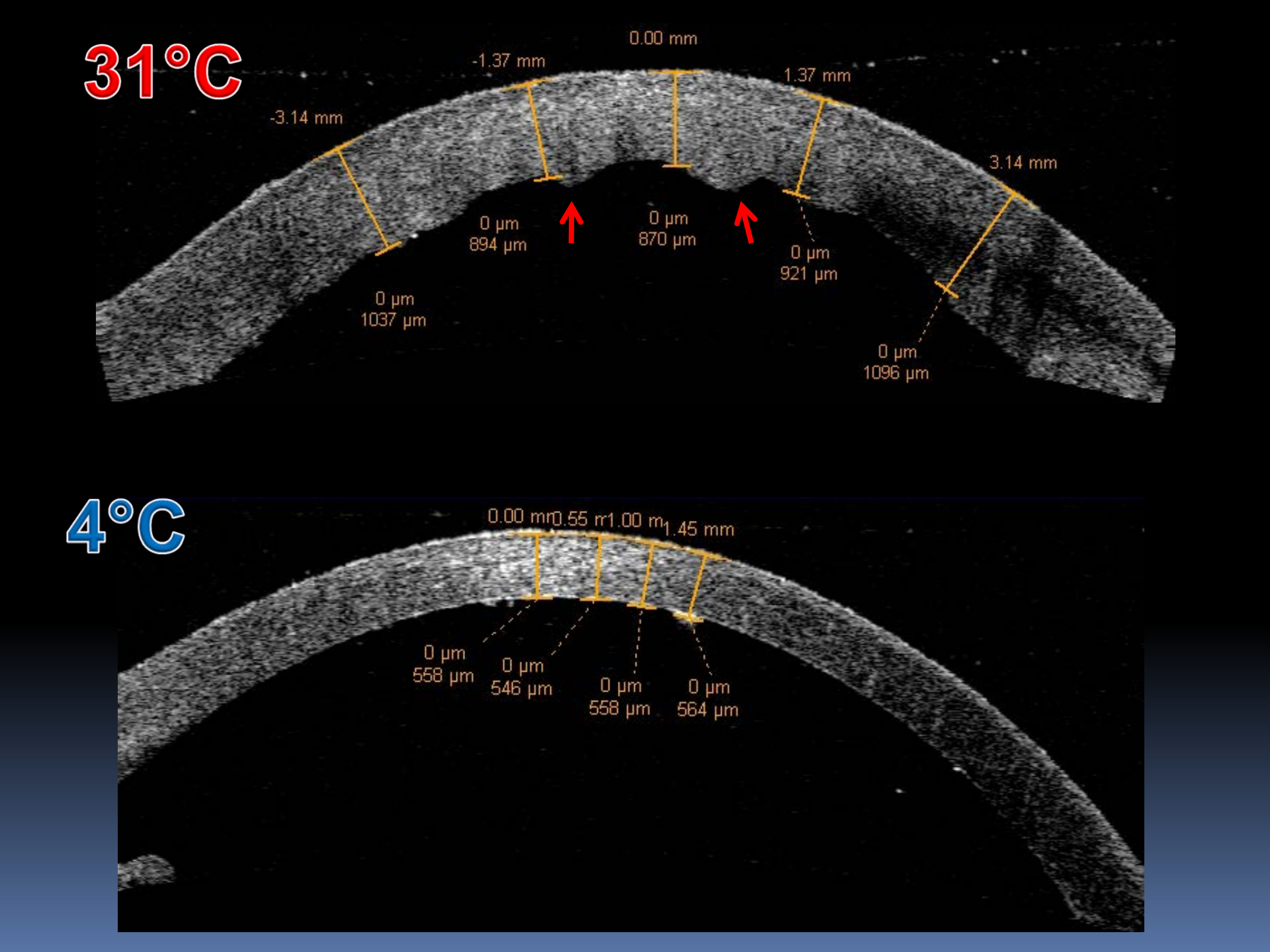
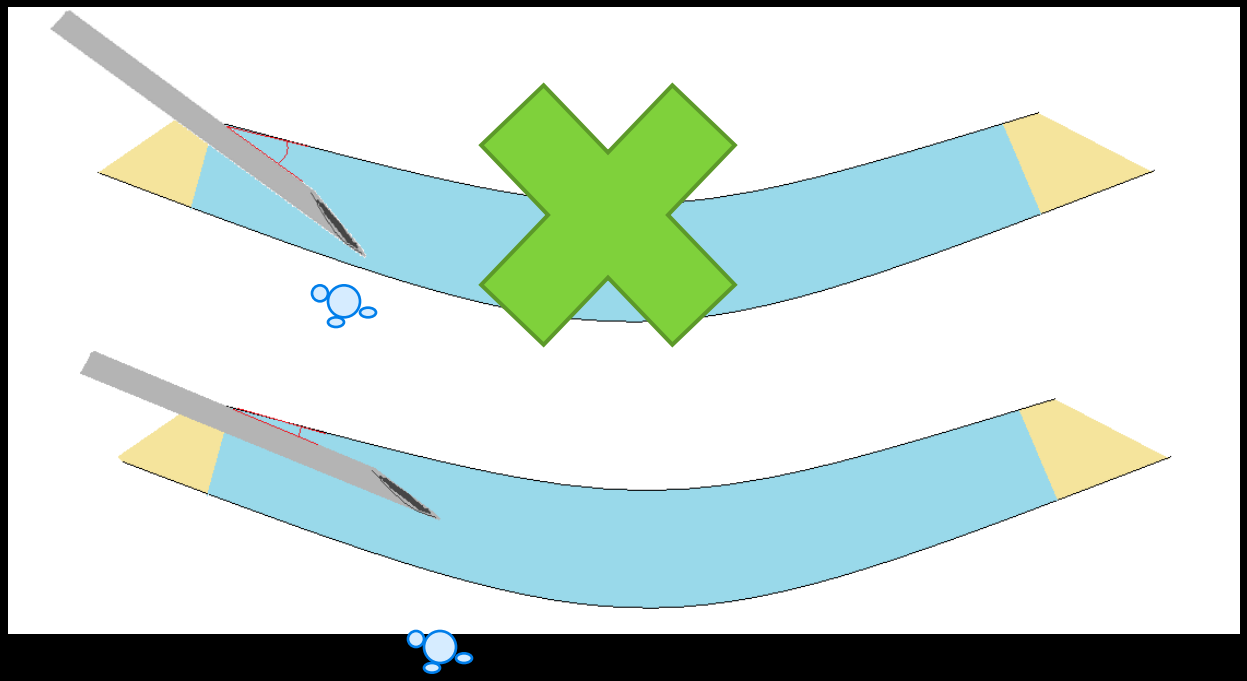
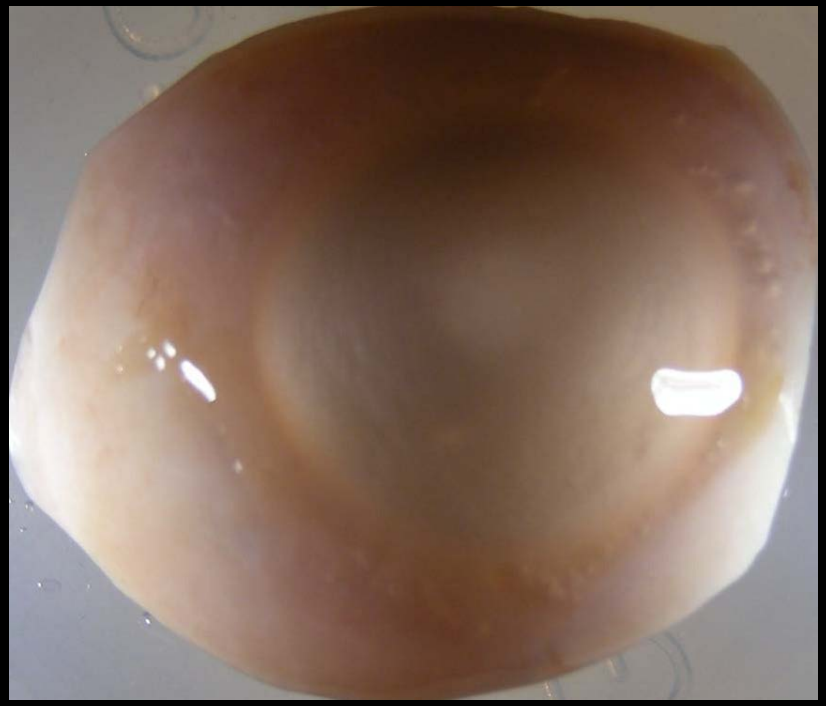


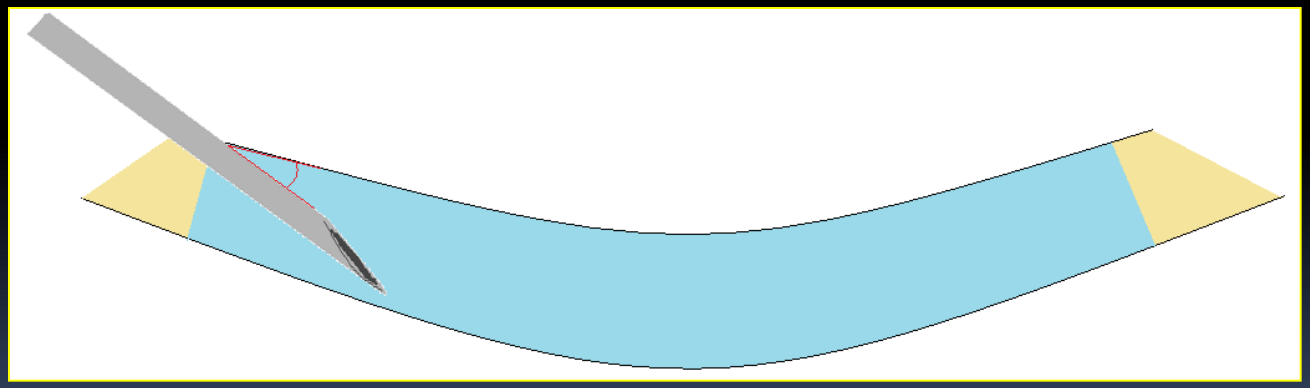
Figure 1 A) Post-cut trypan blue staining of corneal lenticules without anterior hinged lamella (AL-off). (B) Trypan blue staining of lenticules with anterior hinged lamella, after dissection (AL-on). Arrow, anterior lamella.


31°C
0.00 mm
-1.37 mm
1.37 mm
-3.14 mm
3.14 mm
0 µm
894 µm
0 µm
870 µm
0 µm
921 µm
0 µm
1037 µm
0 µm
1096 µm
4°C
0.00 mm
0.55 mm
1.00 mm
1.45 mm
0 µm
558 µm
0 µm
546 µm
0 µm
558 µm
0 µm
564 µm

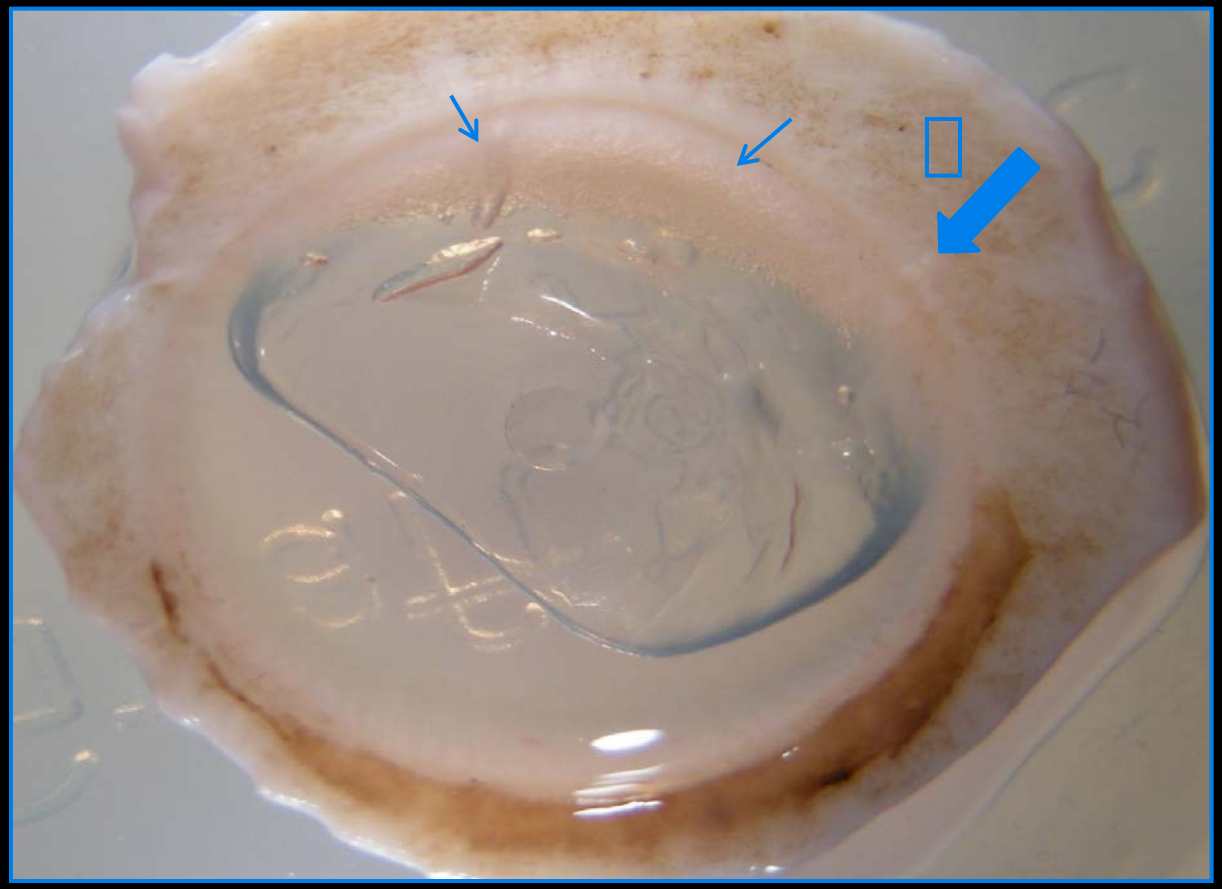


Iniezione di aria nello stroma con ago da 26 G

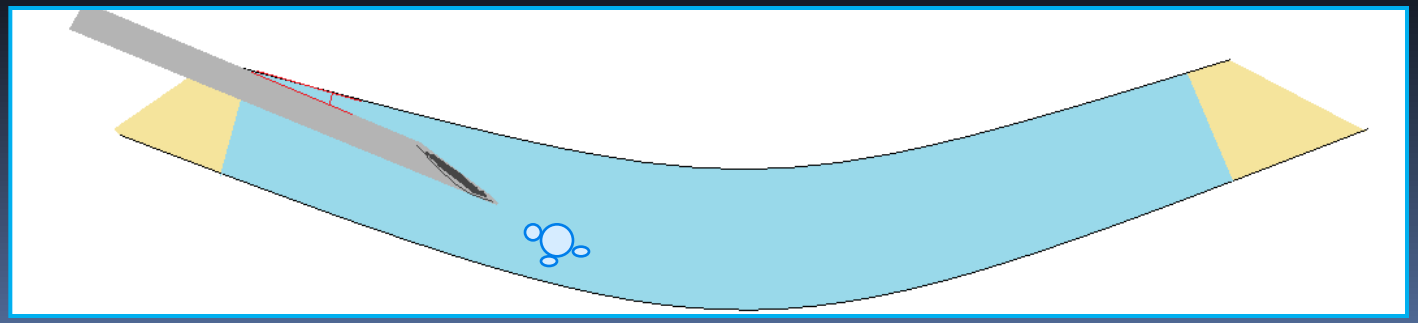


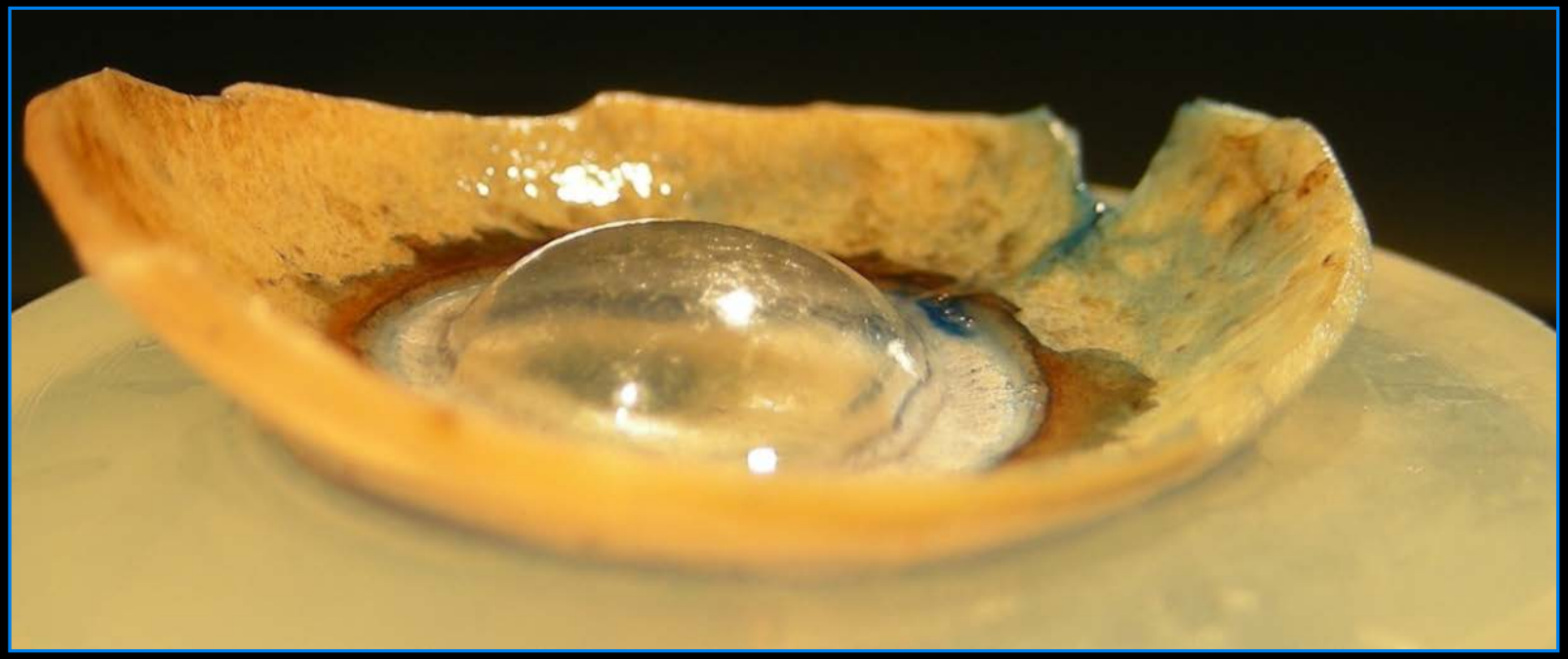


Orientamento dell’ago errato e conseguente enfisema dello stroma



Scollamento parziale



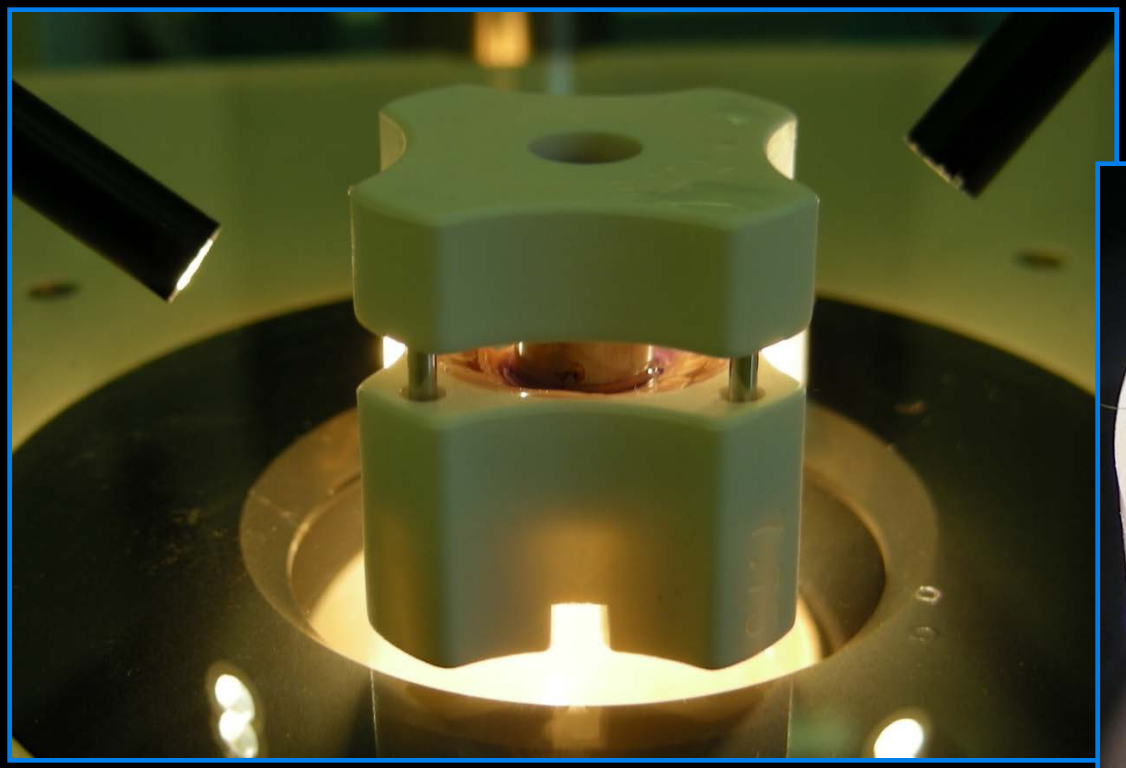


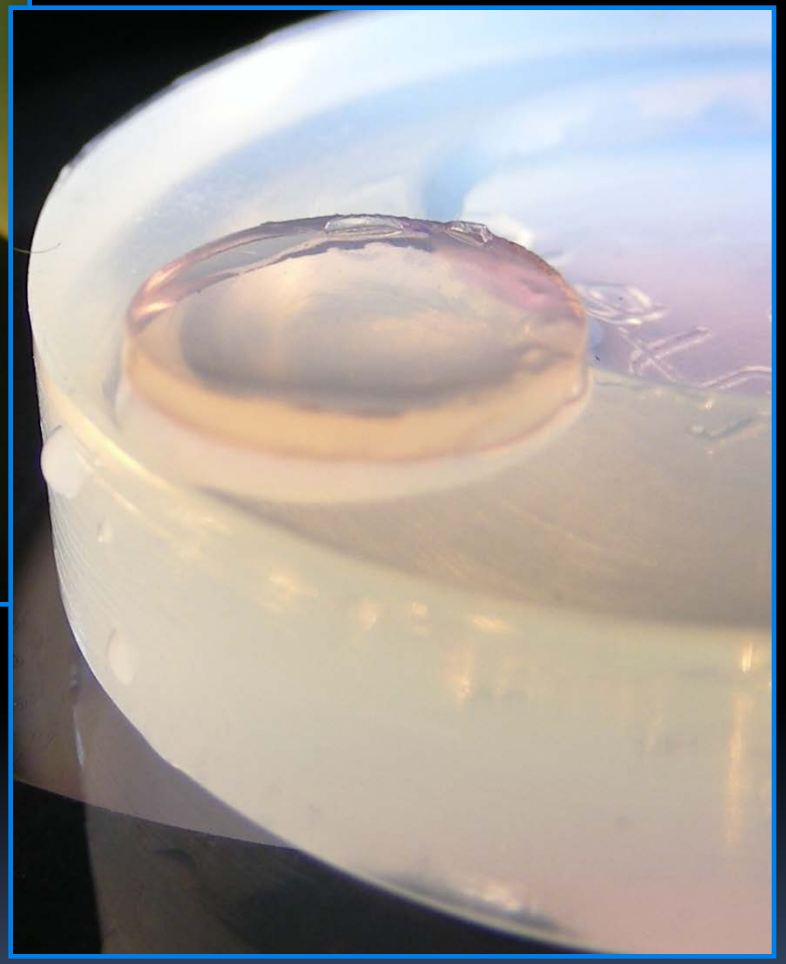
Visante™ OCT
ANTERIOR SEGMENT IMAGING

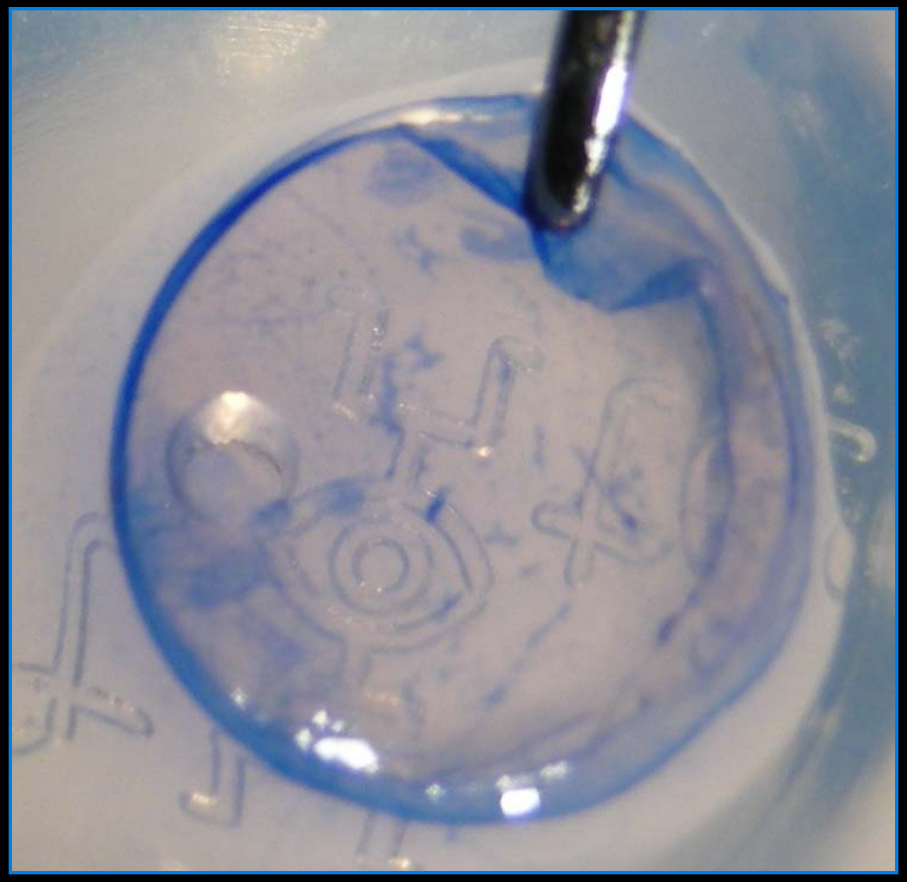
OD OS

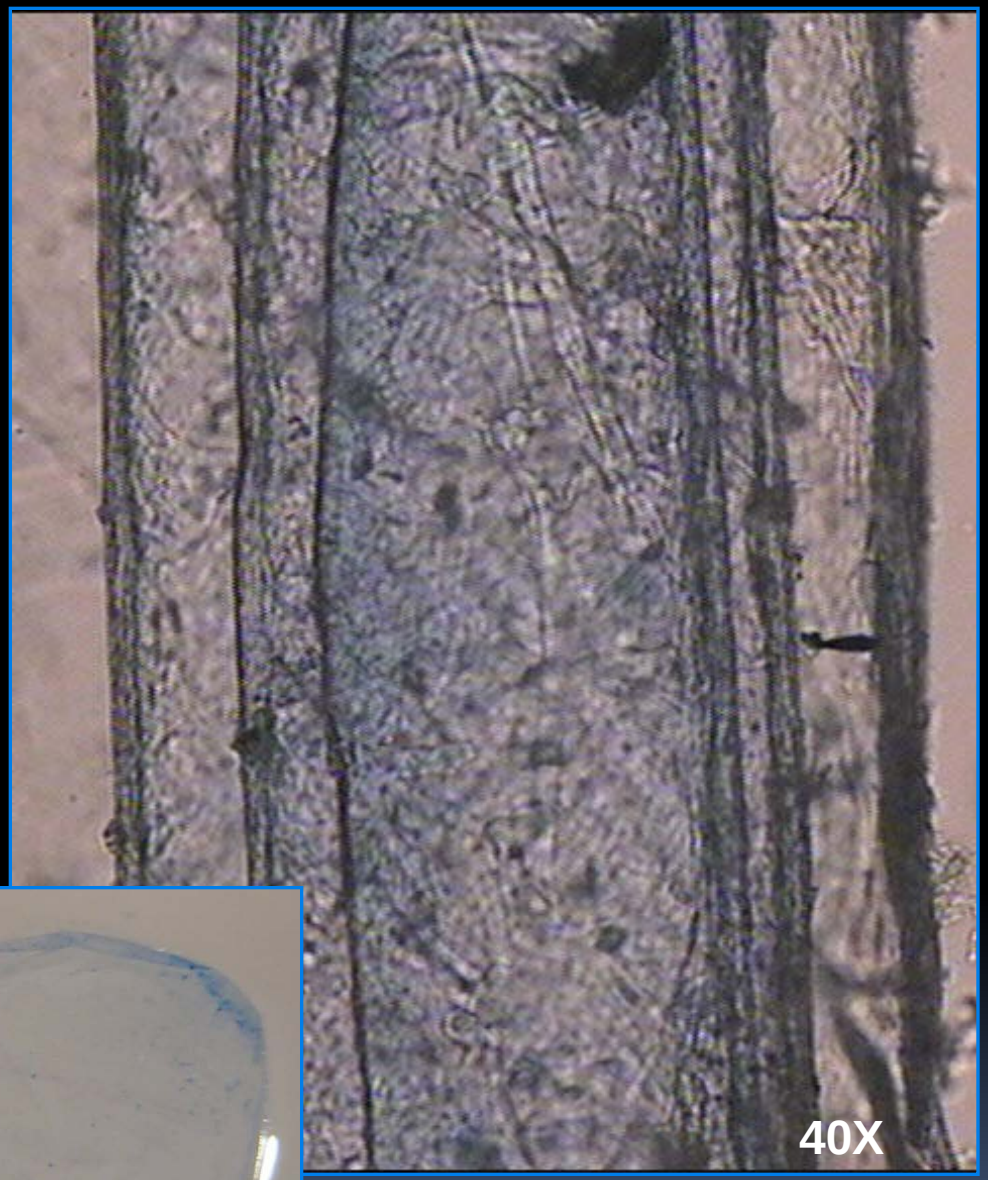
298° 118°

0.03 mm





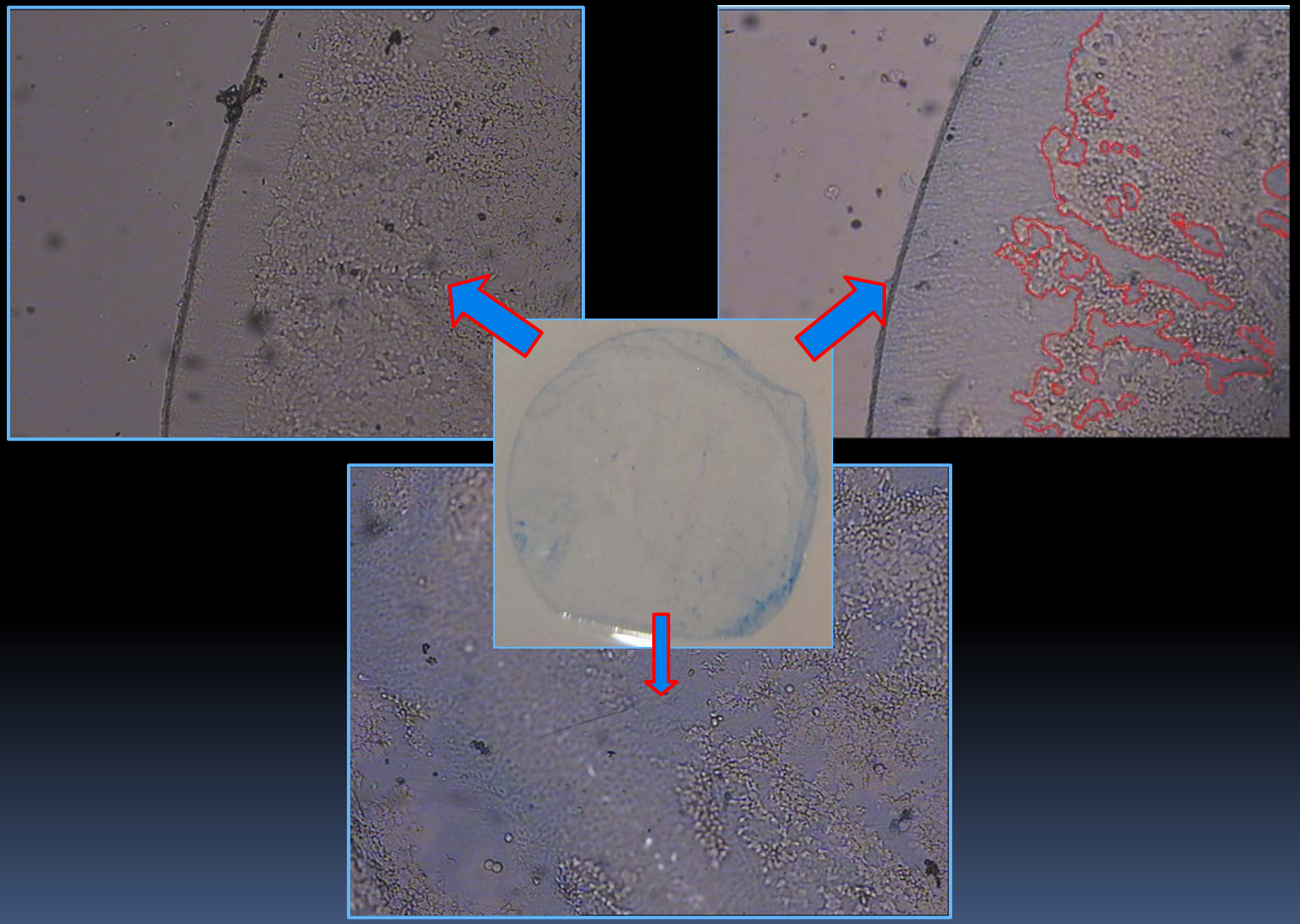




stroma

Descemet + endothelium

Microscopia ottica

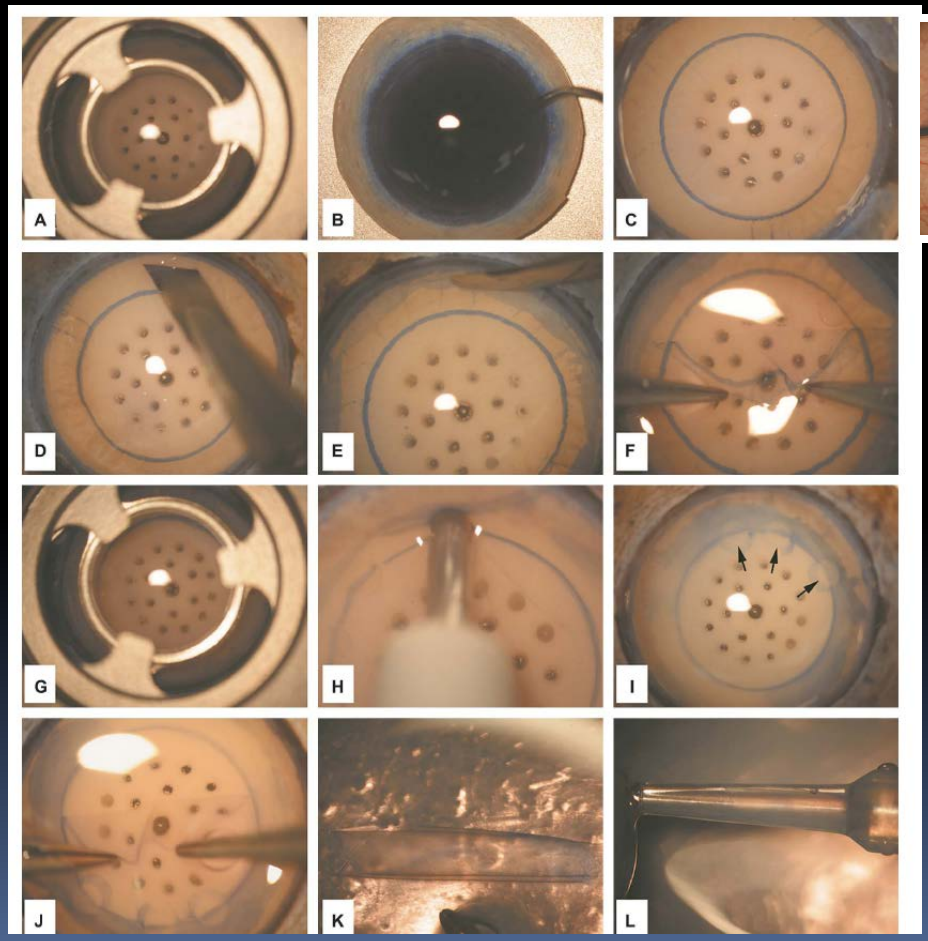


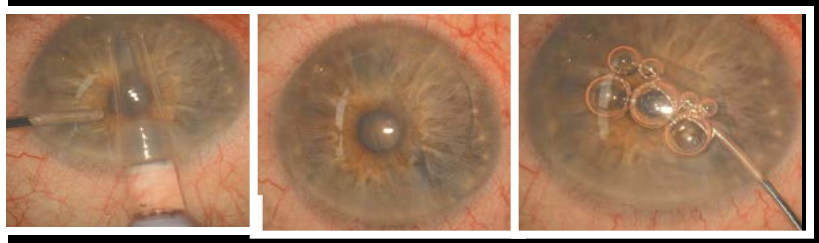
Evidenti aree di assenza di cellule endoteliali per possibile danno indotto

A Stepwise Approach to Donor Preparation and Insertion Increases Safety and Outcome of Descemet Membrane Endothelial Keratoplasty

Friedrich E. Kruse, MD, Kathrin Laaser, MD, Claus Cursiefen, MD, Ludwig M. Heindl, MD, Ursula Schlötzer-Schrehardt, PhD, Stephan Riss, MD, and Björn O. Bachmann, MD

Cornea • Volume 30, Number 5, May 2011





Cell Count

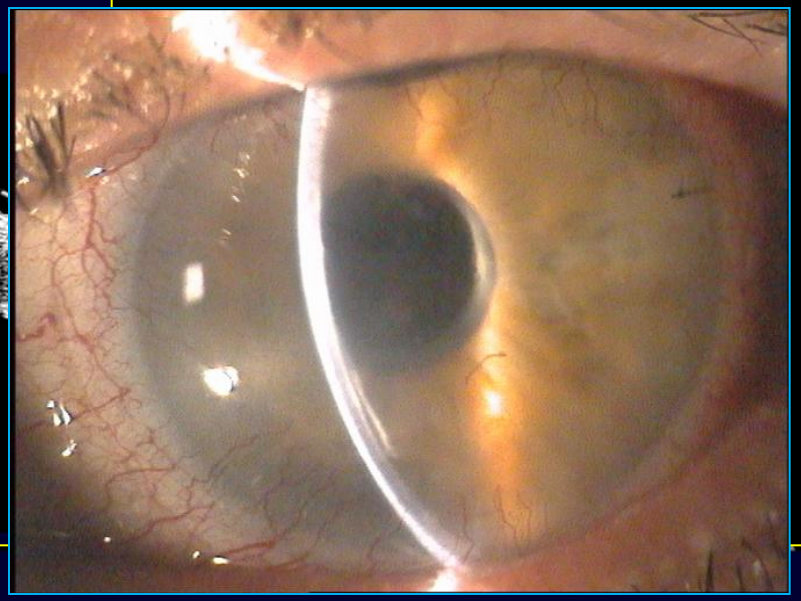
In successful DMEK, the average preoperative endothelial cell density of the grafts was 2600 ± 252 cells per square millimeter. One month after DMEK, the average cell density decreased to 1526 ± 341 cells per square millimeter.

ECD - 40% dopo un mese

DMEK

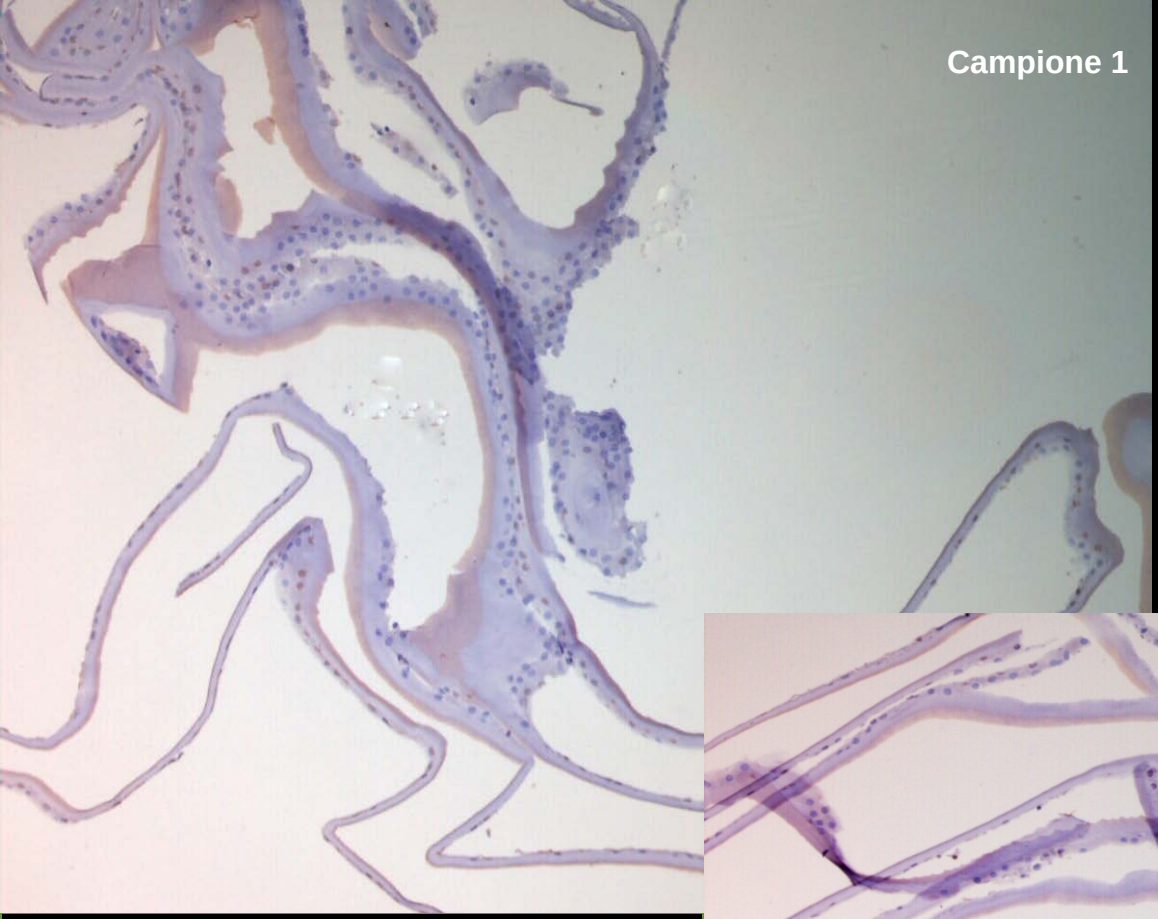
Scuba technique

OCT Visante:
non perfetta adesione del roll



DMEK: caso clinico

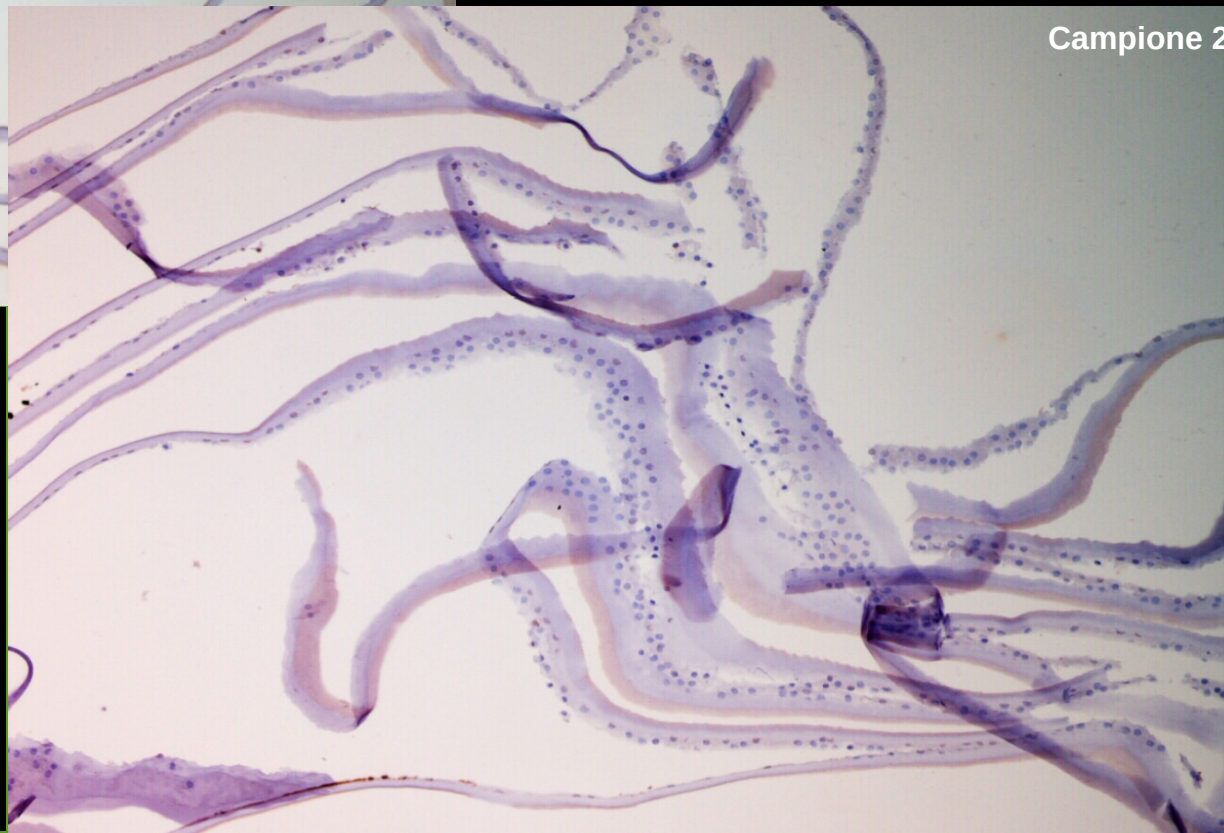
Dispiegamento del roll
dopo bolla di aria



In situ DNA fragmentation Assay

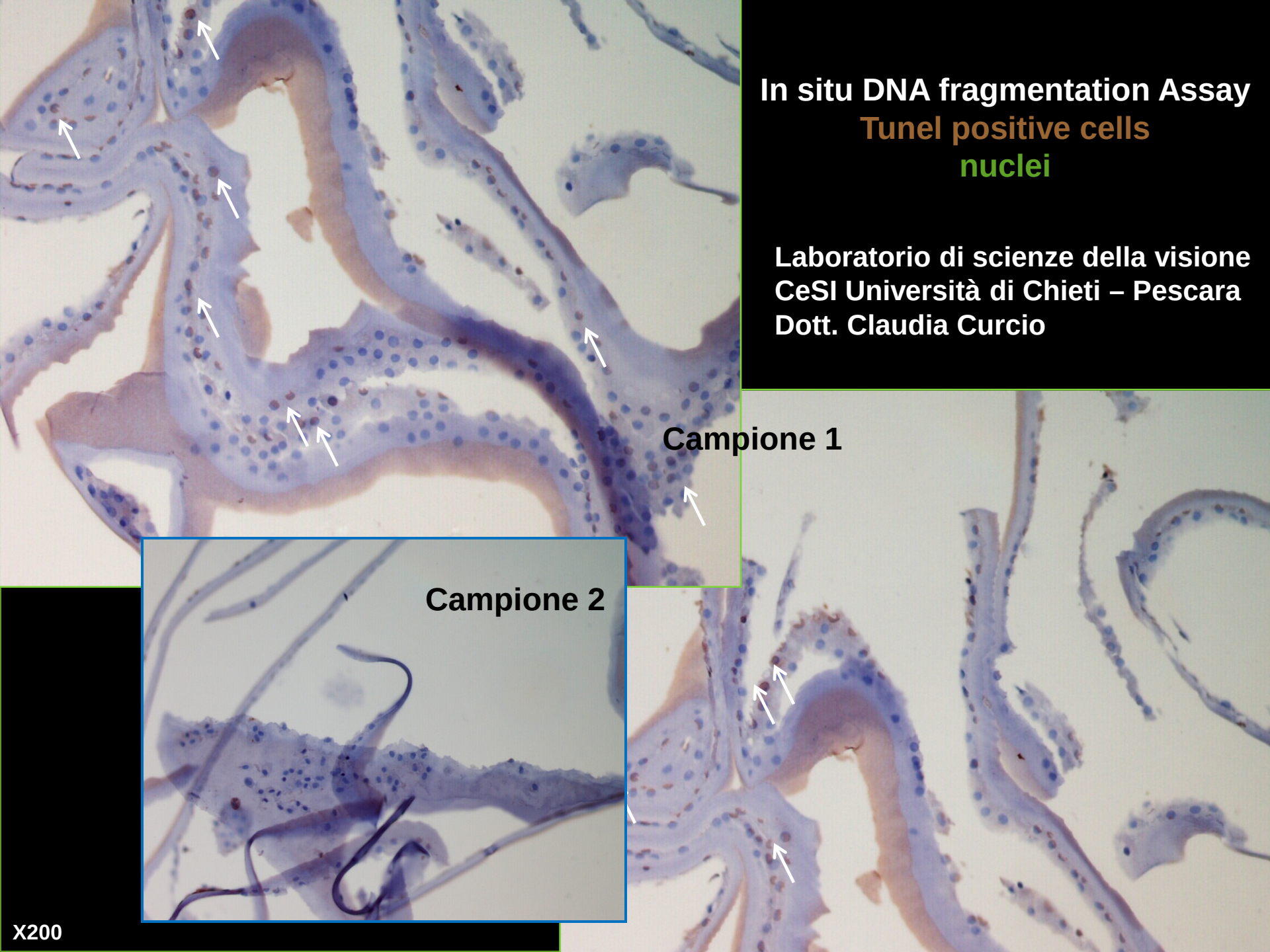
Tunel positive cells

nuclei

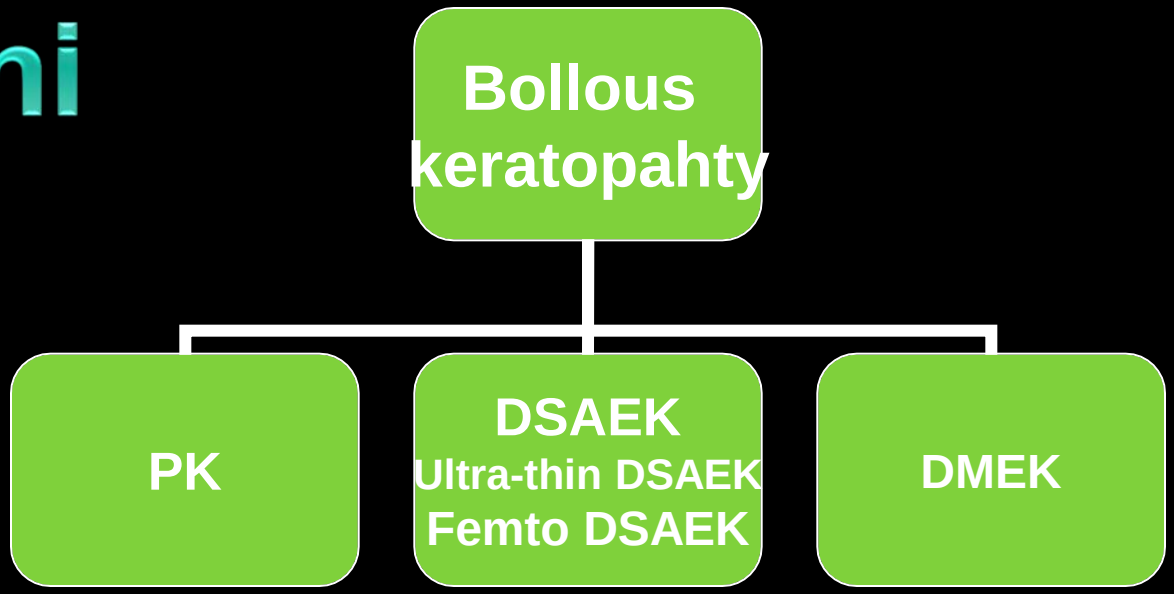


Laboratorio di scienze della visione
CeSI Università di Chieti –Pescara
Dott. Claudia Curcio

X100


In situ DNA fragmentation Assay
Tunel positive cells
nuclei
Laboratorio di scienze della visione
CeSI Università di Chieti – Pescara
Dott. Claudia Curcio
Campione 1
Campione 2
X200

Conclusioni



La procedura di preparazione in Banca degli Occhi di lenticoli ultra-sottili per DSAEK è standardizzata

La criticità nella preparazione di rolls di endotelio sta nella difficoltà di quantificare il danno cellulare indotto dalla procedura

THANK YOU