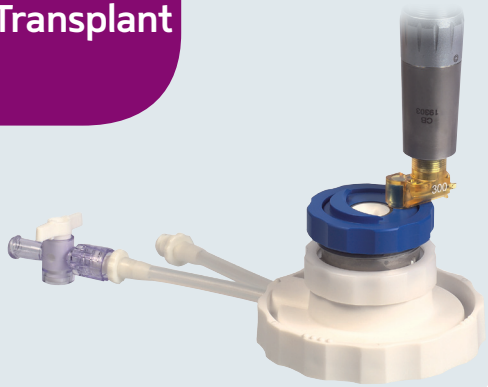
Corneal Transplant



My technique

Ultra-thin DSAEK: Methods and instructions

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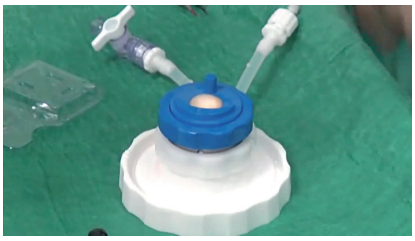
October 2011

TISSUE PREPARATION



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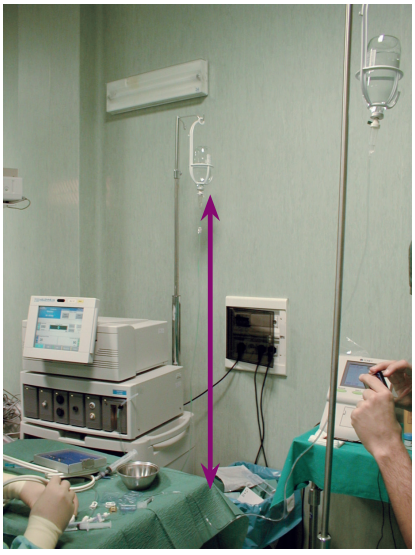

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1. DEBULKING STEP

a. Tissue mounted on disposable artificial anterior chamber *(pict. 1)*

b. Bottle height 120 cm above tissue *(pict. 2)*

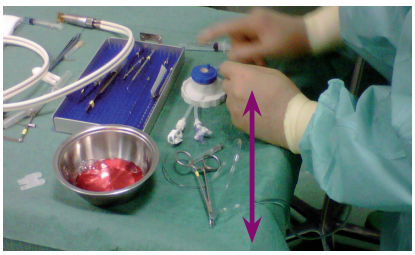
c. Thickness of tissue measured by means of ultrasound pachymetry

d. System closed, clamp at approximately 50 cm from chamber *(pict. 3)*

e. Approximately 2/3 of anterior stroma removed, using a disposable 300-micron CBSU cutting head, passed for at least 4 seconds *(pict. 4)*

f. Removed lamella retained for subsequent case

g. Thickness of residual stromal bed measured



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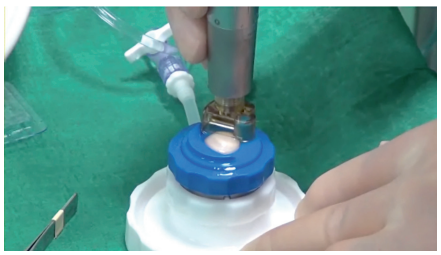

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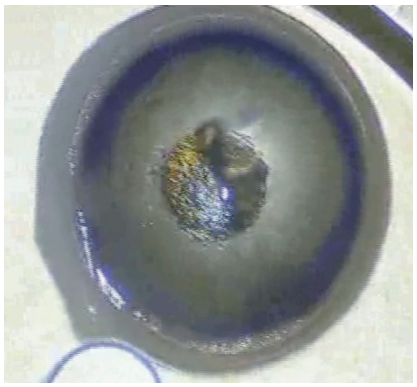

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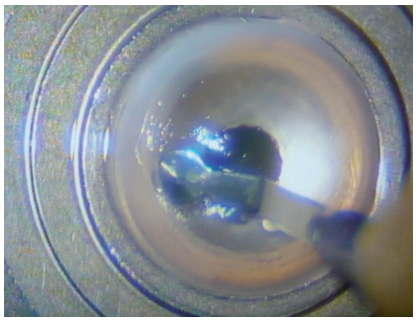

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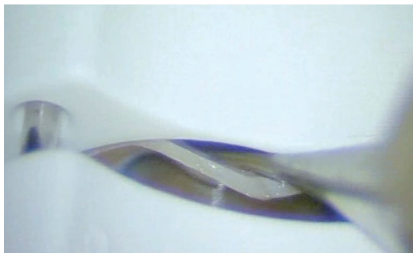

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2. REFINEMENT STEP (ADDITIONAL REMOVAL OF STROMA)

a. Tissue remains mounted on artificial anterior chamber

b. Rotate the dove-tail of the chamber by 180°

c. If pachymetry < 150 µm, no second cut

d. If pachymetry between 150 and 180 microns, use 50-micron CBSU head

e. If pachymetry between 180 and 210 microns, use 90-µm CBSU head

f. If pachymetry between 210 and 230 microns, use 110-µm CBSU head

g. If pachymetry between 230 and 250 microns, use 130-µm CBSU head

"These values have been obtained after several tests with tissue preserved at 37° C in organ culture. The same criteria of choice for the second cut may not apply to tissue preserved differently (i.e. preservation at 4° C)"

h. Bottle height remains same

i. Close system by clamping at 50cm

j. Advance the cutting head, slowly and smoothly (at least 6 seconds) *(pict. 5)*

3. MARK STROMAL SIDE (using trypan blue) *(pict. 6)*

a. Mark periphery with a 9.0 round marker to visualize extension of dissection

b. Mark asymmetrically (i.e. "F") the central stroma for proper positioning

4. EXTEND THE DISSECTION BY HAND INTO THE PERIPHERY (DOES NOT AFFECT VISION), IF NECESSARY *(pict. 7)*

5. REMOVE THE TISSUE

a. Bend tubing and open plunger (to prevent collapse, and endothelial damage)

b. Remove tissue from front

6. PUNCH TISSUE TO PROPER SIZE

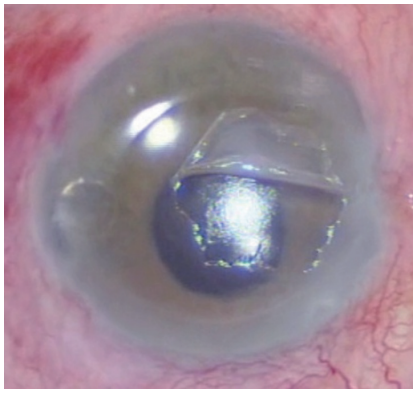
a. Measure vertical diameter of recipient cornea

b. Punch donor tissue to a size that would leave 0.5 mm of free recipient bed peripherally to the donor tissue (usually graft diameter varies between 8.25 and 9.00 mm)

c. To prevent incomplete punch, pull rim upwards, prior to removing trephine *(pict. 8)*

" With the ultra-thin procedure, the speed of visual recovery is faster than conventional DSAEK and equivalent to DMEK - and the proportion that achieve final acuity of 20/20 is higher than conventional DSAEK and perhaps also DMEK.
In short, this procedure offers us the potential to achieve the visual results of DMEK with the ease of handling and tissue preparation of DSAEK. "

SURGERY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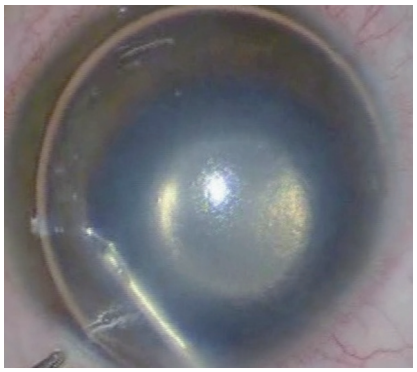
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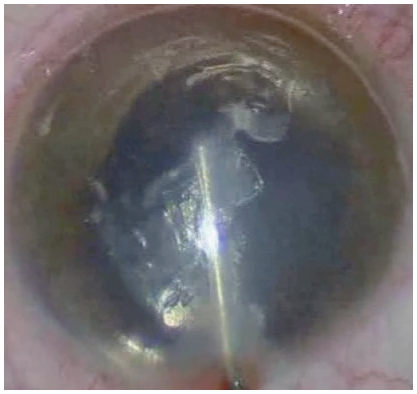
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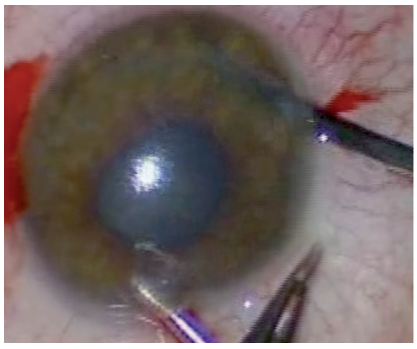
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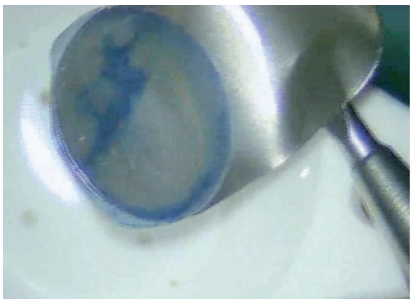
1. **REMOVE EPITHELIUM, IF NECESSARY, TO IMPROVE VISIBILITY** (pict. 9)
2. **INSERT 25G NEEDLE AT 12 O'CLOCK (SHORT, STEEP TUNNEL)** *(pict. 10)*
3. **REMOVE SOME AQUEOUS**
4. **INJECT AIR** *(pict. 11)*
5. **BEND NEEDLE (REVERSE CYSTOTOME), OR USE 'SCORER'**
6. **SCORE DM AND ENDOTHELIUM, TO DESIRED DIAMETER (ACTUAL DIAMETER NOT IMPORTANT, MAKE SURE VISUAL AXIS CLEAR)**
7. **USING BLUNT CANNULA OR 'SCORER' AT 12 O'CLOCK, OR 'STRIPPER' VIA A TEMPORAL PARACENTESIS, MOBILISE ENDOTHELIUM AND DM, AND PLACE NEAR NASAL LIMBUS**
8. **CREATE STEEP, SHORT (1MM) CLEAR CORNEAL WOUND NASALLY (3.2MM) AND SIDE ENTRY TEMPORALLY (1MM)**
9. **REMOVE STRIPPED DM AND ENDOTHELIUM USING FORCEPS**
10. **ENLARGE SUPERIOR WOUND TO 1MM WITH 15° BLADE.**
    a. Place Anterior Chamber maintainer, with bottle placed at approx. 50 cm above eye *(pict. 12)*
11. **CREATE INFERIOR IRIDOTOMY (VITREORETINAL SCISSORS) UNDER CONTINUOUS IRRIGATION**
12. **MOUNT TISSUE ONTO MINI SPATULA**
    a. Difficult to lift thin tissue *(pict. 13)*
    b. Using a mini spatula, modified to 'scoop' the tissue, place the tissue on the mini spatula *(pict. 14)*
    c. Very thin tissue will drape over the edge of spatula *(pict. 15-16-17)*
    d. Center the tissue on spatula, remove fluid, and advance to the tip


13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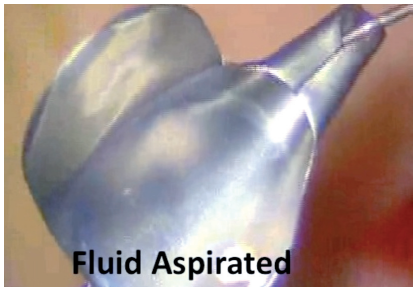

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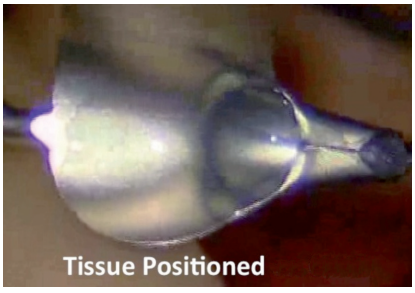

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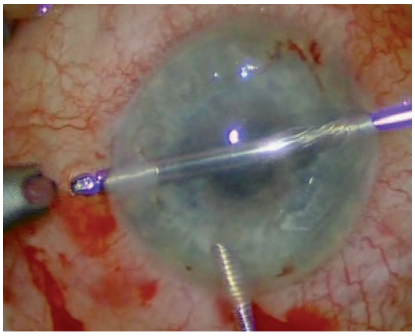

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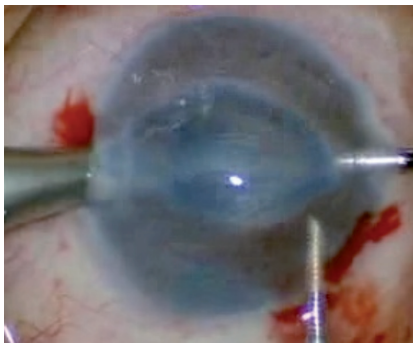

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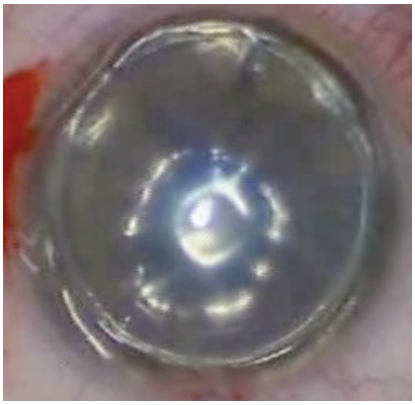

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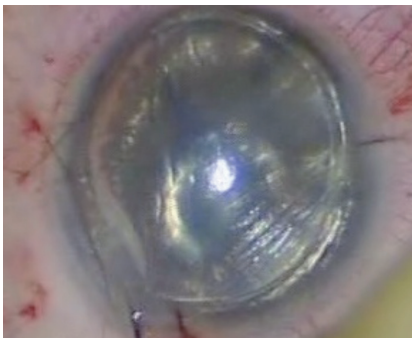

21

13. INSERT TISSUE

a. Have Anterior Chamber maintainer on

b. Advance forceps through the temporal wound, across eye, and out of the nasal wound *(pict. 18)*

c. Grasp tissue with Moria forceps 23G

d. While grasping, move instruments towards temporal until mini spatula enters the wound and draw tissue into the eye *(pict. 19)*

e. Allow tissue to open

f. Remove Anterior Chamber maintainer

14. CENTER TISSUE

a. Ballot cornea from surface

15. INJECT AIR BENEATH TISSUE *(pict. 20)*

16. SUTURE ALL WOUNDS, AIR TIGHT WITH 10-0 NYLON

17. TAKE A 30 G NEEDLE, INSERT THROUGH PERIPHERAL CORNEA VIA A LONG OBLIQUE PATH, INJECT AIR BENEATH DONOR TISSUE, TAKING CARE TO BE IN FRONT OF THE IRIS, UNTIL COMPLETE FILL IS ACHIEVED *(pict. 21)*

18. PERIBULBAR STEROID AND ANTIBIOTIC

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