Novel method for preparation of the injector preloaded and transplant ready PDEK grafts

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Purpose:
To present a new no-touch “BLISTER” method for separation and delivery of the Pre-Descemet’s Membrane (PDM) for PDEK.
Method(s):
Donor corneas with the endothelium up placed on a block, stained with 0.06% Trypan Blue (TB). A 30G needle inserted into the sclera outside of the limbus and moved forward. “Blister” was created when Optisol GS was injected into the stroma with soft pressure and needle was moved 3.0-3.5 mm past the limbus into stroma. Optisol GS was replaced with TB for graft staining and then drained. PDM placed back onto the stromal bed. Created PDEK was measured. Slit lamp, specular microscopy, staining with Alizarin Red S (0.5% used. Transplant grafts “S” stamped, punched and loaded into a modified DMEK Jones tube, secured with a sponge plague, placed into a vial of corneal media and shipped for surgery.
Results:
PDM separation was achieved in all cases with diameter averaged 7.75mm. Specular microscopy was easily performed. Mean donor endothelial cells density prior to preparation was 2914 ± 120 cells/mm² and post preparation - 2891 ± 119 cells/mm². Research corneas staining confirmed viable endothelium. 7 PDEK grafts were transplanted. Surgeons indicated that staining and “S” mark were even and unfaded at the time of surgery and major advantages of this preparation were: 1) easy graft unloading and unfolding; 2) better grafts visualization; 3) reduced insertion stress; 4) shortened OR time.
Conclusion:
“Blister” method is reliable for PDEK grafts preparations. The method is safer for the endothelium due to no forceps touch and extensive tissue folding during preparation. The method allows easy specular microscopy evaluation of the prepared grafts. The grafts are easy to manipulate for the surgeon during insertion and unfolding which shortens OR time