

Intralase-assisted Descemet's membrane stripping endothelial keratoplasty(I-DSEK)

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INTRODUCTION:

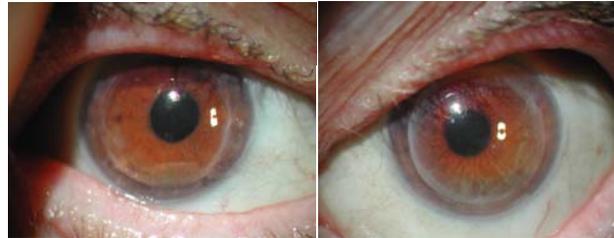
The goal of this small clinical study was to simplify and enhance the donor endothelial preparation of DSEAK (Descemet's membrane stripping endothelial automated keratoplasty-with the use of a mechanical microkeratome) surgery with the use of the keratoplasty options of the Intralase. The femtosecond laser was used to prepare the endothelial donor graft on an artificial donor anterior chamber

METHODS

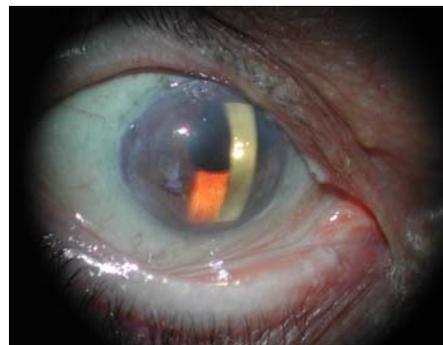
- 6 cases of I-DSEK were evaluated for UCVA, BSCVA, refraction, topographic, pachymetric, endothelial cell count (ECC) with 12 month follow-up
- SURGICAL TECHNIQUE:
- Using the artificial anterior chamber by (Moria) the donor cornea was fixated. Then a 400 micron depth, 9.5 mm diameter and 0 degree hinge flap was generated with the FS 60, Intralase femtosecond laser. The total flap was removed and a 8.5mm central disc was then trephined from the donor tissue placed on a hanna trephine (Moria) endo-side up. The endothelial graft created was implanted using a standard DSEAK technique under peribulbar anesthesia and with instrumentation by Moria.

RESULTS:

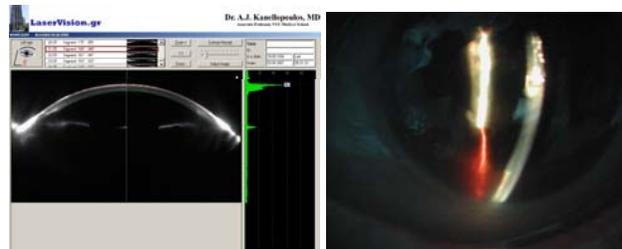
An 8.5mm graft of 100 micron thickness was placed through a 4.5mm incision. Mean values at day 1, week 1, month 1 and 6 months were respectively:
UCVA: 20/100, 20/60, 20/50 and 20/50. BSCVA: 20/100, 20/50, 20/40, 20/38. Topographic cylinder: 3.5D, 3D, 0.5D, 0.5D. ECC: unavailable, 2550, 2550, 2500. Pachymetry in microns: 750, 650, 620, 615.



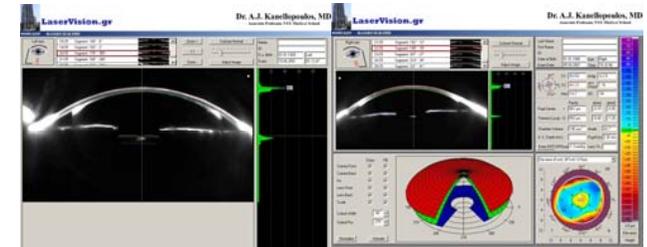
OD (left): Penetrating Keratoplasty 4 years 20/25 with: -4 -3.5 X 85 S(right): DSEK 6 months 20/40 uncorrected



85 y/o ABK pt 6 months postop 20/60 with a +9D -1 X90



67y/o 7months post I-DSEK for PBK UCVA 20/50, BSCVA 20/40. The Pentacam image demonstrates the thin centrally and peripherally endothelial graft. The clinical picture on the right shows the same point.



A microkeratome DSEAK case on the Left and an Intralase assisted DSEK case on the Right studied with the pentacam (thicker edges in the left case)

Mean Values

	UCVA	BSCVA	CYL.	Endoth. C.C	PACH
1st Day	20/100	20/100	2.5D		750
1st Week	20/60	20/50	1.5D	2550	650
1st Month	20/50	20/40	0.5D	2550	620
6th Month	20/50	20/38	0.5D	2500	615

CONCLUSIONS:

I-DSEK appears to be a safe and effective alternative to Penetrating Keratoplasty and DSEAK(assisted by a **mechanical** microkeratome). The use of the femtosecond laser in order to help prepare the donor endothelial graft offers great precision in thickness parameters allowing for rapid visual rehabilitation. With a thin graft in the periphery, adhesion may be facilitated minimizing peripheral graft dehiscence and possible dislocation. The donor tissue appears to clear and stabilize as early as 1 week.

The "deep" flap creation with the Intralase may result in concentric striae in the tissue separation . This can be avoided by a double pass for total flap initially at 200 microns and then an addition 200 microns with the Intralase.

A video presentation of this technique is available in our website:

www.brilliantvision.com