SCTK IN 8 CASES

SEQUENTIAL CUSTOMIZED THERAPEUTIC KERATECTOMY

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Is DALK today a substitute of Therapeutic keratectomy?

- **NO**
  - Faster recovery
  - “Refractive surgery”
  - No immunology reaction
  - Less adverse events (infections, astigmatism, risk in case of ocular trauma)
  - More than one step possible
  - It is possible to modulate the result
  - Intraoperative measurement
1st Case

Why sequential?

Sometimes important pre-op measurements are impossible to obtain...

Only intraoperative imaging can face this cornea!
Why sequential?

- **The final result of single step is unpredictable:**
  - Different ablation rate in softer/harder tissue
  - Biomechanical response
  - Difference between intended and obtained ablation

- Allows for intraoperative monitoring results

- It is possible to do more steps even in the same day...
SCTK after Herpes keratitis

Pre op

OSV 0,2  -2,00(-2,25)175

Post op

Osv 0,5  o,00(-1,25)15
With the acquired topo re-plan a new Custom ablation if needed.

Differential pre/intra op tangential map

Differential pre/intraop Pachymetry map

Pt M.G.
2\textsuperscript{ND} CASE

What should we look for in pre-op examination?

Why customized?
Why custom treatment???

- Customized treatment on corneal topography.
- We are treating very irregular cornea
- Why should we make one-size fits all treatment only to regularize??
- Optimize the ablation profile treating specific areas of the cornea.
Perform scheimpflug tomography looking at:
- Thinnest point value
- Pachymetry where the maximum ablation is planned (consider a safety limit of 300/350 micron stroma)

Thinnest point value

Pachymetry map

Steep area is not the thinnest

Acanthamoeba

0.1  +1.00(-7.00)65
- To flatten a steep area I should ablate there.
- To regularize a steep spot I can only ablate there.
What to look during SCTK of difficult cases

Consider minimize volume more than minimize depth
Sparing tissue in complex cases

- Fix only HOA accepting the induced refractive changes
- Set the range of refractive change
- Minimize volume or depth
Final result:

- Ablate area: -155 microns
3rd CASE

The importance of intraoperative reliable measures
PRK 1998
central-paracentral nasal leucoma

68 μ
41 μ

606 μ

64.97 D

Pre op SCTK

OSV 0.6
+0.50(-2.25)
30
Pre op

intraoperative

1 week post

Tangential map

OSV 0.7 +0.50 (-2.25) 30

OSV 0.8 -1.50

Pachymetry map

4\textsuperscript{th} Case

- Fixing HOA has priority over LOA
- Trust intraoperative measures
Corneal thickness
Tangential ant

Pre op vs intraoperative
Vs 3 mos post

reliability of the measures
3 mos post
3 mos post
SCTK in tangential map

PRK 1997 (-13 SphEq)

ODV 0,4 +1,50 (-2,50) 60

ODV 0,8 -7,50 (-1,50) 20

5th Case

Opacity vs Irregularity

What should we aim for?

Groenouw’s Distrophy
Ground glass vs opacity

ODV: 0.1

OSV: 0.9  -0.25  -1.00@90
Pre SCTK

OSV 0.1  –2.25  –1.00@180

3 yrs post SCTK

OSV: 0.9  –0.25  –1.00@90
6th CASE

The need for pre-op OCT and the new Schwind Sofware
Case g.t.

36 yrs

- PRK 2001 ODV 0,1 -7,00(-2,00)125
- 2° prk 2011 + mit C
- Haze (Th Fluormetolone eyedrops 9/2012)
- 9/2012 .... Dalk suggested
Which are the priorities?
SCTK induces anyway hyperopia?
Why always hyperopic shift after PTK?

- Plano ablation
- Different ablation efficiency from center to periphery
- No transition at the edge that induces regression from the epithelium which fills the gap and becomes a negative lens
- Primitive ablation
What to do in SCTK and enhancement of difficult cases.

- Aim to the minimum ablation possible, BUT do not obtain it with small optical zone → that would induce regression, and persistent visual disturbance.

**Pre op**

OSV 0.9 +4.25 (-1.75) 145

**Post op**

OSV 1.0 -1.50 (-0.50) 180

Maximum ablation 25 µ
8th Case

Myth buster!
Myth buster

- The risk of ectasia in thin post surface custom corneas is high

Pachymetry map

Exam

A: 12/06/2003 20:28:27 Left (25) 3D-Scan

B: 23/11/2004 18:49:03 Left (25) 3D-Scan


D: 28/12/2007 18:53:44 Left (25) 3D-Scan

Difference D - A

4 yrs later
NORMAL

FORME FRUSTEN KC

KC
Myth:
New vessels always due to immunology reaction.
Conclusion: Aims of SCTK

- Restore the transparency and regularity of curvature of the corneal surface
- The regularity of the corneal curvature is more important than transparency in restoring visual function
- The correction of refractive error should not be considered the primary objective
Thank you for your attention

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