Management of an irregular cornea has been always a real challenge in our daily practice.

Iatrogenic "post keratorefractive" Corneal Irregularities are a sort of nightmares that we face in our practice!
Attempts to obtain a reliable WF map sometimes fail with lack of enough resolution in aberrometers.

Various Topo-guided/Corneal WF-guided ablation pattern could be used in spite of their insufficiency!

**Treatment of refractive error in patients with complex corneas using iDesign**

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Attempts to obtain a reliable WF map sometimes fail with lack of enough resolution in aberrometers.

Various Topo-guided/Corneal WF-guided ablation pattern could be used in spite of their insufficiency!

**Case 1**

25 Ys old lady
Flap Button hole
(August 2005)
Ref: -5.25 -1.75 X 100

Central triangular scar
-3.75 -4.50 X 30
(7 weeks later)

**Decision:**
Transepithelial PRK/MMC
- Mean Ablation depth was $63 \pm 13 \, \mu m$ (45 – 85 \mu m)
- Mechanical epithelial removal (Amoil’s brush)
- 6 mm OZ with 1 mm transition zone
- Post-ablation MMC application (0.02% for 20 seconds)
- Bandage CL with routine postop. regimen
Topography guided ablation: 
In a decentered ablation.

Before

After

Correction of the refractive error (CAP method)

Refractive Surgery Nightmares

• LASIK 5 ms ago with free Cap, that was lost on the next P.O. day!!!!!
• C/O: halos and ghosting
• BCVA: 20/25 with: -0.50 -1.75 x 85
• CCC: 440 µ

Coma = 0.63
Sph. aberr. = 0.48
Coma = 0.54
Sph. aberr. = 0.22
One month post PRK retreatment:
UAVA: 20/20
NO GHOSTING
Ref: -0.50 -0.25 X 87

Retreatment of irregular ablation after LASIK with enlargement of the optical zone.

Significant decentration after hyperopic treatment.

LASIK retreatment 2nd Postop. Day
A Topo-guided ablation profile:

Uses the elevation topography to create an essential surgical plan to regularize the corneal surface

This is a crude concept of the Cause / Effect relation!

CASE 2. Post RK

- 52 years old women
- Had RK in 1995 (8 radial cuts at 3.5 mm OZ with 2 cuts invading optical zone). Presented with a halos, glare and ghosting
- UCVA 0.1
- Manifest Refraction + 3.00 – 3.25 x 105
- BCVA 0.3
- CCC 583 µm

Preop Pentacam

Irregularity Indices

Preop iDesign MAP

Ablation Profile design over the irregular cornea
CASE 2. Post RK Results:
12 months after CustomVue PRK powered by iDesign

- Ablated tissue thickness 57 µm
- Manifest Refraction +0.50 -1.00 X 45

\[ \begin{align*}
\text{UCVA} & \quad \text{CDVA} \\
\text{Preop} & \quad 0.6 & \quad 0.9 \\
\text{Postop} & \quad 0.1 & \quad 0.8
\end{align*} \]

✓ Very significant improvement in Corneal Irregularity indices and Aberrations

CASE 2. Post RK. Preop vs Postop Pentacam

Pre Op

Post- Op

CASE 2. Post RK. Preop vs Postop Corneal Irregularity Indices

Pre Op

Post- Op

Refractive Surgery Nightmares
CASE 2. Post RK. Preop vs Postop iDesign Map

Pre Op

Post Op

CASE 3. Post LASIK Decentration

- 25 y lady
- Had LASIK in July 2010 for -11.00 ?. Presented with ghosting, poor night vision
- UCVA 0.1
- Manifest Refraction: -2.50 -1.00 x 120
- BCVA 0.3
- CCC 468 µm

- Untreatable to date due to lack of capture with previous aberrometer

CASE 3. Post LASIK Decentration

Preop Pentacam

Irregularity Indices

CASE 3. Post LASIK Decentration

Preop iDesign MAP
CASE 3. Post LASIK Decentration. Ablation Profile design over the irregular cornea

Ablated tissue thickness 41 μm

Manifest Refraction -0.75 -0.5 X 180

UCVA

CDVA

Preop vs Postop Pentacam

Pre- Op

Post- Op

Pre- Op

Post- Op