



## EXTREME POST-SURGICAL ASTIGMATISM Surgical approach

Dr. Alfonso Arias Puente, MD, PhD, FEBOphth

NO FINANTIAL INTEREST



### Extreme post-surgical astigmatism

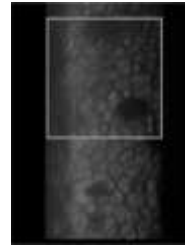
- Male 42 years old
- Bilateral keratoconus ----- bilateral keratoplasty
- Decrease of Visual acuity during the last year
- Uncomfortable quality of vision wearing glasses



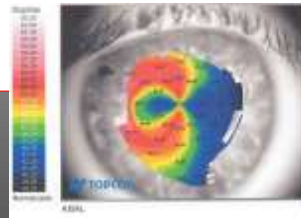
## Extreme post-surgical astigmatism

### Clinical exam

- BCVA: RE. = 0,3 (-6.00 sph -8.50 cyl 170°)  
LE = 0,6 (-6.75 sph -2.50 cyl 150°)
- Corneal topography: Irregular astigmatism
- Central corneal thickness: 600 / 610  $\mu\text{m}$
- Endothelial cell count: R.E. 707 cells/mm<sup>2</sup>  
L.E. 1082 cells/mm<sup>2</sup>



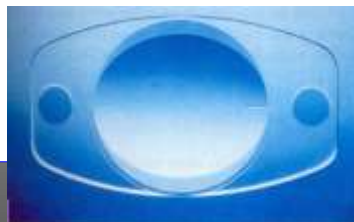
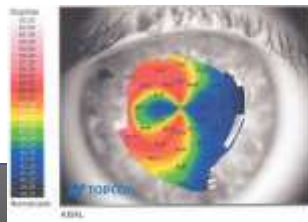
42,84 @ 180° e -0,54  
52,76 @ 90° e 0,89  
47,80 (Media) e 0,18  
CYL -9,92 D ax 180°



## Extreme post-surgical astigmatism

### SURGICAL OPTIONS

- 1°.- Corneal refractive surgery with excimer laser?
- 2°.- Toric ICL / IOL ?
- 3°.- Relaxing Corneal Incisions?




## Extreme post-surgical astigmatism

### FEMTOARCUATE CORNEAL INCISIONS (Victus Femtosecond Laser Nomogram)

Nomogram for AK without previous PKP			
Astigmatism (D) *	Cut Diameter (mm)	Cut depth	Angle
1.50 to 2.50	7.25	90%	60°
2.75 to 3.75	7.00	90%	70°
4.00 to 5.00	7.00	90%	80°
5.25 to 6.25	6.75	90%	80°
6.50 to 7.50	6.75	90%	90°
7.75 to 8.75	6.50	90%	90°

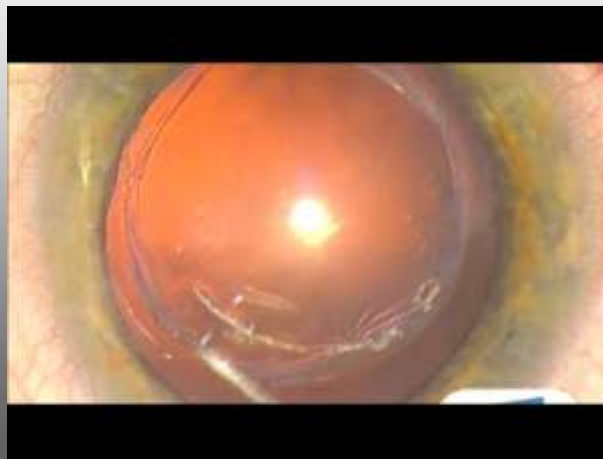
per year of age under 30 increase by 0.05D  
per year of age over 30 decrease by 0.05D  
per year of age over 50 decrease by 0.025D (additional to 1.0D for the years 30 to 50)



## Extreme post-surgical astigmatism

### Surgical technique

Cut depth 90% , Cut angle 90°, Cut diameter 7.0 mm

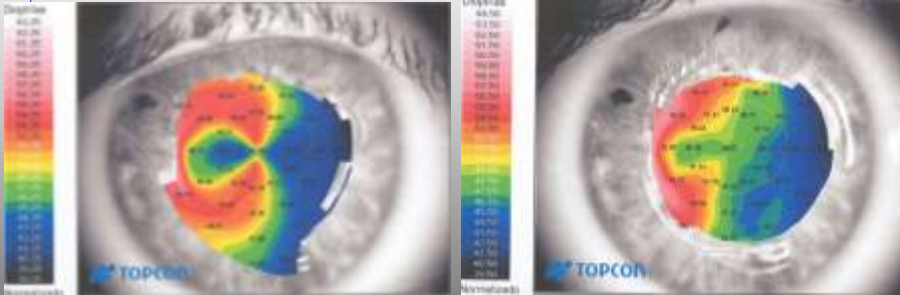


## Extreme post-surgical astigmatism

### Postop result

Corneal topography Preop

Corneal topography Postop



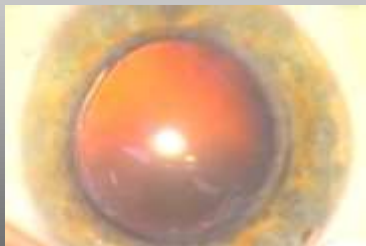
42,84 @ 180° e -0,54  
52,76 @ 90° e 0,89  
47,80 (Media) e 0,18  
CYL -9,92 D ax 180°

47,89 @ 161° e 0,33  
49,48 @ 71° e -0,22  
48,69 (Media) e 0,05  
CYL -1,59 D ax 161°

## Extreme post-surgical astigmatism

### Postop refraction

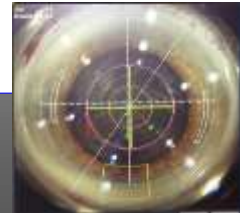
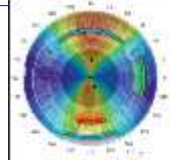
RE. = 0,3 ( -6.00 sph -8.50 cyl 170°)  
LE. = 0,6 (-6.75 sph -2.50 cyl 150°)



RE.= 0,5 ( -12.00 sph -0.50 cyl 140°)  
LE.= 0,6 ( -8-00 sph -2.50 cyl 170°)

## Relaxing corneal incision

- Troutman & Swinger (1980)
- Current surgical technique to reduce postop astigmatism following keratoplasty
- Effectiveness is different in case of keratoplasty when arcuate incision affect the limit of the donor corneal tissue
- FEMTOARCUATE CORNEAL INCISION increase the accurate and efficacy of the technique
- **Offers the possibility to combine with other surgical options**



شکرا جزیلا

GRACIAS

