

Cross linking e regolarizzazione aberrometrica del cheratocono

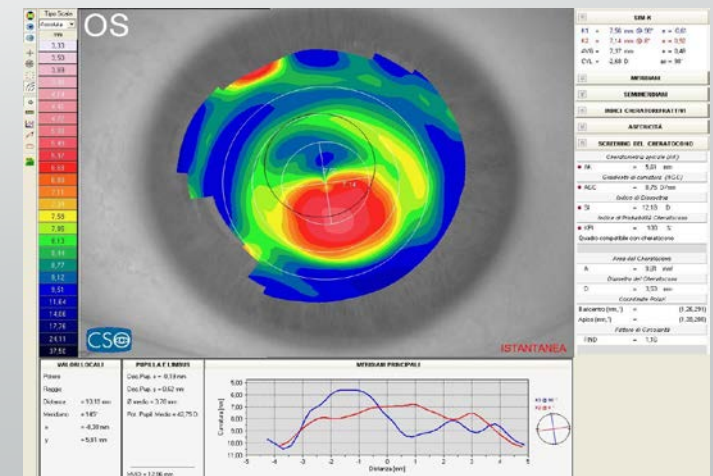
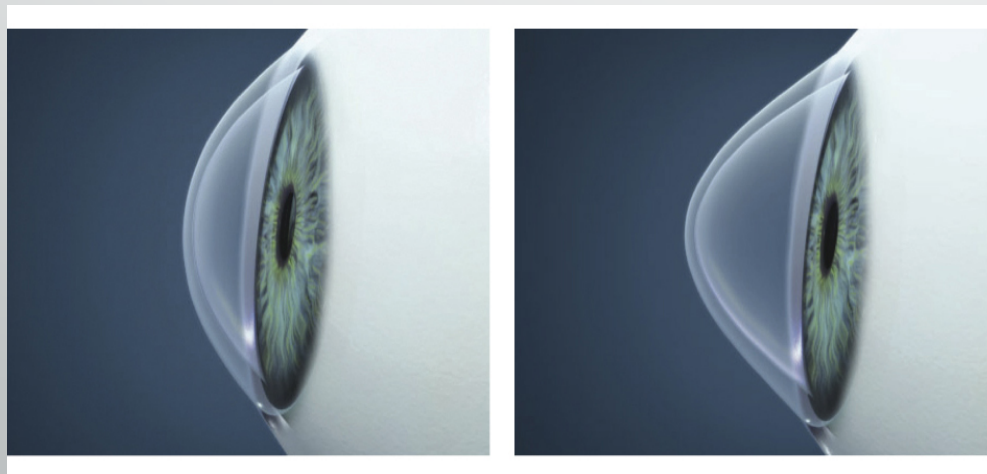
Dott. Marco La Bruna

15 Aprile, SOSI 2016
Campofelice di Roccella

Il Cheratocono

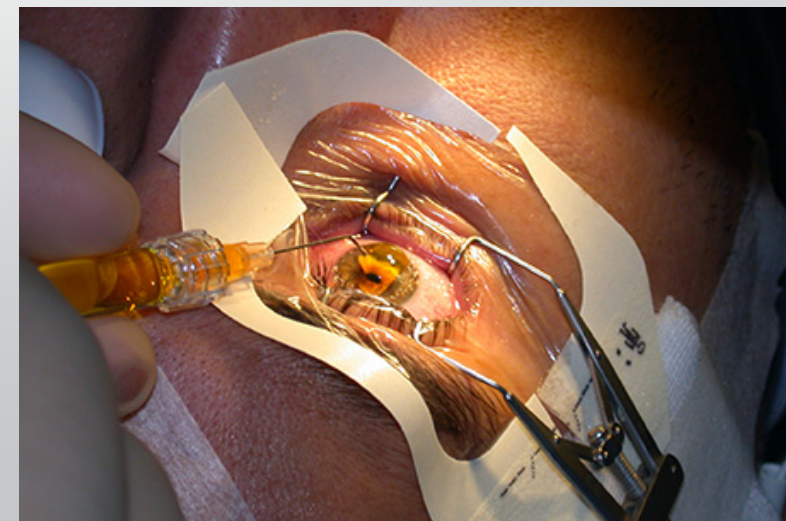
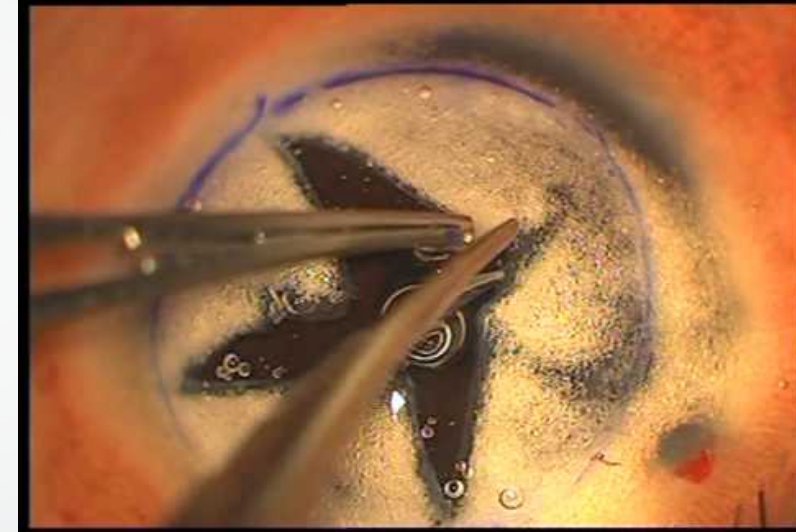
Ectasia corneale caratterizzata da:

- sfiancamento corneale progressivo;
- assottigliamento corneale;
- astigmatismo;
- aberrazioni ottiche.



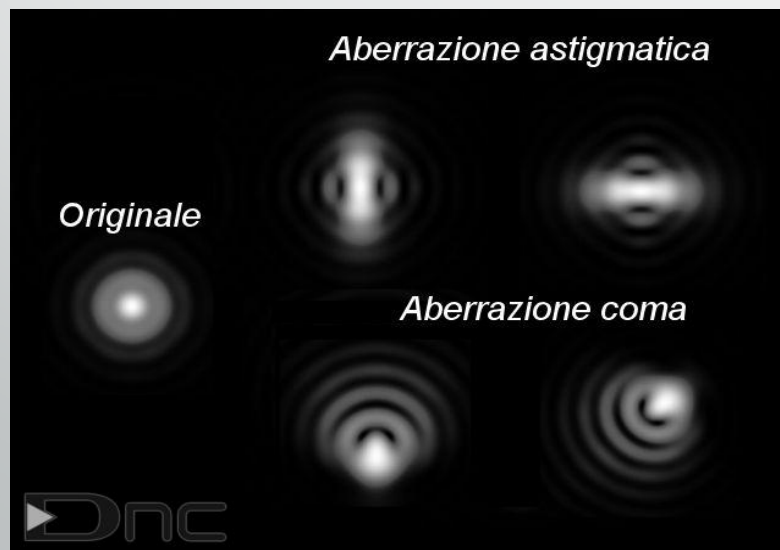
Terapie

- Trapianto di cornea (DALK, PK);
- Cross linking;
- Cross linking plus regolarizzazione aberrometrica



Aberrazione

- Le aberrazioni sono correlate ad ogni deformazione, anomalia od alterazione della trasparenza della superficie anteriore o posteriore di strutture quali la cornea
- Provoca una distorsione e una alterazione della messa a fuoco delle immagini sulla retina: il paziente percepisce e lamenta una cattiva qualità della visione



Obiettivo

- Regolarizzazione della ectasia corneale;
- Aumentare l'asfericità corneale;
- Correzione della componente sferica;
- Migliorare il visus corretto con lenti a tempiale;
- Ridurre le aberrazioni corneali (coma).
- **NON E' UN TRATTAMENTO REFRATTIVO!!**

1. Long-term results of combined transepithelial phototherapeutic keratectomy and corneal collagen crosslinking for keratoconus: Cretan protocol
George D. Kymionis, MD, PhD, Michael A. Grentzelos, MD, Vardhaman P. Kankariya, MD, Dimitrios A. Liakopoulos, MD, Alexandra E. Karavitaki, MD, Dimitra M. Portaliou, MD, Konstantinos I. Tsoulnaras, MD, Ioannis G. Pallikaris, MD, PhD

2. Cone Location-Dependent Outcomes After Combined Topography-Guided Photorefractive Keratectomy and Collagen Cross-linking
ROHIT SHETTY, RUDY M.M.A. NUIJTS, MANECK NICHOLSON, KOUSHIK SARGOD, CHAITRA JAYADEV, HIMABINDU VELURI, AND ABHIJIT SINHA ROY

3. Long-term results of combined transepithelial phototherapeutic keratectomy and corneal collagen crosslinking for keratoconus: Cretan protocol
George D. Kymionis, MD, PhD, Michael A. Grentzelos, MD, Vardhaman P. Kankariya, MD, Dimitrios A. Liakopoulos, MD, Alexandra E. Karavitaki, MD, Dimitra M. Portaliou, MD, Konstantinos I. Tsoulnaras, MD, Ioannis G. Pallikaris, MD, PhD

Cross linking plus regolarizzazione

Criteri di inclusione

- Ectasia moderata (Stadio I-II);
- Necessità di migliorare il visus corretto con lenti a tempiale;
- Intolleranza alle LAC;
- Visus ≤ 0.6 (Snellen Lines)
- K medio ≤ 48 Diottrie o K massimo ≤ 55 Diottrie;
- Optical Thinnest Point pachymetry: **400 μm**
- Età ≥ 21 years

Criteri di esclusione

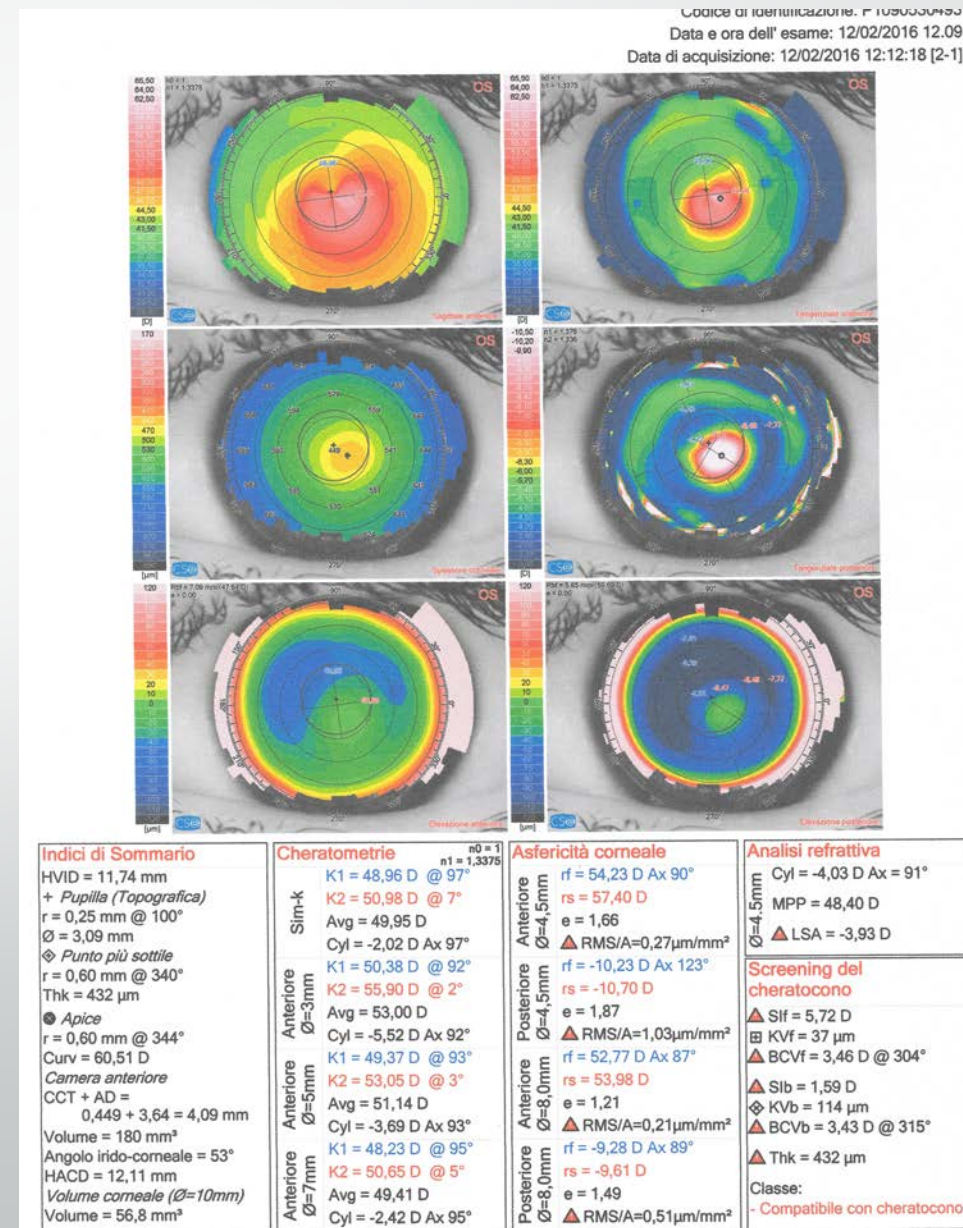
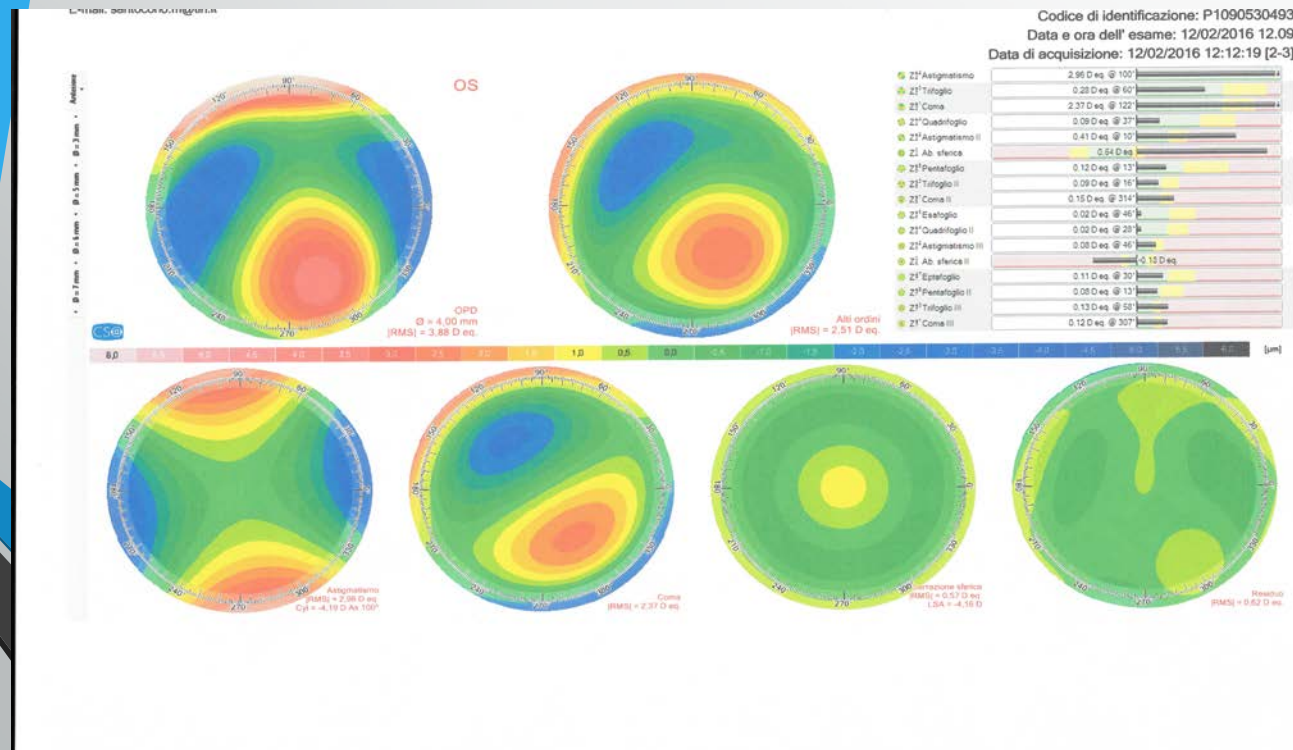
- Infezioni o cheratiti interstiziali;
- Pregresse HSV;
- Patologie autoimmuni;
- Cicatrici corneali.

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2. Keratoconus Management: long term stability of topography-guided normalization combined with high fluence CXL stabilization (The Athens Protocol)
Anastosis John Kanellopoulos, MD; George Asimellis PhD

Caso clinico

- Paziente maschio, 30 anni
- Intervento di Cross Linking in OS nel 2013
- OS: Nat 1\50, -2.50 -2.25 asse 95= 3\10
- Intolleranza a LAC



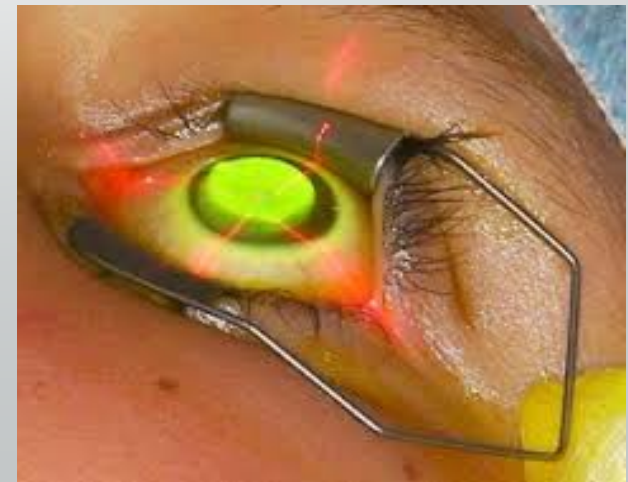
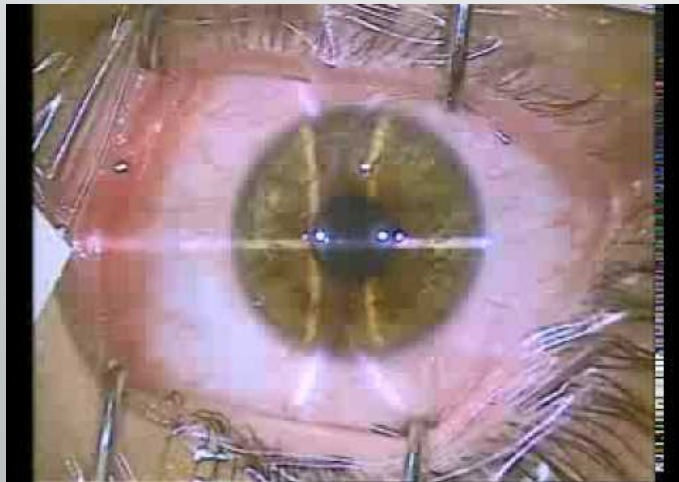
Caso Clínico

- Schwind Amaris 500E excimer laser
- Keratron Scout 20 full rings;
- CSO Sirius combined rotating Scheimpflug Tomography and Placido Disk topography ;
- OCT epithelial mapping;
- Avedro Kxl Machine



Tecnica chirurgica

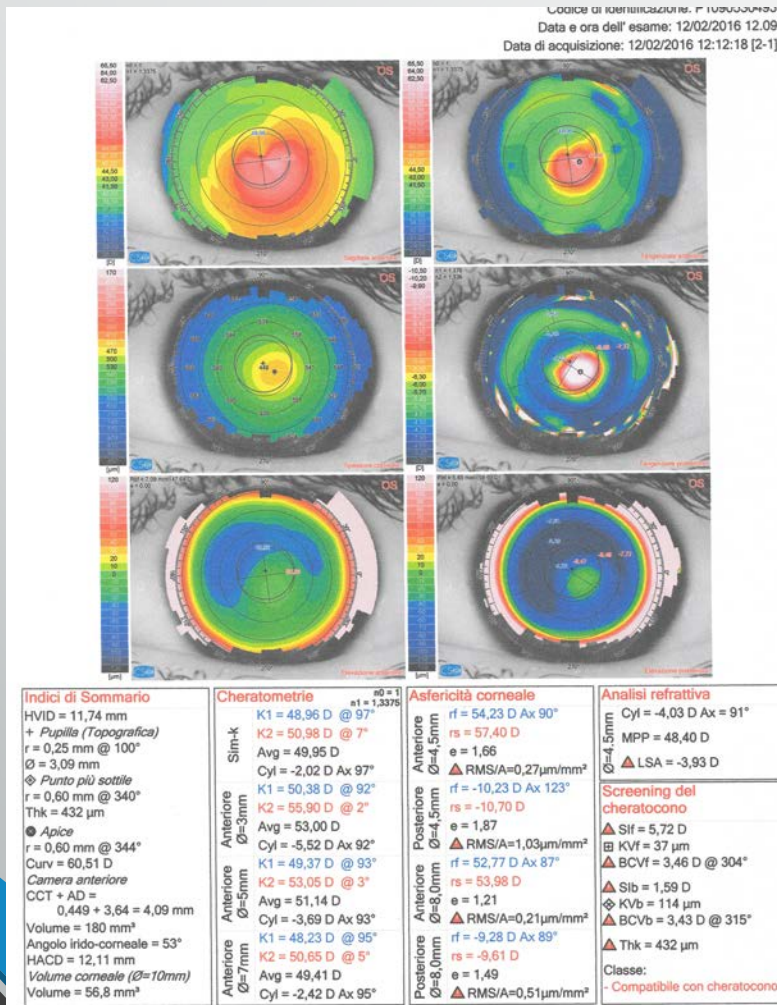
- ASLA: All Surface Laser Ablation - Trans-epithelial
- Trattamento Corneal Wavefront;
- Optical zone 6,10 mm
- Refrazione corretta -1.50 -1,00 asse 95
- Cxl 10 min imbibition Vibex rapid (dextran free) , 15 mw Pulsed A-CXL30 min CXL, 7.2 J.



Risultati

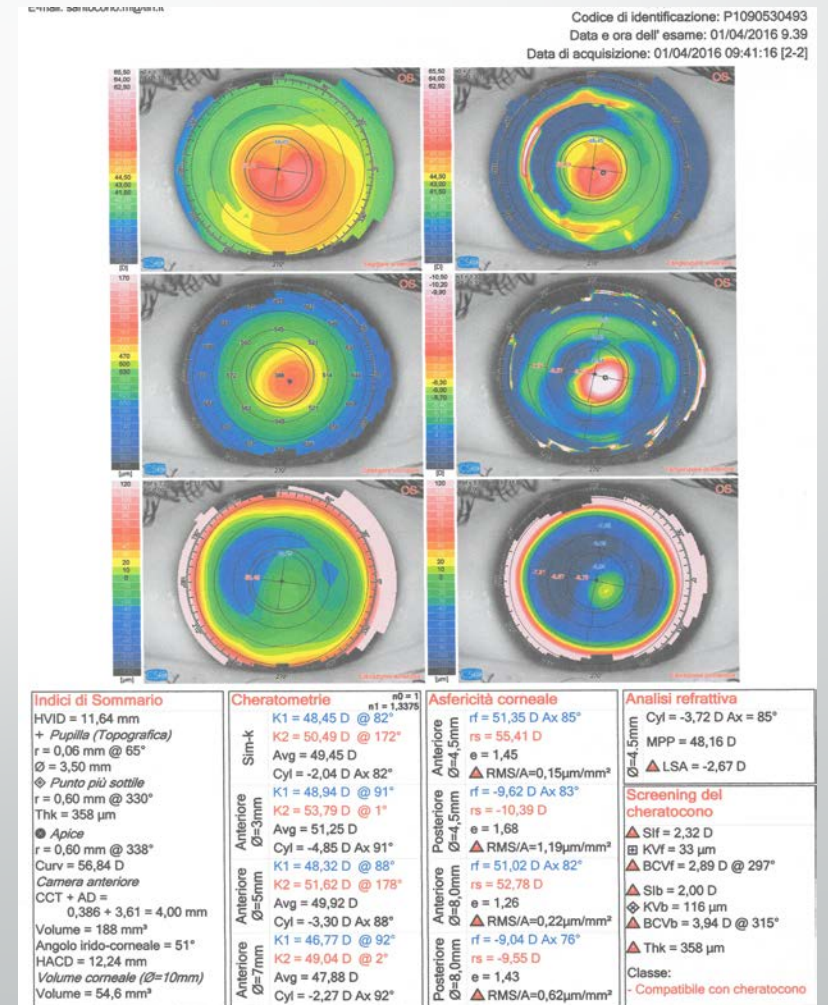
Pre Intervento

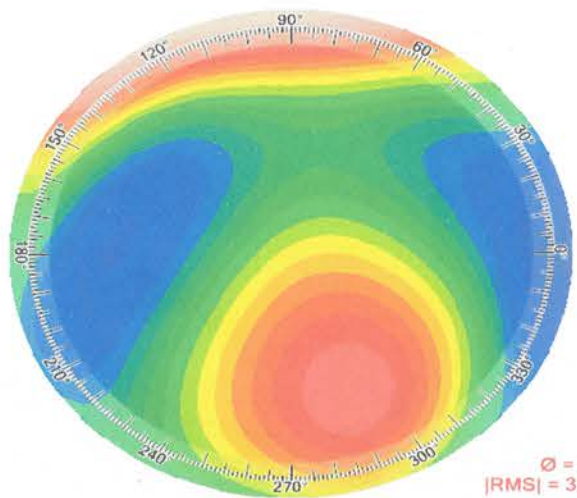
- Visus OS Nat 1\50, con -2.5-2.25 a 100= 3\10



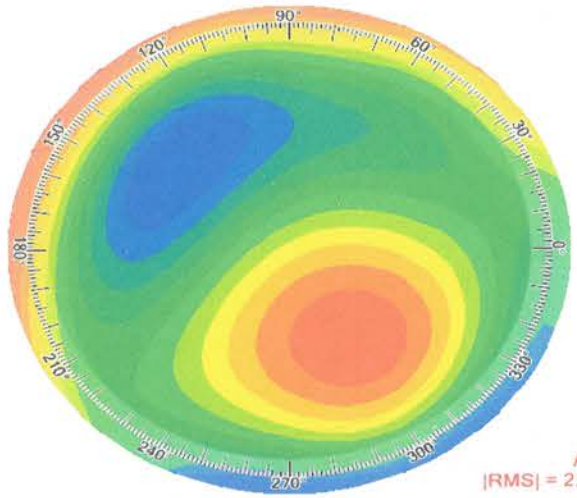
Post Intervento

- Visus OS Nat 3\10, con -1.75 a 80= 6\10



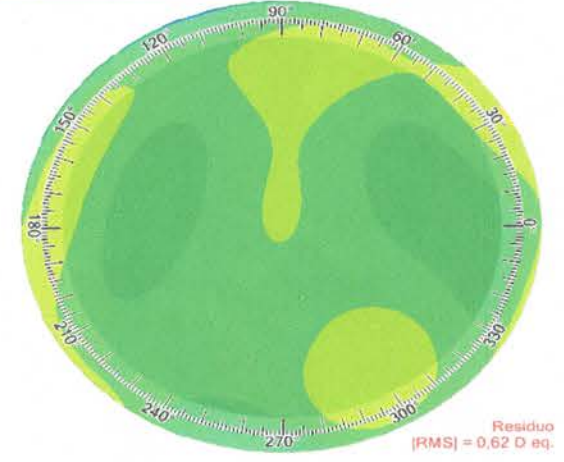
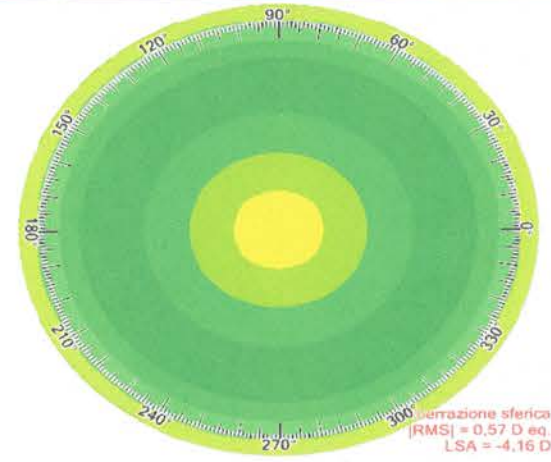
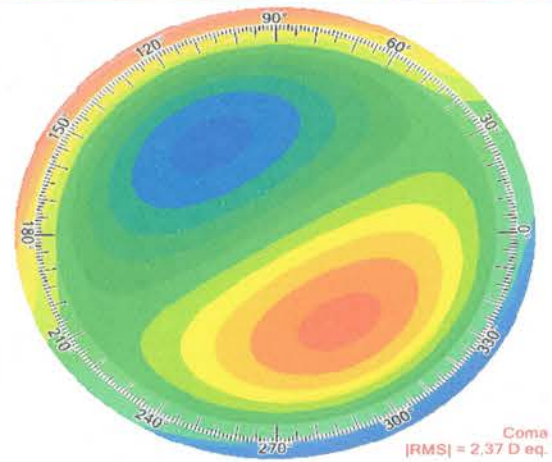
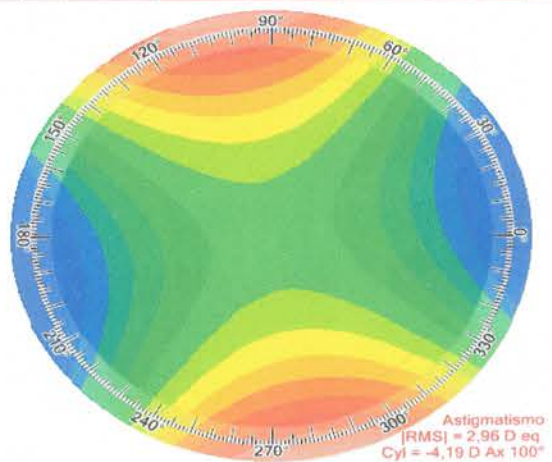


OS

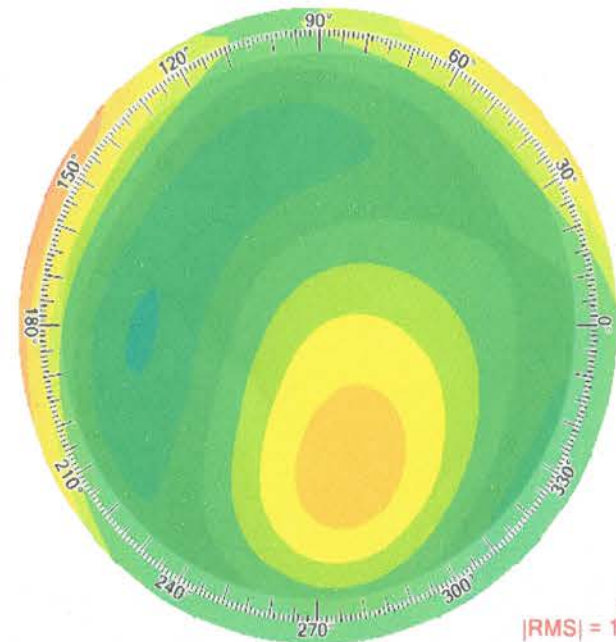
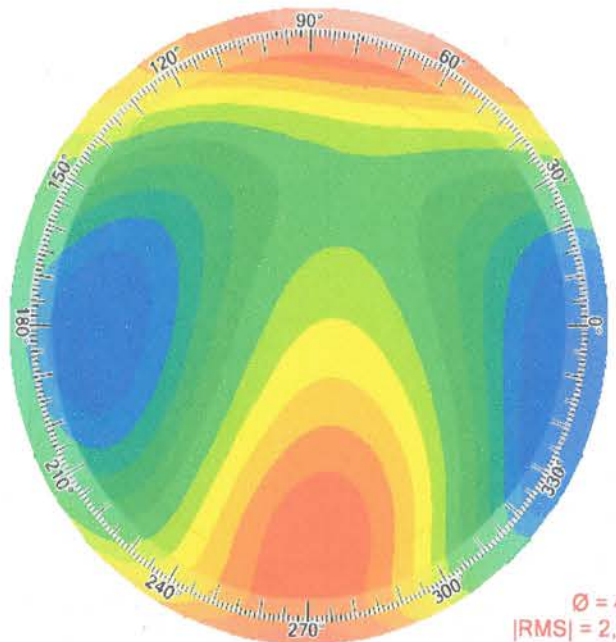


- Z₁² Astigmatismo
- Z₁³ Trifoglio
- Z₁³ Coma
- Z₁⁴ Quadrifoglio
- Z₁⁴ Astigmatismo II
- Z₁⁴ Ab. sferica
- Z₁⁵ Pentafoglio
- Z₁⁵ Trifoglio II
- Z₁⁵ Coma II
- Z₁⁵ Esafiglio
- Z₁⁵ Quadrifoglio II
- Z₁⁵ Astigmatismo III
- Z₁⁵ Ab. sferica II
- Z₁⁵ Eptafoglio
- Z₁⁵ Pentafoglio II
- Z₁⁵ Trifoglio III
- Z₁⁵ Coma III

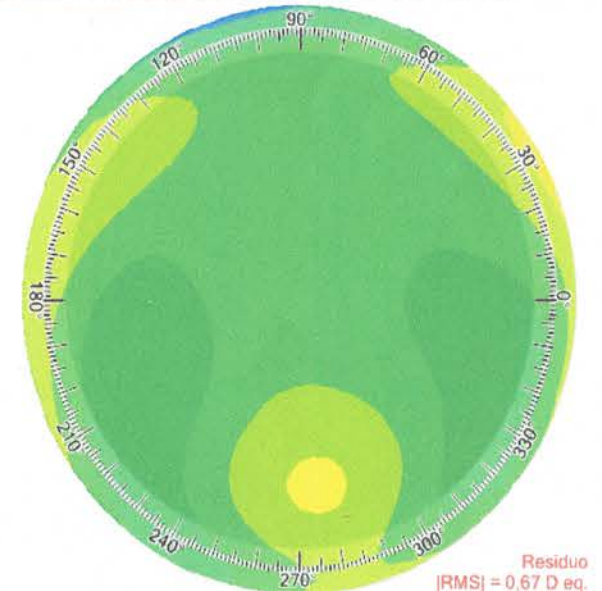
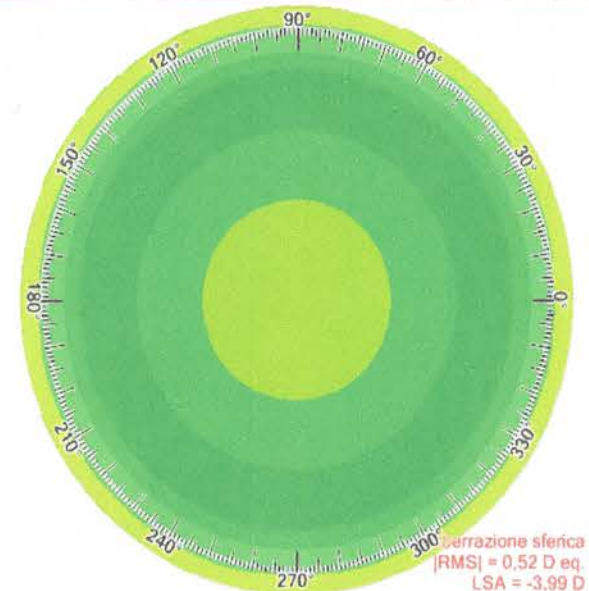
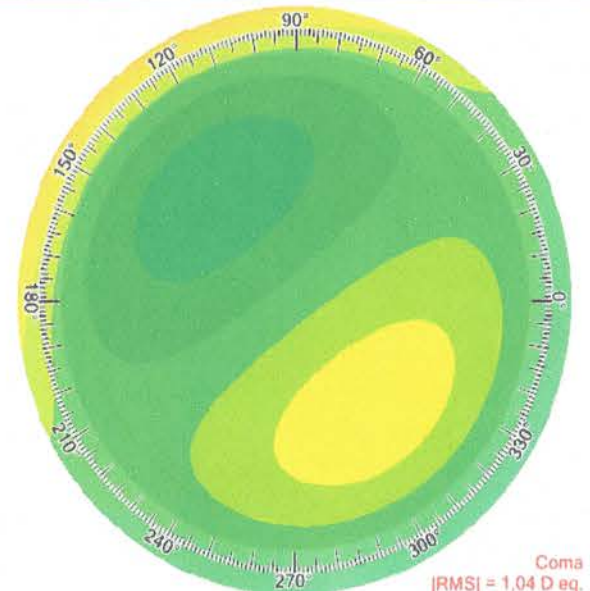
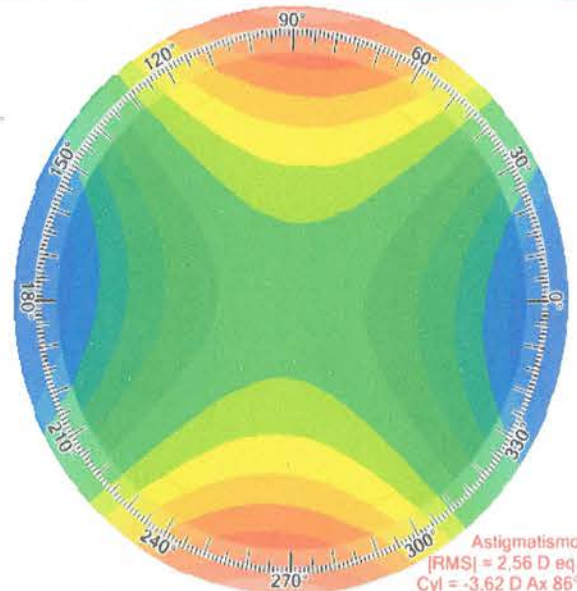
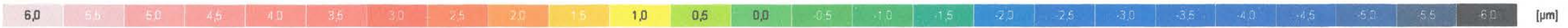
Z ₁ ² Astigmatismo	2,96 D eq @ 100°	
Z ₁ ³ Trifoglio	0,28 D eq @ 60°	
Z ₁ ³ Coma	2,37 D eq @ 122°	
Z ₁ ⁴ Quadrifoglio	0,09 D eq @ 37°	
Z ₁ ⁴ Astigmatismo II	0,41 D eq @ 10°	
Z ₁ ⁴ Ab. sferica	0,54 D eq	
Z ₁ ⁵ Pentafoglio	0,12 D eq @ 13°	
Z ₁ ⁵ Trifoglio II	0,09 D eq @ 16°	
Z ₁ ⁵ Coma II	0,15 D eq @ 314°	
Z ₁ ⁵ Esafiglio	0,02 D eq @ 46°	
Z ₁ ⁵ Quadrifoglio II	0,02 D eq @ 28°	
Z ₁ ⁵ Astigmatismo III	0,08 D eq @ 46°	
Z ₁ ⁵ Ab. sferica II	-0,18 D eq	
Z ₁ ⁵ Eptafoglio	0,11 D eq @ 30°	
Z ₁ ⁵ Pentafoglio II	0,08 D eq @ 13°	
Z ₁ ⁵ Trifoglio III	0,13 D eq @ 58°	
Z ₁ ⁵ Coma III	0,12 D eq @ 307°	



Anteriore
• Ø = 7 mm • Ø = 6 mm • Ø = 5 mm • Ø = 3 mm



Z ² ₂ Astigmatismo	2.56 D eq @ 86°	
Z ² ₃ Trifoglio	0.42 D eq @ 39°	
Z ² ₄ Coma	1.04 D eq @ 127°	
Z ² ₅ Quadrifoglio	0.01 D eq @ 20°	
Z ² ₆ Astigmatismo II	0.44 D eq @ 10°	
Z ² ₇ Ab. sferica	0.51 D eq	
Z ² ₈ Pentafoglio	0.08 D eq @ 66°	
Z ² ₉ Trifoglio II	0.12 D eq @ 33°	
Z ² ₁₀ Coma II	0.16 D eq @ 295°	
Z ² ₁₁ Esafoglio	0.05 D eq @ 31°	
Z ² ₁₂ Quadrifoglio II	0.04 D eq @ 45°	
Z ² ₁₃ Astigmatismo III	0.01 D eq @ 61°	
Z ² ₁₄ Ab. sferica II	-0.05 D eq	
Z ² ₁₅ Eptafoglio	0.03 D eq @ 31°	
Z ² ₁₆ Pentafoglio II	0.01 D eq @ 31°	
Z ² ₁₇ Trifoglio III	0.01 D eq @ 89°	
Z ² ₁₈ Coma III	0.14 D eq @ 300°	



Conclusioni

- Possibilità di migliorare il Visus;
- Nel futuro le mappe epiteliali potranno migliorare la pianificazione e il risultato dei trattamenti;
- Sia il CXL-Plus sia il CXL non sostituiscono la chirurgia



GRAZIE