

ISCLS

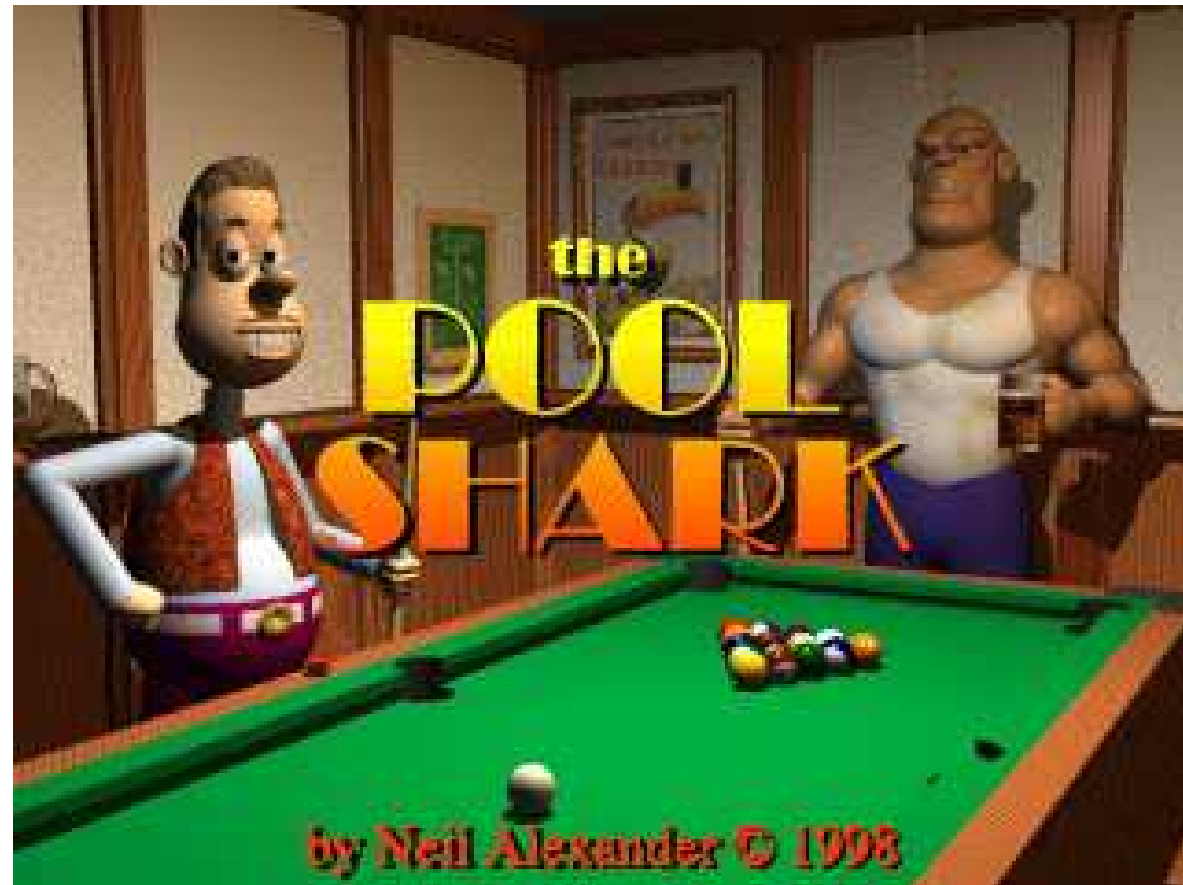
International Society of Contact Lens Specialists



39th Congress in Buenos Aires 2008

The Keratoplasty Challenge

Expect the
unexpected



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Goals

- Short review of different causes for Keratoplasty and the surgery methods
- Topographical analysis of post-surgery Corneas
- Technical discussion and cases of more or less successful contact lens fittings
- Important Take-home messages

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Introduction

Keratoplasty due to :

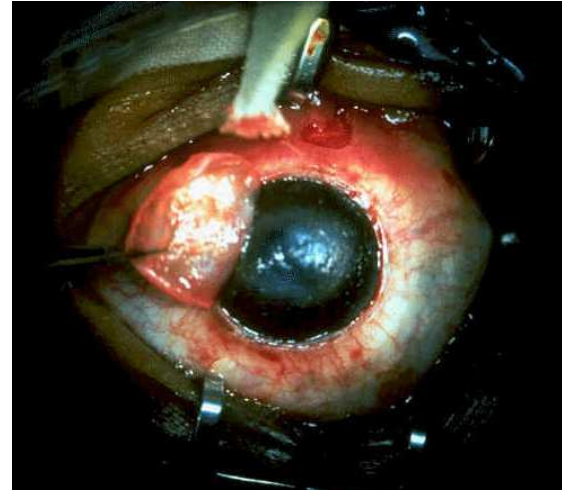
- Degenerations (e.g. Keratoconus, Pellucid Marginal Deg., Terrien, etc)
- Infections
- Dystrophies (e.g. Fuchs Dystrophy, Granular Dystrophy, etc)
- Trauma
- Post Refractive surgery



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The procedure

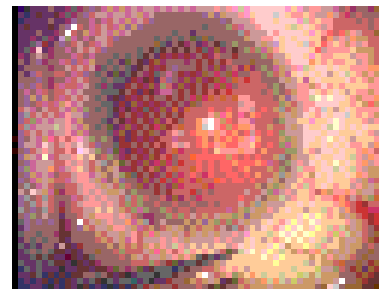
Penetrating Keratoplasty



Lamellar Keratoplasty



Deep lamellar
Endothelial Keratoplasty



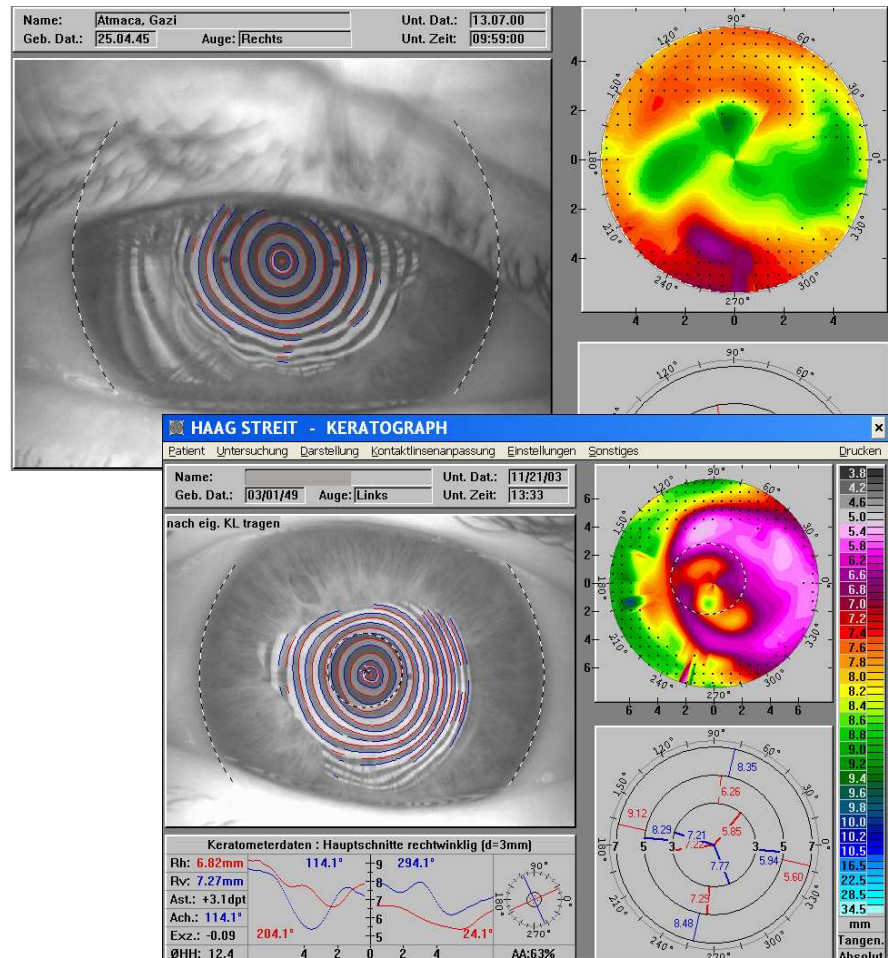
Kenneth Marc Goins, MD

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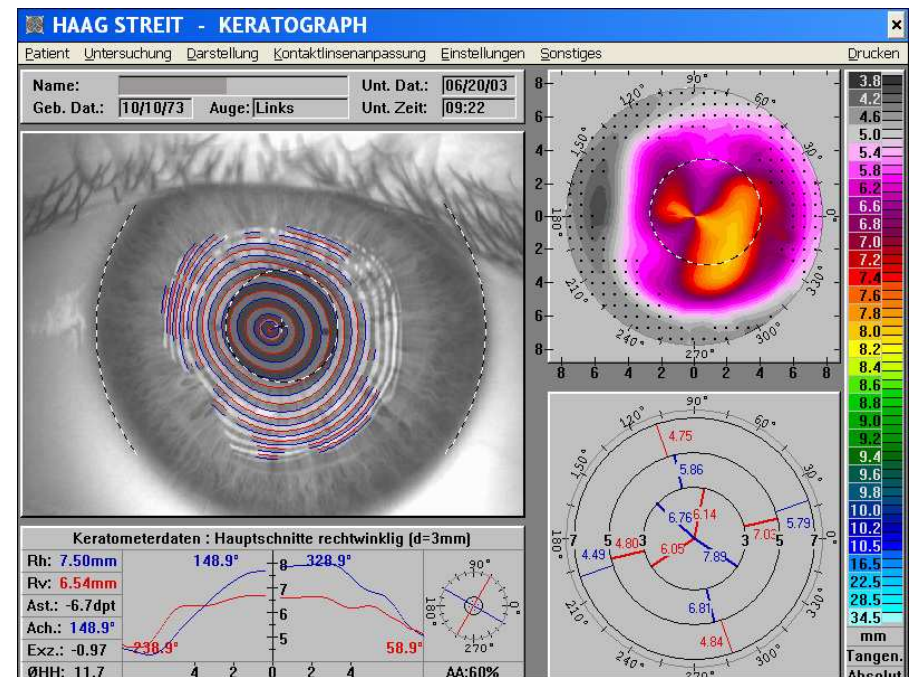


The Challenge

- High irregular Topography post surgery



Penetrating Keratoplasty

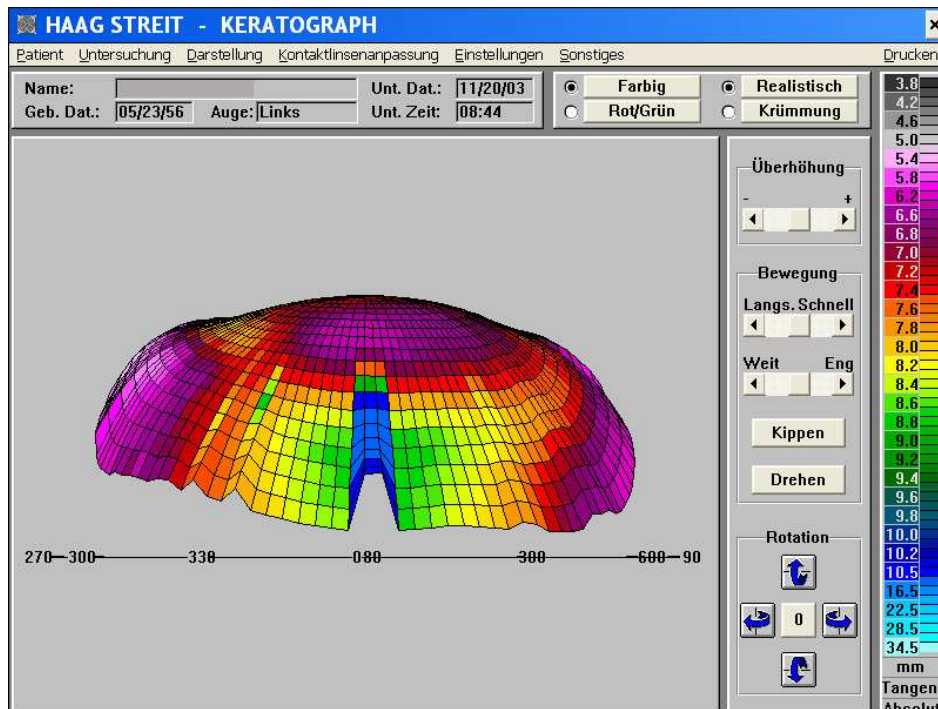


Lamellar Keratoplasty

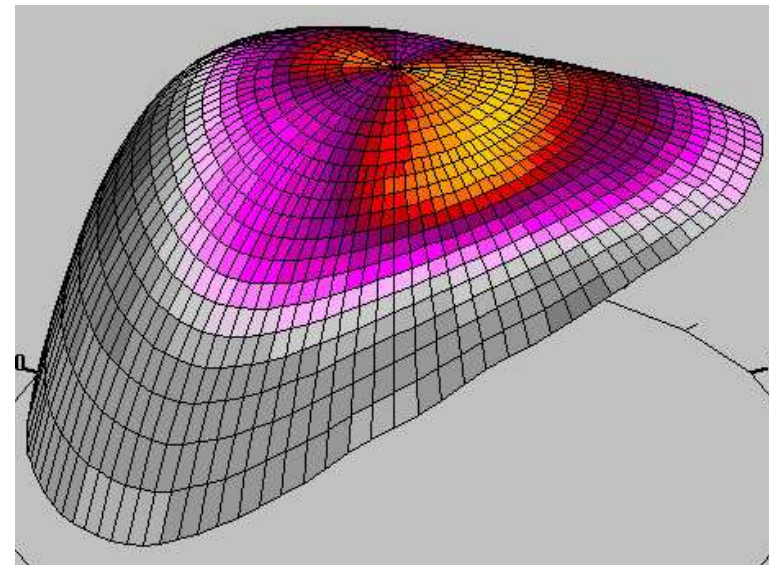
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The Challenge

- High irregular corneal steps post surgery



Penetrating Keratoplasty

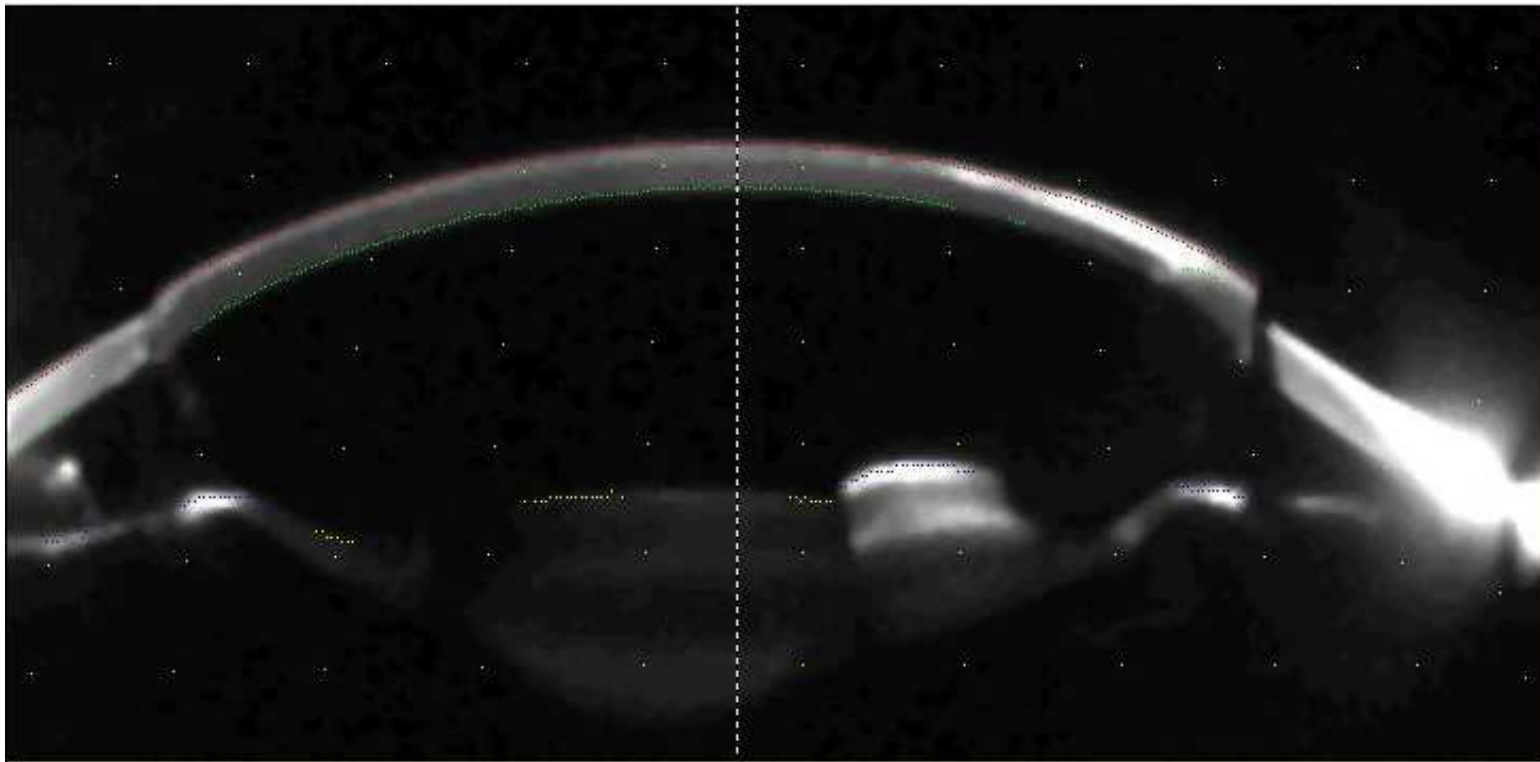


Lamellar Keratoplasty

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The Challenge

- High irregular corneal steps post surgery

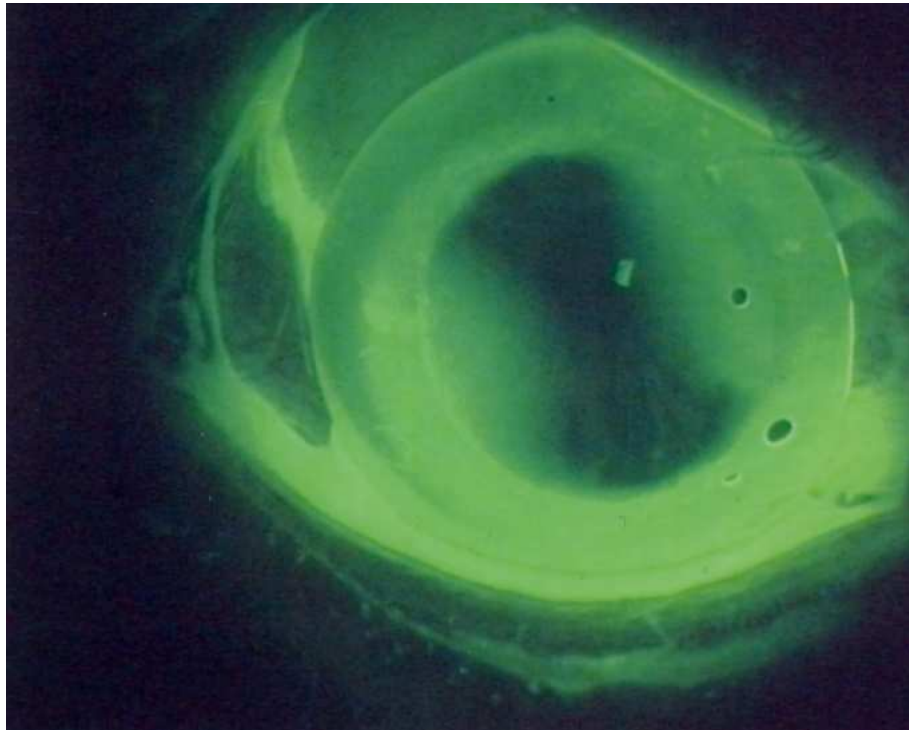


Penetrating Keratoplasty (Scheimpflug Camera Pentacam)

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Topography summary

- High, irregular, corneal astigmatism with tilted donor corneas and more or less steep intermediate zones.

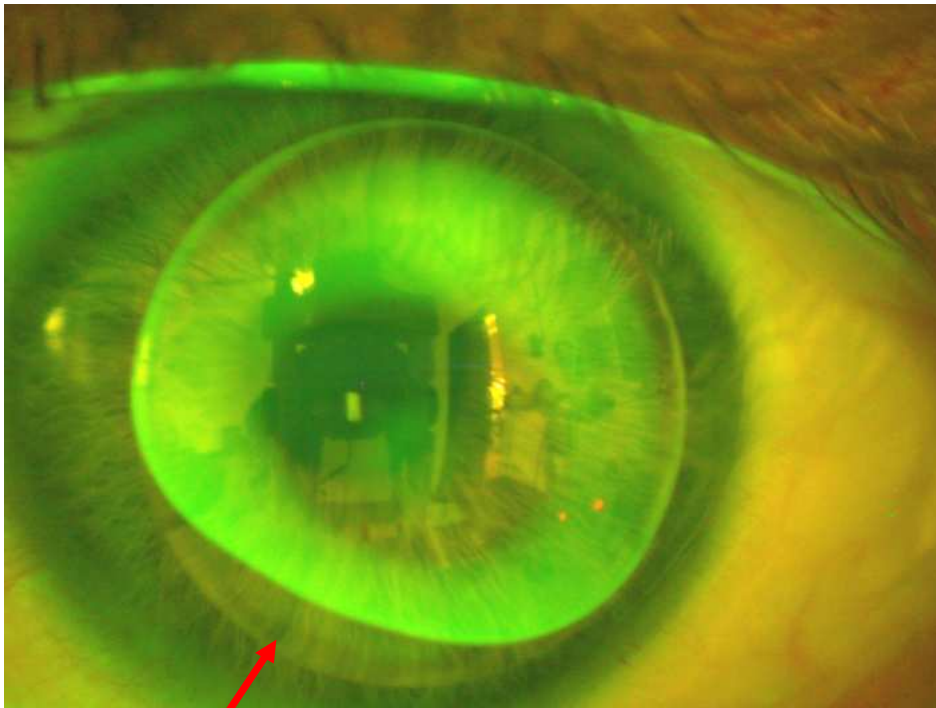


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Topography summary

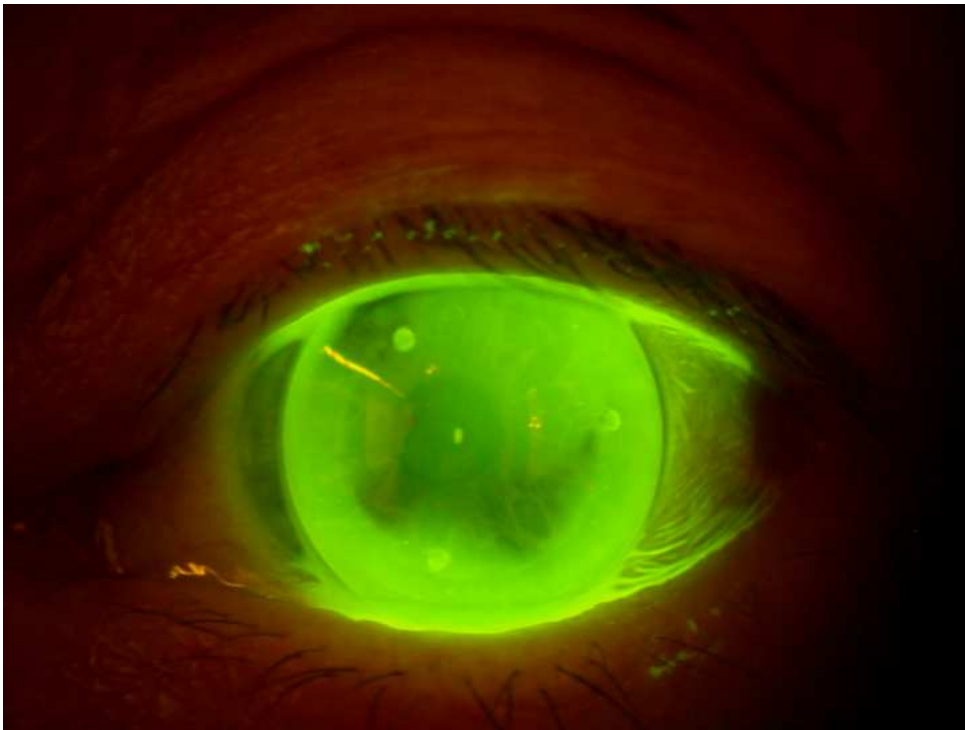
- High, irregular, corneal astigmatism with tilted donor corneas and more or less steep intermediate zones.



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Contact lens facts



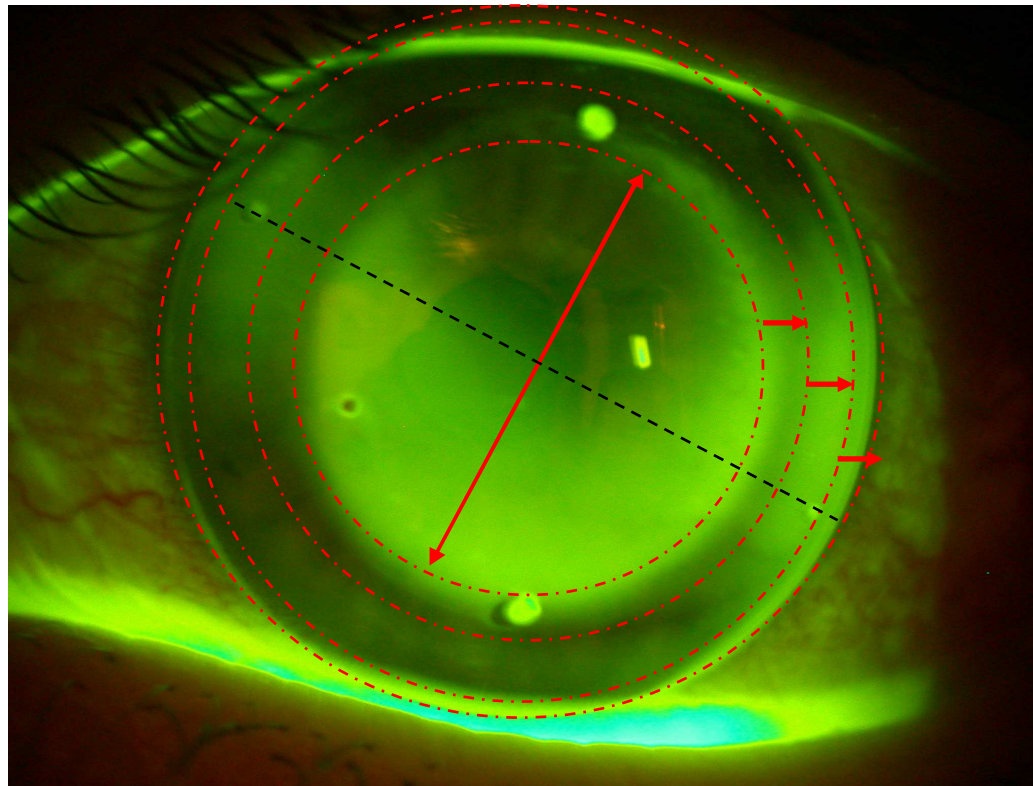
Normal spherical or aspheric back curve designs are very often not able to fit such terrible topographies.

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Contact lens facts

Back toric and reverse geometries with large BOZ of 7,5 to 8,5 mm are very often the best or only way to deal with such challenging Keratoplasty situations.



Backtoric Geometry BOZ

Reverse Zone variable

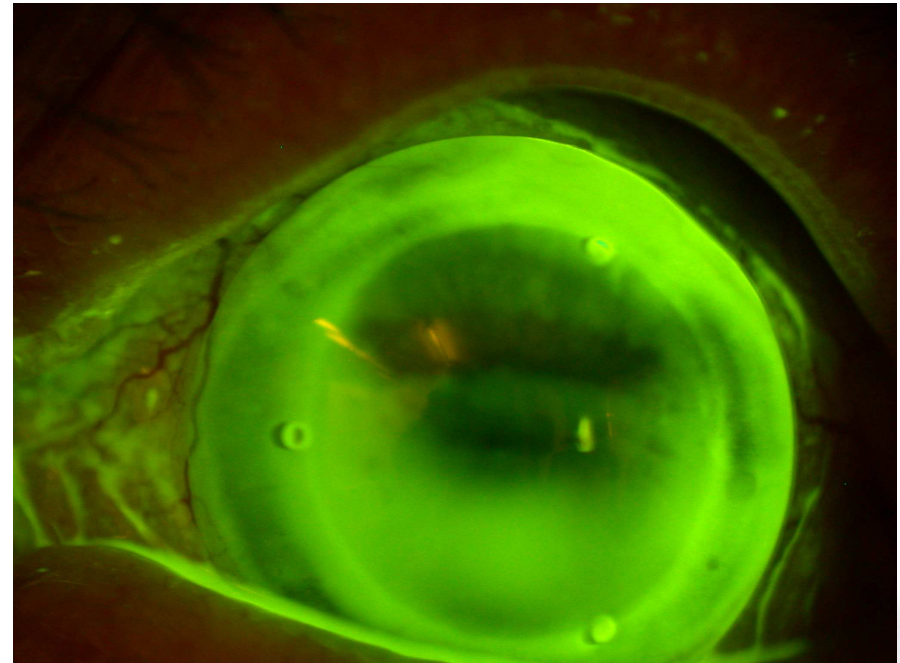
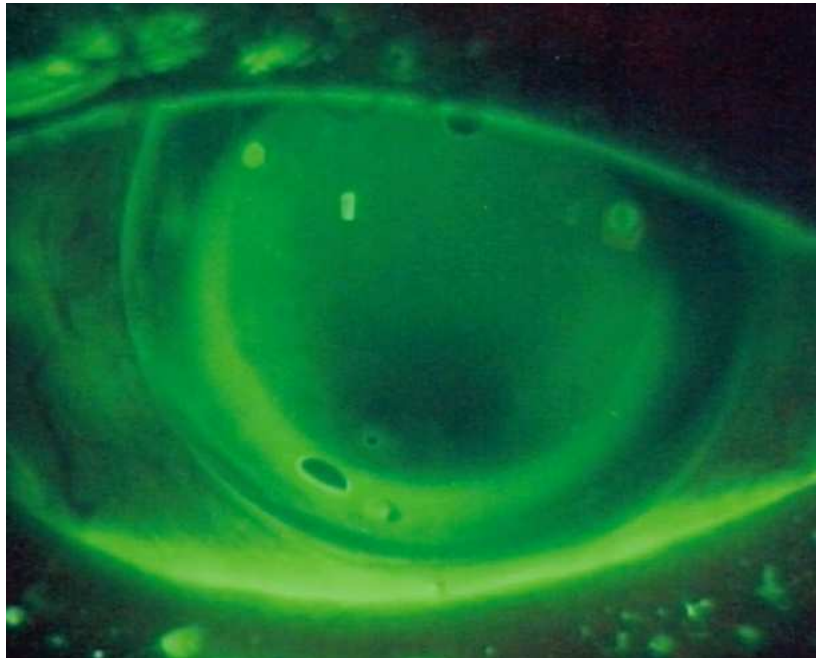
Landing Zone variable

Bevel Zone variable

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Contact lens facts

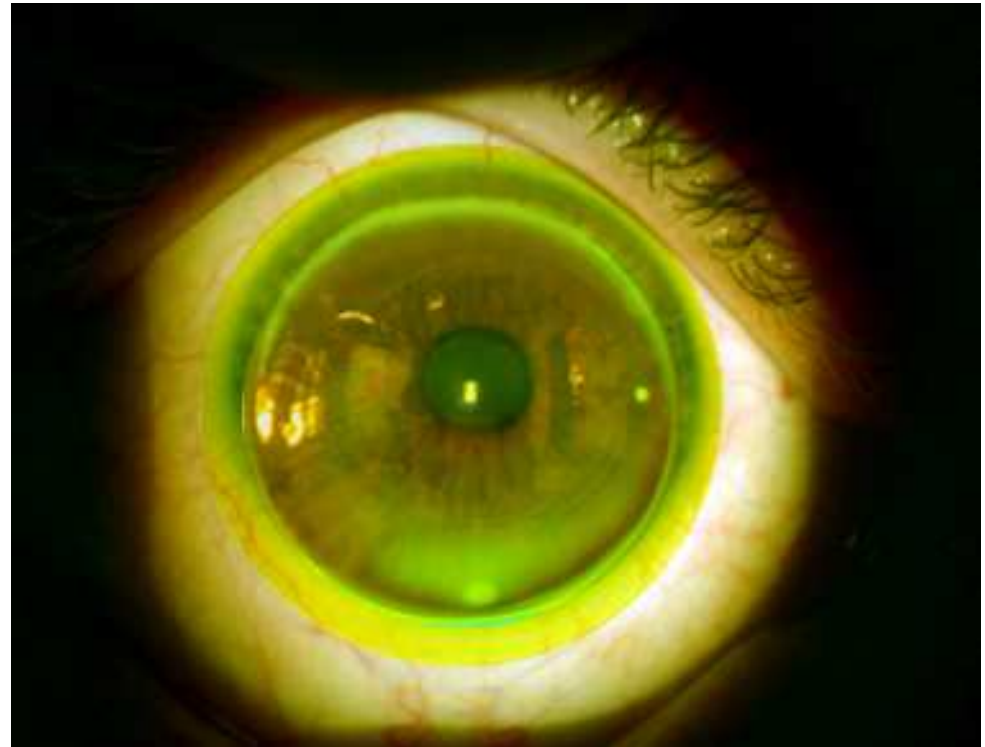
- Larger OAD like limbal or peri-limbal (miniskleral) lenses are often better than small lenses.



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Contact lens facts

A common problem with heavily tilted corneas and areas of steep radii, even after nerve cutting surgery, is a resistant high corneal sensitivity.



The solution ? Piggyback combinations !

(not only in this case of Keratoconus with intra corneal rings)

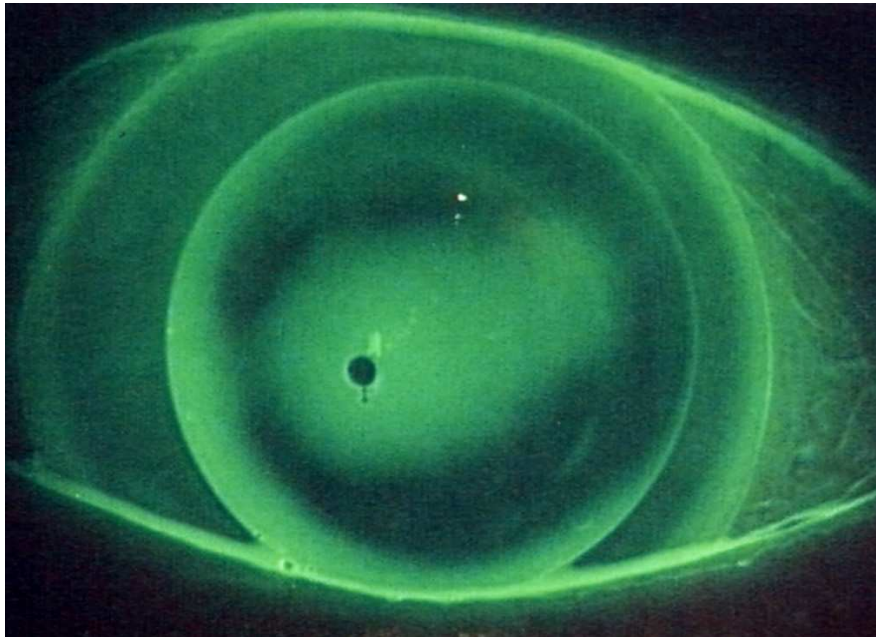
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Contact lens facts

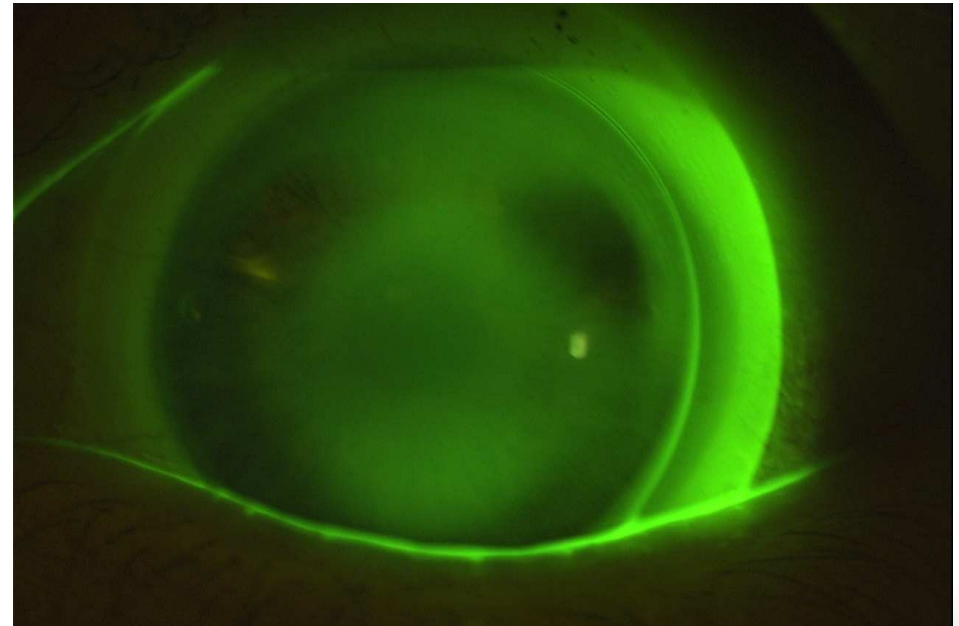
Why Piggyback combinations ?

Because the fragile edges of the donor cornea need sometimes a “cushion”.



... with a small OAD

(Silflex 1990)



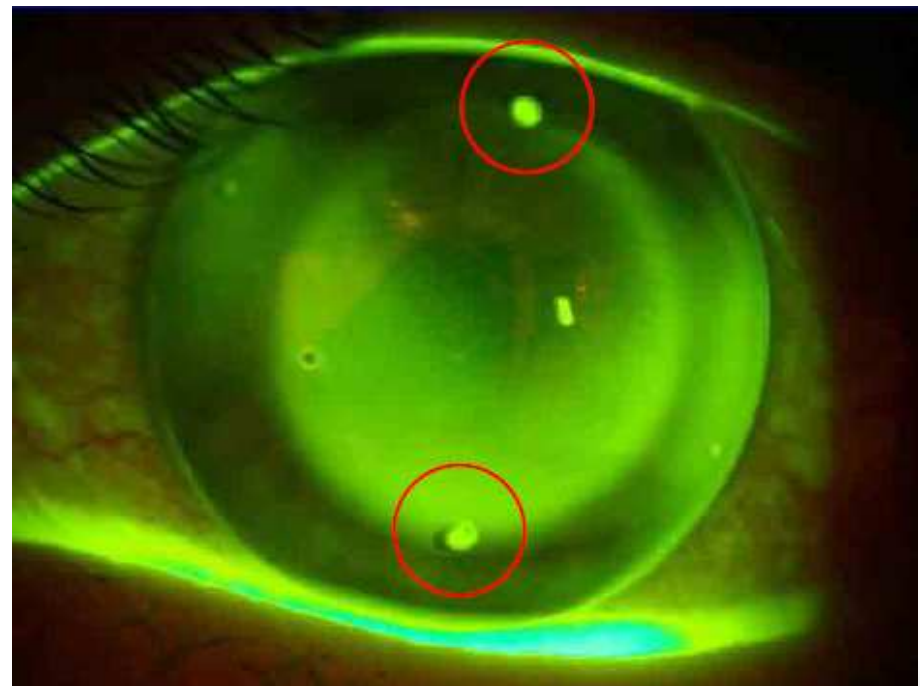
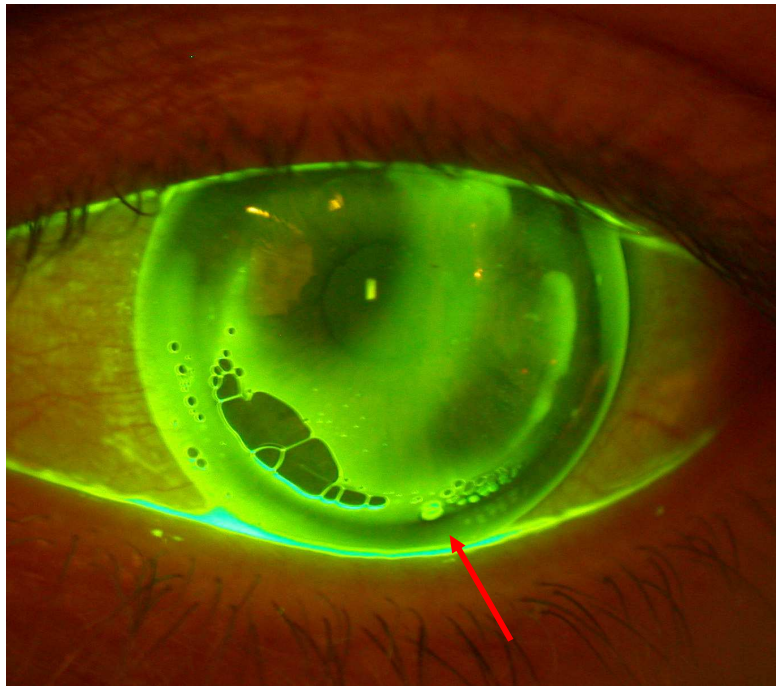
... with a large OAD

(Oasys 2007)

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Contact lens facts

Other common problems with tilted corneas and steep steps ? Air bubbles !

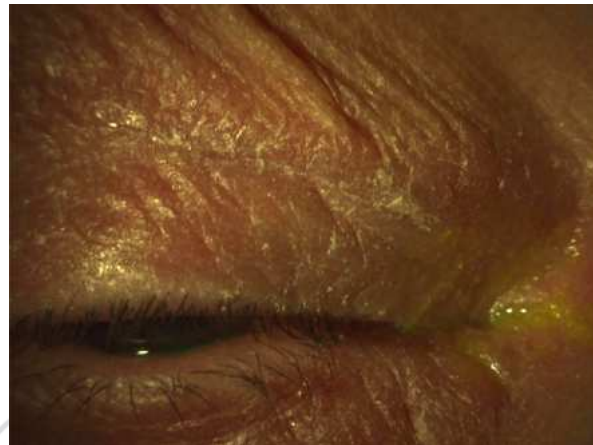


Ventilations holes are very helpful !

Set them on the edge between BOZ and reverse zone.

Physiological facts

- Decrease risk of hypoxia with high gaspermeable materials like Boston XO and XO2, Contamac Extra and Extreme or Paragon 100.
- For Piggyback we use Silicone-Hydrogels like CIBA Night&Day, Cooper's Biofinity, J&J Oasys. Be careful with lens care systems ! Don't mix Polyquad and Biguanid preserved lens care system !



Physiological facts

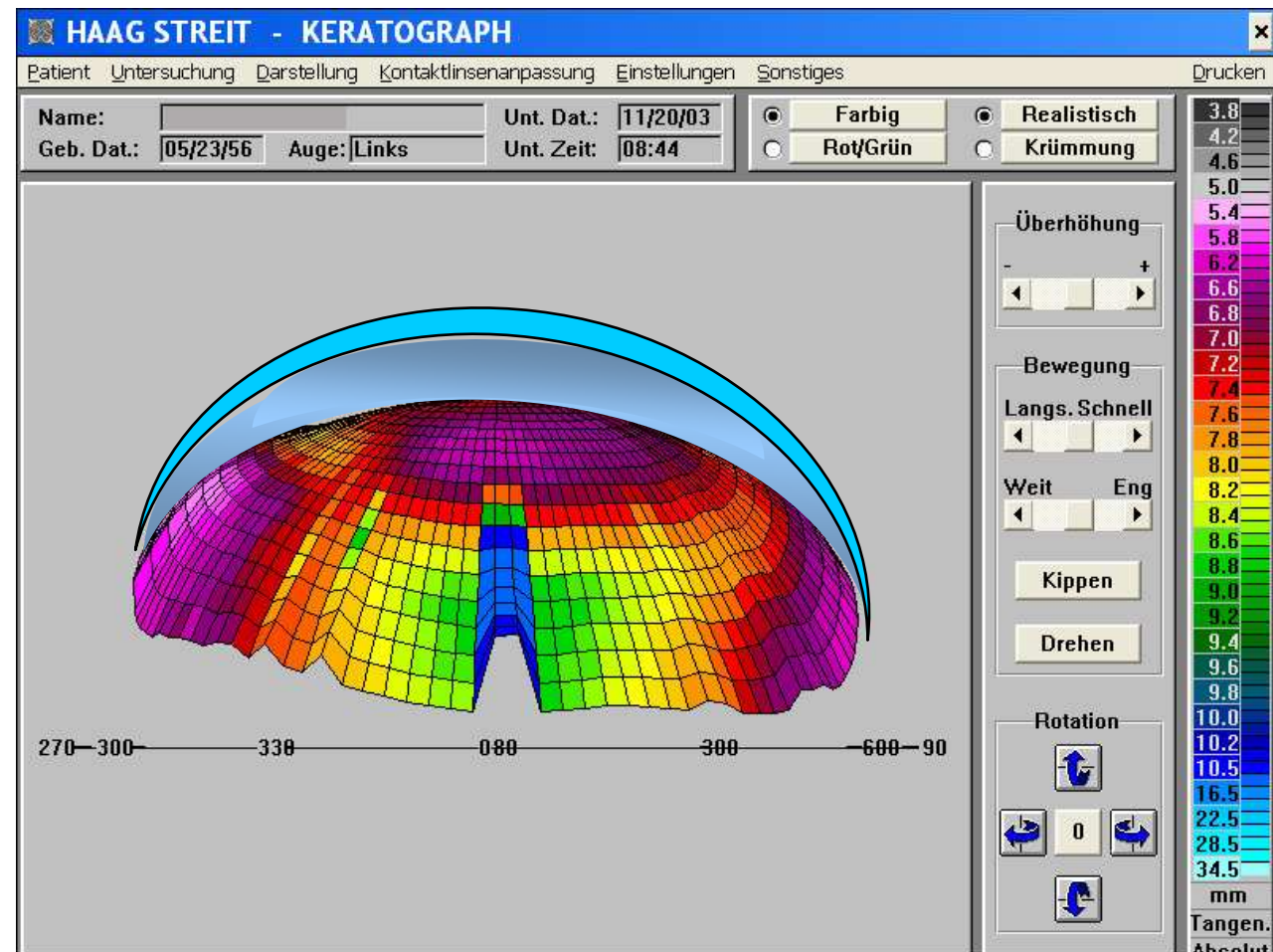
- For simpler back curve geometries use PLUS powers soft lenses as Piggyback system in extreme flat donor cornea cases or in cases with extreme steps.

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PLUS power Piggyback lens

Coverage of the
significant corneal
steps with PLUS
Power Piggyback
lens for a simpler
Back curve
Geometry.



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Take Home Message

- The use of a combination of Topography and Scheimpflug camera is very helpful
 - Tilted corneas or steps between donor and patients cornea need very often need reverse and/or extreme backtoric geometries
 - Use large BOZ and large OAD
 - Use ventilation holes and/or piggyback combinations
- > With this fitting tricks in mind, you will get excellent VA, high long lasting wearing comfort, acceptable physiology with long time patient satisfaction

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Thank you Erwin for the excellent meeting !



Monte Rosa, Zermatt, Switzerland

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