

# Keratoplasty fitting with peripheral alignment strategy

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## Introduction

Fitting (R)GPs after penetrating Keratoplasty (PKP) is a challenge. Small overall Diameter would be easier to fit, but due to the irregular graft - host interface, often results in a dislocated contact lens and uncomfortable situation. Starting fitting procedure with a bigger diameter lens in the peripheral host cornea offers an incredible comfortable and stable contact lens. Keep in mind, that central K readings do not reflect any relationship to the peripheral curvature of the host cornea. This article will concentrate on the peripheral fitting possibilities like peripheral toric or quadrant specific designs combined with reverse geometry in PKP cases.

## Case Report

A 41-year-old female underwent PKP a few years ago and was fitted with a single curve (R)GP. Patient complained about halos, marked discomfort and she lost her lens frequently. (Figure 1)

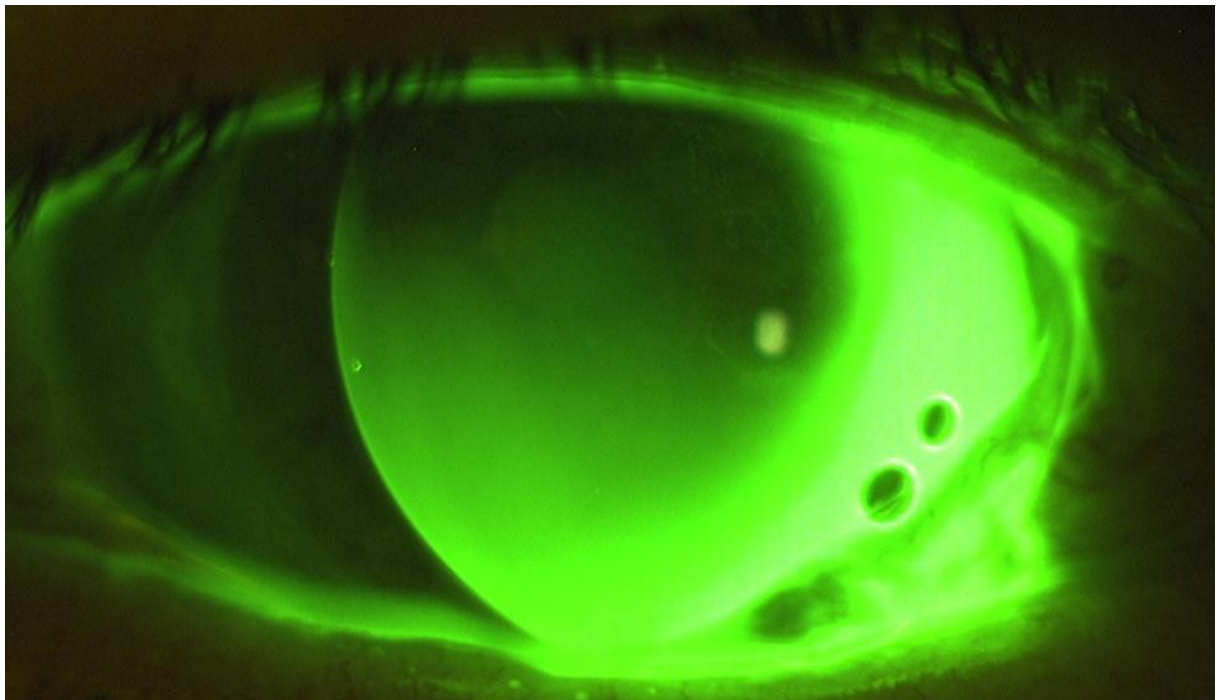


Figure 1: Patients dislocated single curve (R)GP Design

According to the Pentacam (Scheinpflug) height measurement, there is a huge amount of toricity on the peripheral host cornea. . (Figure 2)

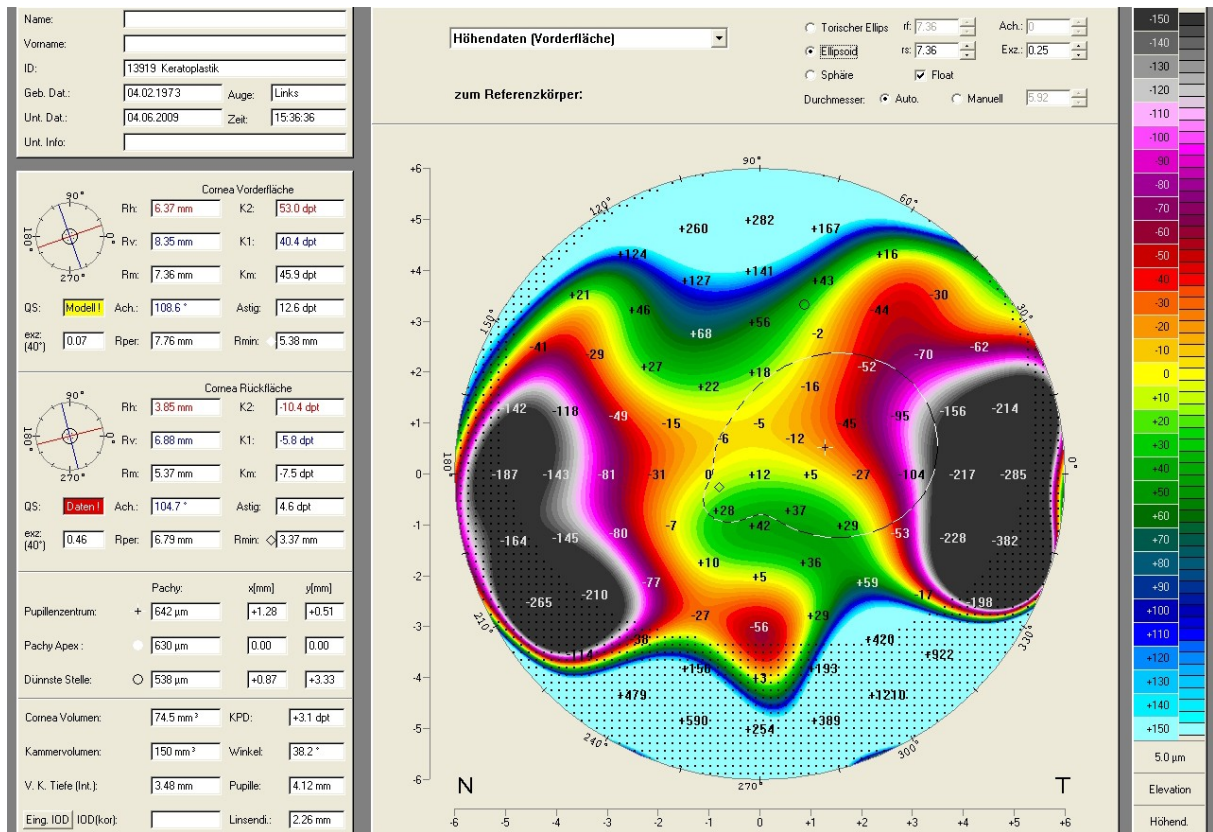


Figure 2: Elevation mapping, note the high difference in height between the vertical and horizontal meridian.

Additionally the cornea seems to be steeper inferior than superior. After the first diagnostic (R)GP with a “simple” periphertoric lens design, a quadrant specific lens design was chosen, due to the inferior edge lift. Additionally the periphertoric (R)GP rotates off, toward 125° (Picture 3)

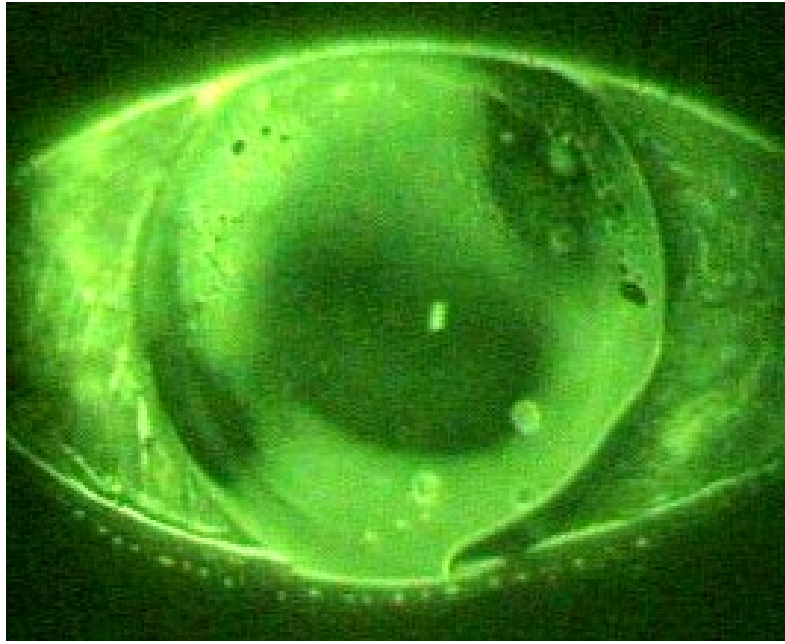


Figure 2: Periphertoric lens design, note the dramatic edge lift in the inferior portion

The final lens had a 10.60mm diameter, contains reverse geometry, with quadrant specific (numeric eccentricity nE: horizontal 08 / 08, superior 06 and inferior 04) periphery. Due to the different e-values in each quadrant, the lens clicks into the curvature of the host cornea. Fluorescein pattern showed the typical reverse curve pattern, peripheral alignment, adequate sagittal depth and over all a much better centration of the whole lens. (Figure 3)

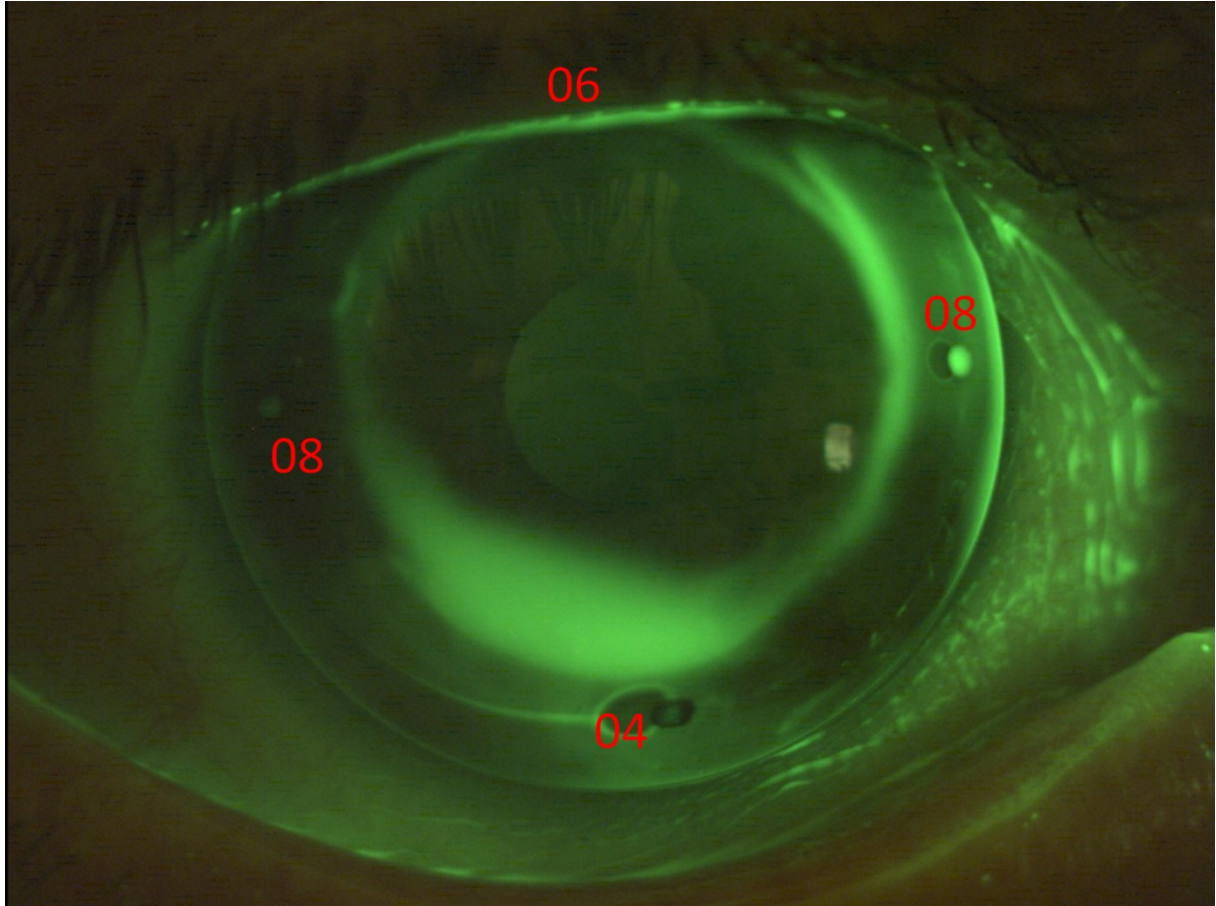


Figure 3: Reverse Geometry and quadrant specific periphery (red numbers = nE)

Subjectively the contact lens could be tolerated much better now, no halos were seen, and there was no lost contact lens till today.

### Discussion

Reverse geometries offer a fascinating approach for fitting (R)GPs after PKP. However, for comfort and centration reasons, alignment fitting of the peripheral host cornea is critical. More complicated geometries, such as periphertoric or quadrant specific, are needed to succeed. As soon as the periphery is fitted alignment, comfort and vision will increase dramatically. Our next I-site Newsletter contribution will concentrate on fitting procedure over tilted or off center grafts.