

# Piggyback System to Rehabilitate a Warped Cornea

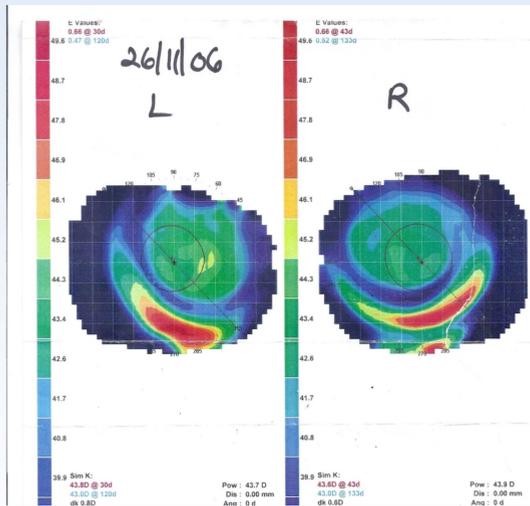
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## Background

R.S. a 47 year old female, has been a successful RGP wearer since her teens. She consulted me in 2006. Her chief complaint is bilateral monocular diplopia while wearing her RGP's, which she wore comfortably each day.

## Clinical Findings

Slit lamp examination reveals "high riding" lenses. The tangential corneal topography map was used to diagnose the problems as well as to illustrate to R.S. the etiology of her symptoms.



The topography shows an inferior steepening on both corneas, appearing as a red crescent. The black circle indicates the pupil area and shows the "crossover" of the haptic of the lens into that area as well as the superior decentration of the optic zone. Years of wear caused a splitting of the image over the pupil, resulting in the patients' symptom of monocular diplopia.

## Considerations and Refit

There were different options to rehabilitate the cornea and eliminate the double vision.

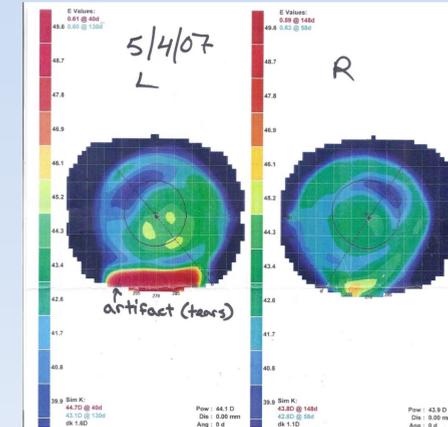
Discontinuing lens wear, even temporarily, was not an acceptable alternative to R.S. Another option would be to refit the cornea with a large diameter RGP but I was concerned that the weight caused by her high myopia would make it difficult to control the position of the lens. Hybrid or semiscleral lenses were considered as well, but cost was a factor and R.S. requested a less expensive option and one which would return her to her "regular" RGP's as soon as possible. Her significant astigmatic error precluded soft lenses as an ideal option because they would not provide the level of crisp acuity to which she had grown accustomed. It was decided that a "piggyback" lens system, an RGP to be worn over soft lenses, was the best option.

Various daily and monthly frequent replacement lenses were tried. The SiH CL BC 8.6 +1.00D monthly lens made of their first generation material provided adequate oxygen permeability, the best comfort, wetting, stability and fit.

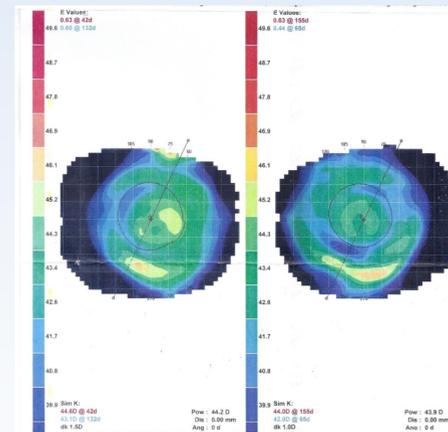
The RGP's fit over that were:  
Dia: 9.3 / ECC 0.5 / DK 58  
R BC 7.7 -10.75 6/7-  
L BC 7.75 -8.75 6/7-

R.S. wore this piggyback system for 6 months, with follow up and topography performed approximately every two months.

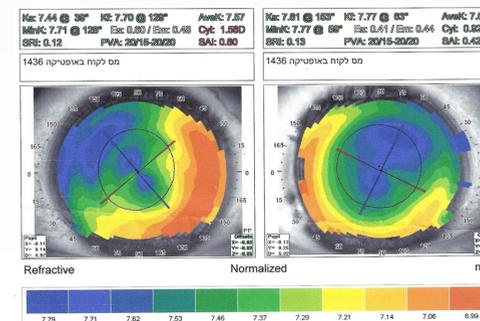
When she stopped wearing the soft lenses after 6 months her (tangential) topography was



She wore only her RGP's and a month later we reevaluated



Her visual disturbances had disappeared.  
Status quo on 6/2013 (tangential map)



R.S. currently alternates comfortably between RGP wear with readers and multifocal glasses.

Her glasses Rx is:  
-11.50-2.25 X 63 6/12  
-10.00-2.50 X 110 6/10 ADD+1.75

Her RGP's have not changed and she sees 6/9+ in each eye

## Discussion

Wearing RGP lenses for a few decades can often cause a slow warping of the cornea, even if the lenses originally provided an "ideal" fit. Very often patients will not seek professional care during this time because their lenses are comfortable and provide adequate vision. Upon examination it very often is noted that the vision is blurry, or even diplopic. An inferior steepening can cause the lens to ride up to the point that the optic zone only partially covers the pupil which in turn causes corneal warpage and these or other visual disturbances. These patients are very reluctant to part with their lenses for even a day, so it is imperative to be creative and find an acceptable option to rehabilitate their corneas without losing compliance.

## Conclusion

This particular corneal warping was successfully treated with 6 months of "piggyback" lens wear. The patient has been seen 6 years since the original "rehabilitation" and she is able to wear RGP's which fit centrally over her corneas. She is a successful intermittent glasses wearer as well.