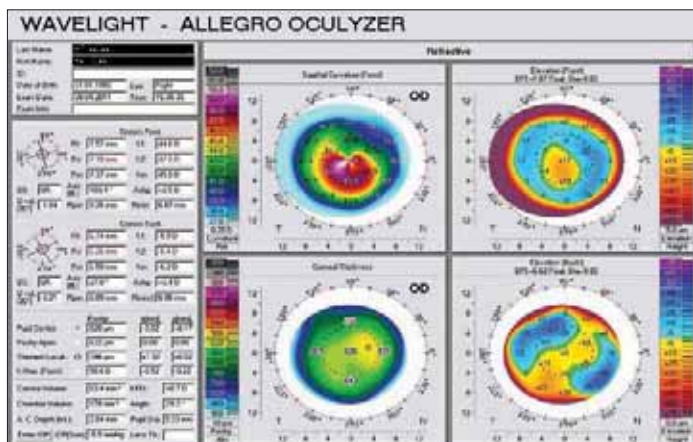


# Keratoconus...or not?

By Basil Dritsas Dip.Optom (SA), MCOptom (UK)



**Figure 1**

PATIENT PP, male, aged 31 years, is a high myope (approximately -12.00D), and a full-time soft contact lens wearer; the lens is a conventional yearly replacement lens with 38% water content and Dk/t of 14. He removes his lenses only when he sleeps. The patient noticed deterioration in his vision and consulted his ophthalmologist who discovered an increase in his myopia and prescribed an updated contact lens prescription. This solved his problem for a few months but then PP noticed further deterioration in his vision and went back to his ophthalmologist.

## Second opinion

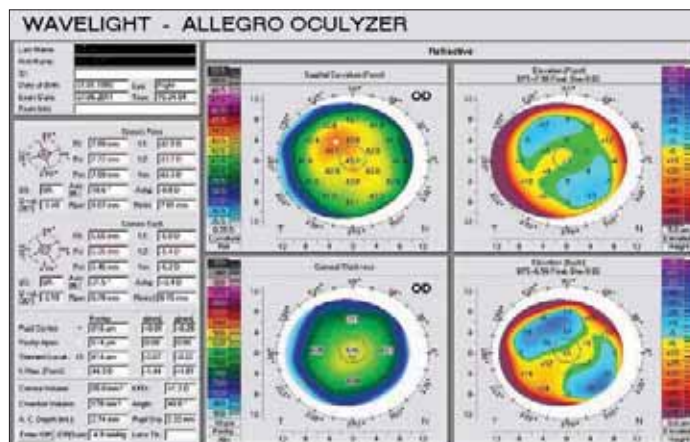
At this time the ophthalmologist found that the best-corrected VA was only 6/12 in both eyes and he suggested that the patient have corneal topographies done to assess the cause of the poor vision. The patient went to a hospital where the topographies were done and he was told that he has keratoconus (KC). His ophthalmologist sent him to the author for a second opinion.

Figure 1 is the corneal topography of the right eye as performed on Pentacam at the time of his first consultation. The left eye has a very similar picture.

While the top two panels of Figure 1 (curvature and elevation front) are consistent with KC, the bottom two images are not. The top left panel shows asymmetrical steepening of the corneal curvature and the top right panel shows significant elevation of the central front surface of the cornea, both consistent with KC. However, the clues that allow us to make a differential diagnosis are in the bottom two panels.

Firstly, the cornea is far too thick to be a candidate for KC, and the thinnest point (indicated by the little circle) is displaced nasally whereas in KC it would be displaced towards the bottom edge of the pupil, infero-nasally. Secondly, there is no significant elevation of the posterior surface of the cornea.

In true KC there would be elevation of the posterior surface



**Figure 2**

that would coincide geographically with the elevation of the front surface, and the thinnest point would coincide with the elevated points.

So, if this is not KC, what is it? Considering the fact that the patient wears his contact lenses 16 to 18 hours a day, corneal oedema would be the primary candidate. Strangely enough, upon slit-lamp examination, there was no haziness of the central cornea that would confirm this suspicion.

## Follow-up topography

Examination of a cross-section of the cornea with a narrow slit showed that the characteristic thinning of the cornea at its centre as seen in KC was absent, so the author reassured the patient that he did not have KC and advised him to cease wearing his lenses completely for at least two weeks and come back for a follow-up topography.

Figure 2 is the topography of the right eye after two months of abstinence from contact lens wear. As can be seen, the steepening of the corneal curvature has regressed, the elevation of the front surface has subsided and the thinnest point is back in its normal place at the centre of the pupil. The posterior elevation has not changed much as it was unaffected by the oedema. Also the myopia has returned to pre-oedema levels and the patient was advised to wear his lenses less and to change to silicone-hydrogel lenses with a high Dk/t for greater oxygen transmission and reduced risk of corneal oedema.

## About the author

Basil Dritsas studied optometry in South Africa and qualified in 1993. He became a member of the College of Optometrists in 1995. He worked as a locum optometrist in England from 1999 to 2004. From 2004 onwards he has been employed by the Athens Ophthalmological Centre where his duties include pre-operative assessment of candidates for excimer laser surgery and post-op follow-up of the same patients.