Scleral MicroVault

Kyriakos Telamitsi, BSc (Optometry); Reinier Stortelder, Boptom; Ilse Flux, MSc Clinical ophthalmology and vision research

Introduction

Through profilometry we are able to gather sagittal height data of the complete ocular surface.

The corneal-scleral Profilometry measurement in this case indicates an eye with a central cone (see central red elevation, Figure 2) and a nasal pinguecula with a local elevation of 410 microns at the highest point. The measurement of 410 microns has been taken 8.44 mm away from the Apex.

Since we are using 17 mm prolate Zenlens we can predict that the edge of the lens is touching the pinguecula.

Case description

A 35 years old male used to wear RGP contact lenses. Working in a dusty environment caused irritation. He is diagnosed with mild keratoconus resulting in sensitive dry eyes which makes him incapable of wearing his RGP’s anymore.

Scleral lenses are advised although a pinguecula is often a contra-indication choosing a scleral lens. This is due to a risk of irritation.

Final lens order

Prolate Zenlens
- 17 diameter
- Sagittal height 4900
- Toric back surface APS flat 4 / standard
- BCR 7.80, S-1.25

MicroVault design:
- MicroVault nasal axis 356°
- Decentration 8.5 mm
- Width 3.5 mm
- Depth 350 microns

Conclusions

Profilometry helps fitting MicroVaults more accurately and precisely. With the use of profilometry we can gather corneal-scleral sagittal height data that allows us to quantify the exact location and size of the protrusion. Due to the accurate data it reduces chair time, and speeds up the lens designing process, it reduces the number of re-orders and revisits.

This case report shows how pingueculae can be quantified and how to adjust the lens design correctly. Further studies can be beneficial in order to understand what values best apply to ordering MicroVault lenses when dealing with irregular scleral surfaces.

4-Step method to design a MicroVault using Profilometry

Select the highest point of the pinguecula

Step 1: Pick the angle from the measurement (see text box on the measurement). Check the trial lens for vertical centration.

Step 2: Pick the decentration from the measurement (see text box on the measurement). Check the trial lens for horizontal centration.

Select the superior and inferior positions of the microvault

Step 3: Calculate the width between the two edges using the y value.

Select highest point of the pinguecula

Step 4: Select the Depth from the measurement.

General advise: try to keep gentle touch (reduce with 50 microns)

Figure 1

Figure 2

Figure 3

Contact and disclosure

Eaglet Eye, The Netherlands
Email: reinier.stortelder@eaglet-eye.com
Ilse.flux@eaglet-eye.com
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Kyriakos Telamits is the Director and Optometry Head Officer at Kyransto Optical Centre Ltd