

## INTRODUCTION

Scleral lenses have become a popular option for patients in recent years, especially those with diagnoses such as dry eye disease, keratoconus, or other corneal irregularities. Part of the fitting process for scleral lenses includes measuring palpebral apertures and the horizontal visible iris diameter (HVID). The large size of scleral lenses makes the diameter of the lens one of the most important parameters involved in ordering a custom lens for a patient. This is due to the fact that not all eyes are shaped the same. Research has determined that while the above statement is true, certain population groups have similar characteristics when discussing eye shapes. Blanchard Contact Lenses has recently created a new version of their OneFit design, called OneFit A design in order to address these differences for the Asian population in specific.

## CASE HISTORY

A 26-year-old Asian male with a diagnosis of dry eye disease presented for a new scleral contact lens fit. After several failed attempts in the OneFit 2.0 design, with a spherical peripheral curve, the patient was refit into a toric peripheral curve design. The original OneFit 2.0 design was consistently causing temporal and nasal blanching, leading to the patient feeling mild irritation in the nasal corners of his eyes. It was then determined to use the OneFit A design due to smaller HVID and an Asian ethnic background.

Patient Information	OD	OS
Aided Visual Acuities	20/20	20/20
Spectacle Rx	-6.25 -1.25 x10	-4.50 -1.25 x180
External Evaluation	Normal	Normal
Palpebral Aperture	9mm	9mm
Horizontal Visible Iris Diameter	11mm	11mm
Pupil diameter (dim/bright)	5mm/ 3mm	5mm/3mm
Slit Lamp Evaluation	WNL	WNL
Keratometry (K Value)	42.01 flat 43.19 steep	41.87 flat 43.27 steep

## EXAMINATION DETAILS and RESULTS

Initial lens was based on the patients keratometry values and corneal topography. 5 trials were used in successfully fitting the patient in an aligned scleral lens in both eyes.

TRIAL	PARAMETERS	SLIT LAMP FINDINGS
1 (DIAGNOSTIC 2.0)	OD: BC 8.00/-1.50 PWR/14.9 DIA/0.25 CT/STD EDGE OS: BC 8.00/- 1.50 PWR/14.9 DIA/0.25 CT/STD EDGE	Inadequate apical clearance OD, Over-refraction OU
2 (2.0)	: BC 8.00/-4.50 PWR/14.9 DIA/0.25 CT/STD EDGE +50 microns of sag OS: BC 8.00/- 3.75PWR/14.9 DIA/0.25 CT/STD EDGE	Inadequate apical clearance OU; mild nasal blanching OU; mild blanching superiorly, and nasally displaced OS
3 (2.0)	OD: BC 7.90/-5.00 PWR/14.9 DIA/0.25 CT/STD EDGE OS: BC 7.90/- 4.25 -0.50x 170 PWR/14.9 DIA/0.25 CT/STD EDGE	Adequate apical clearance OU; edge seal off OU > nasal and superior
4 (DIAGNOSTIC A DESIGN)	OD: BC 7.90/-2.50 PWR/14.7 DIA/0.24 CT/STD EDGE OS: BC 7.90/- 3.00 PWR/14.7 DIA/0.24 CT/STD EDGE	Optimal fit – adequate apical clearance with no conjunctival blanching, comfortable fit
5 (A DESIGN)	OD: BC 7.90/-5.50 PWR/14.7 DIA/0.23 CT/STD EDGE OS: BC 7.90/- 4.50 -0.25 x170 PWR/14.7 DIA/0.23 CT/STD EDGE	Optimal fit – adequate apical clearance, no conjunctival blanching, great visual acuities, and good comfort <b>*FINAL LENSES</b>

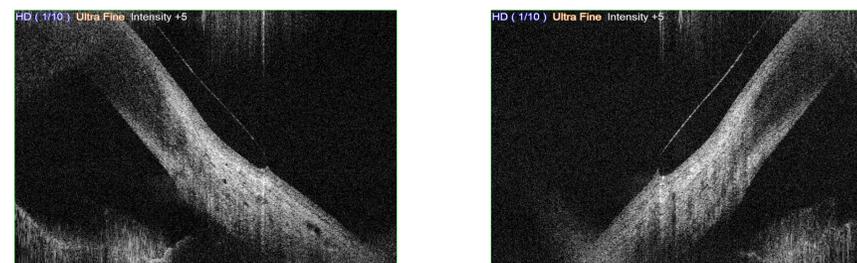


Figure 1: OCT with OneFit 2.0 design of the right eye nasal and temporal

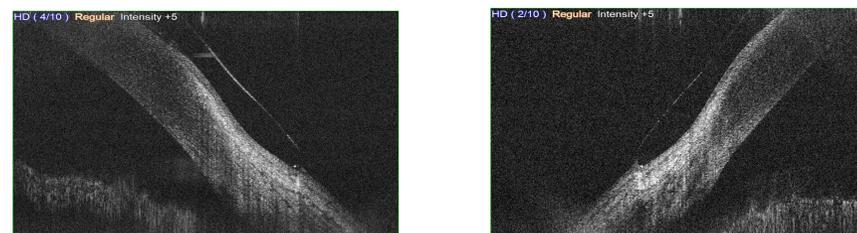


Figure 4: OCT with OneFit A design of the right eye nasal and temporal

## DISCUSSION

OneFit A is very similar to the original OneFit 2.0, however it takes into consideration the physiological differences of Asian eyes. Studies show that Asian eyes have smaller palpebral fissures, a smaller horizontal visible iris diameter, and a more prolate corneoscleral shape. In order to account for this, the lenses are made in a smaller diameter and an altered paracentral edge geometry. The junction between the base curve and the edges has a more prolate shape to provide an aligned fit and increased comfort.

In our case, we noticed that the main issue was peripheral edge seal off causing blanching of the conjunctival vessels. This was easily remedied with the OneFit A design, which specifically altered the edge of the lens, allowing the edge to contour the shape of the sclera. All other parameters such as center thickness, diameter, and edge design are intrinsic to the specific lens and are determined by the lab to account for a proper fit. This case demonstrates how the subtle differences in the A design can provide a more desirable fit in Asian eyes.

## CONCLUSION

Appropriately fitting contact lenses are vital to their success at treating dry eye disease, as well as other anterior segment diagnoses. The OneFit A design provided an ideal fit for our patient. It decreased dry eye symptoms while also maintaining a healthy contact lens-ocular surface relationship. The large population of Asian patients have a greater chance of a successful fit with a lens specifically designed for their eye dimensions. The A design is effective in simplifying the fitting process in this ethnic group.

## REFERENCES

- Barnett, Melissa. *Utilization of Scleral Lenses for Ocular Surface Disease*. 1 July 2016, [www.clspectrum.com/issues/2016/july-2016/utilization-of-scleral-lenses-for-ocular-surface-d](http://www.clspectrum.com/issues/2016/july-2016/utilization-of-scleral-lenses-for-ocular-surface-d). Accessed 19 Oct. 2017.
- Blanchard Contact Lens Inc. *OneFit Scleral Lens Platform Fitting Guide*. Blanchard Lab, 2016. Online. 9 Oct. 2017