CASE HISTORY

A 58-year-old woman presented with a request to determine her suitability for corneal laser refractive surgery to correct her presbyopia. She works as an Aeromedical Examiner. Her manifest refraction was 3.50 -0.50 x 146 (20/16) in the right eye and 2.25 -0.75 x 10 (20/20) in the left eye. Near vision was +10/34 binocularly. She was using varifocal glasses for distance and near vision and single vision glasses for intermediate vision.

As a pilot, she works in a complex visual environment that necessitates clear vision at a variety of distances. Near and various intermediate visual distances are important since pilots need to control the aircraft by using various controls and displays within the cockpit (Figure). When wearing varifocal glasses, viewing the controls above the head was particularly challenging as it is difficult to look through the near vision portion of the lens. Viewing an IPad for navigation was also a challenge for the patient who had to press buttons above, below, and in front to prove challenging for any presbyopic pilot. Clear vision at very far distance is important since the pilots are required to observe distress lights and other potential threats. In addition, the patient was evaluated for eye dominance and tolerance to anisometropia of up to -1.50 D using the PRESBYOND tolerance assessment protocol (ZEISS PRESBYOND Practical Guide).

The patient had no previous ocular surgery and no ocular disease. She had no history of dry eyes and no history of dry eye symptoms. She had been a presbyopic patient for the last 5 years and was considered a candidate for a presbyopic laser treatment.

The findings from her examination showed the patient was suitable for PRESBYOND and all diagnoses were normal in both eyes. She was right eye dominant and able to tolerate -1.50 D of anisometropia with minimal cross-blur symptoms. Surgery was planned with a refractive target of plano in the right eye and -1.50 D in the left eye. Total treatment was -3.50 -0.50 x 146 in the right eye and -0.75 -0.75 x 10 in the left eye.

OUTCOME

By 1 month after surgery, the patient’s binocular vision was 20/16 at distance, J3 at intermediate and J1 at near. The manifest refraction was +0.75 DS (20/16) in the right eye and -1.50 DS (20/20) in the left eye. The UDVA in the right eye was 20/16 and the UDVA in the left eye was 20/125. The patient was able to tolerate -1.50 D of anisometropia with minimal cross-blur symptoms. Surgery was planned with a refractive target of plano in the right eye and -1.50 D in the left eye. Total treatment was -3.50 -0.50 x 146 in the right eye and -0.75 -0.75 x 10 in the left eye.

Two months after surgery, the patient passed the United Kingdom Civil Aviation Authority vision standards for a Class 1 medical certificate without spectacle restrictions,3 with UDVA in the left eye improving another line to 20/40. The result has been stable in the longer term with the same binocular vision at all visual distances.

CONCLUSION

The patient underwent a full diagnostic evaluation to determine her suitability for corneal laser refractive surgery using PRESBYOND Laser Blended Vision.4,5 The examination included manifest and cycloplegic refraction, mesopic contrast sensitivity, corneal topography and corneal wavefront (ATLAS 9000, Carl Zeiss Meditec, AG, Jena/Germany). The tomography (Pentacam, OCULUS Optikgeräte GmbH, Wetzlar/Germany; Orbscan, Bausch & Lomb Inc, Munich/Germany), whole eye aberrometry (WASCA, Johnson & Johnson, New Brunswick, New Jersey/USA), dynamic pupillometry (Procyon), epithelial mapping (RTVue, Optovue , Fremont, CA/USA), and straylight scatter measurement (Intralase, OCULUS Optikgeräte GmbH, Wetzlar/Germany). In addition, the patient was evaluated for eye dominance and tolerance to anisometropia of up to -1.50 D using the PRESBYOND tolerance assessment protocol (ZEISS PRESBYOND Practical Guide).

The outcome for this patient is also echoed by my personal experience and that of 17 other ophthalmic surgeons who underwent PRESBYOND at London Vision Clinic, representing another category of patients with very demanding visual needs!

References

1. Guidance following eye surgery.
2. Dan Z Reinstein, MD
3. Dan Z Reinstein, MD is a consultant to Carl Zeiss Meditec AG and has a financial interest in ArcScan Inc.
4. Dan Z Reinstein, MD is a consultant to Carl Zeiss Meditec AG and has a financial interest in ArcScan Inc.
6. Using the conventional presbyopic laser treatment approach, this patient was also a presbyopic patient for the last 5 years and was considered a candidate for a presbyopic laser treatment.
7. Compared with LASIK treatment for presbyopia performed with conventional monovision refractive targets, the modified binocular vision created with PRESBYOND is better tolerated by patients overall and easier to adapt to. Only about 66% of patients tolerate traditional monovision. In contrast, about 97% of patients with presbyopia are good candidates for PRESBYOND.4,5
8. PRESBYOND offers the advantage of being a routine bilateral laser procedure performed in 10 minutes, without patients being able to read and watch TV within a few hours and return to most activities the next day as is the case in general for LASIK the world over. The ablation is performed using the MEL 80 or MEL 90 excimer laser at the London Vision Clinic.
9. Dan Z Reinstein, MD is a consultant to Carl Zeiss Meditec AG and has a financial interest in ArcScan Inc.
10. Using the conventional presbyopic laser treatment approach, this patient was also a presbyopic patient for the last 5 years and was considered a candidate for a presbyopic laser treatment.