PRESBYOND Laser Blended Vision: My experience as a patient

By Oscar Mallo, MD – Buenos Aires, Argentina

INTRODUCTION

I have been a refractive surgeon since 1985 when I started to perform radial keratotomy procedures, and I began to perform laser vision correction surgery in 1993. Since 1997, I have used several different techniques and technologies to treat patients with presbyopia, including conductive keratoplasty, laser-assisted presbyopia reversal, corneal inlays, and intraocular lenses (IOLs).

In 2017, after learning more about corneal based options for presbyopic patients in a training course at the London Vision Clinic, London, England, I incorporated the PRESBYOND® Laser Blended Vision software (Carl Zeiss Meditec AG) into my practice. This software enables me to offer corneal treatments for this patient group. Eight months later and having treated almost 60 patients, I was impressed by the excellent results achieved with this customized LASIK procedure. I had even performed it in my wife and in my 91-year-old father who had previously undergone cataract surgery in both eyes with implantation of monofocal IOLs*. Therefore, I felt I was thoroughly familiar with the experiences and outcomes of individuals who had the procedure.

Personally, I never needed any refractive correction throughout my life until I developed presbyopia. At the age of 52, I began needing to use glasses for reading, which was a new and unpleasant experience for me.

Encouraged by the knowledge and experiences I had with PRESBYOND and considering that I had no signs of cataract, I decided 1 year ago at the age of 63 to undergo treatment for presbyopia using the PRESBYOND software. My aim was to free myself from the need to wear glasses for reading.

Dan Z. Reinstein, MD, performed my surgery at his London Vision Clinic. I believed that I met all of the inclusion criteria for the treatment using PRESBYOND, and my eligibility as a suitable candidate was confirmed through comprehensive preoperative diagnostic evaluations. My examination included assessments for ectasia risk with measurements of corneal biomechanics (Ocular Response Analyzer, Reichert); tomography/topography (Pentacam®, OCULUS Optikgeräte GmbH; ATLAS® 9000, Carl Zeiss Meditec AG; MS-39, CSO); aberrometry (WASCA, Carl Zeiss Meditec AG; Osiris, CSO); OCT macula imaging (RTVue, Optovue, Inc.) and assessment of visual quality (HD Analyzer™, Visiometrics, S.L.).

For surgical planning, the preoperative examination also includes measurement of manifest and cycloplegic refraction and evaluation for eye dominance and tolerance to anisometropia of up to -1.50 D. My right eye is my dominant eye and my surgery was planned with a refractive target of plano for my right eye and -1.50 DS for my left eye.

The surgery takes just 10 minutes, and the time passed quickly. The procedure involves use of the VisuMax® femtosecond laser (Carl Zeiss Meditec AG) for flap creation. After lifting the flap, the MEL® 90 (or MEL 80) excimer laser (Carl Zeiss Meditec AG) is used to perform the non-linear aspheric ablation. The ablation profile is custom-designed for each patient using the proprietary PRESBYOND software for the CRS-Master® workstation (Carl Zeiss Meditec AG) that takes into account preoperative ametropia, pupil size, and spherical aberration along with the functional age of the eye.

I felt no discomfort or uneasiness during the procedure. Right after surgery, it was remarkable to me that I was able to read small print without any problem.

Already on the first day after surgery, I had excellent near and intermediate vision. I experienced some blurring at far distance, but after 1 week, my far vision was clear, and I obtained my maximum outcome that has remained durable. I did not experience any period of neuroadaptation, and I am very happy with my far, intermediate, and near vision. I am also impressed by the quality of my contrast sensitivity. For example, I am able to read the smallest size font text on my cell phone with minimum light.

The table summarizes my preoperative and postoperative refractive and visual acuity outcomes.

Visit	Refraction		Uncorrected visual acuity					
			Far		Intermediate		Near	
	OD	OS	OD	OS	OD	OS	OD	OS
Preop	+1.27 -0.75 x 68	+1.25 -0.50 x 110	20/32	20/32	N24	N24	N24	N24
Day 1	-0.25 DS	-2.25 DS	20/20	20/100	N12	N4	N10	N4
Year 1	-0.00 -0.25 x 161	-1.50 -0.25 x 74	20/15	20/50	N48	N8	N24	N4,5

Table: Refractions and uncorrected visual acuity outcome before and at 1 day and 1 year postop

The only problem I encountered postoperatively was that I noticed halos while driving at night. This symptom, however, disappeared within 45 days after the surgery.

DISCUSSION

The corneal procedure using the PRESBYOND software is a customized laser vision correction approach for treating patients with presbyopia, It combines a small amount of anisometropia (≤1.5 D) with a controlled amount of spherical aberration to increase depth of field and provide a continuous range of vision from near to far. It can be used for myopic, hyperopic, astigmatic and emmetropic presbyopia correction in both phakic and pseudophakic patients*.

Although I continue to perform other procedures to treat patients with presbyopia and cataract, I am only offering the option of PRESBYOND to patients without cataract. For the latter group, I believe this corneal approach is a better choice than lens exchange with implantation of a multifocal IOL since in my experience there are hardly any problems like halos or reduced contrast sensitivity after using PRESBYOND.

For me, quality of vision assessed with the HD Analyzer is one of the most important evaluations for deciding whether a patient with presbyopia should undergo corneal based treatment using PRESBYOND or needs cataract surgery. A low Ocular Scatter Index (OSI) reading (<1.0 to 1.2) indicates that the optics of the eye are clear, and in that situation, I consider patients a good candidate for the corneal-based procedure. An OSI value above that cut-off suggests that cataract is affecting quality of vision, and I believe it is better for those patients to undergo lens replacement surgery. The OSI measurements in my preoperative evaluation were 0.8 OD and 0.5 OS.

CONCLUSION

I am now able to discuss PRESBYOND with patients from the perspective of both surgeon and patient. Having undergone the treatment myself, I have an even greater confidence recommending it to patients. Furthermore, I think that upon hearing that I had the procedure and am very happy with the results, patients become even more comfortable choosing it for themselves aiming for the freedom of spectacle independence.

I am the first surgeon in Argentina to perform PRESBYOND, and currently, only a few other surgeons in my country are doing the procedure. My satisfied patients are recommending PRESBYOND to family, friends, and other acquaintances, and my practice volume is growing because of their word-of-mouth referrals.

I am also greatly benefiting personally from having undergone the customized procedure using PRESBYOND. Now that I am again enjoying the freedom from glasses that I had earlier in life before the onset of presbyopia, I am feeling much more youthful.

*In the latter case, the procedure and the use of the MEL 80/90 excimer laser, VisuMax femtosecond laser and PRESBYOND software (Carl Zeiss Meditec AG) as described is off-label and not covered by the CE-Certificate of the device.

Dr. Mallo is a lecturer in the department of ophthalmology, University of Buenos Aires, Buenos Aires, Argentina, and medical director of the “Centro Privado de Ojos”, a private ophthalmological center in Buenos Aires. He has been performing laser vision correction surgery since 1993 and has written about his experience with presbyopia correction procedures in published journal articles and a full chapter about Monovision with Excimer Laser in the book “Refractive Surgery. Basic and Advanced Concepts” by María José Cosentino, MD. Dr. Mallo also designed the “Mallo´s marker” that is mentioned in the book Presbyopia: A Surgical Textbook, by Amar Agarwal, MD.

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