CORRECTION OF SECONDARY ANISOMETROPIA AFTER RETINAL DETACHMENT AND LASIK SURGERY

CORRECCIÓN DE ANISOMETROPÍA SECUNDARIA TRAS CIRUGÍA DE DESPRENDIMIENTO DE RETINA Y LASIK

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ABSTRACT

Case report: A male with cylindrical anisometropia secondary to retinal detachment (RD) surgery in the right eye (OD) was referred for contact lens (CL) fitting. His refraction was OD -1.25 -2.75 x 60° VA 1.0 and OS +0.25 VA 1.2. He was complaining of diplopia with spectacles. Seven years prior to the RD surgery, he had undergone LASIK without complications. The diplopia was eliminated after a CL was fitted according to his corneal topography.

Discussion: RD surgery can cause anisometropic refractive changes. In patients with diplopia and asthenopia, spectacles are not well tolerated. CL fitting according to post-LASIK corneal geometry succeeded in refractive correction with less anisometropic symptoms (Arch Soc Esp Oftalmol 2007; 82: 501-504).

Key words: Refraction, anisometropia, astigmatism, LASIK, scleral buckling.

RESUMEN

Caso clínico: Paciente intervenido hacía 7 años de LASIK que desarrolla una anisometropía cilíndrica secundaria a cirugía de desprendimiento de retina (DR) en OD. Presenta diplopia con gafas (OD –1,25 –2,75 x 60° AV =1,0; OI +0,25 AV=1,2). Se adaptó una lente de contacto (LC) ajustada a su topografía corneal eliminando la diplopia.

Discusión: La cirugía del DR puede provocar cambios refractivos, induciendo anisometropía que puede dificultar su corrección con gafas. El uso de una LC adaptada a la geometría corneal disminuyó los síntomas anisométricos permitiendo la corrección refractiva.

Palabras clave: refracción, anisometropía, astigmatismo corneal, LASIK, indentación escleral.
INTRODUCTION

There are different surgical procedures to treat regmatogenous retinal detachment (RD), for instance scleral buckling. The placement of a cerclage may induce refractive changes (1) as a result of an extended axial length and/or changes in corneal topography (2). This change may cause anisometropia that could result in fusion problems, dysopia and discomfort based on its magnitude.

Anisometropia is considered to be clinically significant whenever the difference in refraction for both eyes is equal to or greater than 1.00 diopter (D) in one or more meridians. It may be corrected with spectacles, contact lenses (CL), refractive surgery or special ophthalmic lenses (ieseiconic). But, since correction with spectacles may induce aniseiconia, the most popular option is to adapt contact lenses (3).

The treatment of RD in patients who have previously undergone LASIK surgery may include the same surgical techniques applied to patients who have not undergone LASIK (4), although correction, whether optical or surgical, of a potential residual refractive error may be more controversial depending on the degree of induced ametropia, corneal thickness and topography and tolerance to the use of contact lenses (5).

We describe the adaptation of contact lenses in a patient who underwent LASIK surgery with anisometropia secondary to RD surgery.

CASE REPORT

A forty-six year old male with metamorphopsias in his right eye (RE) and subjective refraction of $-1.25 -2.25 \times 60^\circ$, with a VA = 1.0 and in the LE = +0.25 with VA =1.2, inducing dysopia and dizziness. The patient had undergone surgery for RD in the RE three years earlier with vitrectomy, cerclage and gas tamponade (SF 6). It evolved with retinal re-attachment. In the past (seven years earlier), he had undergone LASIK surgery (–6.50 D for both eyes) without complications and good refractive and visual outcome.

A low-thickness (.1 mm for –3.00 D) hydrophilic CL with inner torus and stabilization system with prism ballast was molded to fit his peripheral corneal topography, 8.9 mm base radius, 14.5 mm diameter and $-1.25 -2.50 \times 70^\circ$ power, obtaining a 1.0 VA (fig. 1). During adaptation, it was necessary to correct the lens axis by stabilizing it with a 10° clock-wise turn. Adaptation was satisfactory, with good subjective tolerance and disappearance of dysopia and asthenopic symptoms.

DISCUSSION

CL adaptation is widely recognized as an effective procedure to eliminate dysopia induced by anisometropia (reducing the distance from the vortex by minimizing aniseiconia.) Today, there is a wide range of materials and geometries allowing for safe and efficient CL adaptation in a large number of individuals. However, in eyes undergoing myopic LASIK corneal topography goes from prolate to oblate shape and CL adaptation may require the use of special designs, since adaptation is more complex in eyes that have undergone surgery, and tolerance is lower since one of the main reasons for performing surgery is intolerance prior to CL use and the emergence of dry eye has also been described after performing LASIK surgery.

The patient’s refraction after surgery is compatible with refractive changes caused by scleral buckling, increasing the axial length of the eye globe, which in turn induces myopia, and involving the corneal curvature, which results in astigmatism (4). The RE refractive and corneal astigmatism were similar (fig. 2).

Theoretically, correction alternatives to address anisometropia are spectacles, CL and refractive
surgery. Correction with spectacles caused dizziness, dylopia, etc. and was therefore discarded. Refractive surgery was discarded since the patient had already undergone LASIK surgery and exhibited a cerclage-induced anisometropia, which in some cases must be removed, thus modifying anisometropia, so that CL correction was suggested instead. After performing myopic LASIK surgery, doctors recommend the adaptation of rigid gas permeable CLs (RPG) of inverse geometry, especially whenever irregular corneas are present (5). This case exhibited regular astigmatism and thus monocular adaptation of an RPG lens may result in greater difficulties in terms of tolerance and could lead to failure of adaptation. Furthermore, the patient had already exhibited tolerance issues when using RPG lenses in the past. A hydrophilic toric CL was adapted instead. When selecting its parameters, the best adjustment to the corneal periphery was sought, achieving an optimal adaptation which allowed for a 1.0 VA without dizziness or dylopia.

Adjustment to the corneal peripheral topography and the choice of a molded lens with reduced thickness may allow for a satisfactory and comfortable adaptation in postsurgical anisometropias that cannot be corrected with spectacles or refractive surgery.

**REFERENCES**