Short communication

Sulcus fixation of an intraocular lens by means of haptic insertions in scleral tunnels: results at one year

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ABSTRACT

Methods: We included seven eyes in which sutureless intrascleral posterior chamber intraocular lens (IOL) fixation was performed. Pre- and post-surgical best-corrected visual acuity (LogMAR) and refraction changes were analyzed. There was a one year follow-up period.

Conclusions: Sutureless intrascleral posterior chamber intraocular lens fixation is, in our experience, a safe technique that allows locating the IOL in the posterior chamber when no capsular support is present. Visual and refractive outcomes were satisfactory.

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Fijación de lente intraocular en sulcus mediante inserción de hápticos en túneles esclerales: resultados a un año

RESUMEN

Método: Evaluamos siete casos, sobre los que realizamos fijación de LIO en sulcus mediante inserción de hápticos en túneles esclerales. Analizamos las variaciones pre- y postoperatorias de la mejor agudeza visual corregida LogMAR y la refracción. El periodo de seguimiento fue de un año.

Conclusiones: La fijación de LIO en sulcus mediante la inserción de hápticos en túneles esclerales es, en nuestra experiencia, una técnica segura, que en ausencia de soporte capsular adecuado, permite situar el implante en cámara posterior, obteniendo resultados visuales y refractivos satisfactorios.

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Introduction

Intra-ocular lens scleral fixation at the sulcus is reserved for patients who do not have adequate capsular support. It can be indicated in case of lens subluxation, posterior capsule rupture or zonular deinsertion in cataract surgery, or subluxation/luxation of previously implanted IOL.\(^1\)

Other techniques described for implanting lenses in said patients include insertion in anterior chamber or sutured to the iris. However, the posterior chamber provides a more anatomical position which involves lower risk of endothelial damage, thinning of anterior chamber and glaucoma.\(^2\)-\(^4\)

The possible complications of scleral fixation with suture include conjunctival erosion, subluxation of lens due to ruptured sutures, chronic intra-ocular inflammation, recurrent bleeding and endophthalmitis. Scleral fixation without sutures prevents conjunctival erosion and reduces the risk of lens subluxation. On the other hand, it diminishes the risk of ocular inflammation or bleeding due to the absence of contact of the implant on the ciliary body, and of endophthalmitis due to absence of transfixing scleral sutures.\(^5\)

Clinical cases

This paper presents a series of seven cases, four male and three female, with ages comprised between 49 and 81 years intervened for placing an 3-piece IOL (MA60BM Alcon) with prolene haptics in sulcus by means of inserting haptics in scleral tunnels. The interventions were performed by the same surgeon (LLG).

The surgical indications were previously operated traumatic cataracts, due to intraocular foreign body in one of the patients, and absence of capsular support due to complicated cataract surgery in the other six cases.

In all the cases we performed anterior and central 23-gauge vitrectomy before introducing the implant. Subsequently, two 20-gauge superior and inferior sclerectomies at 180° from each other were performed, from which scleral tunnels were made parallel to limbus with the same lancet (fig. 1). After introducing the IOL in the eye through a corneal incision, the haptics were removed through the sclerectomies with a 25-gauge tweezers (fig. 2) and introduced in the scleral tolerance (fig. 3). The lens remained centred in all cases after sliding manipulation of the haptic in the tunnel (fig. 4). No intra-surgery complications were observed in the operations,
excepting a slight intravitreal bleeding which was self-limited after performing the transfixing scleral incision.

In the pre-and post-surgery assessment, a masked observer (JBH) submitted the patients to a complete ophthalmological exploration, including LogMAR best corrected visual acuity (BCVA), refraction, biomicroscopy and ophthalmoscopy.

From the clinical viewpoint, after one year of follow up we did not observe any decentering of the implant, chronic ocular inflammation, bleeding or endophthalmitis in any of the cases.

The complications encountered included the presence of a slight inclination of one lens due to lack of parallel alignment between the tunnels and the limbus. In another patient who exhibited a self-limited choroidal detachment in the inferior temporal quadrant, one haptic slid through the tunnel, with the distal third placing itself in the subconjunctival space. Despite this complication, the IOL did not shift from the centre and the conjunctiva remained whole (fig. 5) after 13 months of follow-up.

In what concerns the BCVA, it improved in six of the seven cases after the intervention. The mean presurgery value was of 0.82±0.47 (range: 0.4 to 1.5), whereas the post-op values were of 0.27±0.18 (range: 0.14 to 0.7). after analysing the data with the Wilcoxon tests, the visual improvement was statistically significant (p=0.018).

The cylinder recorded minimum variations, with the mean presurgery value being of −1.57±0.71 (range: −2.75 to −0.62) and the post surgery value of −1.68±0.62 (range: −2.62 to −0.62).

The mean axis did not experience important changes either. Before surgery, its value was of 68.14°±46.25 (range: 15 to 144), and after the intervention it was of 61.43°±32.89 (range: 13 to 97). No statistical significance was reached between the cylinder (p=0.735) and axis variations (p=0.917) respectively.

Discussion

In this series of cases satisfactory results were observed after the intervention. From the clinical viewpoint, the BCVA improved significantly after surgery. In addition, no intra-op or post-op complications were observed except in the slight inclination of one lens and the perforation of a scleral tunnel by the haptic, without significant consequences.

As regards the refractive results, the EE also improved significantly, while cylinder and axis variations were minimal and did not attain significance.

The presence of late inflammatory reactions was not detected in any of the cases, probably due to the small contact area between the haptic and the ciliary body.

Therefore, it can be concluded that the fixation of IOL in sulcus by means of inserting the haptics in scleral tunnels is a safe technique that, in the absence of adequate capsular support, allows for the placement of the implant in the posterior chamber with good visual and refractory results. In addition, this technique eliminates the risk of complications secondary to sutures.

REFERENCES