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Original article

Iris alterations after DSAEK^{☆,☆☆}



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ABSTRACT

Objective: To evaluate a series of case that developed iris changes after performing Descemet's stripping automated endothelial keratoplasty (DSAEK).

Methods: Retrospective study of eyes that developed iris abnormalities, such as pupil ovalisation, iris atrophy, iridocorneal synechiae, mydriatic pupil, and pigmentary changes after performing DSAEK in a tertiary hospital.

Results: In a series of the first 32 DSAEK procedures performed, new single or mixed iris alterations were observed in 12 eyes (37.5%). Iris-corneal synechiae were observed in 7 eyes, corectopias in 9 eyes, iris atrophy in 3 cases, and one case developed an areflexic mydriatic pupil. Long-term pigment dispersion at the edge of the lenticule was observed in 12 eyes. The alterations occurred after three months from the surgery. In the evaluation of the associated factors, malignant glaucoma had occurred in 1 case, 2 eyes had required a second surgery, one case by re-DSAEK, and the other one by removing the intraocular lens due to lens opacification. Two cases had a shallow anterior chamber. No relationship was found between the thickness of the peripheral lenticule and the presence of synechiae.

Conclusion: Iris changes regarding DSAEK are possible. A discussion is presented on the relationship between increased intraocular pressure due to air in anterior chamber and its relationship with ischemia and secondary alterations in the iris.

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Alteraciones iridianas tras Queratoplastia endotelial automatizada con stripping de la Descemet

RESUMEN

Objetivo: Valoración de una serie de ojos que experimentaron cambios iridianos tras realización de *Descemet Stripping and Automated Endothelial Keratoplasty* (DSAEK).

Métodos: Estudio retrospectivo de una serie de ojos que desarrollaron alteraciones iridianas consistentes en ovalización pupilar, atrofia del iris, sinequias iridocorneales, pupila midriática y alteraciones pigmentarias tras realización de DSAEK en un hospital terciario.

Palabras clave:

Queratoplastia endotelial
automatizada con stripping de la
Descemet
Síndrome de Urrets Zavalía

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Corectopia
Atrofia de iris
Sinequias iridocorneales

Resultados: En la serie de los 32 primeros procedimientos de DSAEK realizados en un centro terciario, se objetivaron alteraciones iridianas *de novo*, únicas o combinadas en 12 ojos (37,5%). En 7 casos se observaron adherencias iridocorneales, corectopias en 9 ojos, 3 casos de atrofas de iris y un caso de pupila midriática arrefléxica. En los 12 ojos se observó dispersión de pigmento al nivel del lentículo periférico a largo plazo. Las alteraciones ocurrieron pasados los 3 meses desde la cirugía. En la evaluación de los factores implicados el glaucoma maligno había acontecido en un caso, 2 ojos requirieron reintervención quirúrgica, en uno mediante re-DSAEK, y en otro mediante explante de lente intraocular. Otros 2 casos presentaban cámaras anteriores más estrechas. No se encontró relación entre el espesor del lentículo de DSAEK en la periferia y la existencia de sinequias.

Conclusión: Las alteraciones iridianas en relación con DSAEK son posibles. Se pretende discutir la relación del aumento de la tensión ocular intraoperatoria en relación con el aire intracamerular y su relación con la isquemia y alteraciones secundarias del iris.

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Introduction

The development of iris alterations after endothelial lamellar corneal surgery is a scarcely studied process. At present, the only described alteration was the areflexic mydriatic pupil in the context of the Urrets Zavalía syndrome in 9 cases after executing Descemet Stripping and Automated Endothelial Keratoplasty (DSAEK).¹⁻³

The objective of this study is to describe a series of eyes that developed iris alterations in various forms after DSAEK, and the factors involved therein.

To the knowledge of the authors, this is the first study describing iris and pupil alterations other than the Urrets Zavalía syndrome after performing DSAEK.

Subjects, material and methods

A retrospective study of the first 32 DSAEK procedures performed in a tertiary hospital, evaluating the iris alterations that occurred after DSAEK consisting in corectopic pupils, iris atrophy, iridocorneal synechiae, mydriatic pupils and pigment alterations.

The DSAEK procedure was performed by 2 surgeons. Briefly, the procedure consisted in the following: the donor cornea was assembled in the Moria (Anthony, France) artificial anterior chamber and the anterior lamella was cut with a microkeratome fitted with 350 μ blade with prior de-epithelialization in the majority of cases. The posterior portion of the cornea was cut with a Barron punch. The size of the carved lenticles ranged between 7.5 and 8 mm, with the exception of one case with a size of 6.5 mm. In what concerns receptors, the surgery was performed under monitored retrobulbar local anesthesia. A 4.5 mm temporal and in some cases superior incision was made over the receiving cornea. Descematorrhesis was performed through this incision with an inverted Sinsky. The donor lenticle was inserted in the anterior chamber utilizing a Busin (Moria, Anthony, France) injector through the 4.5 mm incision together with anterior chamber (AC) support. The incision was closed with loose nylon 10/0 stitches,

filling the AC with air at 100% after centering the disc. In the final procedure, the air bubble occupied approximately the size of the graft. Instructions were given to patients to remain in supine position in the postop. Slit lamp examination was made after 24 h in all cases, as well as after 72 h, with individualized follow-up according to each case. The evolutionary individualized part of this follow-up is where the iris alterations described in this study took place.

Results

In the series of 32 DSAEK, *de novo* iridic alterations were observed, either single or combined in 12 eyes (37.5%). In 7 eyes iridocorneal adherences were found, in 3 cases iris atrophy was observed (Fig 1). Pupil alterations ranged between one case of areflexive mydriatic pupil (Fig 2) to corectopia in 9 eyes (Fig 3). The areflexive midriasis coincided with intraocular pressure increases in the immediate postop, which required air bubble evacuation, making the condition compatible with the Urrets-Zavalía syndrome. Said 12 eyes exhibited long-term

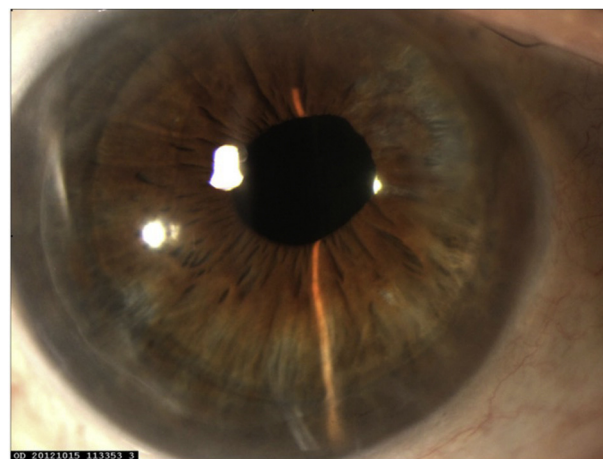


Fig. 1 – Iris atrophy in eye intervened with DSAEK, showing atrophic D pigmentation loss at the level of the supero-temporal, inferior and nasal iris.

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