ARCHIVOS DE LA SOCIEDAD ESPAÑOLA DE OFTALMOLOGÍA

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Short communication

Management of conjunctival perforation and late Seidel after XEN® surgery☆,☆☆

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ARTICLE INFO

Article history:
Received 31 July 2017
Accepted 17 October 2017
Available online 9 January 2018

Keywords:
Collagen
Glaucoma
Microsurgery
XEN® gel stent

ABSTRACT

Clinical case: The case concerns a 78 year-old woman with a history of XEN® surgery, in whom a conjunctival perforation was observed at the implant level at 18-months of follow-up, for which surgical intervention was decided. During surgery a short subconjunctival portion was found (0.5 mm). An unsuccessful attempt was made to extract it by traction, but the XEN® broke easily. Finally, it was decided to cut it to scleral level, and suture the conjunctiva. During the first week there was a decrease in intraocular pressure (6 mmHg), to subsequently increase to 25, and deciding to start medical treatment.

Discussion: Conjunctival exposure of the XEN® stent is a rare but potentially serious complication. To avoid it, a meticulous surgical technique is important when implanting it. If this occurs, it is important to identify the cause. If it is due to a short subconjunctival portion, a therapeutic alternative is to cut the implant at this level to avoid further complications.

Manejo de la perforación conjuntival y Seidel tardío poscirugía XEN®

Palabras clave:
Colágeno
Glaucoma
Microcirugía
XEN® gel stent

RESUMEN

Caso clínico: Mujer de 78 años con antecedentes de cirugía XEN®. A los 18 meses de seguimiento se observa perforación conjuntival a nivel del implante, decidiéndose intervención quirúrgica. En esta se constató un trayecto subconjuntival corto (0,5 mm). Se intenta, sin éxito, extraerlo mediante tracción, sin embargo, el XEN® se rompe con facilidad. Finalmente se decide seccionarlo hasta nivel escleral, y suturar la conjuntiva. Durante la primera semana poscirugía existe disminución de la presión intraocular (6 mmHg), para posteriormente aumentar progresivamente hasta 25, optándose por iniciar tratamiento médico.

☆ Please cite this article as: Olate-Pérez Á, Pérez-Torregrosa VT, Gargallo-Benedicto A, Escudero-Igualada R, Cerdà-Ibáñez M, Barreiro-Rego A, et al. Manejo de la perforación conjuntival y Seidel tardío poscirugía XEN®. Arch Soc Esp Oftalmol. 2018;93:93–96.

☆☆ Partially presented as a clinic case at the 93rd Congress of the Ophthalmological Society of Spain.

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Discusión: La exposición conjuntival del XEN® es una complicación rara, pero potencialmente grave. Para evitarla es importante una técnica quirúrgica meticulosa durante su implantación. En caso de suceder es importante identificar la causa. Si es debida al trayecto subconjuntival corto, una alternativa terapéutica es la sección del implante a este nivel para evitar nuevas complicaciones.

Introduction

The recent introduction of minimally invasive glaucoma surgery (MIGS) techniques has changed the traditional therapeutic approach. Said techniques include the XEN® stent (Allergan, Irvine, California, USA), a valveless collagen tube that enables the drainage of aqueous humor into a subconjunctival blister.[1] Post-surgery complications are infrequent[2–4] but require a specific approach. Even so, there are very few publications in the literature. The case of a late conjunctival perforation and its management are described below.

Clinic case report

Female, 78, with antecedents of cataract surgery and XEN® 45 stent in the left eye, an option that was considered due to exhibiting slight open angle primary glaucoma (mean defect: −3.93 dB) and intraocular pressure (IOP) of 22 mmHg despite maximum pharmacological treatment. In a follow-up visit 12 months after surgery, positive evolution was verified with best corrected visual acuity of 1.0 Snellen, IOP of 16 mmHg and diffuse infiltration blister with very small elevation.

Six months later, in a routine checkup IOP of 10 mmHg was observed, together with tent-shaped elevation at the distal end of the XEN®, adjacent conjunctival perforation, implant exposure and spontaneous positive Seidel sign. Anterior segment optical coherence tomography (AS-OCT) showed superficial position of the stent (Fig. 1).

It was decided to perform a surgical exploration of the area. Conjunctival desiccation showed the distal end of the short XEN® (0.5 mm) with intense fibrosis surrounding it. After resecting the fibrosis, releasing the stent and leaving the sclera naked, the XEN® stent was pulled with tweezers but it broke easily on 2 occasions. In the circumstance, it was decided to section the stent at the scleral level (Fig. 2), leaving the intra-scleral path intact, advancing and suturing the conjunctiva.

During the first week after surgery, the patient evolved without exhibiting Seidel but with IOP at 6 mmHg. This figure increased the following weeks reaching 25 mmHg at one month follow-up, in addition evidencing a flat blister and significantly increased reflectiveness in AS-OCT despite management with topical corticoids (Fig. 3).

A second surgery was considered, but recurrence comorbidities of the patient made it unadvisable. Accordingly, treatment was initiated with hypotensor medication.

At 6 months follow-up, the patient exhibits stable IOP at 14 mmHg with medical treatment and without progression of glaucoma.

Discussion

XEN® surgery is a simple, efficient and safe technique with very few and hardly relevant complications.[2–4] As in other filtrating surgeries, a potentially severe complication is conjunctival perforation, with the possibility of hypotony and infection.[5,6]

Said complication has been related to 3 main causes, i.e., lack of palpebral coverage, superficial location of the implant and a length <1.5 mm of the subconjunctival path.[5–8] Adequate surgical technique is crucial to avoid said complications, avoiding implantation at 3 and 9 o'clock, increasing the implantation area by means of 90° rotation of the injection needle bezel before introducing the XEN® stent and, in case of obtaining a short pathway, repositioning it from the conjunctiva or withdrawing it from the anterior chamber.[7]

In the event that, despite the above measures, perforation occurs during follow-up, the therapeutic options are dissection, forward displacement and conjunctival suture, covering by means of grafts and/or stent extraction.[5,6,8]

In the patient reported herein, the first 2 options were discarded due to the short subconjunctival length of the implant which could produce a new perforation. Accordingly, it was decided to attempt extraction. However, the collagen material of the XEN® implant is highly fragile. In addition, after a time the intra-scleral pathway of the implant becomes rigorously adjusted, which means that it will break easily with any traction applied for removing it. For this reason, extraction through the anterior chamber was also discarded to avoid rupture and an excessive shortening of the implant by leaving only the intra-scleral pathway, which would give rise to hypotony in the early postop (Law of Laplace). For the above reasons it was decided to section the complete subconjunctival pathway up to the scleral level.

The literature describes the case of a patient with trabeculectomy and poor IOP control history despite maximum topical treatment who underwent XEN® surgery as the least invasive option. The early postop (15 days) evidenced conjunctival exposure of the implant which was successfully managed by covering it with amniotic membrane, without sectioning the tube.[8] In contrast with the present case and in the view