Management of Post-traumatic Xen Gel Stent Displacement to Anterior Chamber

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ABSTRACT

A pseudo phakic male patient who had bilateral consecutive Xen gel stent (Allergan, Dublin) implantation 3 years ago was admitted to our clinic with a history of trauma closer to his left eye. The patient did not use anti-glaucoma medication before trauma and intraocular pressures (IOPs) were under the control. In his examination, IOP values were 14 mmHg on the right eye and 24 mmHg on the left eye. There was no problem in Xen gel stent of his right eye and the bleb function was normal, but the stent in his left eye was displaced almost completely towards the anterior chamber. The bleb formation in his left eye had disappeared completely. Xen gel stent was caught with the forceps and carefully removed. Trabeculectomy was performed around at 12 o'clock position for IOP control in same session. No complications were encountered during the operation. In the one-year follow-up, IOP was in the range of 12-14 mm Hg and visual acuity was preserved.

Keywords: Glaucoma, MIGS, Xen gel stent, trabeculectomy.

INTRODUCTION

In recent years, interest in micro-invasive glaucoma surgeries (MICS) has increased. One of them surgical methods is Xen gel stent (Allergan, Dublin) implantation. Significant number of reports have been published regarding decrease in intraocular pressure (IOP) and decline of antiglaucoma medication burden with this method.[1,2] In addition, comparative studies with filtering surgery have demonstrated its efficacy and safety. There are few case reports about its complications in the literature.[3,4]

This report presents the post-traumatic management of a patient with bilateral Xen gel stent implantation. In this patient, IOP's control was achieved after successful surgery with correct application of Xen gel stent in both eyes (3,2,1: 3 mm within the subconjunctival space, 2 mm within the scleral tunnel and 1mm in the anterior chamber). Glaucoma and IOP control continued during the long postoperative follow-up. However, after the trauma in the area close to his left eye, there was a displacement in the implant on that side. To our best knowledge, this is the first report on Xen stent displacement after trauma.

Case Report

A 70-year-old pseudo phakic male patient was referred to our clinic 3 years ago due to the inability to control IOPs with antiglaucoma medication in both eyes. Seven years ago, phacoemulsification+intraocular lens application had been performed consecutively. After 3 years the surgery, he had been diagnosed with open angle glaucoma and started antiglaucoma medication. However, about 2 years ago trabeculectomy had been performed in his right eye, because glaucoma progression had been detected.

In the first examination of the patient in our clinic, IOP values were 32 mmHg in the right eye and 35 mmHg in the left eye with maximal medical therapy (brinzolamide+timolol maleate fixed combination, brimonidine and latanoprost) by Goldmann applanation tonometry. Visual acuity was 0.7 in both eyes according to the Snellen chart. The bilateral angles were open in gonioscopy. Pachymetry values were 550µ in the right and 545µ in the left eye. The cup to disk (c/d) ratios were bilaterally 0,9. Filtration surgery was performed in the right eye at the 12 o'clock position, but no bleb was observed. Xen gel stent implantation was planned first in the left eye and in the right eye after 3 weeks and

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were applied consecutively. IOP control was achieved in both eyes without medication during a 3-year follow-up after Xen gel stent implantation surgery. IOP values were <15 mmHg in both eyes and glaucoma progression was not recorded in the follow-up. Xen stents in both eyes were in proper position and blebs were functional (Figure 1). However, the patient applied to the clinic 8 months ago except for his routine control, stated that he felt down and hit the area near his left eye. IOP's were 13 mmHg on the right eye and 24 mmHg on the left eye. A mild subconjunctival hemorrhage was observed in the left eye. While bleb function was good and there was no problem with the Xen stent in the right eye, it was observed gel stent was displaced almost completely towards the anterior chamber in the left (Figure 2). There was no bleb in this eye. Xen stent was removed using the surgical technique described below and trabeculectomy was performed around at 12 o clock position in same session. No complications were encountered during the operation. In the one-year follow-up, IOP was in the range of 12-14 mm Hg and visual acuity was preserved. There was no progression in glaucoma in both eyes.

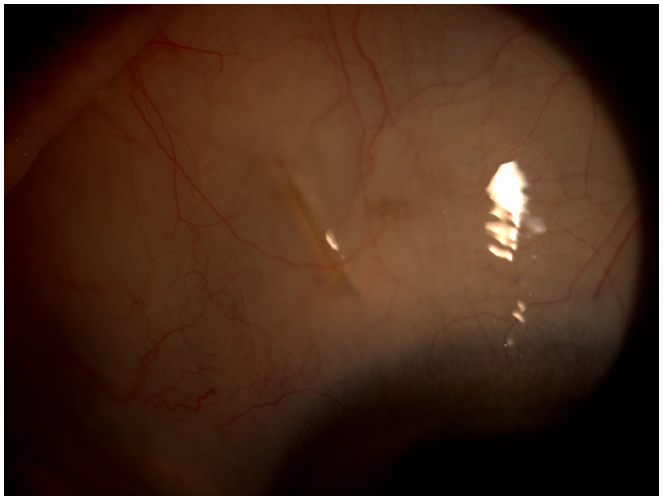

Figure 1: *Xen implant and diffuse bleb appearance in pre-traumatic biomicroscopy.*

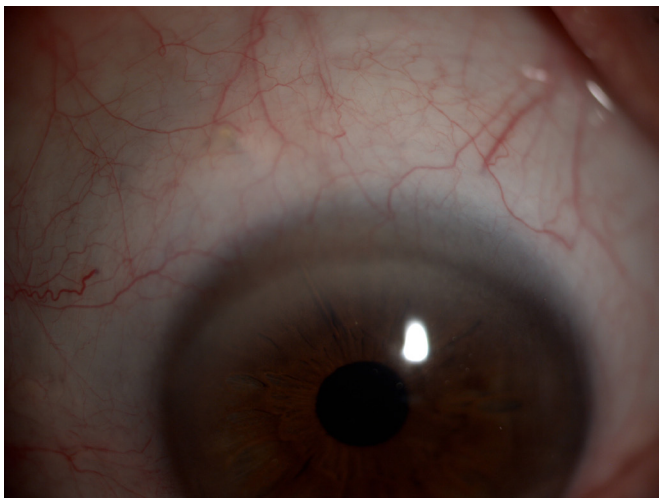

Figure 2a: *Post-traumatic Xen implant displacement.*

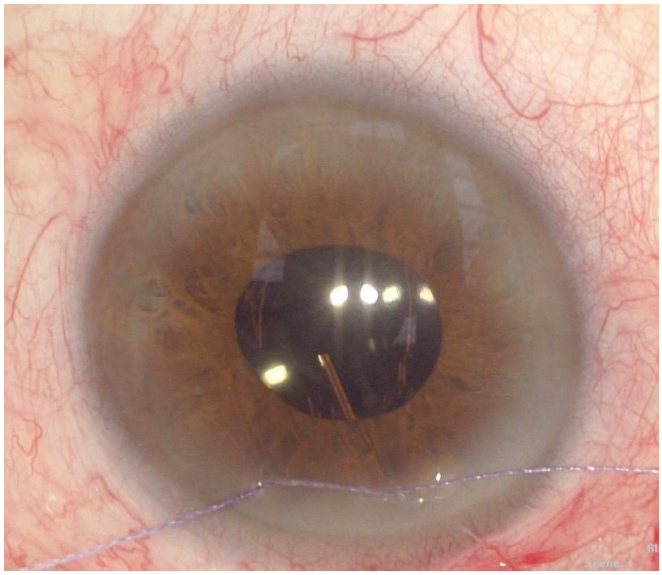

Figure 2b: Appearance of displaced implant during surgery.

Surgical Technique

Under local anesthesia, a 7/0 visceral suture was placed for traction at the superior cornea. The conjunctiva was opened approximately 4-5 mm behind Xen stent implantation site in the superonasal region and the incision was advanced towards this area. The subconjunctival part of the stent was not observed. There was no trace of the channel caused by the Xen gel stent between the anterior chamber and subconjunctival space. Corneal side ports were opened, and the anterior chamber was filled with viscoelastic material. At this stage, the Xen gel stent completely was free and moved to the angle in temporal side. Under gonioscopic view Xen gel stent was caught with the forceps and carefully removed from the eye. Afterwards triangular scleral flap was lifted around at 12 o'clock position and trabeculectomy was performed. The triangular scleral flap was closed with 10/0 monofilament suture and the conjunctiva was closed with a continuous 7/0 vicryl suture. Viscoelastic material was irrigated out of the anterior chamber. Corneal side ports were closed with stromal hydration and with 0.1 cc intracameral cefuroxime injection the operation was ended.

DISCUSSION

Xen gel stent is 6 mm length and derived gelatin cross-linked with glutaraldehyde. It can be implanted ab interno or ab externo, creating a drainage pathway between the

anterior chamber and subconjunctival space. The procedure is often performed with antimetabolite agent. It has been recommended 45 nm lumen size for implantation, because of to prevent postoperative hypotony. It is can performed standalone in glaucoma patients or can preferred combined surgery in glaucoma and cataract patients.[2] Significant number of reports have been published regarding decrease in IOP and decline of antiglaucoma medication burden with this method.[1-4] There are few case reports about its complications in the literature.[5-7]

Displacement of Xen gel microstent is rarely reported complication. In these presentations, the authors emphasized that chronic movements such as blinking and rubbing the eyes may cause a microtrauma effect on the stent and cause displacement towards the anterior chamber. They warned that this may be triggered by additional problems such as ocular surface problems, dry eye, keratoconjunctivitis, and episcleritis.[6,7] Our patient did not have such an ocular problem. He had an accident and when he fell, the part of his head close to his left eye was hit. No displacement was observed in the Xen gel stent implantation in the fellow eye during the follow-up period. It is possible that this eye was not affected by trauma.

Displaced implants need to be removed gentle and carefully, because they are dysfunctional and may cause additional complication such as endothelial damage. Additional surgical intervention to control IOP should also be considered, when there is no functional bleb and no an evidence of continued aqueous passage. Another stent can be placed, or a filtering surgery can be performed in the same session. There was no other Xen stent available in surgical session of our case. Therefore, trabeculectomy was preferred and IOP control was achieved during the follow-up period with this surgical method.

As a conclusion, displacement of Xen gel stent has been reported as a rare complication. Although different possible reasons have been suggested, but as seen in our patient another possible cause is trauma. Additional surgical intervention to control IOP should also be considered, when there is no functional bleb and an evidence of continued aqueous passage.

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