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Case Report

Recurrent Vitreous Hemorrhage in Patients With Scleral-Tunneled Intraocular Lenses: Case Series With Introduction of A Novel Technique

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Abstract

Scleral fixated Intraocular Lenses (IOLs) have grown in popularity as an effective solution to aphakic eyes with insufficient capsular support. A rare but debilitating complication includes development of Uveitis-Glaucoma-Hyphema (UGH) syndrome. Recurrent hemorrhages with UGH syndrome are even more unusual (UGH-Plus syndrome). Classically, this syndrome develops following anterior chamber IOLs, but the literature is scarce with reference to UGH-Plus syndrome after posterior chamber IOL implantation. We present two cases of patients with scleral-tunneled IOLs who developed UGH-Plus syndromeresulting from haptic interference with ciliary body vessels. We describetwo different IOL sparing management approaches including introduction of a novel surgical solution.

Introduction

When challenged with inadequate native capsular support, ophthalmologists are faced with the decision to implant Anterior Chamber (AC) IOLs, iris-fixated IOLs, or scleral fixated IOLs [1-3]. Scleral fixated Intraocular Lenses (IOLs) have become an increasingly popular surgical solution to this problem, particularly in cases of shallow anterior chambers, corneal guttata, or aniridia [2,3]. Known complications include pseudophacodonesis, IOL dislocation, haptic extrusion, and endophthalmitis. Given the anatomy of the ciliary sulcus and nature of the procedure, it is no surprise that implantation may result in vitreous hemorrhage at the time of surgery [4-7]. However, recurrent vitreous hemorrhages following an uneventful procedure is rarely discovered. We present two cases with Uveitis-Glaucoma-Hyphema (UGH) syndrome with recurrent vitreous hemorrhages following scleral-tunneled IOL implantation and present two distinct management approaches including a novel surgical solution to this dilemma.

Case 1

A 70 year-old man with a history of uneventful cataract surgery in the left eye one-year prior presented to the clinic with decreased vision. No significant past medical history was noted. Exam revealed a dislocated IOL and decision was made to implant a Posterior Chamber (PC)-IOL using scleral tunnels. The procedure was completed without complications. Three months following surgery, the patient developed a vitreous hemorrhage, which resolved without medical intervention. Sixteen weeks after surgery, exam revealed recurrence of the vitreous hemorrhage, Intraocular Pressure (IOP) of 38 mmHg and significant amount of cells in the anterior chamber. Anterior chamber optical coherence tomography demonstrated a concave iris, suggesting a reverse pupillary block mechanism. A Laser Peripheral Iridotomy (LPI) was performed and the patient was placed on pilocarpine 1% ophthalmic drops as well as aqueous suppressants. The IOP normalized and the vitreous hemorrhage resolved and has not recurred during last follow up visit at post-operative month eighteen.

Case 2

A 67 year-old man with past ocular history of Penetrating Keratoplasty (PKP) for treatment of Fuchs'endothelial corneal dystrophy sustained a trauma resulting in graft rupture and IOL extrusion. During emergency repair, the patient was left aphakic, and was subsequently referred to our clinic. Decision was made to proceed with scleral-tunneled IOL implantation after the patient failed a trial of contact lens. The IOL was fixed to the sclera at six and twelve o'clock via scleral tunnels using standard techniques. Following six months of an uneventful post-operative period, the patient presented with a vitreous hemorrhage and otherwise normal retinal exam. During subsequent visits, it was observed that the vitreous hemorrhage and iritis appeared to recur with jogging. Standard treatment options are limited to removal of the IOL. The patient desired an alternative option

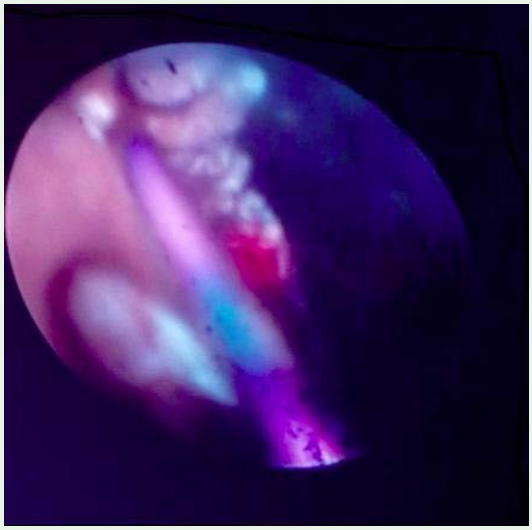

Figure 1: View through endoscope demonstrating blue haptic of IOL resting against ciliary processes with hemorrhage.

given his history of contact lens intolerance. We chose to laser the Ciliary Body (CB) blood vessels surrounding the haptic entry site using Endoscopic Cyclophotocoagulation (ECP). The E2 diode laser endoscope system from Endoptiks was used. The ECP curved probe was introduced into the vitreous cavity via a temporal pars-plana incision. The haptic entry sites at 6 and 12 o'clockwere identified and noted to be rubbing against the ciliary body (Figure 1). The haptics were then lasered with 0.3 W on a continuous setting. This was followed by vitrectomy to remove the vitreous hemorrhage during which no other pathology was found. Upon nine months of follow up, the patient has not experienced a recurrence of vitreous hemorrhage, despite routine jogging and retained 20/25 visual acuity uncorrected.

Discussion

Uveitis-Glaucoma-Hyphema (UGH) syndrome has classically been described resultingfrom the use of rigid AC-IOLs. Recently, PC-IOLs have been identified as an additional culprit [8-14]. UGH Plus syndrome is an atypical face of the classic UGH syndrome and refers to the additional development of a vitreous hemorrhage. The literature is scant regarding UGH Plus syndrome resulting from PC-IOLs, representing only a handful of case reports [10-12].

We aim to draw attention to this debilitating complication so it may be quickly identified and addressed. The implantation of scleral fixated lenses most commonly entails the creation of a scleral tunnel 1.5mm behind the limbus [1-3]. Anatomical variances may pose unique challenges and potential puncture through the highly vascular pars plicata [4]. Several ultrasound studies have been performed localizing the IOL haptic tovarying locations within the ciliary sulcus and ciliary body demonstrating the difficulty of accurately positioning the haptics [4-7].

Our first case was believed to be secondary to concave iris configuration leading to reverse pupillary block and resolved with a LPI and pilocarpine 1% ophthalmic drops. This treatment method was in congruence with Singh et al who published favorable results managing UGH syndrome secondary to reverse pupillary block after sulcus fixated PC-IOLs with LPI [15]. Our second case of recurrent vitreous hemorrhages was treated with ECP to the ciliary body blood vessels surrounding the haptics with aim to prevent future bleeding. We believe this unique approach poses an additional treatment option, sparing patients the trauma of surgical IOL removal as well as the possibility of being left aphakic.

Ultimately, we believe that UGH-Plus syndrome is the new face of the classic UGH syndrome caused by haptic interference with ciliary body vessels. Although uncommon, this condition is not surprising given the nature of scleral fixated lens placement in conjunction with the anatomy of the ciliary body and sulcus [4-7]. We hope to draw attention to this condition, so that scleral fixated lenses will be recognized as a risk factor for this disorder.We propose treatment with LPI in cases of reverse pupillary block and ECP to the ciliary body vessels are both viable and effective IOL sparing options to combat this disease.

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