Circumferential Pupillary Capture by IOL due to Intraocular Gas Tamponade: A Case Report

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Abstract

A 55-years-old female presented with pain in the right eye for 15 days. She had a history of complicated cataract surgery followed by pars plana vitrectomy, intraocular gas injection and sulcus fixated intraocular lens implantation. On ophthalmologic examination, pupillary capture by intraocular lens, shallow anterior chamber, corneal edema and elevated intraocular pressure despite maximum medical therapy was observed. Intraocular gas induced secondary pupillary block glaucoma diagnosis was made. She underwent intraocular lens reposition and peripheral iridectomy surgery in the same session. Intraocular pressure reduced dramatically after the procedure in addition to anterior chamber deepening. In this case report, we highlighted the very rare cause of pupillary block glaucoma and its management.

Keywords

Pupillary block glaucoma, Intraocular lens capture, Peripheral iridectomy, Intraocular gas injection

Introduction

Secondary pupillary block glaucoma is seen in 5-10% of all glaucoma types. Synechias between pupilla and crystalline/cataractous lens, intraocular lens (IOL) or vitreous may cause the deterioration of aqueous humor circulation and eventually lead to dramatic intraocular pressure elevation. Piggyback IOL, reverse implantation of angled IOL, silicon oil or gas bubbles in aphakics and intraocular tumors are among the rarer causes.

Pupillary capture occurs when part of the IOL is displaced anteriorly in front of the pupil and it is typically noted as an early postoperative event, although a late form is also recognized [1]. It can be seen after scleral fixated IOL, in-the-bag IOL with large capsulorhexis, reverse implanted angled IOL and sulcus fixated IOL. This condition may not cause any symptom; however, anterior segment inflammation, visual distortion and IOP elevation due to pupillary block are not uncommon.

In the present study, we aimed to report the diagnosis and management of a patient with pupillary block glaucoma due to circumferential pupillary capture by an IOL secondary to intraocular gas injection.

Case Report

A 55-years-old female was admitted to our clinic with complaints of pain, redness and blurred vision in the right eye. She had a history of type II diabetes mellitus for 15 years. She had undergone a complicated cataract surgery with posterior capsule rupture and nucleus drop in the right eye two months ago in a foreign country. A few weeks later a pars plana vitrectomy, sulcus fixated three-piece intraocular lens implantation (IOL) and intraocular gas injection was performed in that eye. One week after this surgery, pain, redness and blurred vision in the right eye started. She was followed with a diagnosis of malignant glaucoma, hospitalized and treated medically. In spite of maximum medical treatment including systemic acetazolamide, the intraocular pressure (IOP) was over 30 mmHg and pain was persistent. In our ophthalmic examination, best corrected visual acuity was counting fingers at 3 meters in the right eye and 20/40 in the left eye. Slit-lamp biomicroscope showed a 360-degree pupillary capture by IOL, shallow anterior chamber and corneal edema (Figure 1A). IOP was 32 mmHg in the right eye and 16 mmHg in the left eye. Left eye was also pseudophakic. Diabetic macular edema
aphakics, vitreous prolapse, fibrin membrane formation, descemet stripping endothelial keratoplasty, iris fixated IOL, and piggyback intraocular lens implantation [2-5].

In the present case, the pupillary block mechanism is presumed to be secondary to circumferential pupillary capture by IOL due to expansion of intraocular gas tamponade in the postoperative period. Increased intraocular pressure could be prevented by peripheral iridectomy (PI) in such case, however, during the second surgery PI did not performed. Therefore, we have performed IOL reposition and PI surgery for the resolution of pupillary block. After surgery, IOP returned to normal levels. However, the increase in visual acuity was not significant due to diabetic macular edema.

The main limitation of the present case report is the lack of evidence (ultrasound biomicroscope or anterior segment optical coherence tomography etc.) of intraocular gas during pupillary capture. This is related to misdiagnosed patient in an outside clinic and treated medically in the hospital about one week.

Conclusion

Although it is very rare condition intraocular tamponade gases may cause pupillary capture of IOL and pupillary block glaucoma. Differential diagnosis should be made in the light of patient history and clinical findings and treated promptly.

References