

## Anterior migration of dexamethasone implant in a pseudophakic patient with intact posterior capsule

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Intravitreal application of Ozurdex® (Allergan, Inc., Irvine, CA, USA) which is a biodegradable, sustained-release dexamethasone implant has been reported to be effective in the treatment of macular edema. Migration of such implant into the anterior chamber has been recently described in cases without perfect zonular or the posterior capsular integrity. Herein, we report the first case with anterior migration of Ozurdex® implant that mislocated just behind the intraocular lens (IOL) in an intact capsular bag. It is thought that such implant migrated anteriorly towards into the posterior chamber through weak zonules as the present case had a medical history of uneventful phacoemulsification surgery with the implantation of posterior chamber IOL. However, the migrated implant was well tolerated since there was no sign of the corneal complication, rise in intraocular pressure, and anterior chamber reaction. Close follow-up was scheduled to find out any signs of anterior segment pathology. Meanwhile dexamethasone implant completely degraded at the 4<sup>th</sup> month of postoperative follow-up.

**Key words:** Anterior migration, Ozurdex, posterior chamber

Dexamethasone posterior-segment drug delivery system (Ozurdex®, Allergan, Inc., Irvine, CA, USA) is a novel, biodegradable, intravitreal implant that provides a sustained-release delivery of 0.7 mg preservative-free dexamethasone to the retina and vitreous. Ozurdex® that can be placed into the vitreous cavity through a small pars plana puncture using a customized applicator system has been approved by the U.S. Food and Drug Administration in the treatment of macular edema following retinal vein occlusion and noninfectious posterior uveitis.<sup>[1]</sup> Migration of such implant into the anterior chamber has been recently described in aphakic cases and pseudophakic patients especially with iris-claw intraocular lens (IOL) in the literature.<sup>[2-10]</sup> Herein, we have reported a pseudophakic case with an Ozurdex® implant that migrated anteriorly into the posterior chamber, and subsequently misplaced on the posterior capsule. To the best of our knowledge, this is the first case demonstrating the anterior migration of Ozurdex® implant that mislocated just behind the posterior chamber IOL in an intact capsular bag. In the present case, the migrated implant was well tolerated as there was no sign of the corneal complication, elevated intraocular pressure (IOP), and anterior chamber reaction.

### Case Report

A 72-year-old patient who had undergone bilateral uneventful cataract surgery 6 years ago, presented with visual loss in her left eye. Patient had a medical history of multiple intravitreal and periocular steroid injections for the

treatment of recalcitrant uveitis that was diagnosed 21 years ago. Her visual acuity decreased to hand motion in left eye, and slit-lamp biomicroscopy revealed in-the-bag IOL with an intact posterior capsule, and severe flare in the anterior chamber. An unclear image of macular edema was hardly detected on fluorescein angiography (FA) that revealed flue images of posterior-segment obscured by media opacity. We decided to treat the left eye by intravitreal injection of dexamethasone implant. After obtaining a signed informed consent, we scheduled to perform the intravitreal Ozurdex® application under the sterile conditions of the operation room. A drop of 0.5% topical proparacaine hydrochloride with a drop of 5% povidone iodine was installed before the patient underwent an uncomplicated intravitreal dexamethasone implant application. Implant was seen inside the vitreous cavity soon after the injection. After significant regression of inflammatory cells secondary to uveitis, mild macular edema and an epiretinal membrane were precisely demonstrated with both optical coherence tomography and FA at 2 weeks after Ozurdex application. On the postoperative 5<sup>th</sup> week, best corrected visual acuity (BCVA) was improved to 0.4 logMAR, and slit-lamp examination revealed the implant mislocated just behind the IOL in an intact capsular bag, although there was no reaction in the anterior chamber, and no corneal edema was observed [Fig. 1]. It was thought that such implant anteriorly migrated toward into the posterior chamber through weak zonules in the present case as she had a medical history of uneventful phacoemulsification surgery with the implantation of posterior chamber IOL.

Any repositioning procedure was not considered since no sign of corneal edema or IOP rise was present, as well as patient did not have any complaints although dexamethasone implant mislocated in the lower center of the visual axis. Close follow-up was scheduled for the case in order to find out any signs of anterior segment pathology. In the affected eye, BCVA and IOP were found as 0.5 logMAR and 17 mmHg with a

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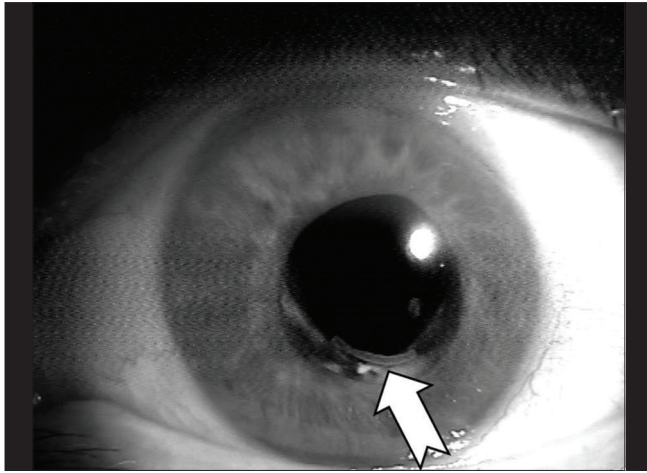
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**Figure 1:** Slit-lamp biomicroscopy revealed the dexamethasone implant mislocated just behind the intraocular lens in an intact capsular bag, and localized in the lower center of the visual axis (white arrow)

quiescent anterior chamber and a clear cornea at the 4<sup>th</sup> month of postoperative follow-up, besides dexamethasone implant completely degraded.

## Discussion

Steroid-induced ocular complications such as cataract formation and IOP elevation have been more commonly reported according to the accelerating Ozurdex application in the treatment of macular edema. Anterior migration of dexamethasone implant has also been published as a rare complication in the literature. Migration of Ozurdex<sup>®</sup> into the anterior chamber was firstly described by Pardo-López *et al.*<sup>[2]</sup> in a patient with iris fixated IOL. After the patient had been referred with blurred vision in his left eye at the postoperative 3<sup>rd</sup> week, authors noticed anterior migration of the implant with a diffuse corneal edema. Patient had to be undergone corneal transplantation since corneal edema did not resolve even though surgical removal of the implant from the anterior chamber was performed. Jonas and Schmidbauer<sup>[3]</sup> reported dislocation of a steroid implant into the anterior chamber in an aphakic vitrectomized eye. Vela *et al.*<sup>[4]</sup> also reported the migration of Ozurdex<sup>®</sup> into the anterior chamber in a patient who previously underwent cataract surgery with iris-claw IOL implantation. The anterior migration of the Ozurdex implant can cause complications such as secondary corneal decompensation. In these cases, surgical removal of the implant is mandatory. Bansal *et al.*<sup>[5]</sup> published the migration of the implant into the anterior chamber in three noninfectious posterior uveitic eyes with the history of postlensectomy-vitrectomy aphakia. Authors reported that the implant was relocated in the vitreous cavity in two of the cases. However the third required surgical removal with postsurgery persistence of corneal edema. Nonsurgical management of a dislocated dexamethasone implant into the anterior chamber with supine positioning after pharmacologic pupillary dilation was described by Kishore and Schaal.<sup>[6]</sup> Mateo *et al.*<sup>[7]</sup> published the scleral fixation of dexamethasone intravitreal implant with 10-0 nonabsorbable polypropylene suture in an angle-supported IOL implanted case in order to prevent

the risk of anterior segment complications associated with the migration of such implant into the anterior chamber. It was recommended that dexamethasone implant which migrated into the anterior chamber ought to be removed as soon as possible in cases with incipient corneal edema.<sup>[8]</sup> On the other hand, no corneal edema was reported in patients with late migration of such intravitreally injected implant.<sup>[5,8]</sup> Furthermore, Khurana *et al.*<sup>[8]</sup> mentioned that only the patients in whom dexamethasone implant anteriorly migrated into the anterior chamber within 3 weeks after the intravitreal application developed corneal edema in their series. Any sign of corneal edema also did not occur in our case who was faced with the anterior migration of such implant 5 weeks after the uncomplicated intravitreal application.

Anterior migration of a dexamethasone implant in eyes without perfect zonular or the posterior capsular integrity after cataract surgery, and with a history of the prior vitrectomy has been well-defined.<sup>[2-8]</sup> Khurana *et al.*<sup>[8]</sup> reported five patients with an anteriorly migrated dexamethasone implant despite within the same lens and capsular status, although they had previous uncomplicated dexamethasone implant injections without any anterior chamber migration. Anterior migration of a dexamethasone posterior implant into the anterior chamber through weak zonules was also described in cases with intact posterior capsule.<sup>[9,10]</sup> Implant was surgically removed from the anterior chamber immediately by Daudin and Brézin,<sup>[9]</sup> however Turaka *et al.*<sup>[10]</sup> reported that, without any surgical intervention, implant was spontaneously relocated back into the vitreous cavity with significant resolution of the corneal edema.

Herein, we report the first case with anterior migration of a dexamethasone intravitreal implant that mislocated just behind the IOL in an intact capsular bag. In the present case, the migrated implant was well tolerated as there was no sign of the corneal complication, IOP rise, and anterior chamber reaction. As this is a report of unique case with short follow-up, it is very difficult to comment that mislocation of a dexamethasone intravitreal implant on an intact posterior capsule is an innocent complication. It is mandatory to observe more cases with long follow-up in order to estimate possible side effects of Ozurdex<sup>®</sup> implant attached on the posterior capsule.

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