Case Report

Intralenticular Ozurdex® – One Year Later

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Keywords
Intralenticular dexamethasone implantation (Ozurdex®) · Diabetic macular edema · Nuclear sclerotic cataract

Abstract
Reported here is a case of intralenticular sustained-release dexamethasone implant (Ozurdex®, Allergan, Irvine, CA, USA) present for 1 year with effective treatment of refractory diabetic macular edema without rapid cataract formation. The crystalline lens remained stable for 12 months on exam despite the presence of the steroid-secreting foreign body. The diabetic macular edema resolved on exam and on optical coherence tomography. After 1 year, cataract extraction was uneventfully performed by phacoemulsification for a mild decline in visual acuity. Macular edema remains resolved 2 months following cataract removal. This is the longest reported period of observation of intralenticular Ozurdex in the literature. Ozurdex remains effective despite intralenticular location, and it can have minimal effects on cataract progression.

Introduction
Ozurdex® (Allergan, Irvine, CA, USA) is a sustained-release dexamethasone implant approved by the United States Food and Drug Administration (FDA) for macular edema following branch or central retinal vein occlusion, diabetic macular edema, or noninfectious poste-
ior uveitis. It is delivered via a prepackaged 22-gauge injection device. The literature reveals previous cases of inadvertent intralenticular administration of Ozurdex [1–12]. We report the case of a 60-year-old woman who was found to have an Ozurdex implant in the crystalline lens of the left eye in the setting of previously treated proliferative diabetic retinopathy with refractory diabetic macular edema (DME). Reported here is the longest intralenticular case known with remarkable efficacy and minimal cataract formation.

**Case Report**

Our patient is a 60-year-old female who had a history of proliferative diabetic retinopathy with chronic DME. She had previously been treated with multiple intravitreal injections of anti-vascular endothelial growth factor (VEGF) including both bevacizumab and ranibizumab for a total of 33 injections over a 5-year period. Other treatments included 1 intravitreal triamcinolone injection in year 2 and 1 sub-Tenon’s triamcinolone injection in year 5. She underwent multiple sessions of retina lasers over 5 years including macular focal and pan retinal photocoagulation with persistent DME (Fig. 1a). She was concurrently diagnosed with ocular hypertension 5 months after initial presentation with an intraocular pressure (IOP) of 24 mm Hg. She was started on topical therapy and has remained with good IOP control to date. The patient was treated with an injection of Ozurdex via the pars plana with topical anesthetic 59 months after her initial presentation with a best corrected visual acuity (BCVA) of 20/40+2. The patient was without complaints following the procedure.

Six weeks later, an intralenticular foreign body was incidentally noted and determined to be the recently placed Ozurdex implant (Fig. 2). The patient’s visual acuity had improved to 20/30, and her macular edema had resolved on exam and confirmed on optical coherence tomography (Fig. 1b). The patient was then referred to the retina service for further management given this rare complication. She remained asymptomatic for 8 months with 20/30 vision and stable IOP on topical therapy.

Eight months following Ozurdex injection, her BCVA declined slightly to 20/50 with a mild myopic shift of 0.625D spherical equivalent. This shift was attributed to increased nuclear sclerosis despite no visible lens changes on exam including around the implant. The patient was offered cataract surgery, which was performed 12 months following the injection of Ozurdex into her lens. Her DME remained resolved at the time of cataract extraction.

Cataract extraction was performed via phacoemulsification by standard technique through a clear corneal incision. The Ozurdex implant was noted to be brittle but could be easily removed by phacoemulsification. No capsular defect was noted intraoperatively, and no vitreous was encountered. A single-piece intraocular lens (IOL) was placed into the capsular bag. One day postoperatively, her vision without correction was 20/40. Two months following phacoemulsification and the removal of the Ozurdex implant, her BCVA was 20/30+, J1+ at near, and the macular edema remained resolved without any further treatment (Fig. 1c).

**Discussion**

Prior case reports of intralenticular Ozurdex that received no intervention for 10 months reveal the potential stability of the implant inside the crystalline lens. These patients had stable vision with no or minimal progression of a cataract [1, 2]. Although there was no IOP ex-
acerbation following Ozurdex in our patient with ocular hypertension, IOP elevation has been previously reported, and it may be an indication for lens removal even in the absence of cataract [2]. To our knowledge, the longest period an intralenticular Ozurdex had been followed prior to this case was 11 months [3]. Other studies have followed patients for up to 7 months but have reported a more rapid development of cataract [4–7] and IOP elevation [4, 8].

Despite its intralenticular location, the implant may still improve or resolve macular edema, as intended [1, 7–9] and as was seen in our patient. The achievement of therapeutic vitreous concentration levels despite complete sequestration within the lens is also unknown. The implant may be partially intralenticular and partially intravitreal; in these cases, macular edema has been observed to remain resolved for up to 8 months following injection [9, 10].

Most surgical approaches involve cataract extraction with concurrent removal of the implant [2, 4, 8, 11]. In some cases, the implants have been repositioned to the posterior segment intraoperatively [6, 11, 12]. Intralenticular placement, by definition, involves capsular violation, and it is often anticipated that the capsule may no longer be suitable for insertion of an IOL [5, 6, 8, 9, 12]. Vitrectomy may be required if vitreous is encountered [5, 6, 8]. However, our case reinforces that capsular violations are not necessarily surgically problematic and a single-piece IOL can be safely placed in the capsule without additional fixation techniques or vitreoretinal surgery [2].

To our knowledge, this is the longest reported period of an Ozurdex implant in a crystalline lens. Intralenticular Ozurdex implantation is a rare complication of treatment but may be monitored without significant cataract formation and with efficacy for the treatment of macular edema.

**Statement of Ethics**

The subject of this case report provided informed consent for the publication of her case.

**Disclosure Statement**

This work was supported by an unrestricted grant from Research to Prevent Blindness for manuscript preparation. The authors report no conflicts of interests to disclose.

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Fig. 1. a Spectral domain optical coherence tomography of the macular edema prior to Ozurdex injection. b Optical coherence tomography 1 month following Ozurdex administration, revealing resolution of the macular edema. c Optical coherence tomography 2 months following surgical removal of Ozurdex; the macular edema remained resolved.
Fig. 2. Slit lamp photograph demonstrating intralenticular Ozurdex.