

Intravitreal Ozurdex® in non-intact posterior lens capsule: case series and dilemma

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Abstract

Background: Intravitreal Ozurdex® has been reported to be effective in treating macular oedema. It is more frequently used in resistant diabetic macular oedema cases that do not respond to anti vascular endothelial growth factor treatment. Despite the known risk of implant migration into the anterior chamber in non-intact posterior capsule eyes, the benefit of treatment occasionally outweighs the risk of complications, particularly in cases with good visual potential. The main potential vision-threatening complication involves permanent corneal decompensation.

Case presentation: We are reporting the follow-up and management of Ozurdex implantation in non-intact capsule eyes. The complication of anterior chamber migration if at all occurred, was managed accordingly.

Conclusion: Close follow-up is needed in patients with non-intact posterior lens capsules receiving intravitreal Ozurdex to monitor the risk of anterior chamber migration of the implant.

Keywords: anterior migration, non-intact posterior lens capsule, Ozurdex

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Intravitreal Ozurdex® dalam kapsul kanta posterior yang tidak utuh: siri kes dan dilema

Abstrak

Latar belakang: Intravitreal Ozurdex® telah dilaporkan berkesan dalam merawat edema makula. Ia lebih kerap digunakan dalam kes edema makula pada pesakit diabetes yang tidak bertindak balas terhadap rawatan *anti vascular endothelial growth factor*. Walaupun terdapat risiko penghijrahan implan ke dalam ruang anterior pada mata yang mempunyai kapsul posterior yang tidak utuh, faedah rawatan kadangkala mengatasi risiko komplikasi terutamanya dalam kes yang mempunyai potensi penglihatan yang baik. Komplikasi yang berpotensi mengancam penglihatan melibatkan dekompensasi kornea yang kekal.

Pembentangan kes: Kami melaporkan tindakan susulan dan pengurusan Implantasi Ozurdex pada mata yang mempunyai kapsul yang tidak utuh. Komplikasi pemindahan ruang anterior jika berlaku, telah diuruskan dengan sewajarnya.

Kesimpulan: Susulan rapat diperlukan pada pesakit dengan kapsul kanta posterior yang tidak utuh yang menerima Ozurdex intravitreal untuk memantau risiko penghijrahan implan ke ruang anterior mata.

Kata kunci: anterior, kapsul posterior tidak utuh, Ozurdex, penghijrahan ke ruang

Introduction

Ozurdex® is a dexamethasone intravitreal implant that has been approved by the US Food and Drug Administration to treat macular oedema secondary to retinal vein occlusion and non-infectious uveitis affecting the posterior segment.¹ Due to its well-known potential side effects, the implant is not considered as first-line treatment in most cases. Ozurdex is relatively contraindicated in patients with non-intact posterior lens capsule.^{2,3} However, in some challenging cases, the need for the implant arises when the disease has been recalcitrant to various other treatment options. We are reporting the management and follow-up of Ozurdex implantation in non-intact capsule eyes.

Case presentation

Case 1

A 60-year-old male with underlying diabetes mellitus presented with poor vision secondary to central involving diabetic macula oedema in the left eye. Despite repeated intravitreal ranibizumab injections, vision remained poor. Eventually the patient developed secondary epiretinal membrane (ERM) formation, for which he had combined surgery of phacoemulsification with intraocular lens (IOL) implantation, vitrectomy, and ERM peeling. The IOL was implanted in the sulcus as there was a small posterior capsule rent at the end of the surgery. Unfortunately, post-surgery, vision remained poor with persistent diabetic macular oedema. We decided to implant intravitreal Ozurdex in the left eye. The patient's visual acuity prior to intravitreal Ozurdex was 1/60. One month after implantation, the patient's visual acuity slightly improved to 6/60; however, the implant migrated into the anterior chamber. The sulcus IOL was found to be mildly subluxated, exposing a small portion of the opening in the capsule. This was likely the access for the implant to migrate anteriorly. Ozurdex was surgically removed from the anterior chamber. Postoperatively, the patient's visual acuity remained 6/60, most likely due to macular fibrosis.

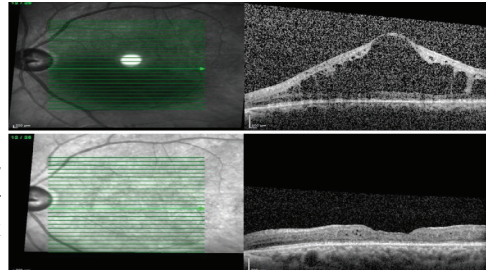


Fig. 1. Optical coherence tomography showing resolution of cystoid macular oedema 1 month after intravitreal Ozurdex in Case 2. Vision improved from 6/18 to 6/9.

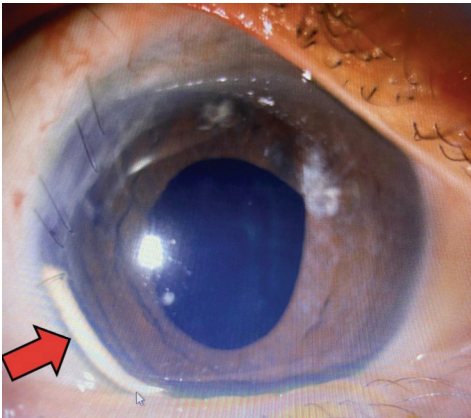


Fig. 2. The Ozurdex implant migrated into the anterior chamber at 4 weeks postoperative in Case 2. The patient had a scleral-fixed intraocular lens.

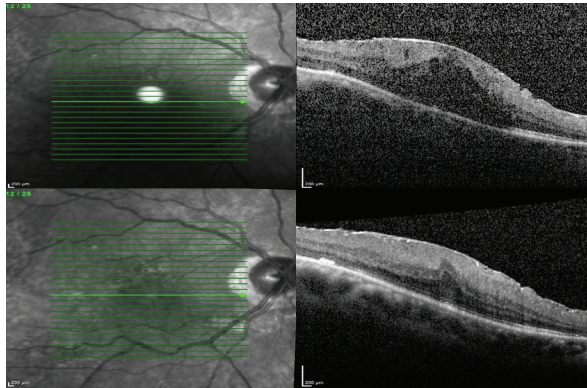


Fig. 3. Optical coherence tomography showing reduced central retinal thickness and resolution of macular oedema 1 month after intravitreal Ozurdex. The patient had received multiple intravitreal ranibizumab injections prior to Ozurdex implantation.

Case 2

A 64-year-old male who was pseudophakic for more than 20 years presented with bilateral dislocation of posterior chamber intraocular lens (PCIOL). Sequential vitrectomy was performed to remove the PCIOL and a sutureless scleral-fixed IOL was implanted. Postoperatively, vision in the right eye recovered to 6/9, while the fellow eye recovered to 6/12. At 5 months postoperative, the patient complained of blurred vision in the right eye. Upon examination, vision had dropped to 6/18 and cystoid changes at the macula were present. He did not respond well to a few months' treatment of topical non-steroidal anti-inflammatory drugs. Intravitreal Ozurdex was implanted. The cystoid macular oedema (CMO) resolved and vision improved to 6/9 (Fig. 1). However, the implant migrated into the anterior chamber at 4 weeks postoperative (Fig. 2). Implant removal was performed successfully. Vision improved to 6/9. The patient was followed up monthly and vision remained good at 6/9 up to 24 weeks postoperative. No recurrence of CMO was observed during follow-up sessions.

Case 3

A 63-year-old male underwent an uneventful bilateral cataract surgery in which an anterior chamber IOL (ACIOL) was implanted in the left eye. At 10 months, the patient complained of painless blurring of vision in the left eye. There was presence of CMO with subretinal fluid. Despite repeated intravitreal ranibizumab injections, the CMO persisted. We decided to implant intravitreal Ozurdex in the left eye. At the time of writing, the patient is still under monthly follow-up at our centre. Three months post-implant, no migration of the implant into the anterior chamber was observed. His visual acuity improved from 6/36 to 6/12. Optical coherence tomography at 3 months post-implant showed reduced central retinal thickness

and resolution of CMO (Fig. 3). Six months post-injection, best-corrected visual acuity was 6/12 with no signs of recurrence.

Discussion

Ozurdex is a sustained-released intraocular corticosteroid implant that delivers 0.7 mg of preservative-free dexamethasone in the vitreous cavity. It can be an effective alternative to antivascular endothelial growth factor (anti-VEGF) in treating persistent CMO.² A systematic review described excellent functional and anatomical improvements with Ozurdex injection.⁴ In addition, Ozurdex was also described as an alternative in selected cases, such as pseudophakic and anti-VEGF-resistant eyes.² Although implanting Ozurdex in eyes with non-intact posterior capsules is fairly controversial, the clear benefit outweighs the potential risk in eyes that fail to respond to standard treatment and have a potentially good visual prognosis. Rock *et al.* reported intravitreal Ozurdex treatment in four patients with non-intact posterior lens capsule due to persistent macular oedema not responding to first-line treatments.⁵ In our case series, Ozurdex was used after multiple attempts of standard treatment had failed. The presence of a non-intact posterior capsule was taken as a serious precaution and frequent follow-up was made compulsory in all cases.

Considering there is a risk for permanent visual loss in eyes with persistent CMO, intravitreal Ozurdex may be given in these patients. Although migration of Ozurdex into the anterior chamber is known as one of the rare complications, close follow-up is warranted in these cases. Ozcan *et al.* reported that four of six vitrectomized pseudophakic patients without intact posterior lens capsule receiving intravitreal Ozurdex had anterior migration within 2 to 6 weeks.⁶ In our case reports, Case 1 and Case 2 were post-vitrectomized eyes. Both cases had anterior migration within 1 month and 2 weeks, respectively, post-intravitreal Ozurdex implantation. Migration did not occur in the third case, which had ACIOL implantation. This is likely due to the bulk of the vitreous remaining in the posterior cavity. The remaining gel probably can “hold” the implant compared to a post-vitrectomized eye.⁷ Therefore, it is obvious that vitrectomized eyes are at a higher risk for anterior migration of Ozurdex compared to non-vitrectomized eyes.⁷ Implant removal is mandatory in cases of anteriorly migrated Ozurdex. Corneal oedema with sequential decompensation is the most likely sequela of such migration.¹ Frequent close follow-up with timely removal of the implant is required, as demonstrated in these cases. All cases responded well to treatment. Improvement of vision as well as significant reduction of retinal thickening was achieved.

The surgical technique of removal largely depends on the size and age of the implant. During the first few weeks, the implant acts like a friable solid foreign body in the eye. Hence, simple aspiration will not be able to remove the implant

with ease. Most techniques described use viscoelastic as part of the manoeuvre.⁸ Complete clearance of the implant is compulsory without leaving any residual piece in the anterior chamber. In both cases, viscoelastic assisted removal was done. A viscoelastic agent was used to orientate and direct the movement of the implant towards the limbal wound by creating a fluid wave that led to passive delivery of the implant.

Conclusion

Occasionally, anatomical and functional improvement with Ozurdex outweighs the risk of implant migration in eyes with non-intact posterior capsules. Close monitoring (less than a month) until complete resolution of the implant is necessary in patients with non-intact posterior lens capsules to look for anterior chamber migration of the implant. Post-vitrecomized eyes are at greater risk of migration.

Declarations

Consent for publication

The authors declare to have received informed, sufficient, and express consent from the patients to use their images and other clinical information in the article submitted.

Competing interests

None to declare.

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