

CASE REPORT

'Boating' Out Migrated Dexamethasone Implant; Surgical Management of Removal of Anterior Chamber Migrated Dexamethasone Intravitreal Implant: A Case Report

TEO BH¹, SAFINAZ MK¹, MAE-LYNN CB¹, AMIN A¹, EDWARD R²,
MUSHAWIAHTI M¹

¹Department of Ophthalmology, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia.

²The Royal Victorian Eye and Ear Hospital, 32 Gisborne Street, East Melbourne, Victoria 3002 Australia.

ABSTRAK

Biasanya, implant Ozurdex® jarang bergerak dari ruang vitreus ke depan melalui anak mata. Fenomena ini lebih kerap dijumpai dalam pesakit yang tiada kanta mata (aphakic) atau mereka yang telah mengalami operasi katarak tetapi dengan pemegang kanta mata yang longgar (zonular dehiscence). Kami melaporkan satu kes yang mempunyai bengkak di bahagian macula disebabkan kencing manis yang tidak terkawal dan mengalami penghijrahan implant Ozurdex® ke depan mata. Penghijrahan implant Ozurdex® ke ruang depan kanta mata (anterior chamber) boleh dirawat sama ada dengan meletakkan semula implant itu ke lokasi yang asal, iaitu ruang vitreus, atau mengeluarkannya dari mata pesakit melalui bukaan kecil di bahagian kornea untuk mengelakkan komplikasi yang bakal berlaku. Walau bagaimanapun, implant ini adalah rapuh terutamanya setelah beberapa minggu berada di dalam mata pesakit. Oleh itu, cubaan untuk memegang atau menyentuh implant Ozurdex® boleh menyebabkan ia patah kepada cebisan yang lagi halus, menyebarkannya dan lagi mencabar untuk mengeluarkannya. Laporan ini menunjukkan teknik yang mudah, cepat dan efisien untuk mengeluarkan implant Ozurdex® yang berada di bahagian anterior chamber dengan menggunakan brannula yang telah diubahsuai.

Kata kunci: Dexamethasone, pembedahan oftalmologi, penyingkiran peralatan, prosedur, suntikan intravitreus

Address for correspondence and reprint requests: Mushawiahti Mustapha. Department of Ophthalmology, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +603-91455981 E-mail: drmusha@gmail.com

ABSTRACT

It is rare for anterior chamber migration of an Ozurdex® implant from vitreous cavity, but it is seen more frequently in aphakic eyes or in pseudophakic cases with zonular dehiscence. We describe a case of a middle-aged gentleman who had persistent diabetic macular oedema not responding to anti-VEGF (vascular endothelium growth factor), who was treated with intravitreal Ozurdex® in his post vitrectomized eye and developed anterior migration of the implant to the anterior chamber. Anterior dislocation of an intravitreal implant of dexamethasone can be managed by repositioning it to the vitreous cavity or removing it through a corneal limbal incision. Ozurdex® is a friable implant, especially after a few weeks of implantation. Therefore, removal of the implant by grasping or aspiration may lead to its fracture or dispersion of the implant material. This is a report of a simple, fast and effective technique to remove a migrated Ozurdex® from the anterior chamber using a modified silicone tip.

Keywords: Dexamethasone, device removal, intravitreal injection, ophthalmologic surgical procedures

INTRODUCTION

A dexamethasone intravitreal implant (Ozurdex, Allergan) is a biodegradable posterior segment drug delivery system that provides sustained-release delivery of 0.7 mg preservative-free dexamethasone to the retina and vitreous. This rod-shaped implant can be placed into the vitreous cavity via a customised applicator system (Haller et al. 2011).

It is a known adverse reaction that ophthalmic steroids including Ozurdex® can lead to cataract progression and increase intra-ocular pressure (IOP). The dexamethasone implant showed a favourable safety profile in a clinical trial reported by Haller JA et al., in which cataract development was seen in 29.9% of eyes that received two 0.7 mg implants over 12 months and cataract surgery

was performed in 1.4% of these eyes. A rise in IOP of 10 mmHg or more from baseline was observed in 12.6% of eyes after the first implant. The rise in IOP was commonly transient and was controlled with medications and observations (Haller et al. 2011).

However, migration of such implants into the anterior chamber, although uncommon, has been reported in small case series in aphakic patients and pseudophakic patients especially in scleral-fixated or iris-claw intra-ocular lenses (IOL) (Khurana et al. 2014; Bansal et al. 2012; Pardo-López et al. 2012). We report a case of migration of an Ozurdex® implant into the anterior chamber in a pseudophakic vitrectomized eye and the technique of the implant removal.

CASE REPORT

A 60-year-old male with underlying diabetes mellitus presented with poor vision secondary to clinically significant macula oedema (CSMO) in the left eye (LE). Despite multiple sessions of laser treatment and 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 implantation, vitrectomy and ERM peeling. The IOL was implanted in the sulcus as there was a small posterior capsule rent noted at the end of the surgery. Unfortunately, vision remained poor with persistent diabetic macular oedema. We decided to treat his LE with intravitreal injection of Ozurdex[®]. One month after Ozurdex[®] implantation, the implant had migrated into the anterior chamber. We decided to remove the implant.

The left eye was prepared for surgery under subtenon anaesthesia. Limbal paracentesis was performed using a 15° blade at 3 and 9 o'clock positions, perpendicular to the position of the intracameral Ozurdex[®] to be removed.

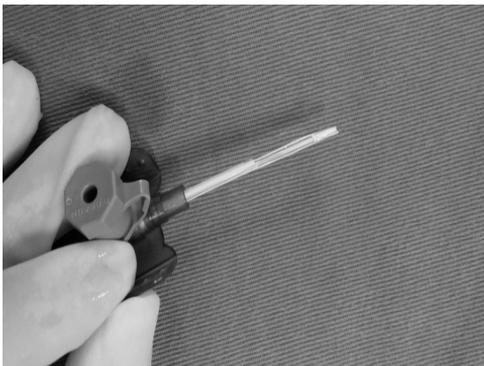


Figure 1: Boat-shaped 24-gauge cannula

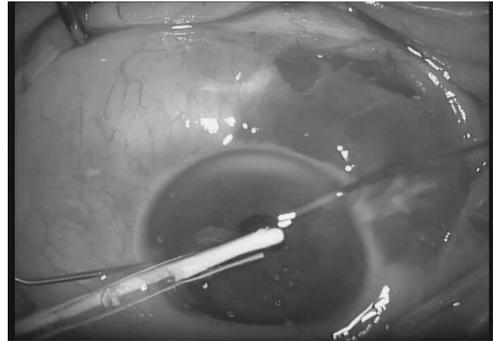


Figure 2: Removal of intracameral Ozurdex[®] via boat-shaped 24-gauge cannula tip

The tip of the 24-gauge plastic sleeve cannula was reshaped. The superior half of the tip was cut off resembling a 'boat' shape to fit in the Ozurdex[®] during the process of removal (Figure 1). Viscoelastic was then injected into the anterior chamber. The modified silicone tip of the cannula was inserted into the anterior chamber via the 3 o'clock paracentesis wound underneath the Ozurdex[®]. At the same time, an viscoelastic cannula was inserted through the opposite 9 o'clock limbal wound. Viscoelastic was further injected around the Ozurdex[®] to assist the placement of the Ozurdex[®] deep inside the modified 'boat' shaped cannula tip. The cannula was slowly retracted out from the anterior chamber while the viscoelastic was injected slowly over the Ozurdex[®] to secure it within the cannula tip (Figure 2). The entire procedure took less than 5 minutes with no gross residual Ozurdex[®] seen left in the anterior chamber. Complete removal of the viscoelastic was done at the end of the procedure. The paralimbal wound was then hydrated with balanced salt solution and was water

tight at the end of the procedure.

DISCUSSION

Corticosteroids have been used to treat a variety of ocular inflammatory diseases. It can be administered as a systemic drug, topical eyedrops, intravitreal injection and even as an intravitreal implant (Ozurdex®), depending on the ocular pathology being treated. Ozurdex® has been approved by the U.S. Food and Drug Administration (FDA) for the treatment of macular oedema following retinal vein occlusion, non-infectious posterior uveitis as well as diabetic macular oedema (Haller et al. 2011).

It is rare to have an anterior chamber migration of an Ozurdex® implant from the vitreous cavity, but it is seen more frequently in aphakic eyes or in pseudophakic cases with zonular dehiscence or posterior capsule disruption and mostly in post vitrectomized eyes (Khurana et al. 2014; Bansal et al. 2012). Anterior dislocation of a dexamethasone intravitreal implant can be managed by repositioning it back into the vitreous cavity or removing it through a corneal limbal incision (Khurana et al. 2014; Pitcher 2014). Several authors noted the difficulty in removing the friable implant, especially after several weeks post implantation (Khurana et al. 2014; Pitcher 2014). The increased implant friability is consistent with the expected behaviour of the implant in the eye after several weeks. Removal of the implant by grasping or aspiration may lead to its fracture or dispersion of the implanted material (Khurana et

al. 2014; Bansal et al. 2012) resulting in incomplete removal. One of the latest reported techniques by Pitcher JD III (Pitcher 2014) suggested a 'no-touch technique' to deliver the implant in one piece without leaving any residual material inside the eye by using a viscoelastic agent. 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. The author also described that the minimum size of wound created was 2.75-3.0 mm. Previously we had attempted a modification of this technique using a wound smaller than 2.75 mm but we found it difficult to remove the implant at the limbus. We have further modified Pitcher's original technique by using a reshaped 24-gauge cannula tip to extract the Ozurdex® implant. We believe the combination of the modified cannula tip and viscoelastic assisted delivery allows better control of the delivery process via a smaller limbal wound. The method also ensures no gross residual particle is left behind at the end of the procedure.

CONCLUSION

A modified 24-gauge cannula tip with an assisted viscoelastic delivery is a useful technique to remove an anterior chamber migrated Ozurdex® implant.

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Received: 18 Dec 2017

Accepted: 8 May 2018