A Case With Tubular Silicone Sheath in The Anterior Chamber After Intravitreal Dexamethasone (Ozurdex) Implantation

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ABSTRACT

A 65-year-old female patient was treated with intravitreal ranibizumab and dexamethasone implant (Ozurdex) for right retinal vein branch occlusion. A transparent foreign body was detected in the anterior chamber 32 months after the last dexamethasone implant injection. With its tubular appearance, the foreign body was thought to be the silicone sheath residue in the eye during dexamethasone implant application. There was no additional pathological finding related to the anterior chamber of the patient. Although the active ingredient of the dexamethasone implant can dissolve in the eye, sometimes the silicone sheath may remain. The silicone sheath residue in the anterior chamber can be confused with the dislocated Descemet's membrane in patients who have undergone cataract surgery.

Keywords: anterior chamber, Descemet's membrane, dexhametosone implant.

INTRODUCTION

Intravitreal dexamethasone implant (Ozurdex; Allergan Inc, Irvine, CA) has been used in the treatment of uveitis and macular edema resulting from central retinal vein occlusion and branch retinal vein occlusion.[1] In October 2018, the manufacturer withdraw implants with certain batch number due to likelihood that a silicone particle (300 µ in diameter) can be given into eyes during implantation.[2] Here, we presented tubular silicone sheath residue detected in anterior of chamber of a patient underwent multiple intravitreal dexamethasone injections.

Case

A 65-years old woman presented to our clinic with impaired vision in right eye at February 2016. In the examination, it was found that the visual acuity was 0.9 in the left eye and finger counting from 2 meters in the right eye. Biomicroscopic examination was normal in both eyes. In fundus examination, it was seen that there was splinter hemorrhages, macular edema and findings suggestive of branch retinal vein occlusion in the right eye. On optical coherence tomography, there was cystoid macular edema in the right eye. The patient received multiple intravitreal ranibizumab injections; followed by intravitreal dexamethasone implant injections in September 2016, September 2017 and June 2018. Again, the patient underwent phacoemulsification plus IOL implantation due to posterior subcapsular cataract in March, 2018 and vitreoretinal surgery due to epiretinal membrane in October, 2018. No complication was recorded in above-mentioned surgeries. The visual acuity was at level of finger counting from one meter in the right eye. A tubular dexamethasone silicone sheath residue was detected in anterior chamber of right eye (Figure 1). The intraocular pressure was 13-14 mmHg during follow-up. The foreign body in anterior chamber showed no translocation. There was no additional pathology related to anterior chamber. The patient was scheduled for follow-up.

DISCUSSION

Ozurdex is a prefilled device for single-use that contains 0.7 mg dexamethasone implant. The implant is 0.46 mm in diameter and 6 mm in length. The implant consists of

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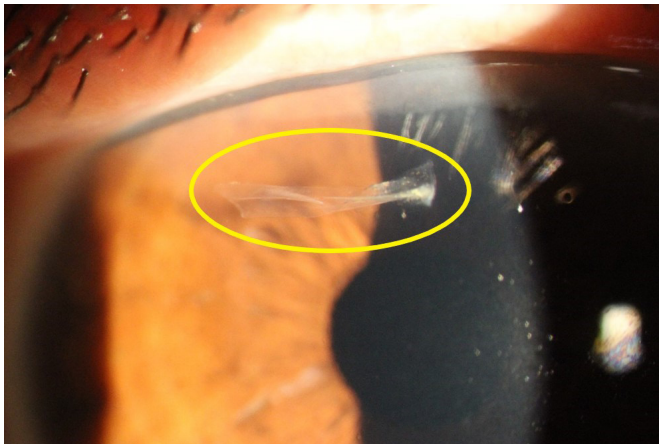

Figure 1: *Tubular dexamethasone sheath residue in anterior chamber of right eye (yellow ring).*

2 different biodegradable polymer (D, L lactic-co-glycolic and PLGA). The device include a stainless steel plunge within in a needle where implant is attached using a silicone sleeve. The hypodermic needle is 22 G in size with small internal lumen and lubricated by silicone oil externally.[3,4,5] It is thought that the transparent, intraocular foreign body in our patients resulted from a manufacturing defect of Ozurdex implant. Given its diameter and length, it may be resulted from intraocular segment of injector. This segment is coated with silicone during manufacturing process for lubrication. The manufacturing defects might have been resulted in abnormally thick silicone coating by causing pseudo-sheath. In standard injection technique, most clinicians apply tight compression cotton-tip applicators or triangle gauze while pulling off the injector in order to prevent vitreal prolapse at injection site. This compression may facilitate peeling of pseudo-sheath, retaining within eye.[6]

In a monkey study, it was found that dexamethasone implant had the highest concentration in vitreous within first 2 months while the concentration decreased progressively during subsequent 4 months and was below effective concentration after month 6.[7] Its duration of action is approximately 6 months and comparable in vitrectomized and non-vitrectomized eyes in human. The implant is generally mobile within vitreous but it was shown that the implant can attach to macula in previous studies.[8]

In our case, a tubular dexamethasone implant silicone sheath residue was detected in anterior chamber 32 months after last intravitreal dexamethasone injection. To best of our knowledge, this is the first case with dexamethasone implant silicone sheath residue in anterior chamber in the literature. In a study by Han et al., non-degradable tubular foreign body was observed in vitreous for longer than 6 months in 5 patients. Of these, 2 were symptomatic while authors did not preferred surgical explantation in any patient. Silicone sheath translocation to anterior chamber was not observed in any of these patients. Although the origin of the non-degradable foreign body was unclear, it was thought that they were silicone due to transparent appearance and non-degradable structure[8]. In our case, the silicone sheath in anterior chamber remained to be asymptomatic. The patient with intact posterior capsule had history of cataract surgery and vitreoretinal surgery. We think that tubular silicone sheath passed to anterior chamber through a zonular defect. For Ozurdex, common complications included IOP elevation and cataract formation. In our patient, posterior subcapsular cataract was developed following injections, requiring surgery. No intervention was made to remove silicone sheath as there was no symptom or unfavorable clinical finding due to silicone sheath in anterior chamber. We think that the foreign body can be associated with silicone used for lubrication.

In conclusion, although active substance of intravitreal dexamethasone implant can be degraded within eye, it should be taken into consideration that silicone sheath may be retained, resulting in visual symptoms, and confused with anterior segment structures, particularly with Descemet's membrane.

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