

Secondary Glaucoma After Intravitreal Dexamethasone Implant in The Patient with Macular Edema Secondary to Retinitis Pigmentosa

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ABSTRACT

Macular edema can be occurred in cases of retinitis pigmentosa. One of the treatment agent for cystoid macular edema secondary to retinitis pigmentosa is intravitreal Ozurdex implant. Secondary glaucoma is one of the complication of intravitreal corticosteroid injection for macular edema. In this article the retinitis pigmantosa case with secondary glaucoma resistant to medical treatment after ozurdex implant for refractory macular edema is presented.

To present a case with bilateral refractory macular edema secondary to retinitis pigmentosa improved glaucoma in one eye after one month following Ozurdex® (Allergan, Inc., Irvine, CA, USA) implantation. Further studies are needed to confirm the safety and efficacy of intravitreal Ozurdex® for macular edema in retinitis pigmentosa.

Keywords: Macular edema, Retinitis pigmentosa, Dexamethasone implant, Glaucoma, Trabeculectomy.

INTRODUCTION

Retinitis pigmentosa (RP) is a hereditary degenerative disease of the retina. The prevalence of RP is 1/4000.¹ The prevalence of macular edema (ME) secondary to RP is 10-20%.² The pathogenesis of macular edema secondary to RP is not known clearly.³ Failure of the pumping mechanism of the retinal pigment epithelium (RPE) or autoimmune process may be possible factors for the development of ME in RP cases. Treatment options of ME secondary to RP are systemic and topical carbonic anhydrase inhibitors, systemic and intravitreal corticosteroids (triamcinolone, dexamethasone), intravitreal anti-VEGF, laser photocoagulation and pars plana vitrectomy.^{4,5} The dexamethasone implant (Ozurdex®; Allergan, Inc., Irvine, California, USA) is approved for the treatment of macular edema due to branch or central retinal vein occlusion, diabetic macular edema, noninfectious uveitis affecting the posterior segment.⁶ There are numerous reports related with the use of intravitreal dexamethasone implant for

refractory cystoid macular edema in RP (7,8,9). Based on the literature we decided to apply intravitreal Ozurdex® in RP patients with ME refractory to other treatments.

In this case report, we reported the Ozurdex® implant efficiency on ME secondary to RP and management of Ozurdex® related glaucoma complication.

CASE REPORT

A 16-years-old girl diagnosed with RP was referred to our clinic 3 years ago due to severe visual deterioration in both eyes. Complete anterior and posterior segment examination was performed including fundus fluorescein angiography (FFA) (Figure 1A-B), optical coherence tomography scan (OCT) and electroretinogram to confirm the diagnosis. She had refractory ME secondary to RP for about 3 years. A signed consent form was obtained from the parents of the patient. The patient was treated with topical and systemic carbonic anhydrase inhibitors, topical

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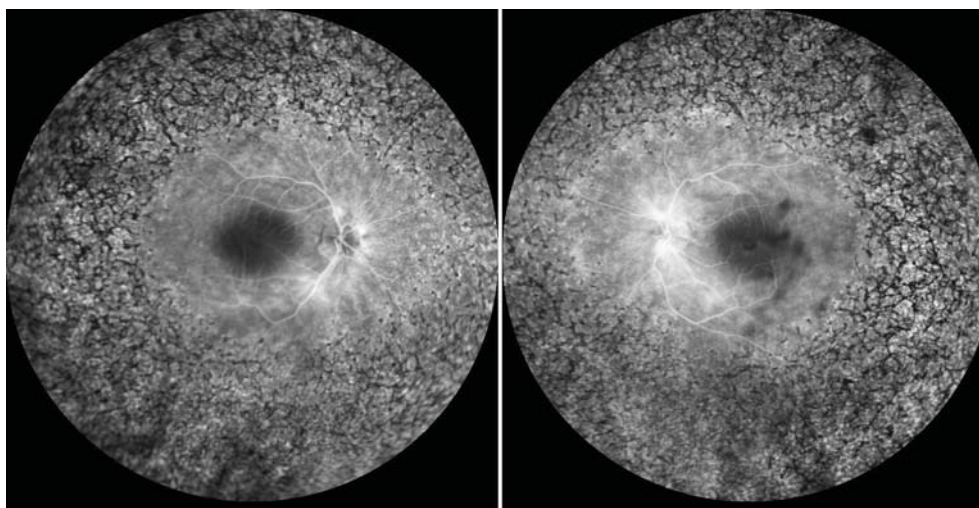


Figure 1A-1B: FFA in the right and left eye.

corticosteroids, intravitreal triamcinolone acetonide injections, and intravitreal anti-VEGF injections but the ME was persistent. Previously seven intravitreal injections of Ranibizumab and five intravitreal triamcinolone acetonide injections for ME were applied to the patient. Before the Ozurdex® injection, anterior segment details were normal and intraocular pressure was 18 mmHg in both eyes. Best corrected visual acuity (BCVA) was 20/100 in both eyes. The central foveal thickness was 522 μm in the right eye and 530 μm in the left eye due to cystoid ME (Figure 2A-2B). Intravitreal Ozurdex® implantation was done in the operation room with topical anesthesia. One month after the Ozurdex® injection, BCVA was 20/200 in the right eye, 20/160 in the left eye. Central foveal thickness was 752 μm in the right eye and 662 μm in the left eye (Figure 3A-3B). Intraocular pressure was

35 mm Hg in the right eye and 14 mm Hg in the left eye. We started full topical antiglaucoma medications for right eye. After one month despite of the topical medications IOP was not under control. The patient underwent trabeculectomy. Postoperative 1st day IOP decreased to 10 mmHg markedly. One month after the trabeculectomy, cataract progression was observed in the right eye. BCVA had decreased from 20/200 to 20/400. The patient underwent phacoemulsification surgery with intraocular lens implantation. One month after the trabeculectomy and phacoemulsification surgery, IOP was 18 mm Hg in the right eye without any topical medicine, BCVA was 20/200 and intraocular lens was centrally located. In the left eye none of the ocular adverse events were observed during the study period. Central foveal thickness was 752 μm in right eye and 662 μm in left eye (Figure 4A-4B). Despite

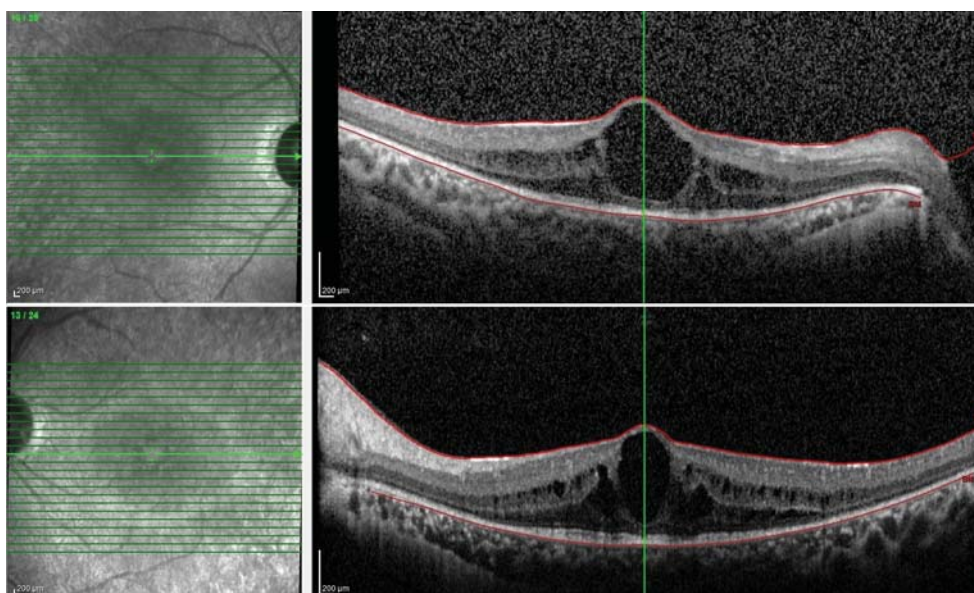


Figure 2A-2B: OCT in right and left eye previous Ozurdex®.

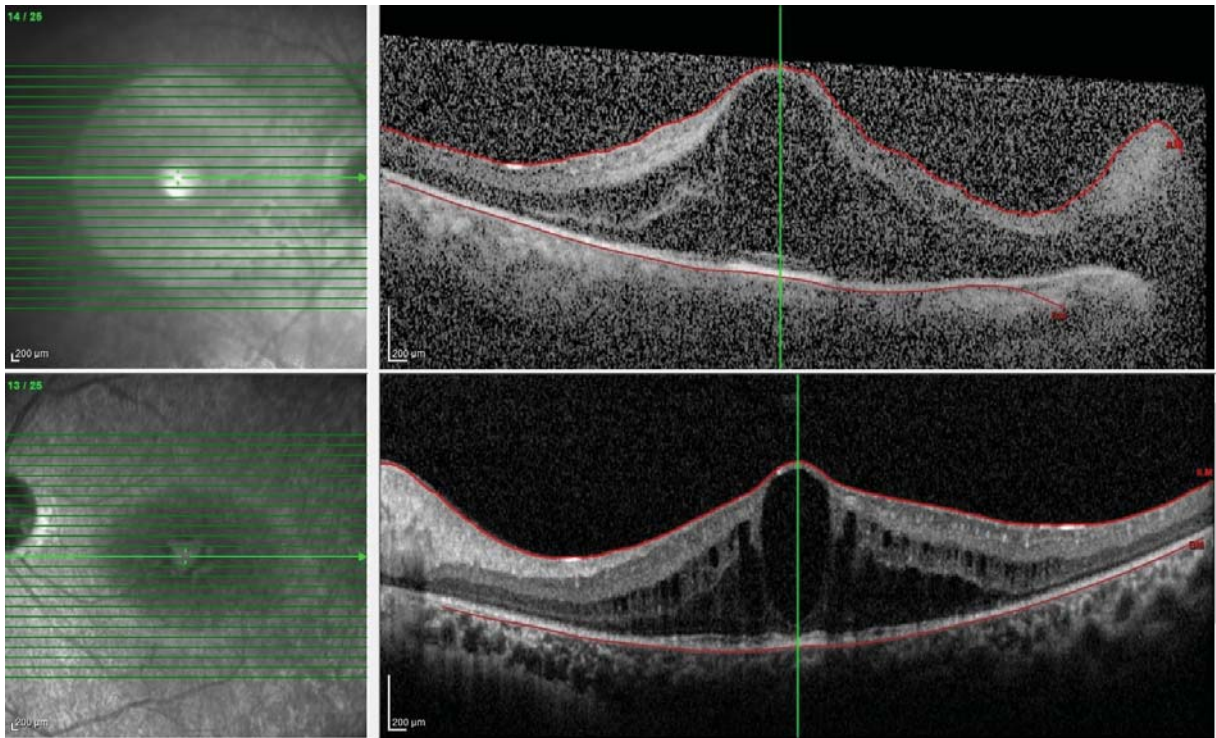


Figure 3A-3B: OCT in the right and left eye one month after Ozurdex®.

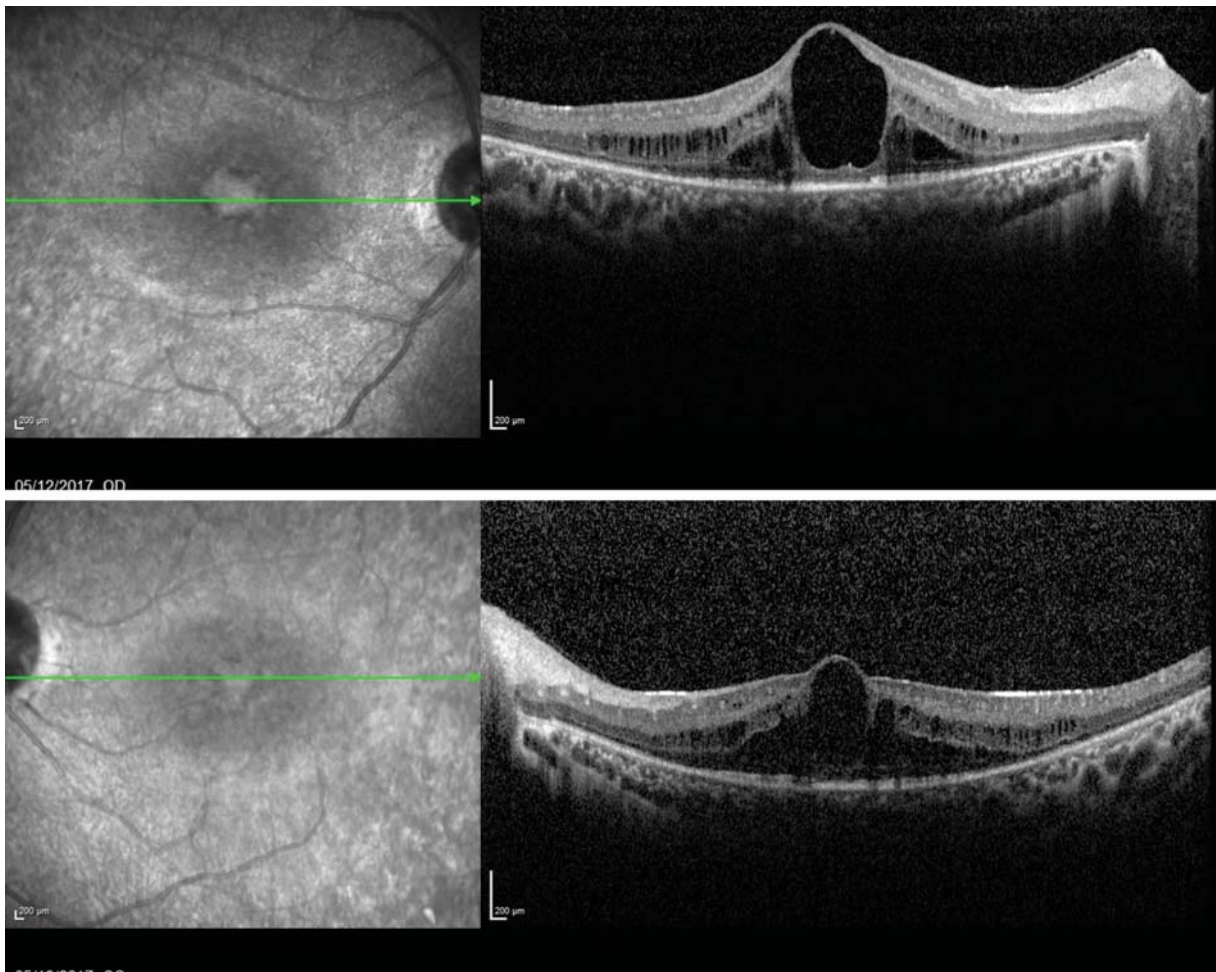


Figure 4A-4B: OCT in the right and left eye one month after trabeculectomy and phacoemulsification surgery.

the intravitreal dexamethasone implant injection CME was refractory in both eyes.

DISCUSSION

One of the sight threatening condition in RP patients is ME. There are various treatment options for ME secondary to RP. However there is no consensus for the clinical approach in the literature. Ozurdex® is a well tolerated implant causing improvements in visual acuity, macular thickness, and fluorescein leakage in patients with persistent ME.¹⁰ Cataract progression and IOP rise are well-known side effects of corticosteroid injections. The profile of the side effects of Ozurdex implant is better than triamcinolone injection. Ozurdex® injection was administered in RP patients with ME in small case series in the literature.^{7,8,9,10} Saatci et al. reported a case with bilateral ME secondary to RP which was ended up with resolving of ME first week after Ozurdex® injection.⁹ Örnek et al reported, a case with refractory ME for 12 years secondary to RP. Four days after the Ozurdex® injection they reported almost total resolving in ME and visual improvement.¹¹ Srour et al. injected Ozurdex® in to the 4 eyes of the 3 RP patients with ME and ME were regressed noticeably in all of the eyes.⁷ In our case, the right eye developed glaucoma and cataract after Ozurdex® injection. The left eye of the patient had no complications The patient has experienced IOP rise over 35 mmHg in the right eye despite maximal antiglaucomatous medical therapy. To control the high IOP level refractory to medical therapy trabeculectomy surgery was done. Unlikely of limited case series with success, after Ozurdex® injection ME was increased in both eyes and BCVA was diminished in our case.

The intravitreal dexamethasone implant may be useful for CME in patients with RP, but the implant should be used with caution, considering possible complications. Further studies with larger series and longer follow-up time is needed to confirm the safety and efficacy of intravitreal Ozurdex® injection for ME in RP patients.

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