Korean J Ophthalmol 2019;33(4):392-394
https://doi.org/10.3341/kjo.2018.0115

Central Serous Chorioretinopathy Following Intravitreal Dexamethasone Implant

Dear Editor,

A 46-year-old man with a 2-year history of diabetes mellitus was referred to our institute for diabetic maculopathy. The patient had not previously undergone intraocular surgery, and there was no special history. His corrected visual acuity was 20 / 40 in the right eye and 20 / 30 in the left eye. Fundus examination revealed severe non-proliferative diabetic retinopathy, with macular edema of both eyes. Written informed consent from the patient was obtained.

Optical coherence tomography (OCT) revealed thickened retina with two small retinal pigment epithelial detachments (PED) of the right eye and one retinal PED of the left eye. Fluorescein angiography revealed the characteristic petaloid pattern of late-phase cystoid macular edema, but there was no leakage at the PED area. Indocyanine green angiography showed choroidal vascular enlargement and hyperfluorescence in areas corresponding to the PED.

To manage diabetic retinopathy, we injected intravitreal anti-vascular endothelial growth factor before starting pan-retinal photocoagulation. To treat the macular edema, we administered five intravitreal anti-vascular endothelial growth factor injections in both eyes over 1 year. There was recurrence of cystoid macular edema, for which we placed a sustained-released dexamethasone 0.7 mg intravitreal implant (Ozurdex; Allergan, Irvine, CA, USA).

The first 2 months after implantation revealed good response to macular edema. However, at 3 months, the patient complained of metamorphopsia and decreased visual acuity. OCT revealed accumulation of subretinal fluid adjacent to the PED (Fig. 1A-1D). On fundus fluorescein angiography (Fig. 1E, 1F) and indocyanine green angiography (Fig. 1G, 1H), hyperfluorescent leakage was observed in both eyes and leakage was more prominent at a later phase compared to the early phase. This finding was consistent with typical central serous chorioretinopathy (CSC). The patient was diagnosed with dexamethasone intravitreal implant-induced CSC.

The right eye was observed without treatment, and the left eye underwent 532-nm focal laser treatment at the leakage point, with a 200-μm spot of 200-mW and 0.07-second duration. Three months later, both eyes revealed resolved serous retinal detachments. The patient's final vision has remained at 20 / 40 in the right eye and 20 / 30 in the left eye.

Macular edema is one of the most common visually threatening complications caused by diabetic retinopathy. Use of corticosteroids (triamcinolone acetonide and dexamethasone) administered by an intravitreal approach is often effective [1]. To date, there have been several reports of CSC after intravitreal dexamethasone implant. In one report, the patient developed CSC 1 month after application but did not reveal typical CSC leakage, and the subretinal fluid was reduced during observation [2]. Another study reported CSC of the fellow eye 15 days after implantation [3]. But the above mentioned reports have difficult to see a rationale argument to direct effect of dexamethasone implant. We report an unusual case of typical CSC caused by dexamethasone intravitreal implant, performed to treat diabetic macular edema. Sustained-release dexamethasone from an intravitreal implant is detected in the retina and vitreous humor for 6 months, with peak concentration during the first 2 months [4]. In our case, subretinal fluid OCT findings were detected 3 months after implantation. The right eye revealed improvement after 1 month of observation, and the left eye was improved 1 month after focal laser treatment. Initial OCT findings and angiographic images suggested diabetic retinopathy with localized PED and revealed pachychoroid in the subfoveal fields. A previous report concluded that steroid-induced CSC occurs with high choroidal thickness or in the presence of a PED [5]. Re-analysis of the initial OCT in the present case is in line with the above opinion. This clinical experience suggests that we should rethink dexamethasone implantation for patients with PED and pachychoroid and should be cautious in using the above treatment.

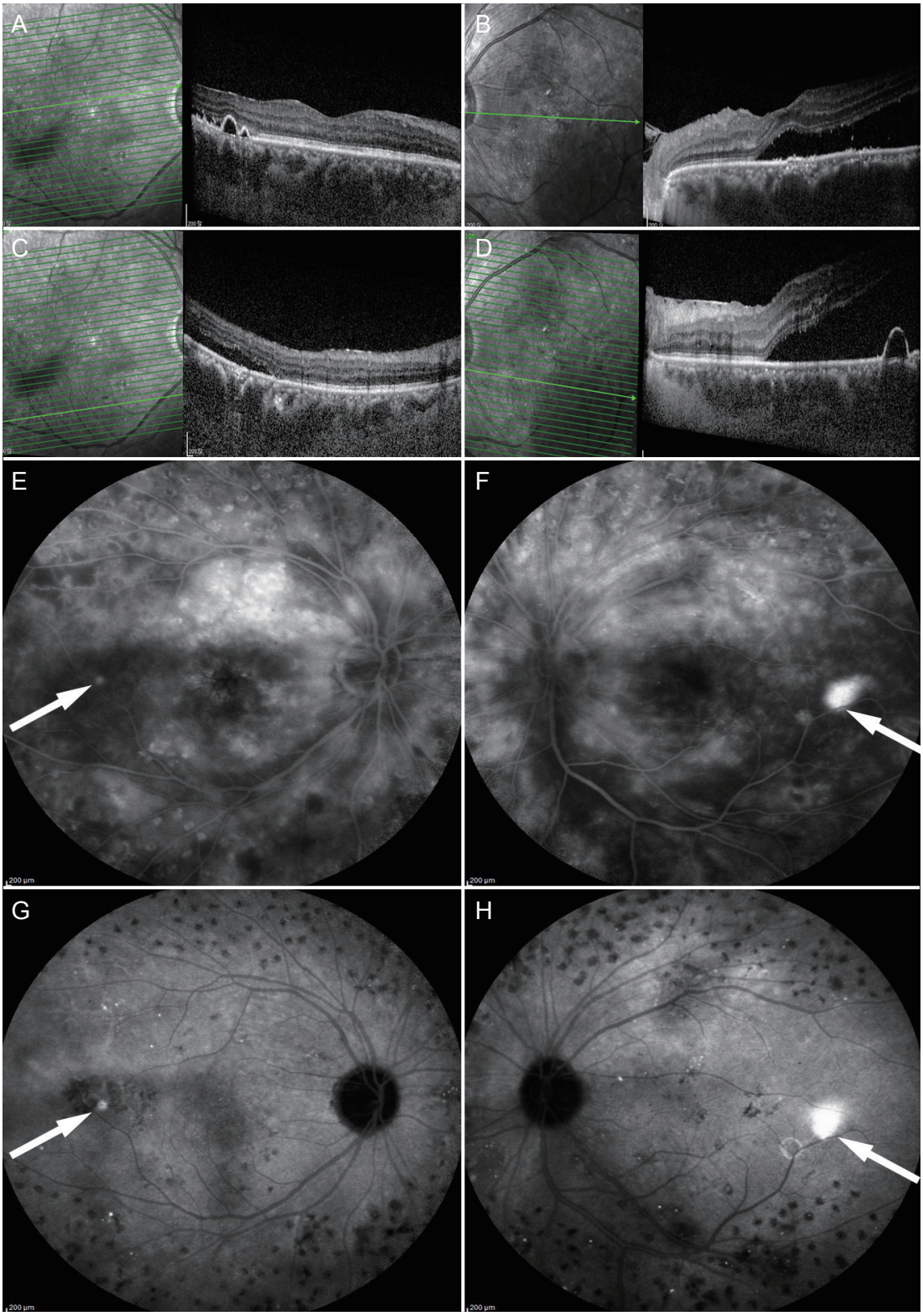

Fig. 1. Optical coherence tomography of both eyes 3 months after Ozurdex injection, (A-D) revealing subretinal fluid adjacent to the pigment epithelial detachment. (E,F) Fluorescein angiography and (G,H) indocyanine green angiography images revealing late ink blot and smoke stack leakage temporal to the fovea of respective eyes, indicated with arrows. These findings are characteristic of central serous chorioretinopathy. There was no indication of a choroidal neovascular network or polypoidal lesion.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

References

1. Singer MA, Dugel PU, Fine HF, et al. Real-world assessment of dexamethasone intravitreal implant in DME: findings of the prospective, multicenter REINFORCE study. *Ophthalmic Surg Lasers Imaging Retina* 2018;49:425-35.
2. Eris E, Erdogan G, Perente I, et al. A new side effect of intravitreal dexamethasone implant (Ozurdex). *Case Rep Ophthalmol Med* 2017;2017:6369085.
3. Georgalas I, Petrou P, Pagoulatos D, et al. Central serous chorioretinopathy in the fellow eye as a complication of intravitreal dexamethasone implant for the treatment of Irvine-Gass syndrome. *Clin Exp Optom* 2016;99:601-3.
4. Chang-Lin JE, Attar M, Acheampong AA, et al. Pharmacokinetics and pharmacodynamics of a sustained-release dexamethasone intravitreal implant. *Invest Ophthalmol Vis Sci* 2011;52:80-6.
5. Han JM, Hwang JM, Kim JS, et al. Changes in choroidal thickness after systemic administration of high-dose corticosteroids: a pilot study. *Invest Ophthalmol Vis Sci* 2014;55:440-5.