

Retinal Pigment Epithelial Tear Following Bevacizumab For Exudative Age-Related Macular Degeneration: An OCT Follow-Up*

Yaşa Bağlı Maküla Dejenerasyonunun Bevacizumab ile Tedavisinde Retina Pigment Epitel Yırılması: OKT Takibi

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Case Report

Olgu Sunumu

ABSTRACT

We report a case of retinal pigment epithelial (RPE) tear occurred after intravitreal bevacizumab injection for serous pigment epithelial detachment (PED) from neovascular age-related macular degeneration. An 80-year-old woman who underwent 1.25 mg intravitreal bevacizumab treatment for serous PED secondary to AMD developed RPE tear 4 weeks following the second injection. Serial fundus fluorescein and indocyanine green angiography in addition to optical coherence tomography (OCT) imaging were obtained at baseline and during follow-up. OCT revealed that dome shaped RPE was changed to irregular folds just before the tear of RPE. Baseline visual acuity 20/25 decreased to 20/200 after RPE tear. The condition of the eye was stabilized with three additional injections of intravitreal bevacizumab. Fundus fluorescein angiography and OCT demonstrated resolved choroidal neovascularization. Visual acuity improved to 20/50 at the last examination. The patient remained stable 9 months after the last injection.

Key Words: Retinal pigment epithelial tear, bevacizumab, age-related macular degeneration.

ÖZ

Neovasküler yaşa bağlı maküla dejenerasyonuna bağlı seröz pigment epitel dekolmanı (PED) için intravitreal bevacizumab enjeksiyonundan sonra retina pigment epiteli (RPE) yırtığı gelişen bir olguyu sunduk. Yaşa bağlı maküla dejenerasyonuna bağlı seröz PED için 1.25 mg intravitreal bevacizumab tedavisi uygulanan 80 yaşında bir kadın hastada, ikinci enjeksiyondan 4 hafta sonra RPE yırtığı gelişti. Tedavi öncesi ve sonrası seri olarak fundus flöresein ve indosiyenin yeşili anjiyografisi ile birlikte optik koherens tomografi (OKT) görüntüleri alındı. OKT, RPE yırtığından hemen önce RPE'nin kubbe şeklinin düzensiz kıvrımlara dönüştüğünü gösterdi. 20/25 olan ilk görme keskinliği RPE yırtığından sonra 20/200'e düştü. Bu durum, üç ilave intravitreal bevacizumab enjeksiyonu ile stabilize oldu. Fundus flöresein anjiyografisi ve OKT koroidal neovaskülarizasyonun gerilediğini gösterdi. Görme keskinliği son muayenede 20/50 ye çıktı. Hasta son enjeksiyondan sonra 9 ay stabil kaldı.

Anahtar Kelimeler: Retina pigment epitel yırtığı, bevacizumab, yaşa bağlı maküla dejenerasyonu.

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INTRODUCTION

Tears of retinal pigment epithelium (RPE) may occur spontaneously in age-related macular degeneration (AMD), and they have also reported to be linked to various treatments for AMD: A number of cases of RPE tears were associated with krypton red photocoagulation, photodynamic therapy (PDT) with verteporfin, intra-

vitreal injection of vascular endothelial growth (VEGF)-modulating therapies, including pegaptanib, bevacizumab and ranibizumab.¹⁻⁴

This case study presents an eye with RPE rip following intravitreal bevacizumab injection for neovascular AMD, and managed further by injecting bevacizumab intravitreally.

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CASE REPORT

An 80-year-old female admitted to our clinic with the complaint of metamorphosia for a week in the right eye. In her routine control examination 2 months ago, she had some macular drusen and her visual acuity was 20/20 in the right eye. She had a history of a single PDT application with verteporfin to the left eye for neovascular AMD seven years ago in our clinic. Eyes were bilaterally pseudophakic. At this time, Snellen visual acuity was 20/25 in the right, and was 20/640 in the left eye. Dilated fundus examination revealed a serous PED in the right, and a disciform scar from neovascular AMD in the left eye. OCT confirmed the diagnosis of PED (Figure 1). Indocyanine green angiography (Figure 2) revealed an occult choroidal neovascular membrane associated with PED. A written informed consent was obtained from the patient, and 1.25 mg bevacizumab was applied to the right eye intravitreally. Four weeks following the first injection, regression of serous PED became evident and the visual acuity was 20/25. Second injection was applied. Two weeks later from the second bevacizumab injection, serous accumulation was further absorbed and wrinkling of RPE layer was evident. Four weeks later after the second injection, RPE tear developed (Figure 1 and Figure 3) and the visual acuity decreased to 20/200. Monthly intravitreal injections of three additional bevacizumab stabilized the condition of the patient. Nine months after the last injection, visual acuity was stabilized at 20/50 while no significant OCT alteration was observed.

DISCUSSION

Several potential mechanisms have been proposed for RPE rip, including fibrovascular contractions of the CNV, mechanical vitreomacular traction or extreme fluctuation in intraocular pressure, or interruption of tight junction maintenance by vascular endothelial growth factor.¹

Our patient with a high risk eye was decided to treat with intravitreal bevacizumab for AMD associated PED as the other eye had disciform scar due to wet AMD. Following two bevacizumab injection, dome shaped high elevation of RPE changed into irregular and wrinkled RPE layer just before the development of full thickness tear as detected by OCT.

At least 17% of eyes with a PED may develop RPE tears after intravitreal bevacizumab injections in contrast to the 10% incidence of RPE tears reported by natural history.⁵ Clinicians must be vigilant for RPE tear when utilizing intravitreal bevacizumab injection for treatment of neovascular AMD in eyes with a PED, although the harmful effects of this complication may be limited because the additional bevacizumab therapy after RPE tears may preserve vision and delay further visual loss.⁴ Three further injections of bevacizumab after development of RPE tear stabilized the condition and improved visual acuity from 20/200 to 20/50 in our case.

OCT screening of eyes with serous PED is useful following intravitreal bevacizumab injection. Development

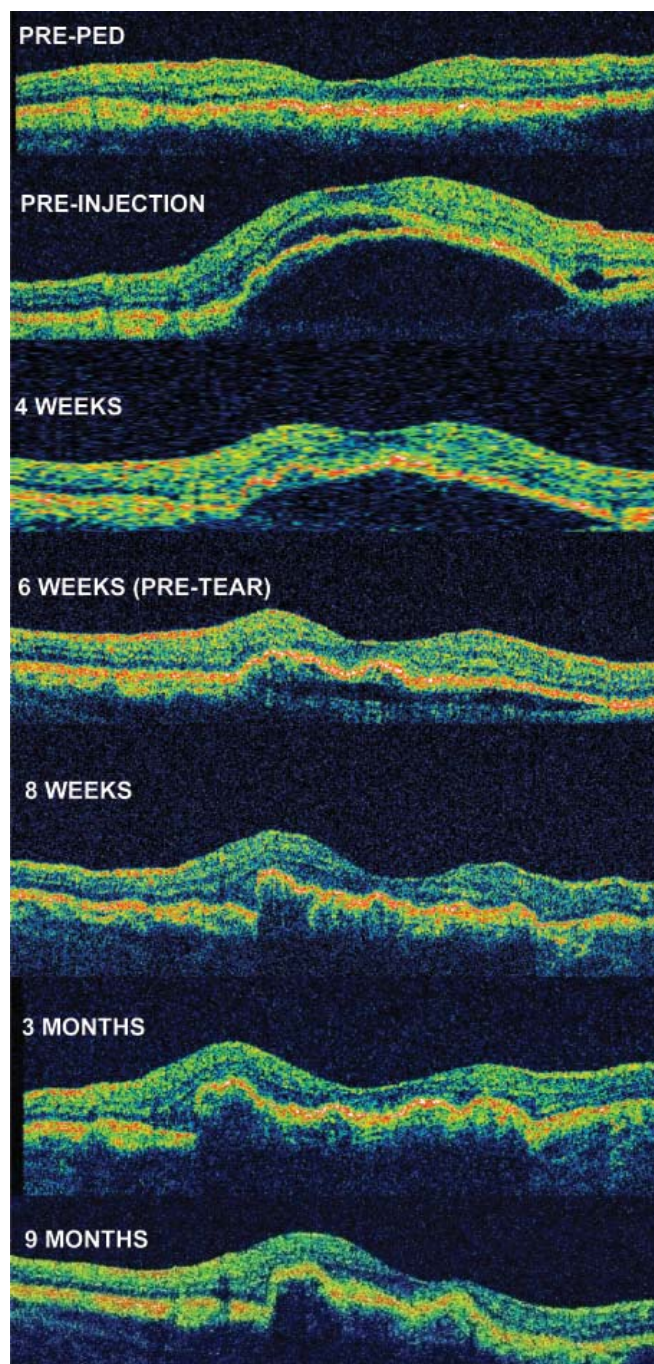


Figure 1: Serial optical coherence tomography (OCT) images of the patient. The patient had no significant pathology except retinal pigment epithelial (RPE) irregularity from macular drusen at the beginning. Two months later she abruptly developed a serous pigment epithelial detachment (PED) from an occult choroidal neovascularization, and first bevacizumab injection was applied. This injection resulted in regression of serous PED in four weeks. After second injection of bevacizumab, further absorption of serous fluid and wrinkling of RPE layer occurred. Eight weeks following the first injection, RPE tear developed. Additional three intravitreal bevacizumab injections stabilized the condition of the patient as seen at 3 and 9 months after the first injection.

of irregular wrinkling in RPE reminds the risk of tear formation. Additional bevacizumab injection in eyes with RPE tear may prevent further visual acuity loss.

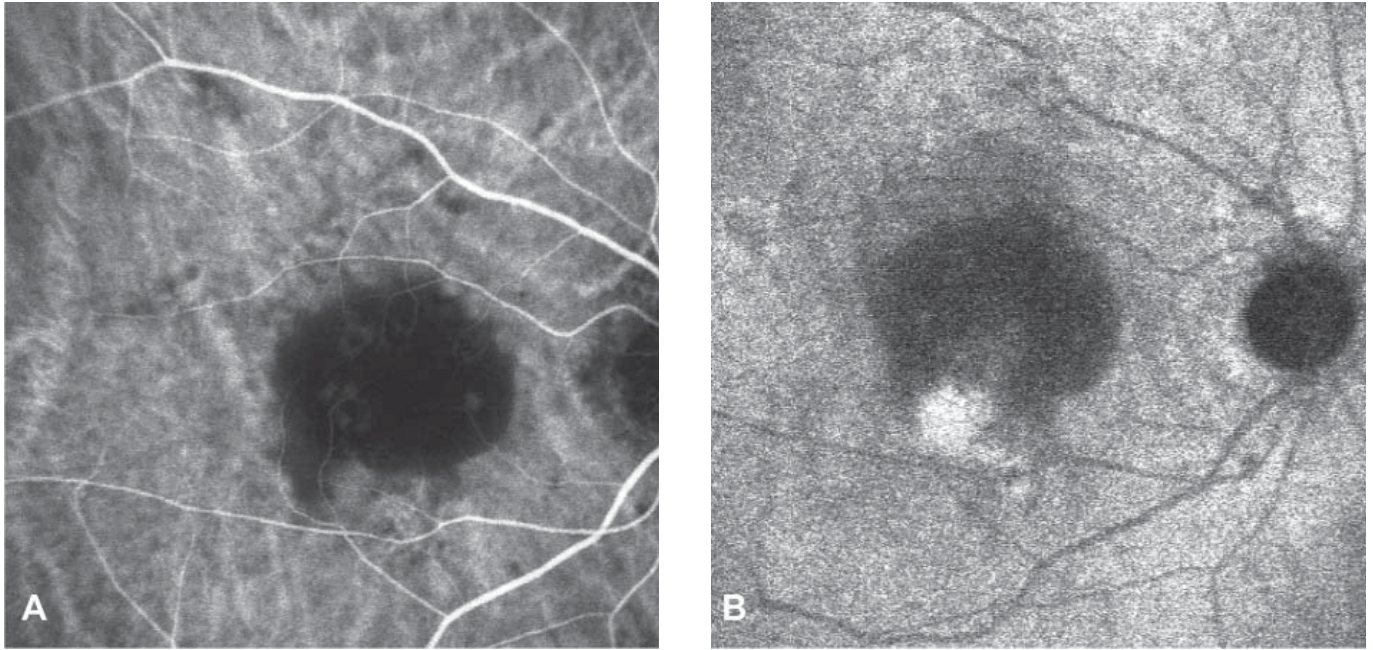


Figure 2: Mid-phase (A) and late-phase (B) indocyanine green angiography of the patient showing hypofluorescence area of retinal pigment epithelial detachment (PED), and hyperfluorescence due to an occult plaque of occult choroidal neovascularization just beneath the PED inferiorly.

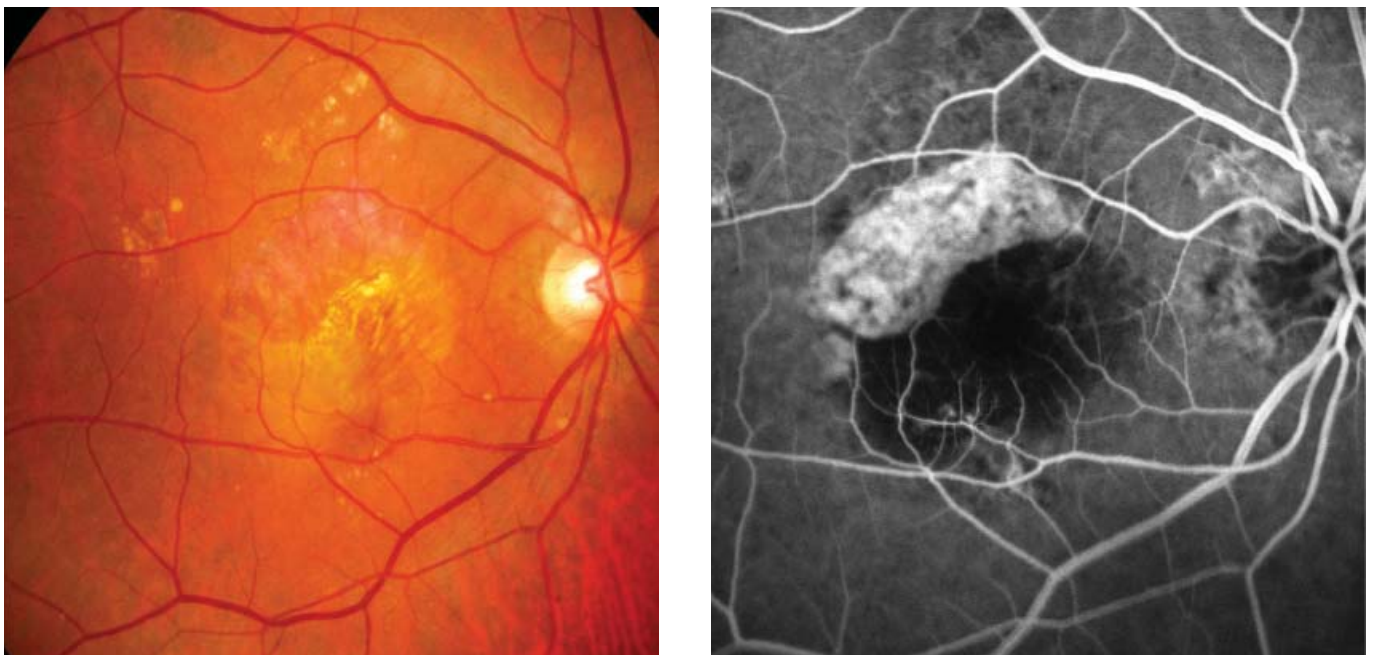


Figure 3: Color fundus picture (A) and fluorescein angiography (B) of the eye with retinal pigment epithelial tear following two bevacizumab injections for serous pigment epithelial detachment.

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