Regression of Choroidal Neovascularization Secondary to Pathologic Myopia after Intravitreal Injection of Bevacizumab

Patolojik Miyopiye İkincil Olarak Gelişen Koroidal Neovaskülarizasyonun İntravitreal Bevacizumab Enjeksiyonu ile Regresyonu

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Case Report *Olgu Sunumları*

ABSTRACT

We present a case of choroidal neovascular membrane (CNV) regression following a single intravitreal injection of bevacizumab in a patient with pathologic myopia.

Intravitreal bevacizumab (1.25 mg/0.05 cc) was injected in one eye of a 27 year-old patient with subfoveal CNV associated with pathologic myopia. Initial, 2-week and 8-week post-injection fluorescein angiography (FA) and Optical coherence tomography (OCT) were obtained. Single case reports are exempt from institutional review board approval at our institution.

FA confirmed regression of CNV. Best corrected visual acuity (BCVA) improved from 20/400 to 20/200 and remained stable. OCT data were markedly improved two weeks after injection and remained stable thereafter.

Intravitreal injection of bevacizumab may be an effective alternative treatment for CNV secondary to pathologic myopia.

Key Words: Bevacizumab; pathologic myopia; intravitreal injection; choroidal neovascularization.

ÖZ

Patolojik miyopili bir hastada tek doz intravitreal bevacizumab enjeksiyonunu takiben koroidal neovasküler membrandaki (KNV) regresyon sunulmuştur.

Patolojik miyopiye bağlı subfoveal KNV'li 27 yaşındaki bir hastanın bir gözüne intravitreal bevacizumab (1.25 mgr/0.05 cc) enjekte edildi. İlk muayene, enjeksiyon sonrası 2. hafta ve 8. hafta Floresein anjiyografi (FA) ve Optik Koherens Tomografi (OCT) tetkikleri yapıldı. Kliniğimizde tek olguluk çalışmalar için Etik kurul raporu alınmamaktadır.

FA'da KNV'nin regresyonu gözlendi. Düzeltilmiş görme keskinliği 20/400'den 20/200'e yükseldi ve stabil kaldı. OCT bulguları enjeksiyondan 2 hafta sonra belirgin düzeldi ve bundan sonra stabil kaldı.

İntravitreal bevacizumab enjeksiyonu patolojik myopiye ikincil olarak gelişen KNV için etkin alternatif bir tedavi olabilir.

Anahtar Kelimeler: Bevacizumab; patolojik miyopi; İntravitreal enjeksiyon; koroidal neovaskülarizasyon.

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INTRODUCTION

Choroidal neovascularization (CNV) is a serious complication seen in 5-10% of myopic individuals with increased axial length.[1] Standard treatments for CNV related to pathologic myopia have included argon laser photocoagulation for extrafoveal lesions and photodynamic therapy (PDT) with verteporfin or surgery for subfoveal CNV. Intravitreal anti-vascular endothelial growth factor (VEGF) agents are increasingly employed to treat VEGF-mediated disease processes, most prominently neovascular age-related macular degeneration (ARMD.) Bevacizumab, a recombinant monoclonal antibody that binds all isoforms of VEGF-A, has shown effectiveness in treating CNV caused by pathologic myopia when injected intravenously.[2-3] Initial studies with intravitreal bevacizumab for ARMD have demonstrated both safety[4-6] and efficacy in inducing CNV regression and visual improvement.[5-6] Other reports of intravitreal bevacizumab for myopic CNV have shown benefits in higher doses[7] or with repeated injections and prior PDT8-10. We report a case of a single 1.25mg dose of intravitreal bevacizumab for the treatment of CNV due to pathologic myopia.

CASE REPORT

A 27 year-old Caucasian male with a history of pathologic myopia was referred with a one week history of blurred central vision in his left eye. His best- corrected visual acuity (BCVA) was 20/30 in the right eye and 20/400 in his left eye with eccentric fixation wearing rigid gas-permeable (RGP) contact lenses (-9.75 right eye, -10.25 left eye). Dilated fundus examination revealed a large horizontally oriented lacquer crack with associated CNV. OCT demonstrated marked focal retinal thickening >500 μm approximately 500 μm from the fovea. FA revealed leakage from the CNV membrane along nearly the entire lacquer crack.

Informed consent was obtained to proceed with intravitreal injection of bevacizumab following a detailed discussion regarding risks and benefits of the available therapeutic options. Due to the size and shape of the CNV, PDT would likely have been inadequate for treatment of the entire lesion. Argon laser photocoagulation would have been problematic, as well, due to lesion location and size. Our standard procedure for intravitreal injection was followed using a lid speculum, topical 4% lidocaine, topical 10% betadine, 3.5 mm post-limbal injection of 1.25 mg/0.05 cc bevacizumab, and topical moxifloxacin QID for 3 days.

Clinically, the patient reported significant improvement in visual acuity and subjective central scotoma size within several days. Snellen visual acuity improved from 20/400 with peripheral fixation to 20/200- at two weeks and 20/200 at 8 weeks. OCT data revealed dramatic improvement of retinal edema at two weeks post-injection that remained stable at 8 weeks (see figure 1). Total macular volume decreased from 7.72 mm^3 pre-injection to 6.36 mm^3 at two weeks and 6.13 mm^3 at 8 weeks. Six line scans were obtained for each of the three OCT tests. Follow-up FA and color fundus photos confir-

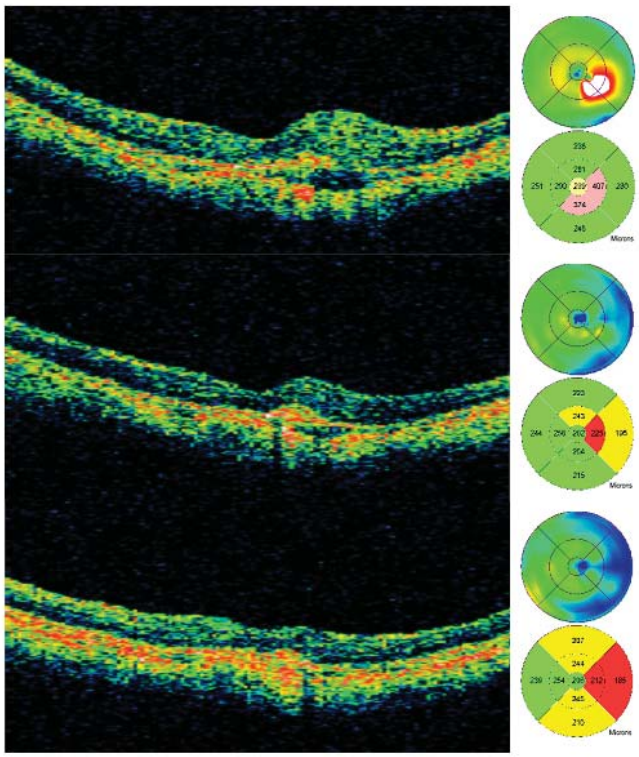

Figure 1: OCT line scans and corresponding macular thickness maps from initial visit (top), 2 weeks post-injection (middle), and 8 weeks post-injection (bottom).

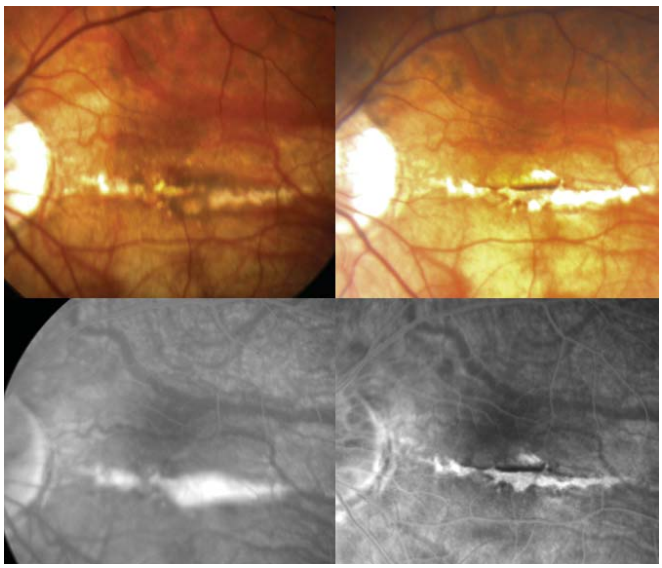

Figure 2: Fundus photographs from initial visit (top left) and 8 weeks post-injection (top right). Late phase FA from initial visit (5:15 minutes) (bottom left) and 8 weeks post-injection (2:32 minutes) (bottom right).

med regression of CNV without evidence of late fluorescein leakage (see figure 2). There was no evidence of inflammation or other complications during follow-up. However, these are short-term results, and the results in this single case may not apply generally.

DISCUSSION

Though the pathogenesis of CNV in degenerative myopia is incompletely understood, the rapid effect of intravitreal bevacizumab in this patient supports previous clinical evidence[2] suggesting a VEGF-mediated process. Intravitreal bevacizumab thus far appears to be well-tolerated and efficacious in the treatment of ARMD.[5-6] Further clinical study is warranted prior to first-line use of bevacizumab in patients with CNV from pathologic myopia, but this treatment appears promising.

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