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SHORT COMMUNICATION

Retinal pigment epithelial tears after intravitreal bevacizumab injection for predominantly classic choroidal neovascularization

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PURPOSE. *To detect retinal pigment epithelium (RPE) tears in predominantly classic choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD) treated with intravitreal bevacizumab injections.*
METHODS. *Forty consecutive patients with predominantly classic CNV secondary to AMD were treated with 1.25 mg of intravitreal bevacizumab. Patients were evaluated with visual acuity (VA) measured with Early Treatment Diabetic Retinopathy Study charts, optical coherence tomography, and fluorescein angiography.*
RESULTS. *Three patients developed a RPE tear after the first injection. The first patient had been treated with verteporfin therapy and VA remained unchanged. In the other two cases the CNV was naïve and VA improved since the foveal center was not involved by the tear and macular edema was reduced.*
CONCLUSIONS. *RPE tears can occur following intravitreal bevacizumab injections in patients with predominantly classic CNV although VA is not always affected. (Eur J Ophthalmol 2007; 17: 992-5)*

KEY WORDS. *Intravitreal bevacizumab, Retinal pigment epithelial tear, Predominantly classic choroidal neovascularization*

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INTRODUCTION

A tear or rip of the retinal pigment epithelium (RPE) may occur spontaneously or during laser photocoagulation or photodynamic therapy (PDT) of choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD) (1). Upon its occurrence, visual acuity (VA) may fall abruptly though preservation of good vision is also possible (2). It was thought that the incidence of this complication could be reduced with the introduction of antiangiogenic therapy. Nevertheless, it has been described with intravitreal triamcinolone combined with PDT and with pegaptanib injection (3, 4).
Intravitreal bevacizumab injections are used worldwide to treat neovascular AMD since favorable results have been reported. Recently, some cases of RPE tears have been described after intravitreal bevacizumab injections in occult lesions (5-8).
We report three cases of RPE tears after the first intravitreal bevacizumab injection in patients with predominantly classic lesions secondary to AMD.

METHODS

We treated 40 consecutive patients with predominantly classic CNV secondary to AMD with 1.25 mg of intravitreal bevacizumab after obtaining a compassionate use authorization. The patients were evaluated with VA measured with Early Treatment Diabetic Retinopathy

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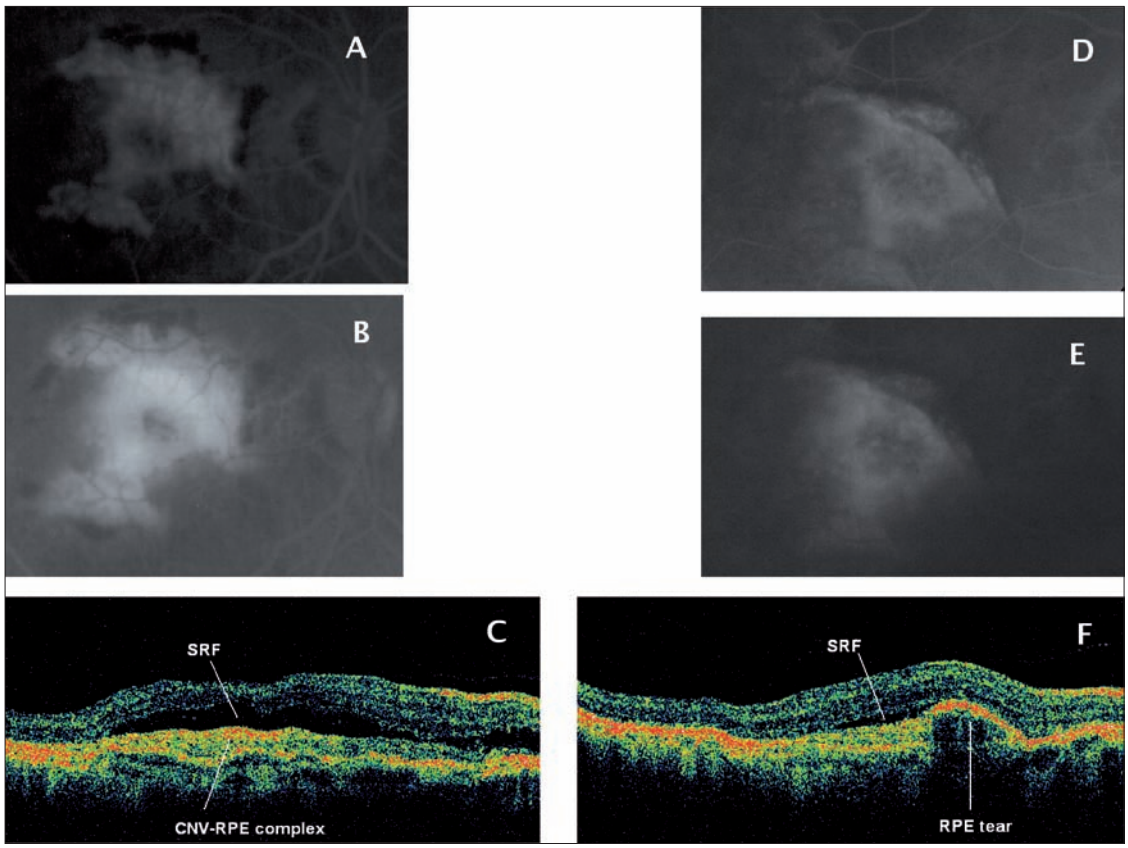

Fig. 1- (A-C) *Fluorescein angiography (FA) and optical coherence tomography (OCT) at baseline showing a subfoveal predominantly classic choroidal neovascularization (CNV) with subretinal fluid (SRF) and a highly reflective external band representing the CNV–retinal pigment epithelium (RPE) (horizontal scan).* **(D-F)** *At the 6-month follow-up, FA showed no CNV leakage. A retinal pigment epithelial tear with some residual subretinal fluid is observed in the OCT (horizontal scan).*

Study charts, optical coherence tomography (OCT), and fluorescein angiography (FA) and followed every 4 weeks.

RESULTS

After the first injection we detected three cases of RPE tears.

The first case was an 84-year-old man who had received a course of PDT with verteporfin to treat a subfoveal predominantly classic CNV in his right eye. Despite this, his VA declined from 20/100 to 20/320 and OCT showed extensive subretinal fluid. At this point, he was treated with an intravitreal bevacizumab injection. Four weeks later, the VA remained unchanged and OCT showed a RPE tear. As subretinal fluid was present the patient received a second injection. After this, the VA did not improve and OCT showed some residual subretinal fluid with no changes after a 6-month follow-up (Fig. 1).

The second case was a 75-year-old man with a naïve subfoveal predominantly classic CNV in his left eye. Verteporfin therapy was not considered since the fellow eye had been treated with PDT combined with intravitreal triamcinolone with no response 2 years ago. His VA was 20/800 in the right eye and 20/250 in the left eye. The OCT scan showed diffuse thickening with cystoid macular edema. He was treated with an intravitreal injection of bevacizumab. Four weeks later, the VA improved to 20/100. The OCT scan revealed a tear of the RPE. In spite of this, VA was better as the foveal center was not involved by the tear and angiographic leakage reduced. This patient received three additional intravitreal bevacizumab injections since macular edema was noted by OCT. At the 6-month follow-up, the macular edema was reduced but VA remained unchanged (20/100) (Fig. 2).

The third case was a 78-year-old man with a naïve subfoveal predominantly classic CNV in his right eye. After one injection of bevacizumab he developed a tear of the RPE, although his VA improved from 20/200 to 20/50 since the foveal center was not affected by the tear and macular edema was reduced. At the 6-month follow-up, the patient received another injection since VA declined to 20/80 and CNV leakage was detected on the angiogram (Fig. 3).

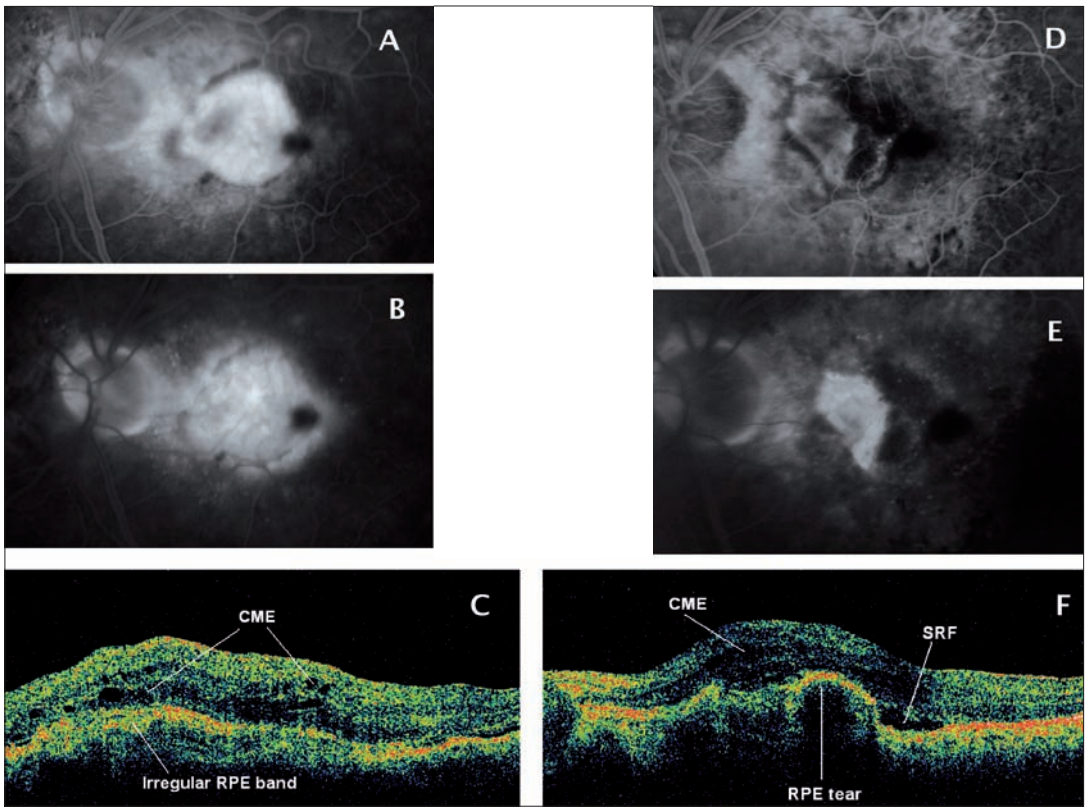

Fig. 2 - (A-C) *Fluorescein angiography (FA) and optical coherence tomography (OCT) at baseline showing a subfoveal predominantly classic CNV with diffuse macular thickening and cystoid edema with an irregular highly reflective external band (horizontal scan).* **(D-F)** *FA and OCT at the 6-month follow-up. A retinal pigment epithelial (RPE) tear is observed with some residual macular edema and subretinal fluid (SRF) (horizontal scan). CME = cystoid macular edema.*

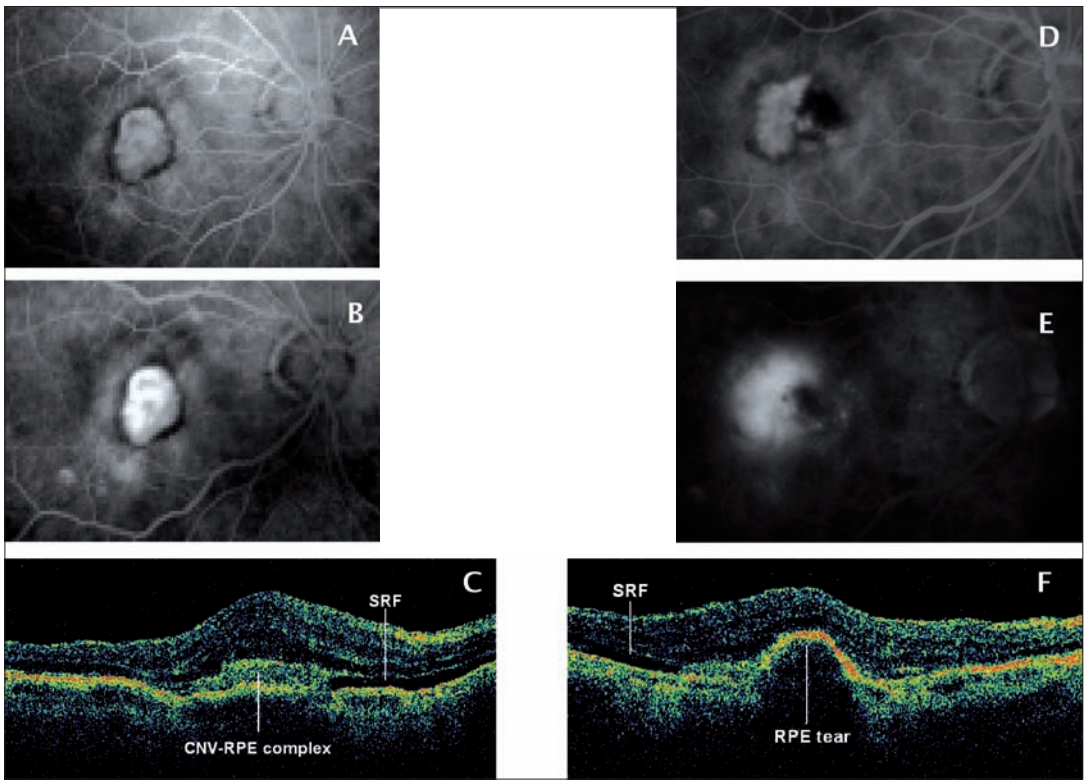

Fig. 3 - (A-C) *Fluorescein angiography (FA) and optical coherence tomography (OCT) at baseline showing a subfoveal predominantly classic choroidal neovascularization (CNV) with diffuse macular thickening and subretinal fluid (SRF) (horizontal scan).* **(D-F)** *At the 6-month follow-up, CNV leakage was detected on the angiogram. A retinal pigment epithelial (RPE) tear is observed with macular edema and subretinal fluid (horizontal scan).*

DISCUSSION

Tears of the RPE usually occur in the presence of a detached RPE. The combination of stresses acting at the level of the RPE may cause a rip, with the greatest stress at the curvature where the detached RPE meets the normal RPE monolayer. The detached monolayer of RPE scrolls left a denuded area of choroid exposed. Patients with occult CNV are assumed to have a higher risk for RPE tears, since occult CNV are frequently accompanied by a pigment epithelial detachment (5-8). Nevertheless, here we present three cases of RPE tears after an initial intravitreal bevacizumab injection in predominantly classic CNV. It should be noted that despite this complication VA can be improved if foveal center is not involved by the tear and macular edema is reduced by effect of the drug. In addition, an RPE tear is not a contraindication to receive more injections. In our patients, it is likely that the development of the RPE tears is directly related to the therapy rather than the natural course of the disease. However, we do not know whether this complication is due to the drug itself or to the route of administration (5). A CNV contraction after treatment may cause the RPE tears.

Before more data are available, caution should be advised when administering intravitreal bevacizumab in predominantly classic lesions secondary to AMD.

The authors have no financial or proprietary interest in any product mentioned in this article.

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