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**SHORT COMMUNICATION**

# Intravitreal triamcinolone in the treatment of serous pigment epithelial detachment and occult choroidal neovascularization secondary to age-related macular degeneration

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PURPOSE. *To report two cases of occult choroidal neovascularization (CNV) and serous pigment epithelial detachment (PED) treated with intravitreal triamcinolone (IVT) injections.*
METHODS. *Interventional case reports.*
RESULTS. *Both patients showed an increase in visual acuity and a complete flattening of the PED at 10 months (Case 1) and 4 months (Case 2) after IVT injections. No complications or adverse effects are reported.*
CONCLUSIONS. *Future studies should be designed to investigate if IVT can effectively influence the clinical and functional outcome of eyes with serous PED and occult CNV secondary to age-related macular degeneration, for which at the moment no treatment has been shown to be effective. (Eur J Ophthalmol 2005; 15: 415-9)*

KEY WORDS. *Triamcinolone, Occult CNV, Pigment epithelial detachment*

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## INTRODUCTION

Age-related macular degeneration (ARMD) is a degenerative disorder of the central area of the retina usually occurring bilaterally and often associated with visual impairment. It is the most common irreversible cause of severe loss of vision in the elderly population in Western countries (1). Clinically and histopathologically, it can be divided into the nonexudative form and the exudative form. Visual loss is usually more severe in the exudative form. The exudative stage of ARMD can be further subdivided according to the level of subfoveal neovascularization. Ocular photodynamic therapy with verteporfin has been demonstrated to reduce vision loss in patients with the classic or predominantly classic type of exudative ARMD (2). Despite its high importance for quality of life of the individual patient and its marked socioeconomic impact on the society, therapy of ARMD has remained unsatisfactory for many patients with occult subfoveal neovascularization. In this report we describe the outcome of two patients with a serous pigment epithelial detachment (PED) and occult choroidal neovascularization (CNV) treated by a single intravitreal triamcinolone (IVT) injection.

## Case reports

### *Case 1*

A 71-year-old woman presented with recent onset of blurred vision and metamorphopsia in her right eye. Visual acuity was 20/126 in the right and 20/20 in the left eye. In the right macula she had a serous PED associated with soft drusen and small lipid exudates. In the left macula, there were multiple paracentrally soft drusen. (Fig. 1). Final diagnosis was occult CNV with an associated serous retinal PED. The patient underwent IVT injection (about 20 to 25 mg) in the right eye according to Jonas et al (3). On day 1 postinjection there were no complications, intraocu-


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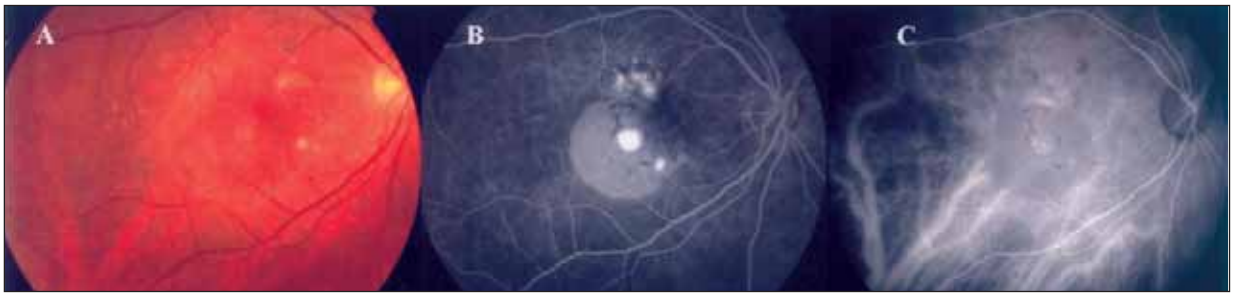


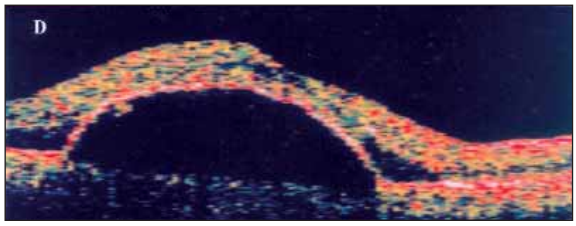
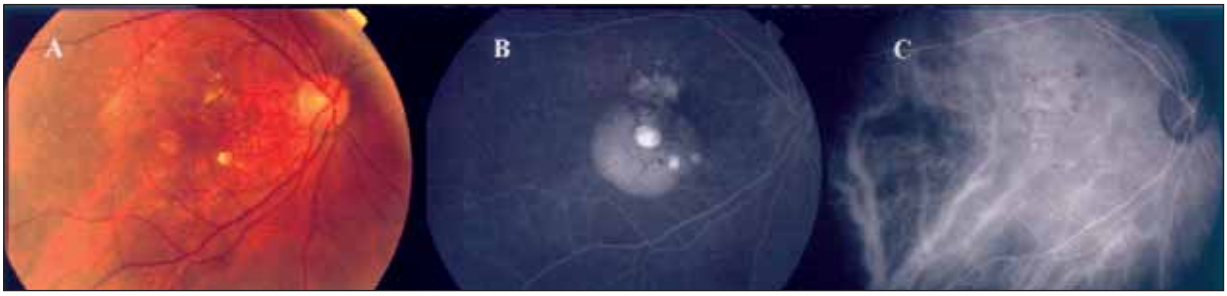




**Fig. 1 -** *Case 1, before IVT. Fundus examination of the right macula revealed soft drusen and a PED* **(A)***; FA showed the outline of a well demarcated serous PED with ill-defined leakage superiorly and a area of RPE atrophy located centrally to the PED* **(B)***; ICGA showed a well delineated hypofluorescence corresponding to the serous PED with a hot spot and a neovascular plaque* **(C)***. OCT showed a dome-shaped elevation of the highly reflective external band with low reflectivity underlying this band consistent with a serous PED. A small amount of subretinal fluid was present surrounding the PED* **(D)**. (Courtesy L. Borgia, MD)



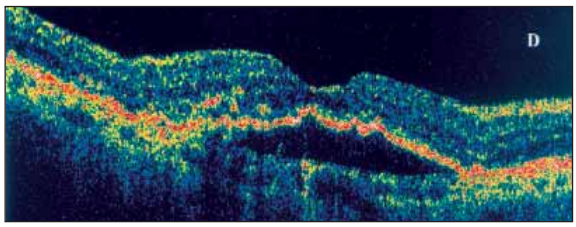
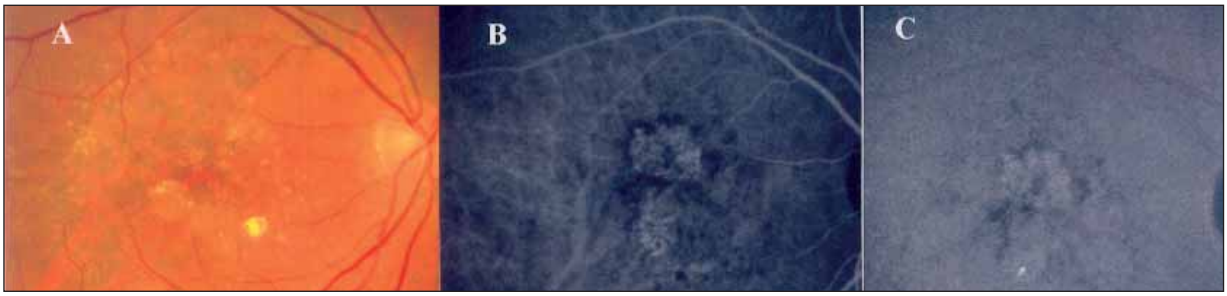




**Fig. 2 -** *Case 1, one month after IVT. Fundus examination* **(A)** *and FA* **(B)** *showed slight modifications of the PED and leakage superiorly to the PED. ICGA showed a less intense hypofluorescence of the PED with a decrease in the fluorescence of the hot spot* **(C)***. OCT showed a significant reduction of the dome-shaped of the PED and reabsorption of the subretinal fluid surrounding the PED* **(D)***.



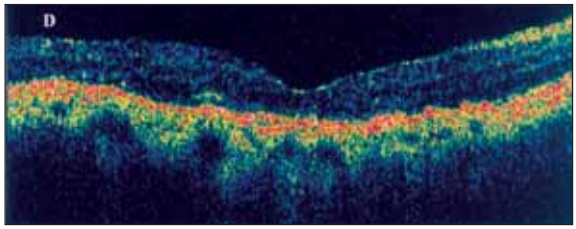




**Fig. 3 -** *Case 1, ten months after IVT. Fundus examination* **(A)***, FA* **(B)***, ICGA* **(C)** *and OCT* **(D)** *showed the complete re-attachment of the RPE. On FA and ICGA persisted a neovascular plaque.*

lar pressure was 18 mm Hg, and the eye was quiet. One month after IVT visual acuity was 20/50 with no metamophopsia. On fluorescein angiography, PED was still present although on indocyanine green angiography and OCT, it was less hypofluorescent and dome-shaped, respectively. There was a slight reduction of the leakage from the occult CNV (Fig. 2). Three months after IVT the PED was completely flat and visual acuity was 20/40 with complete regression of the metamorphosia (Fig. 3). At the last follow-up visit, 10 months after IVT, visual acuity is still 20/40 with no recurrence of the PED.

### *Case 2*

A 74-year-old woman presented with recent onset of metamorphopsia in her left eye. Visual acuity was 20/64 in the right and 20/40 in the left eye. In the right macula a retinal angiomatous proliferation was previously diagnosed and treated with IVT followed by photodynamic therapy with verteporfin (data not shown). In the left macula she had a serous PED and small lipid exudates which did not involve the fovea region directly (Fig. 4). Final diagnosis was occult CNV with an associated serous retinal PED. The patient underwent IVT injection (about 20 to -25 mg) in the left eye according to Jonas et al (3). On day 1 postinjection there were no complications, intraocular pressure was 16 mm Hg, and the eye was quiet. One month after IVT visual acuity was 20/32 with no metamophopsia (Fig. 5). Four months after IVT visual acuity was still 20/32 and there was a complete flattening of the PED (Fig. 6).

## DISCUSSION

Treatment of exudative ARMD with occult CNV and a serous PED has been inconclusive so far. In contrast to the classic type of subfoveal neovascularization, for which photodynamic therapy with verteporfin has been shown to significantly reduce the risk of visual acuity loss, photodynamic therapy has been less successful as treatment of the occult type of subfoveal neovascularization, particularly when there was an associated serous PED (4). In this report we describe the outcome of two patients with a serous PED and occult CNV treated by a single IVT injection. IVT has been used for the treatment of exudative ARMD with an apparent beneficial effect. Jonas et al (3) reported that an IVT injection of 25 mg is useful in stabilizing or temporarily improving visual acuity in occult CNV secondary to ARMD. However, a reinjection was needed in a significant proportion of patients 3 to 5 months after the first injection. Treated patients appeared to have a favorable effect on visual acuity and the fundus appearance, although a significant proportion of patients still lost vision. Gillies et al (5) reported a randomized trial showing no effect in stabilization or improvement of vision in treated patients with predominantly classic CNV using an IVT injection of 4 mg. Recently, Spaide et al (6) showed that combination therapy of PDT using verteporfin along with IVT injection of 4 mg in predominantly classic CNV secondary to ARMD offers the possibility of a reduced number of repeat treatments and improvement of visual acuity as compared with PDT using verteporfin alone. In our cases, IVT was able to reduce fluorescein leakage slightly and more importantly to flatten the PED with a significant improvement of visual acuity and regression of associated symptoms. We decided not to perform PDT because of the risk of inducing retinal piment epithelium tear, causing a sudden decrease of vision. As a matter of fact, acute retinal piment epithelium tears may occur as a natural complication of CNV associated with PED, or after laser treatment, because of contraction of the underlying CNV or the pressure caused by the sub-retinal piment epithelium fluid on the taut serous PED (4). Based only on these two case reports we are not able to fully understand why triamcinolone induced the PED to flatten. The natural course of this disease can also lead to a spontaneous recovery (7), so it may not be that the outcome as described in the study was only due to IVT. We can speculate that corticosteroids have an antiangiogenic effect, and have antiinflammatory properties as well. The anti-inflammatory effect is manifested not only against cellular mediators of inflammation, but also in the expression of cell surface markers, secretion of proinflammatory and angiogenic cytokines, and stabilization of cell membranes and tight junctions (7, 8). In particular, corticosteroids can modulate the production of and reduce the permeability increases induced by vascular endothelial growth factor (8, 9). These secondary effects may be a consequence of triamcinolone persisting in the vitreous cavity (10), which would not be expected to occur from PDT using verteporfin alone, which has a short-term effect. Future studies should be designed to investigate whether IVT can effectively influence the clinical and functional outcome of eyes with serous PED and occult CNV secondary to ARMD, for which no treatment has proven effective.

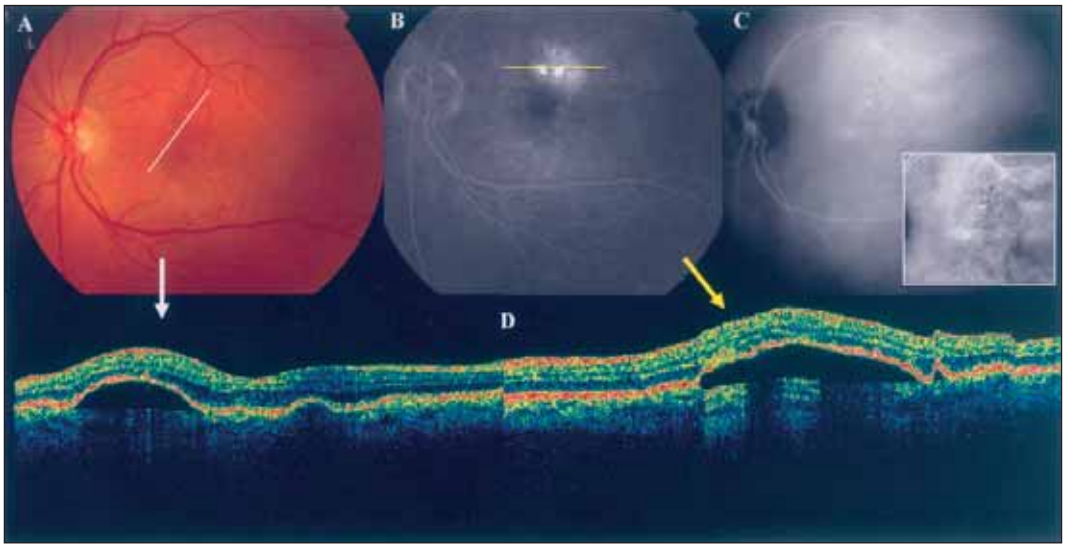



**Fig. 4 -** *Case 2, before intravitreal triamcinolone.* **(A)** *Fundus examination of the left macula revealed pigment epithelial detachment (PED) and small lipid exudates;* **(B)** *fluorescein angiography showed pooling of the dye under the retinal pigment epithelium with a central area of pigment epithelial atrophy;* **(C)** *indocyanine green angiography revaled a hot spot within the PED, best seen in the insert.* **(D)** *Optical coherence tomography findings confirmed the dome-shaped elevation of retinal pigment epithelium.*

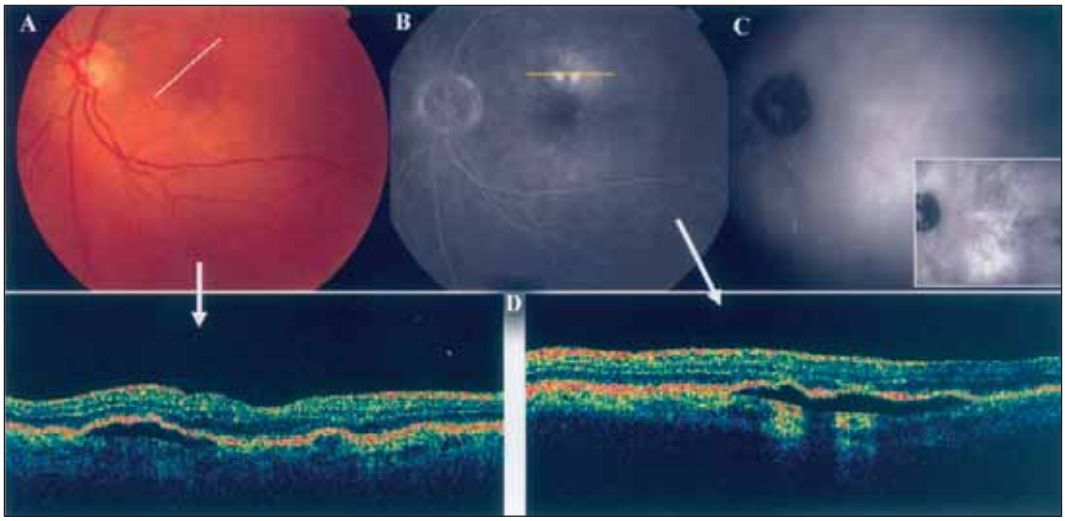



**Fig. 5 -** *Case 2, one month after IVT* **(A)**. *FA was unmodified* **(B)**; *On ICGA hot spot was obliterated* **(C)**; *OCT showed a significant reduction of the PED* **(D)**.

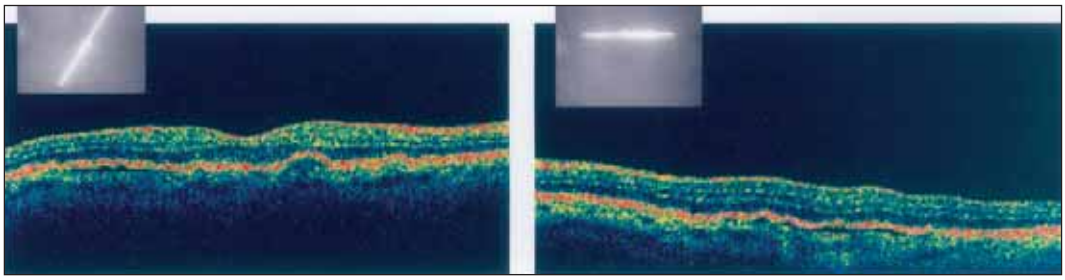


**Fig. 6 -** *Case 2, four months after IVT. OCT showed the complete flattening of the PED.*

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