

SHORT COMMUNICATION

Retinal angiomatous proliferation reactivation 6 months after high-dose intravitreal acetone triamcinolone and photodynamic therapy

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PURPOSE. To describe the incidence of retinal angiomatous proliferation (RAP) reactivation after combined treatment with a high-dose intravitreal triamcinolone acetone (IVTA) and photodynamic therapy (PDT) at 1-year follow-up.

METHODS. All patients had undergone a full ophthalmic examination. High-dose IVTA (20 mg) was injected via pars plana. Four to 7 days later, PDT was delivered.

RESULTS. Fourteen eyes of 13 patients were included. Eight lesions (57%) reopened and needed retreatment with combined therapy at 6 months follow-up. At 1-year follow up, the lesion was obliterated in nine cases (64.2%) and best-corrected visual acuity improved from 0.87 logMar (range, 0.7–1) to 0.79 logMar (range, 0.5–1).

CONCLUSIONS. Combined therapy using high-dose IVTA and PDT is beneficial in stabilizing RAP. However, a high incidence of RAP reactivation has been observed at 6 months, even with a high-dose IVTA injection. (*Eur J Ophthalmol* 2007; 17: 979-82)

KEY WORDS. Photodynamic therapy, High-dose intravitreal triamcinolone, Retinal angiomatous proliferation

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INTRODUCTION

Retinal angiomatous proliferation (RAP) was described as an aggressive vascular lesion originating from the deep layers of the neurosensory retina and growing vertically towards the choroid (1). Therapeutic approaches include photodynamic therapy (PDT) combined with 4 mg intravitreal triamcinolone acetone (IVTA) injection with contradictory results (2, 3), due to a high incidence of reactivation of the lesion in follow-up. A recent study demonstrated the efficacy of high-dose (20 mg instead of 4 mg) IVTA in choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD) (4).

The purpose of our study is to describe the incidence of RAP reactivation after combined high-dose IVTA injection and PDT.

METHODS

In this prospective, interventional case series, patients diagnosed with RAP stage I and II were recruited. All patients had undergone a full ophthalmic examination including best-corrected visual acuity (BCVA) with ET-DRS charts, indocyanine green (ICG) angiography, and optical coherence tomography (OCT).

High-dose IVTA (20 mg) was injected via pars plana, using a 27-gauge inside the operation theater. Triamcinolone was obtained by prolonged suspension and slow elimination of the supernatant vehicle as described by other authors (4). Four to 7 days later, a PDT session (Visudyne, Novartis AG, Bülach, Switzerland) was delivered.

Patients were examined every 3 months after the first visit. If the lesion remained active as demonstrated by vas-

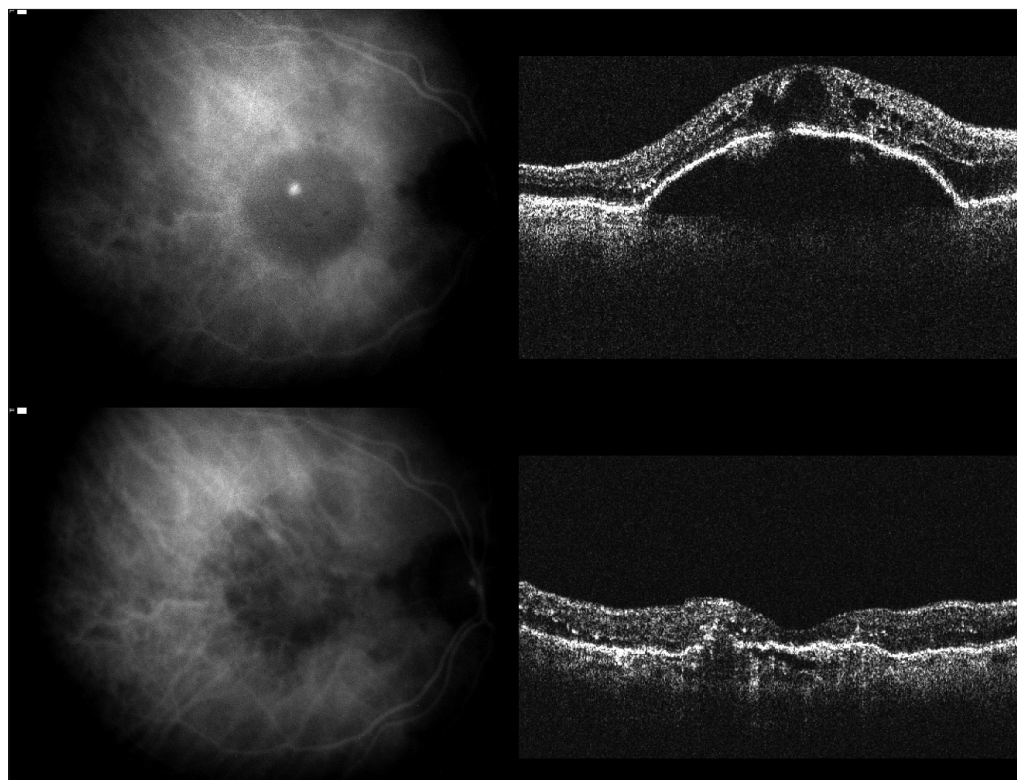


Fig. 1 - Case 1 treated with high-dose intravitreal triamcinolone acetonide (IVTA) and photodynamic therapy (PDT). **(Top left)** Late phase of indocyanine green (ICG) angiography that shows hot spot corresponding to a retinal angioma. **(Top right)** Optical coherence tomography of the same patient at baseline: it shows intraretinal edema and serous pigment epithelium detachment (PED). **(Bottom left)** Three months after high-dose IVTA and PDT there is no leakage on ICG angiography. **(Bottom right)** Disappearance of intraretinal fluid and PED 3 months after combined therapy.

cular leakage on ICG, intraretinal edema, or neurosensory retinal detachment on OCT, patients continued to receive treatment according to the original scheme.

The objective of the study was to determine the incidence of RAP reactivation between initial and final visits over a 1-year follow-up.

RESULTS

Fourteen eyes of 13 patients (7 female/6 male) treated with high-dose IVTA and PDT were included in the study.

At 1-year follow up, the lesion was completely obliterated in nine cases (64.2%). The majority of lesions (Fig. 1) were obliterated at the third month follow-up (78.5%, 11/14 eyes). Eight lesions (57%) reopened and needed retreatment with combined therapy at 6 months follow-up (Fig. 2). Six of eight (75%) of the retreated eyes maintained RAP regression at 1-year follow-up. The mean number of treatment sessions delivered was 1.57 (range, 1–2).

No anatomic differences were found between pa-

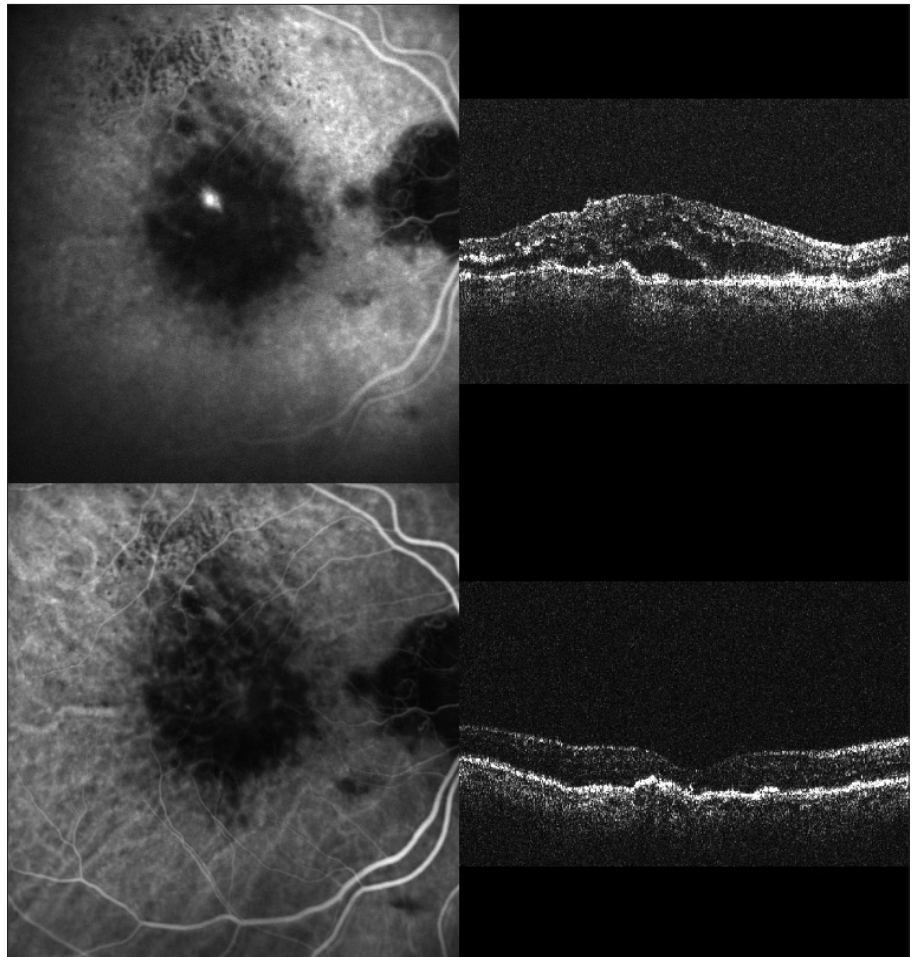
tients who responded to a single treatment and those who required two treatment sessions.

In this series, BCVA improved from an initial value of 0.87 logMar (range, 0.7–1) to a final value of 0.79 logMar (range, 0.5–1). The main increase in BCVA occurred in the third month ($p=0.01$). Later on, a mild drop in the BCVA was detected in the sixth month (BCVA 0.78, $p=0.16$), and in the assessment made at the 12th month where the recorded BCVA was 0.79 ($p=0.195$).

DISCUSSION

The use of a high or low dose of IVTA in RAP remains controversial. Our series has employed a high dose of TA (almost 20 mg). In accordance with Ruiz-Moreno et al (4), we believe that this dose could be more durable in terms of therapeutic effect than a dose of 4 mg. The results of the study suggest that combined therapy using high-dose IVTA and PDT could be beneficial in terms of obliteration of the lesion, with 64.2% (9 of 14) of the lesions completely obliterated at 1-year follow-up. In the study group, the majority of patients (11

Fig. 2 - Case 1. (Top left) Six months after combined therapy again showing leakage on the indocyanine green (ICG) angiography. **(Top right)** On optical coherence tomography (OCT), intraretinal edema. **(Bottom left)** Six months after the second high-dose intravitreal triamcinolone acetonide (IVTA) and photodynamic therapy (PDT) therapy, ICG shows no leakage of fluid. **(Bottom right)** Six months after the second combined treatment there is no intraretinal or subretinal fluid on the OCT.



eyes of 14, 78.6%) maintained or gained VA over 1-year follow-up. This effect has been especially significant in the third month section. These features are similar to those of other studies regarding combined PDT and low-dose IVTA in RAP that also demonstrated best results at third month following treatment (2). Meyerle et al (5) have observed good visual and anatomic results using bevacizumab, although in their series, the follow-up period was shorter. Although the use of a high-dose IVTA is supposed to be a more effective treatment, in terms of duration of the effect, a high percentage of patients (57%) had reactivation of the lesion at 6 months. This finding would be justified by a disappearance of the effect of IVTA, even in high dose, due to its complete clearance, as been described by other authors (6).

A strong correlation between anatomic and visual results has been found. The best visual results were observed in the third month, with a high incidence of

obliterated lesions at that time. Similarly, a mild worsening at 6 months was coincidental with a high incidence of reactivation of the lesion.

In summary, combined therapy using high-dose IVTA and PDT is beneficial in stabilizing visual acuity in patients with RAP. However, a high incidence of RAP reactivation has been observed at 6 months, even with a high-dose IVTA injection.

No author has a financial interest.

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