

SHORT COMMUNICATION

Photodynamic therapy outcomes in a case of macular choroidal neovascularization secondary to *Candida* endophthalmitis

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PURPOSE. To evaluate the effects on visual function and choroidal neovascularization (CNV) progression in a case of subretinal CNV due to *Candida* endophthalmitis treated with a combination of photodynamic therapy (PDT) and drugs.

METHODS. A 28-year-old one-eyed woman with CNV in the right eye came to our observation. The CNV developed as a consequence of *Candida* endophthalmitis. The CNV was treated with six PDT treatments with verteporfin in association with systemic steroid therapy with prednisone (100 mg/day to reduce) and fluconazole (800 mg/day to reduce). Visual acuity (VA) was assessed in pre-PDT conditions and after six PDT treatments (24 months of follow-up).

RESULTS. Pre-PDT VA was 20/125; after 24 months of follow-up, six PDT re-treatments, and pharmacologic therapy, VA was stabilized at 20/100.

CONCLUSIONS. In our case, associated PDT and drug therapies were safe and useful to maintain VA and to arrest CNV progression in the foveal region after 2 years of follow-up. (*Eur J Ophthalmol* 2007; 17: 124-7)

KEY WORDS. *Candida albicans*, Choroidal neovascularization, Photodynamic therapy

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INTRODUCTION

Haematogenous dissemination of *Candida albicans* to the eye may lead to the onset of a choroiditis and/or a retinitis which may spread to the vitreous and cause endophthalmitis (1). Predisposing conditions for the development of disseminated candidemia are the use of intravenously administered drugs, organ transplantation, long long-term wide-spectrum antibiotic administration, immunosuppression, implantation of cardiac valvular prostheses, and surgically induced abortion and birth (2-4).

Ocular manifestations of *Candida* include non-specific fundus lesions, *Candida* chorioretinitis, and *Candida* endophthalmitis (1). Colonies of *Candida* may be found in

the potential space between the retinal pigment epithelium and Bruch's membrane (2).

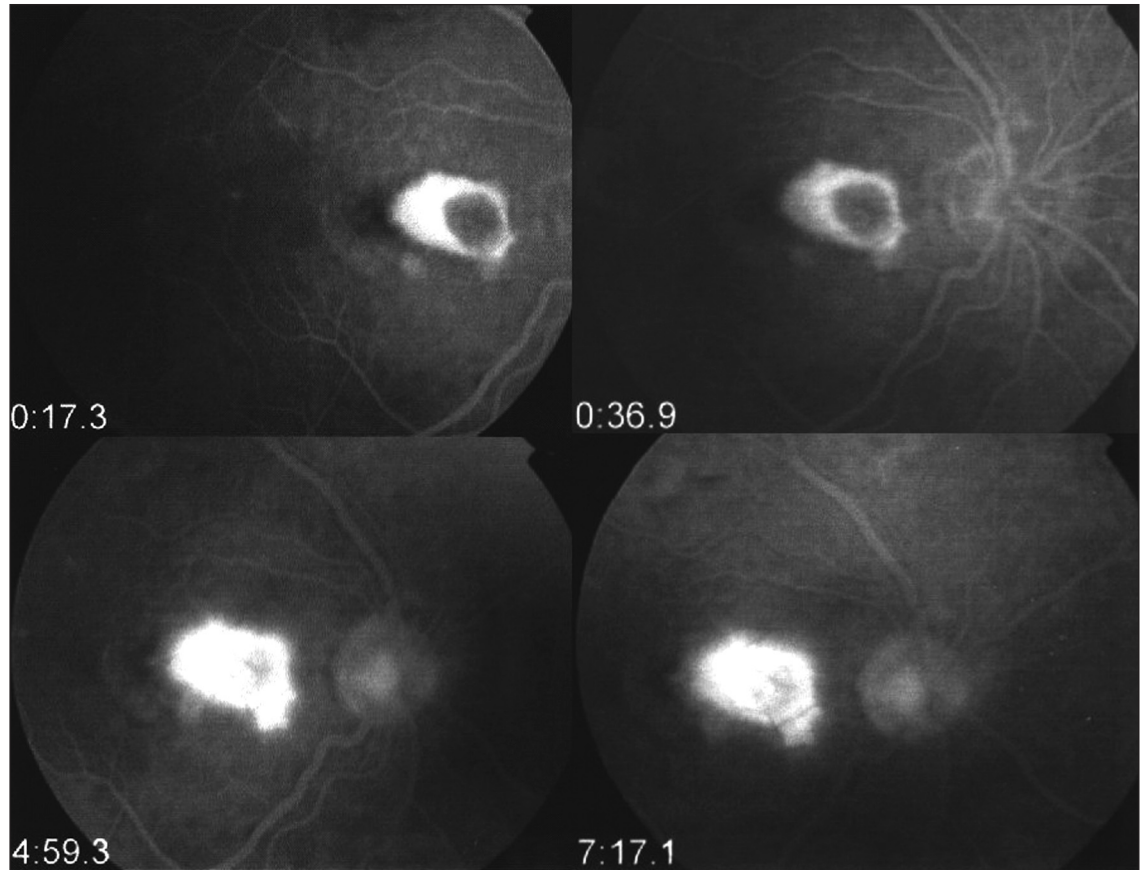
Clinically, patients may present visual blurring, mild pain, photophobia, and conjunctival hyperaemia.

The standard therapeutic approach involves the use of anti-inflammatory medications, systemic antimycotic agents, laser therapy, and surgery (3).

An important possible complication of *Candida* endophthalmitis is the development of Choroidal choroidal Neovascularization neovascularization (CNV) with consequent high risk of severe visual loss (5, 6).

In the presence of CNV due to ocular *Candida* endophthalmitis, observation, laser photocoagulation, and/or surgical excision of the neovascular complex may be possible and helpful, but all these therapeutic approaches are

Fig. 1 - Fluorescein angiography performed in a case of macular choroidal neovascularization due to *Candida albicans* three 3 months after our first observation. A choroidal neovascular membrane may be observed, characterized by intense staining and late leakage, localized in the interpapillo-macular region up to the edge of the fovea. Visual acuity was 20/125.



only applicable in selected cases (5, 6).

Since it is known that photodynamic therapy (PDT) is able to reduce visual loss in different types of CNV (7, 8), we report a case evaluating the effects of PDT associated to with antimycotic and steroidal agents in a CNV due to *Candida albicans*. At present there are no other such cases reported in the literature.

Case report

A 28-year-old Caucasian woman came to our observation with a history of gestosis secondary to therapeutic abortion and subsequent catheterisation catheterization of the jugular vein, complicated with disseminated *Candidemia candidemia* (positive blood culture for *Candida Albicansalbicans*) and bilateral ocular endophthalmitis; this lead to a complicated retinal detachment in the left eye and, consequently, its enucleation. These events occurred three 3 months before our visit.

During our first observation, the patient described her symptoms as a progressive decrease in vision, metamor-

phopsia, and floaters in the right eye. Best Best-corrected visual acuity (BCVA) was 20/32.

Three months later, BCVA worsened from 20/32 to 20/125. Fluorescein angiography was performed and a Macularmacular- CNV (M-CNV) was detected; fluoroangiographic features were characterized by intense staining and late leakage, localized in the interpapillo-macular region up to the edge of the fovea (Fig. 1). Thus, the presence of a M-CVN lead us to perform a standard PDT with Verteporfin verteporfin (7) in association to with systemic drug therapy with Fluconazole fluconazole 800 mg/day to reduce and Prednisone prednisone 100 mg/day to reduce during over a period of two 2 months.

One month after the first PDT, metamorphopsia decreased and BCVA improved to 20/50. Fluorescein angiography showed resolution of leakage and a reduction of the size of the lesion.

During the following 24 months there were six relapses of M-CNV all followed by PDT re-treatments. Associated systemic treatments were repeated four times, once every six 6 months.

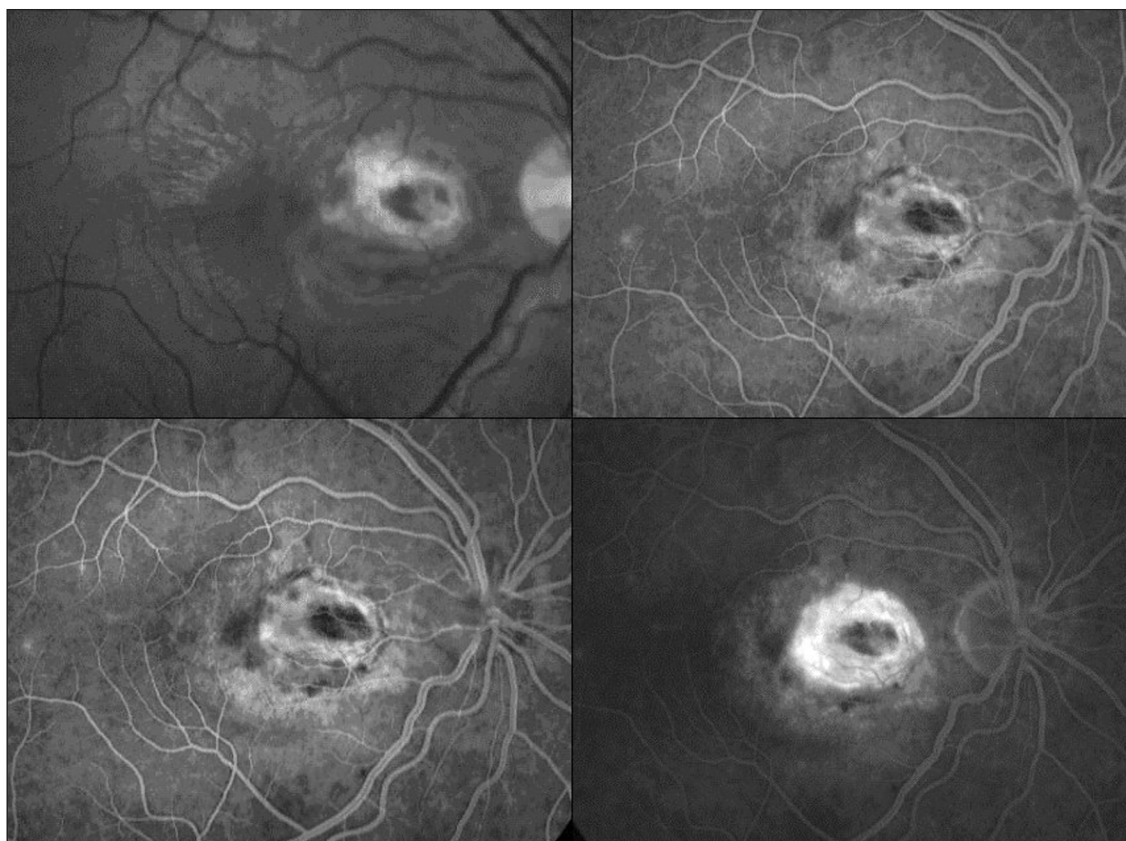


Fig. 2 - Fluorescein angiography performed after 24 months. The patient had been subjected to 6 six photodynamic therapy PDT treatments associated to with anti-mycotic and steroidal drugs repeated every six 6 months. An increase in the dimensions of the lesion, with respect to the previous fluorescein angiography, may be observed, with persistent poor leakage and several small haemorrhages along the inferior edge. Notwithstanding the lack of significant changes with respect to the fluorescein angiography performed 24 months before; , final visual acuity VA was 20/100.

After 24 months, the patient's Best Correct Visual Acuity (BCVA) was stabilized at 20/100, without metamorphopsia and in the presence of acceptable psychological conditions. The last fluorescein angiography, presented in Figure 2, showed a mild progression of the lesion with prevalent staining and poor leakage. During the entire period of observation no local or systemic side effects were observed.

DISCUSSION

In our case we observed that, in the presence of CNV due to *Candida albicans* infections, the combination of PDT with systemic drugs may at least induce a stable visual acuity. This was observed after 24 months from the first PDT treatment. The novel finding reported in our case- study is the possibility of combining the effects of systemic treatment by fluconazole plus prednisone with repeated PDT treatments.

Fluconazole acts by inhibiting the biosynthesis of ergosterol, the major sterol in the mycotic plasma membrane (9), while prednisone acts by opposing the non-specific

inflammatory process (10); their combined administration may reduce the damaging effects of *Candida albicans* on the ocular structures. In addition, the effects of PDT treatment in reducing CNV are extensively reported in previous works (7, 8).

The results obtained in our case could suggest that when a M-CNV develops as a consequence of disseminated Candidemia, this disease may be approached by concomitant systemic drugs (antimycotic agents and steroids) and localized repeated macular PDT treatments. That concomitant treatment with PDT and steroids may have therapeutic effects in CNV can be derived from a recent study reporting an increase in VA in patients affected bywith CNV and subjected to combined PDT and intravitreal triamcinolone treatments (11).

Combined treatment resulted in the relative stabilization of the M-CNV and in a satisfying recovery of visual acuity. However, a follow-up period longer than 24 months may be necessary to assess the long-term persistence of the obtained clinical results.

Conflict of interest statements: None declared.

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