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Case Report

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Efficacy of Combined Intravitreal Bevacizumab and Periocular Triamcinolone in Peripapillary Choroidal Neovascular Membrane Secondary to Sarcoidosis

Samir Aziz Mahmood*

Department of Ophthalmology, Watford General Hospital, Watford WD18 0HB, UK

***Corresponding Author:** Samir Aziz Mahmood, MBChB, CAB Ophth, MD, FRCS, DCRS, Consultant Ophthalmologist, Watford General Hospital, Watford, WD18 0HB, UK, Tel: 0044 789 166 5271, E-mail: samiraziz@doctors.org.uk

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Abstract

Peripapillary choroidal neovascular membrane (CNVM) occurs rarely in patients with sarcoidosis, but can be vision threatening when it involves peripapillary locations. Several treatment modalities for sarcoid-related peripapillary CNVM have been reported. These include systemic, oral and periocular steroids, argon laser photocoagulation and intravitreal anti-vascular endothelial growth factor (VEGF) agents. We report herewith, a case of proven sarcoidosis that developed unilateral localized peripapillary CNVM and subretinal haemorrhage. The patient was treated with a combination of intravitreal bevacizumab (IVB) and orbital floor injection of triamcinolone acetonide (TA). He demonstrated progressive regression of the CNVM and complete resolution of the subretinal hemorrhage with no recurrence for five years. In conclusion, the combination of IVB and TA is considered as a treatment option for unilateral peripapillary CNVM secondary to sarcoidosis in patients not tolerating oral steroids.

Keywords: *Preipapillary; Inflammatory; Choroidal Neovascualr Membrane; Ocular Sarcoidosis; Bevacizumab; Triamcinolone Acetonide*

Introduction

Sarcoidosis is a multi-organ disorder of unknown aetiology characterized by non-caseating granulomas. This disease has been reported to be the most common of confirmed aetiologies among all categories of uveitis [1].

Choroidal neovascular membrane occurs rarely in patients with sarcoidosis, but can be vision threatening when it involves peripapillary locations. Several treatment modalities for sarcoid-related peripapillary CNVM have been reported. These include systemic oral steroids [2], argon laser photocoagulation and intravitreal anti-vascular endothelial growth factor (anti-VEGF) agents [3,4].

We report a patient with sarcoid peripapillary CNVM that responded well, when treated twice with combined periocular triamcinolone acetonide (TA) and intravitreal bevacizumab (IVB) injections.

Case Report

A 44 year old gentleman was referred to the uveitis clinic as a case of left acute anterior uveitis. There was no history of previous ocular problems. His best corrected visual acuity was 6/5 in the right and 6/6 in the left. There was no relative pupillary defect and his colour vision was normal.

Ocular examination revealed left keratic precipitates, anterior chamber inflammatory cells (+1), vitreous inflammatory cells (+1), snowballs and sarcoid granulomas on fundal examination. Chest X-ray examination showed bilateral hilar paracentral lymphadenopathy and ill-defined opacities of both lungs. His angiotensin-converting enzyme was 72 Units/ml/min (normal range 12-68). His lung function was normal. A respiratory physician diagnosed pulmonary sarcoidosis on clinical grounds and investigation. Other causes of uveitis were excluded. He responded well to topical steroids.

Eighteen months post presentation; he developed peripapillary left CNVM (Figure 1a). Fundus fluorescein angiography showed signs of left peripapillary CNVM (Figure 1b,c). Indocyanine green showed no evidence of choroidal pathology (Figure 1d). Optical coherence tomography revealed left peripapillary increase in the thickness of retinal layers (Figure 1e).

He was commenced on 60 mg daily of oral prednisolone, which was tapered over 3 months, however his CNVM was getting worse in spite of oral steroids.

We started to think of an alternative treatment to treat his CNVM, which was now approaching the fovea. Accordingly, the patient had been treated with two injections of intravitreal bevacizumab [1.25 mg/0.05 ml prepared from a vial commercially available for intravitreal use (Avastin)] at zero and 6-week interval combined with orbital floor injection of 40 mg of Triamcinolone acetonide ("kenalog"). The treatment led to a regression of the CNVM with stability of visual acuity. No further therapy was needed during five years of follow-up. Fortunately, there was no recurrence of the CNVM in his left eye (Figure 1f).

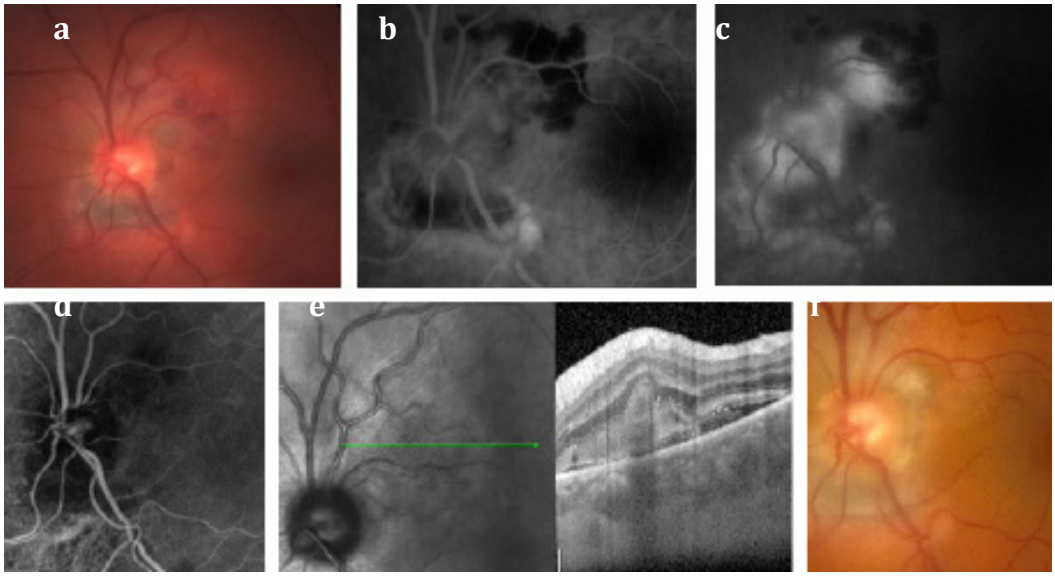

Figure 1: (a) Colour fundus photograph showed peripapillary greyish area of choroidal neovascular membrane (CNV) associated with subretinal haemorrhage. (b) Early and late (c) fundus fluorescein angiography demonstrated early staining and late peripapillary leakage compatible with CNV. (d) Indocyanine green angiography showed no evidence of polypoidal choroidopathy. (e) Spectral domain optical coherence tomography reveals thickening of retinal layers due to CNV. (f) Colour fundus photograph showed resolution of retinal haemorrhage and regression of CNV.

Discussion

In this report, we discuss our experience in treating peripapillary CNVM secondary to sarcoidosis. Ocular lesions are common among patients with sarcoidosis. Choroidal neovascular membrane occurs rarely in patients with sarcoidosis, but can be vision-threatening when it involves peripapillary locations. Peripapillary CNVM is clinically characterized by the presence of a CNVM adjacent to the disc, which may lead to sub retinal haemorrhage, fluid, or exudates [2].

The natural history of this type of CNVM is variable, since they can remain stable or produce severe central visual loss if the membrane extends to the macula, or through exudation and haemorrhage [5].

In some instances, this type of CNVM can be watched because of the asymptomatic nature, and treatment should be considered when the macula is threatened as in this case. Treatments include steroid mono therapy, given either via the oral, intraocular or periocular route. Corticosteroids work because they induce regression of the inflammation in the posterior pole by down regulation of many cytokines and inhibit the proliferation of vascular endothelial cells with promising results [5]. In the pre- anti- VEGF era, adjunctive treatment options include sub retinal surgical excision, photodynamic therapy, or even laser photocoagulation (for extra and juxtafoveal membranes). However these options generally result in scaring and poor visual outcomes [6].

In this case, the patient continued using oral steroids for three months without any obvious response. The patient was unable to tolerate oral steroids for longer due to mood liability and behavioral disturbances, moreover there was progression of CNVM towards the fovea. For those reasons, we felt that we need a rescue treatment to halt its progression.

The use of bevacizumab had emerged as a significant therapeutic option in a patient with sarcoidosis-related posterior uveitis complicated by CNVM [4].

However, the information regarding the efficacy of anti-VEGF on CNVM was based on case reports and small case series that used either bevacizumab or ranibizumab for CNVM of various aetiologies (including sarcoidosis). Generally the inflammatory CNVM (type 2) responded well to a mean number of 1.3 bevacizumab injections due to the concept of good function of retinal pigment epithelium as compared with type 1 CNVM, as they need more frequent injections [7]. Corticosteroids and anti VEGF could possibly potentiate each other in switching off the VEGF drive. In addition, could the inflammatory drive wax and wane with sarcoidosis hence the good and sustained response. Successful management involves both control of intraocular inflammation and regression of the inflammatory neovascular membrane.

Long-term anti-inflammatory cover is not required as the patient is systematically stable and have only unilateral localised ocular lesion. It is difficult to predict future reactivation of inflammatory CNVM. Overall the results suggested a possible beneficial effect of anti-VEGF on CNVM, but the long-term effect of the treatment is still uncertain [3].

Elevated VEGF had been implicated in systemic sarcoidosis [8]. A recent report with a short-term follow-up reported a significant therapeutic response to bevacizumab in a patient with sarcoid-related posterior uveitis complicated by CNVM [4].

We report herewith, a case of peripapillary CNVM in a patient with sarcoidosis, which showed regression after combination of bevacizumab and triamcinolone and stabilization of his visual acuity. No further therapy was needed for five years follow-up. Fortunately, there was no recurrence of the CNVM in his eye.

This case report highlights the combination of bevacizumab and triamcinolone is a treatment option for unilateral peripapillary CNV secondary to sarcoidosis when oral steroids are contraindicated or not tolerated. Further trials possibly multicentric, randomized and controlled are required.

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