CASE REPORT

Ranibizumab in choroidal neovascularisation associated with ocular sarcoidosis

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SUMMARY

An 81-year-old Caucasian man with a history of chronic bilateral panuveitis associated with sarcoidosis presented with visual acuity 1.0 LogMAR in the right and 0.5 LogMAR in the left eye. Following fluorescein angiogram bilateral choroidal neovascular membrane was established. Treatment was initiated with a course of 3 monthly intravitreal injections of ranibizumab 0.5 mg in 0.05 mL bilaterally; oral prednisolone 30 mg/day on tapering doses controlled the ocular inflammation prior to the treatment with intravitreal injections. An additional two intravitreal ranibizumab injections were administered in the right eye. Fibrotic tissue in the posterior pole bilaterally was present on funduscopy following ranibizumab treatment. Visual acuity was LogMAR 1.6 in the right and 1.0 LogMAR in the left eye in 1 year follow-up. This case report summarises the issues of choroidal neovascularisation as a complication secondary to panuveitis associated with sarcoidosis and highlights the treatment of this complication with anti-vascular endothelial growth factor agents.

BACKGROUND

Sarcoidosis is a multisystem granulomatous disease of unknown aetiology characterised by the presence of non-caseating granulomas in the involved organs.¹ It primarily involves the eyes, lungs, ears, skin and lymph nodes. Ocular involvement has been observed in 25–60% of patients with systemic sarcoidosis and it is often the initial clinical manifestation of the disease.² Although sarcoidosis may affect almost all ocular structures, the most common ocular manifestations are granulomatous uveitis (30–70%), associated with iris, trabecular and conjunctival nodules, glaucoma, cystoid macular oedema, choroidal neovascularisation (CNV), retinal perivasculitis mainly affecting veins (periphlebitis) and patchy retinochoroidal exudates.^{3–5} Treatment is based on topical and systemic corticosteroids in most of the cases, but immunosuppressive agents may be necessary.

Intravitreal anti-vascular endothelial growth factor (anti-VEGF) therapy is gaining acceptance as a beneficial treatment for CNV from aetiologies other than age-related macular degeneration,^{6–11} cystoid macular oedema associated with uveitis,^{12–13} retinal vein occlusions^{14–15} and diabetic retinopathy.^{16–17}

The aim of the present case report was to highlight the issues of CNV as a complication secondary to panuveitis associated with sarcoidosis and to provide clinical evidence of treating this devastating complication with anti-VEGF agents.

CASE PRESENTATION

An 81-year-old Caucasian man with a history of chronic bilateral panuveitis associated with sarcoidosis and on eye drops of prednisolone 1% four to six times a day and timolol 0.5% twice daily in both eyes presented in the Uveitis Clinic. The diagnosis of sarcoidosis was established more than 10 years ago following a positive serum ACE examination (107 IU/L; normal range 8–52 IU/L) and perihilar lymph nodes on chest X-ray. A CT scan and biopsy were not performed following informed consent discussions with the patient. On initial evaluation, best corrected visual acuity (BCVA) was 1.0 LogMAR in the right and 0.5 LogMAR in the left eye. Intraocular pressures were 18 mm Hg in the right and 16 mm Hg in the left eye. He had 1+ anterior chamber cellular activity, with associated keratic precipitates and posterior synechiae bilaterally, as well as nuclear sclerosis of 2+. Dilated examination of the posterior segment showed the presence of 1+ vitritis and debris, retinal pigment epithelium changes and macular oedema bilaterally, and retinal exudates in the left eye. Optical coherence tomography (OCT) confirmed the presence of foveal thickening with a retinal pigment epithelium detachment and subretinal fluid in the right eye, and cystic intraretinal fluid with the presence of an epiretinal membrane with vitreomacular traction in the left eye (figure 1). Following a fluorescein angiography (FFA) examination the presence of a subfoveal predominantly classic choroidal neovascular membrane (CNVM), with early hyperfluorescence and late leakage in the right eye was observed (figure 2). CNVM was type II, which is typical in uveitic neovascularisation with a grey appearance on biomicroscopy.¹⁸

TREATMENT

The patient was treated with a course of three monthly intravitreal injections of ranibizumab 0.5 mg in 0.05 mL in the right eye while ocular inflammation was in remission following a course of oral prednisolone 30 mg/day on tapering doses. Three months later, BCVA had declined to 2 LogMAR in the right eye and 1.6 LogMAR in the left eye. The patient underwent a new FFA examination, which revealed the presence of active CNVM bilaterally, and therefore a course of two monthly intravitreal injections of ranibizumab in the right eye and three monthly intravitreal injections of ranibizumab in the left eye was decided. Following the course of treatment the patient remained stable in his clinical picture. On repeated

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Figure 1 Optical coherence tomography image on the day of presentation, confirming the presence of foveal thickening with a retinal pigment epithelium detachment and subretinal fluid in the right eye, and cystic intraretinal fluid with the presence of an epiretinal membrane with vitreomacular traction in the left eye.

OCT scans there was no evidence of subretinal or intraretinal fluid or haemorrhages.

OUTCOME AND FOLLOW-UP

At the most recent examination 12 months after the initiation of the treatment, BCVA in both eyes was 1.0 LogMAR. Anterior uveitis was observed with 1+ of cells and vitritis of 1+ bilaterally. Funduscopy showed the presence of fibrotic tissue in the posterior pole of both eyes, which was confirmed by the OCT (figure 3).

DISCUSSION

Sarcoidosis was initially identified as a clinical entity by Jonathan Hutchinson as early as 1877.¹⁹ However, it still remains as a diagnostic and therapeutic challenge. Posterior uveitis may be difficult to control and cause sight-threatening complications such as macular oedema and CNV. Posterior uveitis is reported in 12% of sarcoidosis, and interestingly

cystoid macular oedema develops in 19–72%. Severe visual loss may occur in up to 24% of cases with permanent blindness or visual handicap in 10% of cases.³

We assume that posterior involvement, with presence of CNVM and chronic cystoid macular oedema, as well as age, was significantly related to the poor visual outcome.

Ocular involvement remains isolated and systemic therapy becomes necessary in severe forms of the disease, and especially in cases presenting with posterior uveitis, panuveitis or neuro-sarcoidosis. Therefore, in combination with the anti-VEGF treatment, systemic steroids were used, as the ocular disease included severe, topical treatment resistant posterior uveitis.²⁰

To our knowledge, this is the first report of the use of ranibizumab in the treatment of CNVM secondary to chronic sarcoid panuveitis. The treatment of CNV secondary to panuveitis associated with sarcoidosis is challenging. In our case, the course of intravitreal injections of ranibizumab 0.5 mg in 0.05 mL managed to have a beneficial anatomic result; however, the

Figure 2 Fluorescein angiography image of the right eye showing the presence of a subfoveal predominantly classic choroidal neovascular membrane, with early hyperfluorescence and late leakage.

Figure 3 Optical coherence tomography image at the most recent examination, 12 months after the initiation of the treatment, confirming the presence of fibrotic tissue in the posterior pole of both eyes.

visual outcome was poor and eventually fibrotic subretinal tissue was developed. Further studies are necessary to establish the role of ranibizumab in the treatment of CNVM secondary to active or in remission chronic panuveitis.

Learning points

- Choroidal neovascularisation is a complication of panuveitis associated with sarcoidosis.
- Ranibizumab intravitreal injections appear to be effective regarding the anatomic outcome and safe treatment.
- Visual outcome can be compromised by cataract, level of inflammation and long-standing anatomic changes in the macular area.

Contributors VEK was involved in the conception and design, acquisition of the data, analysis and interpretation of the data, drafting the article. TE was involved in the final approval of the version published, revising it critically for important intellectual content.

Competing interests None.

Patient consent Obtained.

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