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The Effect of Infliximab Therapy on Maculopathy in Behcet's Panuveitis: A Case Report

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Key Words

Behcet's panuveitis · Infliximab therapy · Inflammatory maculopathy · Visual acuity

Abstract

Aim: To report a case of Behcet's panuveitis and unilateral inflammatory maculopathy which was refractory to conventional immunosuppressive therapy but responded well to long-term treatment with the tumor necrosis factor-alpha inhibitor infliximab.

Methods: Reporting the effect of intravenous infliximab infusion therapy for 54 weeks in a case of Behcet's panuveitis and unilateral inflammatory maculopathy. The patient's best corrected visual acuity was monitored, and biomicroscopic and fundus examinations as well as macular thickness map analysis by stratus optical coherence tomography were performed.

Results: The best corrected visual acuity in his right eye improved after the resolution of inflammatory signs on biomicroscopic and fundus examinations as well as on stratus optical coherence tomography macular thickness analysis reports. No significant systemic side effects were noted.

Conclusions: Long-term therapy with infliximab is effective and safe for refractory inflammatory maculopathy in Behcet's disease. We report this case to contribute to the few previously reported cases showing the beneficial effect of long-term infliximab therapy for Behcet's panuveitis. In conclusion, early initiation of infliximab therapy for inflammatory maculopathy in Behcet's disease preserves and improves visual acuity.

Introduction

Behcet's disease is characterized by the presence of recurrent mucocutaneous ulcers and oral aphthous ulcerations as the initial symptoms [1]. Other manifestations include genital ulcers, skin lesions, and vascular, neurological, articular, and ocular disease [1].

The disease can affect the anterior and/or posterior segments of the eye, and the main manifestations include iridocyclitis, hypopyon, mild-to-moderate vitritis, retinal vasculitis and occlusion, optic disc hyperemia, and macular edema [1, 2]. The signs and complications arising from the macular area in patients with Behcet's disease are often overlooked for a long period of time because they are masked by the inflammatory signs of the anterior segment and/or the vitreous [3]. Although blindness in most cases is the result of optic disc atrophy, the macular alterations as a sequela of inflammation are responsible for the low visual acuity [3].

The purpose of this study is to report the case of a patient with Behcet's panuveitis and unilateral inflammatory maculopathy refractory to conventional immunosuppressive therapy who responded well to long-term treatment with the tumor necrosis factor- α inhibitor infliximab.

Case Report

A 28-year-old white male presented to our institute with loss of vision in his right eye associated with mild redness and photophobia in his left eye. His past medical history was significant for Behcet's disease diagnosed 10 months before his admission on the basis of bilateral panuveitis, recurrent oral and genital ulcers, arthritis, skin lesions, and positive tests for HLAB51 and pathergy. He had been treated with azathioprine 150 mg/day combined with cyclosporine 5 mg/kg/day for 10 months. However, his right visual acuity had not improved.

On examination, the best corrected visual acuity of his right eye (OD) was 20/400, and of his left eye (OS) it was 20/30. OD revealed 60–100 small keratic precipitates, 2+ flare, 3+ cell in the anterior chamber, 3 Koeppe nodules, and 1+ anterior vitreous cell. OS revealed 20–30 small keratic precipitates, 1+ flare, 1+ cell in the anterior chamber, and rare cell in the anterior vitreous. Fundus examination OD disclosed 1+ vitreous cell associated with blunted macular reflex with retinal pigment epithelium (RPE) irregularities and mottling (fig. 1). Stratus optical coherence tomography (OCT3; Carl Zeiss Meditec, Dublin, Calif., USA) of the right macula disclosed thinning of the retinal and RPE layers (fig. 2). The right macular thickness map (OCT3) revealed thinning in the central 1-mm zone with a foveal thickness of $107 \pm 11 \mu\text{m}$, and associated with thinning in the 3–6-mm zone with a total macular volume of 6.48 mm^3 (fig. 3). The left macular thickness map (OCT3) revealed a foveal thickness of $171 \pm 4 \mu\text{m}$ and a total macular volume of 7.84 mm^3 (fig. 3).

The patient was diagnosed as having right panuveitis associated with maculopathy and left anterior uveitis. Immunosuppressive therapy with azathioprine and cyclosporine was discontinued. Treatment with 2-hour intravenous infusions of infliximab 5 mg/kg as induction doses in weeks 0, 2, and 6, followed by the maintenance doses at every 8 week, was initiated. During the course of therapy, other immunosuppressants and concomitant local corticosteroid injections were not allowed. During the drug infusion and for 1 h afterwards, blood pressure, pulse, and temperature were measured every 30 min. Moreover, at every visit, complete blood cell count, liver, and kidney function tests were examined. Antinuclear antibodies and tumor markers including alpha-fetoprotein, carcinoembryonic antigen, and prostate-specific antigen were measured at baseline and weeks 30 and 54.

The visual acuity OD improved to 20/100 at week 22 of therapy. Biomicroscopic examination of both eyes was normal. The right macular thickness map (OCT3) revealed an increase in thickness in the central 1-mm zone with a foveal thickness of $206 \pm 24 \mu\text{m}$, associated with thinning in the 3–6-mm zone with a total macular volume of 6.31 mm^3 (fig. 4). The left foveal thickness was $177 \pm 6 \mu\text{m}$, and the left total macular volume was 7.8 mm^3 (fig. 4). The visual acuity OD improved to 20/50 at week 54 of therapy. Fundus examination OD revealed reduction of RPE irregularities and mottling in the macular area (fig. 5). Macular thickness change analysis report (OCT3) comparing macular thickness of the right and the left eye at baseline and at week 54 revealed an increased thickness in the 1–3-mm zone and a reduced thickness in the 3–6-mm zone of the right macular region. No significant changes were found in the analysis of the left macular thickness report (fig. 6). There were no significant systemic side effects of the infliximab therapy during the 54-week treatment period.

Discussion

Macular damage is a major cause of visual morbidity in patients with Behcet's disease and requires particular attention because of its poor prognosis [4]. Normal macular thickness measurements in healthy eyes using OCT3 revealed that macular thickening can be suspected if the foveal thickness is greater than 252 μm , and macular thinning can be suspected if the foveal thickness is less than 172 μm [5]. The baseline foveal thickness OD in our case was 107 μm , which was considered as macular thinning. His foveal thickness OS was 177 μm , which was considered as normal. The baseline visual acuity of 20/30 OS was related to mild-to-moderate anterior chamber cellular reaction. The best corrected visual acuity OS improved to 20/20 with resolution of the anterior chamber cellular reaction.

Although macular edema is the most frequent sign and complication arising from the macular area in Behcet's disease, other striking maculopathies occasionally occurring with atrophic optic discs have also been reported [4]. Ischemic maculopathy is the most common cause of irreversible severe visual loss in Behcet's disease [6]. OCT-based retinal thickness analysis in the eyes of Behcet's disease patients with uveitis revealed a correlation between retinal thickness decrease and an increase in the duration of uveitis [7]. Our case disclosed thinning in the retinal and RPE layers of the macular region in his right eye. The right macular alteration in our case is considered most likely related to the inflammation rather than to ischemia because of the improvement of visual acuity with anti-inflammatory therapy and the presence of vitreous cells only, without associated signs of ischemia such as cotton wool spots, retinal hemorrhage, retinal vasculitis/occlusion, or optic disc pallor/atrophy.

His OCT-based foveal thickness improved from 107 to 206 μm at week 22 of infliximab therapy. It has been reported that infliximab is rapidly effective and safe in a high proportion of Behcet's disease patients with refractory posterior uveitis and may be helpful to prevent recurrences [8]. Our case responded rapidly to the infliximab therapy, with an improvement in the best corrected visual acuity OD from 20/400 to 20/100 at 22 weeks, and continued improving to 20/50 at 54 weeks. Biomicroscopic examination at week 22 of therapy also revealed no aqueous cell and flare, and clear vitreous in both eyes. Therefore, remission was achieved at week 22, and no relapse at week 54 of therapy was detected. No major side effects requiring withdrawal of infliximab were reported in long-term therapy for refractory uveitis due to Behcet's disease [9]. We also noted no significant systemic side effects during 54 weeks of follow-up in this case.

Conclusions

Keeping in mind that macular lesions are often considered irreversible, making prognosis uncertain despite the various therapies available, infliximab is an efficient and safe long-term treatment of refractory inflammatory maculopathy in Behcet's disease. We report this case to contribute to the few previously reported cases showing the beneficial effect of long-term infliximab therapy for Behcet's panuveitis. We conclude that early initiation of infliximab therapy for inflammatory maculopathy in Behcet's disease preserves and improves visual acuity.

Fig. 1. Baseline color fundus photograph of the right eye showing blunted macular reflex and RPE irregularities and mottling.

STRATUS OCT™ - 6.0.2 (0562)

Name: karagoz, alikemal

DOB: 1/1/1983, ID: 1075676, Male

SS - Signal Strength (Max 10)

Fig. 2. Baseline OCT3 of the right macula. Note the thinning of the retinal and RPE layers.

Fig. 3. Left: baseline right macular thickness map by OCT3. Note the thinning in the central 1-mm zone with a foveal thickness of $107 \pm 11 \mu\text{m}$, and associated with a thinning in the 3–6-mm zone with a total macular volume of 6.48 mm^3 . Right: baseline left macular thickness map by OCT3 showing a foveal thickness of $171 \pm 4 \mu\text{m}$ and a total macular volume of 7.84 mm^3 .

Fig. 4. Left: right macular thickness map by OCT3 at 22 weeks of infliximab therapy, demonstrating an increase in thickness in the central 1-mm zone with a foveal thickness of $206 \pm 24 \mu\text{m}$ associated with thinning in the 3–6-mm zone with a total macular volume of 6.31 mm^3 . Right: left macular thickness map by OCT3 at 22 weeks of infliximab therapy, showing that the left foveal thickness was $177 \pm 6 \mu\text{m}$, and the left total macular volume was 7.8 mm^3 .

Fig. 5. Color fundus photograph of the right eye at 54 weeks of infliximab therapy. Note the reduction of RPE irregularities and mottling in the macular area.

Fig. 6. Macular thickness change analysis report by OCT3 comparing the macular thickness of the right and the left eye at baseline and at week 54. Note the increased thickness in the 1–3-mm zone and the reduced thickness in the 3–6-mm zone of the right macular region. No significant changes were found in the analysis of the left macular thickness report.

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