Case Report

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Rituximab as a Treatment Option for Refractory Endogenous Anterior Uveitis

C. Tappeiner[a] C. Heinz[a] C. Specker[b] A. Heiligenhaus[a]

[a]Department of Ophthalmology, St. Franziskus Hospital, Muenster, and [b]Department of Rheumatology and Immunology, Kliniken Essen-Sued, Essen, Germany

Key Words
Rituximab · Refractory endogenous anterior uveitis

Abstract
Background: To report on anti-CD20 antibody therapy in a patient with uveitis refractive to immunosuppression therapy. ***Methods:*** Case report with ophthalmoscopic, optical coherence tomography and fluorescein-angiographic findings. ***Results:*** A 49-year-old woman was suffering from bilateral, noninfectious chronic anterior uveitis refractive to corticosteroids and immunosuppressive drugs. Bilateral visual acuity was 20/100 due to cataract and cystoid macular edema (CME). After treatment with rituximab, vision and CME improved, and uveitis was stable until the final visit (follow-up at 12 months). ***Conclusion:*** The case report suggests that rituximab may be helpful for selected patients with chronic anterior uveitis refractive to corticosteroids and immunosuppressive medication.

The treatment of severe uveitis may include corticosteroids, immunosuppression or tumor necrosis factor α inhibitors. However, refractory uveitis may call for alternative treatment options. Most recently, beneficial effects of B-cell-targeting therapy with the monoclonal anti-CD20 antibody rituximab has been reported for the treatment of B cell lymphomas and systemic autoimmune diseases [1–7].

Report of a Case

A 49-year-old woman had been suffering from bilateral chronic iridocyclitis for 3 years and had lost her vision as a result of cystoid macular edema (CME) and cataract. Uveitis was refractory to high-dose topical and systemic corticosteroids, cyclosporine A, sulfasalazine and methotrexate.

On first examination at our institution, treatment included corticosteroid eyedrops 5 times OU, oral prednisolone 20 mg daily, mycophenolate mofetil 2 × 1 g daily and etanercept 25 mg twice weekly. The medical history was remarkable in that tuberculosis had been treated 20 years ago, and the patient had received radio-iodine therapy for thyroid carcinoma. By laboratory tests, X-ray films of the chest and sinuses, cerebral MRI and consultations with specialists in neurology, ENT and internal medicine, systemic immune-mediated or infectious diseases were excluded.

Visual acuity was 20/200 OD and 20/60 OS. Keratic precipitates, heavy cellular infiltration of the anterior chamber and vitreous body, iris hyperemia and incipient cataract were present. Intraocular pressures were normal. Beside bilateral disk swelling and CME, no other fundus abnormalities were noted. Fluorescein angiography (FA) showed papillary leakage and CME OU. The optical coherence tomography (OCT) disclosed macular thickening of 373 μm OD and 326 μm OS.

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Prof. Dr. med. Arnd Heiligenhaus
Hohenzollernring 74
DE-48145 Münster (Germany)
Tel. +49 251 933 080, Fax +49 251 933 0819

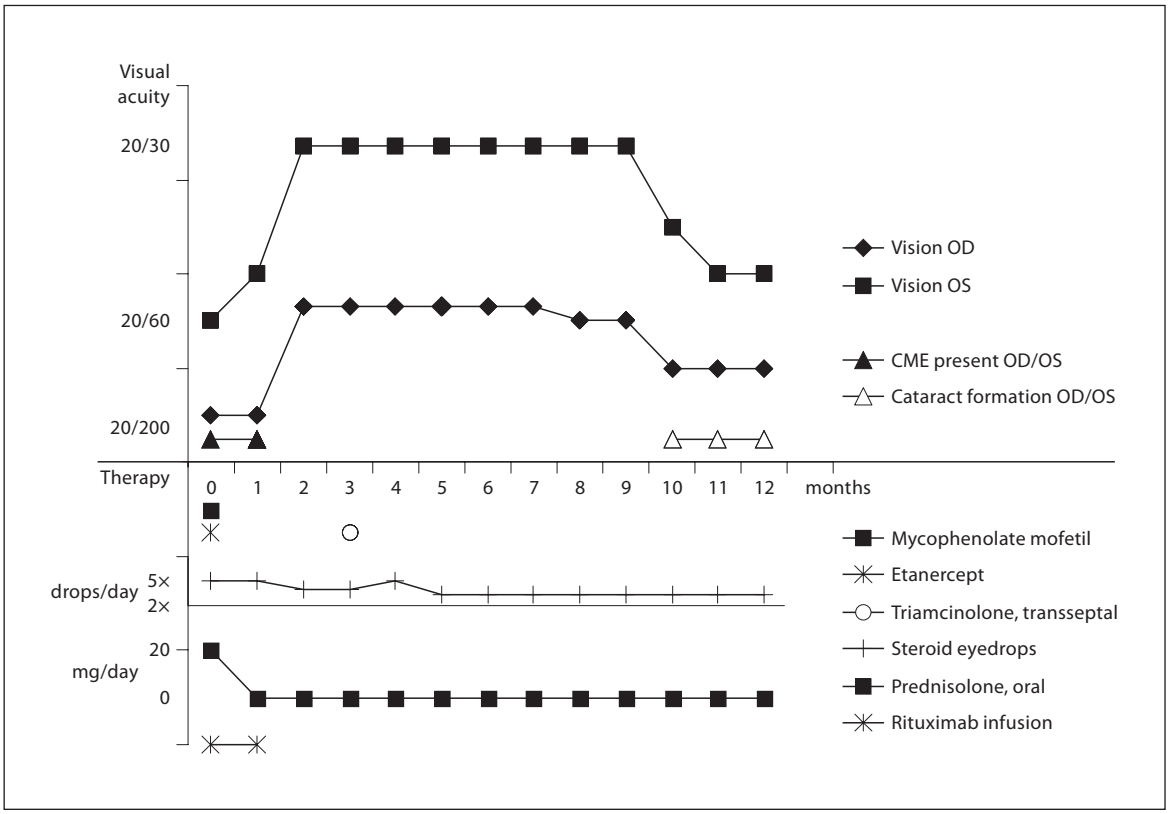

Fig. 1. Rituximab therapy in a patient with uveitis refractive to immunosuppression therapy. Progression in visual acuity, presence of CME and cataract formation, and anti-inflammatory medication.

For 4 weeks, 375 mg/m^2 rituximab (Mabthera®) was infused intravenously each week (fig. 1). Prednisolone and mycophenolate were discontinued after the first infusion. Aside from mild gastrointestinal discomfort, no side effects occurred.

Inflammation in the anterior chamber and vitreous body resolved within 4 weeks. After 2 months, CME disappeared according to funduscopy, OCT (OD, 167 μm; OS, 138 μm) and FA, and vision improved to 20/60 OD and 20/30 OS. After 3 months, a worsening of inflammation improved with transseptal triamcinolone injection. Until the final 12-month visit, uveitis remained stable with low-dose topical corticosteroids. As the cataract formation eventually progressed, phacoemulsification is anticipated.

Comment

This is the first report on the use of rituximab in uveitis. Rituximab is a monoclonal chimeric human-mouse antibody that binds to CD20 antigen expressed by B cells and leads to a highly selective and sustained B-cell depletion. It has been previously noted that B cells play a critical role in autoimmune diseases, suggesting that a B cell blockade has therapeutic potential [8, 9]. Recently, rituximab has effectively been used to suppress various autoimmune diseases.

In the patient reported herein, active uveitis refractive to multiple systemic immunosuppressive agents markedly improved with a single course of rituximab infusions for 1 year, and CME also resolved. The long-term improvement in inflammation is in accordance with previous observations in systemic autoimmune disease.

The pathogenic role of B cells in uveitis has not been defined. The improvement of uveitis with the use of a selective B cell blockade as described here now implies that B cells may be critical, at least in some patients. Further studies are required to define the role of rituximab for the treatment of uveitis.

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