

Case Report

Successful cataract surgery in a patient with refractory Wegener's granulomatosis effectively treated with rituximab: A case report



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Abstract

Wegener's granulomatosis is a granulomatous disorder associated with systemic necrotizing vasculitis. Eye involvement occurs in approximately 50% of Wegener's granulomatosis patients and is an important cause of morbidity. Conventional treatment-related morbidity and failure have led to studies of alternative treatment modalities. In this case of a 35-year-old man with severe Wegener's granulomatosis, conventional therapy failed to induce remission. Despite the standard immunosuppressive therapy, progression of the disease was observed, mainly with ocular manifestations and renal impairment. Rituximab was given intravenously and led to remission of both systemic and ocular manifestations of the disease. After 1 year of disease quiescence, he was admitted one week after his third regularly-scheduled rituximab treatment and was started on intravenous methylprednisolone, 500 mg/day for 3 days, before cataract surgery. Subsequently, the patient underwent phacoemulsification cataract surgery in his left eye. Six months later, in the same manner he underwent uneventful phacoemulsification cataract surgery in the right eye with a favorable outcome in both eyes. Conclusion: In this patient, rituximab was a well-tolerated and effective remission induction agent for severe refractory Wegener's granulomatosis and led to successful cataract surgery.

Keywords: Anti-CD20 antibodies, Cataract, Uveitis, Rituximab, Wegener's, Granulomatosis

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Introduction

Wegener's granulomatosis (WG) is a primary systemic small-vessel vasculitis with eye, respiratory tract, and kidney involvement.¹ B lymphocytes are important for the regulation of immune responses and production of antibodies. B cells function as antigen-presenting cells, express costimulatory molecules, produce cytokines, and regulate the differentiation and activation of T lymphocytes. The role of B cells in the pathogenesis of autoimmune diseases including WG is well-established.² Rituximab is a chimeric monoclonal antibody directed against CD20, a cell surface protein expressed

almost exclusively on B cells.³ Binding of rituximab to CD20 results in the selective depletion of B cells by a variety of mechanisms.⁴ Hence, rituximab has become an important component of standard treatment regimens for non-Hodgkin's B-cell lymphoma.⁵ Because B cells play an important role in autoimmune diseases,⁶ rituximab is increasingly being investigated as a therapeutic agent for these indications. Early reports of its successful use in autoantibody-mediated autoimmune diseases were followed by promising results in multisystem autoimmune diseases such as rheumatoid arthritis. In a report of 10 patients with ocular and orbital WG, the authors found that intravenous infusions of

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rituximab can lead to the induction of long-term remission.⁷ In the present case report of an individual with ocular and generalized WG who failed conventional treatment, administration of rituximab led to a complete control of the disease.

Case report

A 35-year-old man presented with complaints of poor vision in his right eye for the previous eight months. His eye symptoms started with a gradual painless reduction of vision for which he was seen at another institute and diagnosed as having a choroidal mass for investigations. When he came to our hospital his best-corrected visual acuity was 20/200 in the right eye and 20/60 in the left eye. Intraocular pressure (IOP) was 17 mmHg in each eye and generalized scleral thinning was occurring in both eyes without inflammation or active necrosis. Conjunctiva was normal in both eyes, the anterior chamber showed 1+ cells and 1+ flare in both eyes, and there was 360° posterior synechia in the right eye. The patient had a dense white cataract in the right eye with no view to the retina and an immature posterior subcapsular cataract in the left eye. Fundus examination of the left eye showed a normal optic nerve and mild choroidal folds. Ultrasonography of the right eye showed mild macular elevation but was otherwise normal. Laboratory studies showed high plasma levels of urea and creatinine (14.2 mmol/L and 156 µmol/L respectively) and the presence of circulating cytoplasmic anti-neutrophilic cytoplasmic antibodies (c-ANCA).

The patient was admitted to complete his workup. During hospitalization he was diagnosed with WG, renal failure, and eye involvement. A kidney biopsy revealed necrotizing and crescentic glomerulonephritis. A lung biopsy confirmed the diagnosis by showing granulomatous inflammation with extensive necrosis and vasculitis. The patient was started on oral prednisolone 50 mg (0.75 mg/kg) and cyclophosphamide 100 mg (1.5 mg/kg) once-daily. After 1 month of treatment, no improvement was observed. The patient was then treated with rituximab (MabThera; Hoffmann-La Roche, Basel, Switzerland) in 2 intravenous doses of 1 g each, given 2 weeks apart and repeated at 6 month intervals, supplemented with daily oral prednisolone 10 mg. After initiation of this treatment regimen, the patient exhibited complete resolution of his symptoms and WG was in clinical remission.

After complete remission for one year, the patient reported poor vision in both eyes. His visual acuity in the right eye was counting finger near face and 20/200 in the left eye. Slit-lamp examination revealed quiet eyes and IOP was 14 mm Hg in each eye. There was no view to the fundus in the right eye, and the left eye showed a normal optic nerve and an early epiretinal membrane (Fig. 1A and B). The patient was admitted one week after his third regularly-scheduled rituximab treatment and was started on intravenous methylprednisolone, 500 mg/day for 3 days (half the usual dose given in uveitis patients because of his kidney status) before cataract surgery. On the second day, he underwent release of posterior synechiae, phacoemulsification with clear corneal incision, and implantation of posterior chamber intraocular lens in the left eye. On the first day postoperatively, the patient's visual acuity in the left eye improved to 20/60 with no activation of scleritis or uveitis. The vision did not improve completely because of macular dragging and a thick epiretinal membrane. Six months later immediately after his fourth

dose, the patient underwent uneventful phacoemulsification cataract surgery in the right eye with coverage by intravenous methylprednisolone, 500 mg/day for 3 doses. Six months after the second eye surgery his best-corrected visual acuity was 20/60 in the right eye and 20/30 in the left eye, after being on rituximab infusion every 6 months and azathioprine (imuran) 25 mg daily (Fig. 2). Based on the quiescence

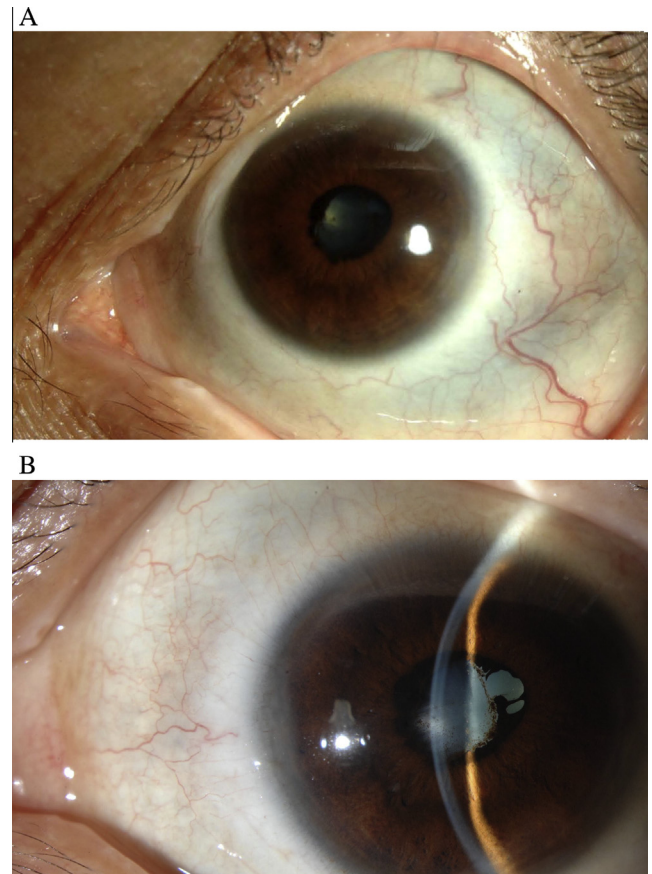


Figure 1. A and B: Preoperative photographs of the left eye with scleral thinning, posterior synechiae and cataract.

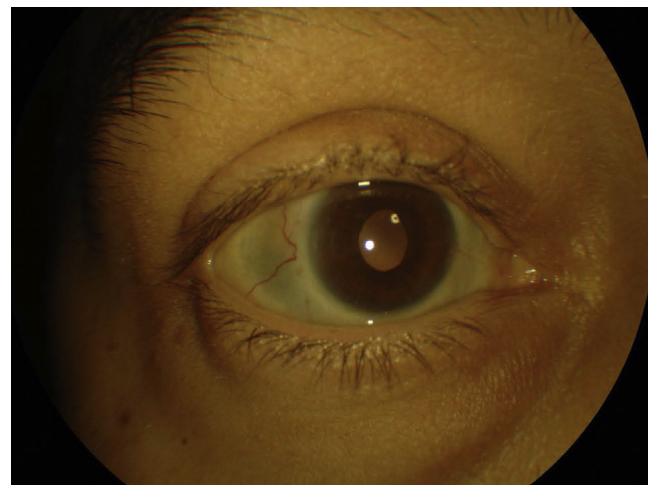


Figure 2. Postoperative photograph of the right eye showing quiet eye with intraocular lens.

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