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LETTER TO THE EDITOR

Successful Tocilizumab Treatment for Scleritis

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ABSTRACT

Purpose: To present a rare case of scleritis associated with a prior diagnosis of giant cell arteritis (GCA) that was unresponsive to glucocorticoids, nonsteroidal anti-inflammatory drugs (NSAIDs), methotrexate, and azathioprine, but reached and maintained a full remission with tocilizumab.

Observations: A 62-year-old Caucasian female presented with scleritis and headache. Four years earlier, the patient was diagnosed with GCA. Treatment with topical and systemic NSAIDs, prednisone and diverse disease-modifying antirheumatic drugsonly had a partial effect on the scleritis whilst the arthralgia and headaches increased. Despite the absence of laboratory evidence of active GCA, tocilizumab was started and the scleritis and headaches disappeared within several days. Prednisone could be fully tapered within 3 months and to date, 12 months after the start of tocilizumab, the patient has maintained a sustained remission.

Conclusions: Our patient demonstrates that tocilizumab might represent a therapeutic option for scleritis, and its further evaluation for this severe ocular disease is worthwhile.

Keywords: Giant cell arteritis, Scleritis, Tocilizumab

Scleritis represents a severe ocular disorder, which is commonly treated with nonsteroidal anti-inflammatory drugs (NSAIDs) or disease-modifying antirheumatic drugs (DMARDs), whilst glucocorticoids are frequently used in the acute stage of the disease. When these therapies fail, the next step in treatment is still unclear.

Giant cell arteritis (GCA), or temporal arteritis, is an inflammatory disease of the large- and medium-sized arteries, most commonly involving the branches of the carotid arteries. Inflammation of the artery wall leads to intimal hyperplasia and lumen occlusion and can cause ischemic complications. The most common ocular manifestation of GCA is the involvement of the ophthalmic artery, resulting in arteritic anterior ischemic optic neuropathy with permanent visual loss. Scleritis represents a rare complication of GCA.[1,2]

Recently, beneficial results of treatment of GCA were reported with a recombinant humanized anti-interleukin-6 (IL-6) receptor monoclonal antibody (tocilizumab), but whether this treatment approach would be effective for scleritis is not known.[3,4]

In this report, we describe a case of scleritis in a patient with a prior biopsy-proven GCA that was unresponsive to glucocorticoids, methotrexate, and azathioprine, but reached and maintained a full remission with tocilizumab.

CASE REPORT

A 62-year-old Caucasian female presented with temporal headaches and red painful eyes. She also had general complaints of fatigue and painful joints. Four years before the scleritis onset, the patient was diagnosed with GCA with a positive biopsy of temporal artery and treated with systemic prednisone for two years. At the time of scleritis onset, she used no systemic prednisone.

On external examination, a bilateral purple-red injection of the sclera in the anterior part of the eyeballs was seen. Further ophthalmological examination was within the normal limits with the exception of elevated intraocular pressure (IOP; OD 29 and OS 22 mmHg).

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Laboratory results showed inflammatory parameters to be within the normal limits. All additional examinations for autoimmune disorders were negative (Table 1). There were no abnormalities suggestive for sarcoidosis (chest radiologic examination, serum angiotensin converting enzyme, and serum interleukin 2 receptor were within the normal limits).

The patient was initially treated with topical anti-inflammatory and IOP-lowering medications with the addition of systemic indomethacin (150 mg/day), which had an insufficient effect on her scleritis and had to be stopped because of mouth ulcers. Treatment with methotrexate (MTX, initial dose 15mg/week) and systemic prednisone (initial dose 30 mg/day) was started; however, MTX had to be stopped after 4 months because of nausea and arthralgia. MTX was switched to azathioprine (100 mg/day) and topical cyclosporine-A ointment was added to topical NSAIDs and steroids. A partial effect on scleritis was observed within several weeks, but after 6 months, the patient stopped azathioprine because she did not feel well and had increasing complaints of arthralgia, although arthritis was never documented. Patient increased her prednisone dosage to 60 mg/day because of recurrence of scleritis activity and extremely painful eyes, which had a good effect. A gradual withdrawal of systemic prednisone was attempted, but with the dosage below 40 mg/day, severe scleritis recurred and the patient complained of intense eye pain and temporal headaches.

Several treatment options were discussed. Despite the absence of laboratory evidence of active GCA, tocilizumab subcutaneous injections were chosen (162 mg/0.9 mL once a week) because of the patients' own desire and previously reported beneficial effect in GCA and other autoimmune diseases. With tocilizumab and prednisone 40 mg, scleritis and temporal headaches gradually disappeared within several days and prednisone could be fully tapered within 3 months. To date, 12 months after the start of tocilizumab, the patient has maintained a sustained remission without any adverse effects.

DISCUSSION

Scleritis is commonly associated with various systemic autoimmune diseases and is extremely difficult to treat. In the blood of patients with active scleritis, high levels of IL-22 were reported.[5] IL-22 (among others) is being produced by Th17-positive cells. Remarkably, increased Th17 cells were observed in the blood of patients with active scleritis. Tocilizumab blocks IL-6 signaling and inhibits differentiation of naïve T cells into Th17 cells, which might explain its efficacy.

In our patient, it was not feasible to conclude definitively whether GCA was active at scleritis onset. Though her values of CRP and ESR were within the normal limits, this does not entirely exclude the recurrence of GCA. The temporal headaches with the history of GCA make a recurrence of GCA a possibility. Whether or not the scleritis was related to prior GCA, we point out a beneficial and prolonged effect of tocilizumab on scleritis, refractory to diverse DMARDs and systemic prednisone. Tocilizumab might represent a therapeutic option for scleritis and its further evaluation for this severe ocular disease is worthwhile.

AUTHORSHIP

All authors attest that they meet the current ICMJE criteria for Authorship.

DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

TABLE 1. Laboratory examinations.

Blood test	Result	Normal range
C-reactive protein (CRP)	1.4 mg/L	(<10)
Erythrocyte sedimentation rate (ESR/BSE)	7 mm/h	(0–30)
White blood cell count	6.4 10^9/L	(3.5–10.0)
Angiotensine converting enzyme (ACE)	42.3 U/L	(12–68)
Human leukocyte antigens B27 (HLA-B27	Negative	
Antinuclear antibodies (ANA)	Negative	
Cytoplasmic antineutrophil cytoplasmic antibodiesc (ANCA)	Negative	
Rheumatoid factor IgM	2.1 IU/mL	(<3.5)
Anti-cyclic citrullinated peptides	<0.4 U/mL	(<4.0)
Anti-Sjögren syndrome-related antigen A (Anti SS-A 52/60)	Negative	
Anti-Sjögren syndrome-related antigen B (Anti SS-B)	Negative	

PATIENT CONSENT

Consent to publish this case report was not obtained. This report does not contain any personal information that could lead to the identification of the patient.

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