

2013

# Sudden Onset Blindness in a Patient with Mixed Connective Tissue Disease

Chris Terry, MSIII

*Thomas Jefferson University*

Prachi Thanawala, MD

*Thomas Jefferson University Hospitals, Prachi.Thanawala@jefferson.edu*

Erika Villanueva, MD

*Thomas Jefferson University Hospitals*Follow this and additional works at: <https://jdc.jefferson.edu/tmf> Part of the [Medicine and Health Sciences Commons](#)[Let us know how access to this document benefits you](#)

## Recommended Citation

Terry, MSIII, Chris; Thanawala, MD, Prachi; and Villanueva, MD, Erika (2013) "Sudden Onset Blindness in a Patient with Mixed Connective Tissue Disease," *The Medicine Forum*: Vol. 14 , Article 10.DOI: <https://doi.org/10.29046/TMF.014.1.010>Available at: <https://jdc.jefferson.edu/tmf/vol14/iss1/10>

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in *The Medicine Forum* by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: [JeffersonDigitalCommons@jefferson.edu](mailto:JeffersonDigitalCommons@jefferson.edu).

# SUDDEN ONSET BLINDNESS IN A PATIENT WITH MIXED CONNECTIVE TISSUE DISEASE

Chris Terry, MSIII, Prachi Thanawala, MD, Erika Villanueva, MD

## Case Presentation

A 66-year-old Caucasian female recently diagnosed with mixed connective tissue disease presented with acute onset vision loss in the left eye. The patient first noted a “hazy-shower” that caused blurry vision with loss of peripheral vision. Her vision progressively worsened over a four-day period, resulting in complete blindness in the left eye and the onset of blurry vision in her right eye. She denied any eye pain, discharge, photophobia or similar symptoms in the past. The patient did note a very mild headache for four days but denied any other symptoms.

## Investigations

The patient was admitted for workup of left eye vision loss. Rheumatology was consulted for concern of autoimmune vasculitis, and the patient was started on IV methylprednisolone (1g daily). There was a concern for giant cell arteritis (GCA). Therefore bilateral temporal artery biopsies were obtained. The biopsy specimens showed no signs of GCA; however some ophthalmic artery occlusion was noted. There was concern for further thromboses, so MRI, MRA, and MRV of the head, CT of the chest, abdomen and pelvis, ultrasound of the carotid arteries, and trans-esophageal echocardiogram were performed. However, all of these imaging studies were non-diagnostic.

The patient had an Orbital Duplex Scan that showed significantly reduced blood flow to both eyes. Laboratory testing for autoimmune markers were significant for a positive rheumatoid factor (RF) and positive anti-cyclic citrullinated protein (anti-CCP) antibody (Ab). An ANA screen was positive with a titer of 1:80. Anti-ssDNA and anti-dsDNA antibodies were both moderately elevated. All other studies were non-diagnostic including anti-Smith Ab, RNP Ab, anti-SS-A Ab, anti-SS-B Ab, C-reactive protein, erythrocyte sedimentation rate, cryoglobulins, C-ANCA, P-ANCA.

## Differential Diagnosis

Vasculitides are defined by the presence of inflammatory leukocytes in vessel walls with reactive damage to mural structures and may occur as a primary process or secondary to another underlying disease.<sup>1</sup> There was initial concern for GCA due to the age of onset, presence of headaches, and absence of other symptoms. However, the bilateral temporal artery biopsies were negative. Essential cryoglobulinemic vasculitis was also considered; however it was ruled out based on the absence of serum cryoglobulins.

Given the patient’s past medical history and positive ANA, the medical team suspected an underlying connective tissue

disorder. Additionally, due to the absence of serum ANCA, the differential diagnosis was narrowed to a non-ANCA vasculitides. An important differential to bear in mind is systemic lupus erythematosus (SLE), a chronic, autoimmune connective tissue disorder affecting multiple organ systems often with a relapsing and remitting clinical course. Ocular manifestations, occurring in up to one third of patients, result from localized ischemia.<sup>2,3</sup> Lupus retinopathy is one of the most common vision-threatening complications of SLE, occurring in up to 29% of patients.<sup>6-8</sup>

Another etiology to consider is rheumatoid arthritis (RA). Blood vessel inflammation is a central feature of RA.<sup>9</sup> The mean onset of vasculitic symptoms is 13.6 years after the initial diagnosis of RA, and patients typically have developed rheumatoid nodules.<sup>10,11</sup> The two principal ocular manifestations of rheumatoid vasculitis are episcleritis and peripheral ulcerative keratitis.<sup>12,13</sup> The presence of an elevated RF and positive ANA, as well as a past medical history of nodular episcleritis, led to a high clinical suspicion for rheumatoid vasculitis.

## Treatment

Rheumatology and Ophthalmology agreed to continue the IV methylprednisolone. On hospital day four, the patient was given cyclophosphamide (750 mg/m<sup>2</sup>) to be dosed monthly. This decision was based primarily on two critical studies investigating the efficacy and safety of pulse IV cyclophosphamide.

In mildly progressive ocular inflammation, therapy is often initiated with immunomodulatory agents prior to pulse IV cyclophosphamide. However, with failed immunomodulatory therapy or rapidly progressing inflammation at presentation, initiation of pulse IV cyclophosphamide is warranted. In 2004, Durrani et al. demonstrated the control of inflammation and steroid-sparing effect of pulse IV cyclophosphamide in 38 patients with severe ocular inflammation of diverse etiologies.<sup>14</sup> Cyclophosphamide is a non-specific alkylating agent that exerts a cytotoxic effect on rapidly proliferating cells. It has shown remarkable safety in the rheumatologic and dermatologic literature when used IV for limited periods.<sup>15,16</sup>

## Outcome and Follow-up

The patient continued on methylprednisolone (1g daily) for a total of eight days. On hospital day nine, her daily dose of methylprednisolone was decreased to 250 mg. At this time, her vision was stable in the right eye; however she still had complete loss of vision and light perception in her left eye. On hospital day ten, her steroid dose was adjusted to prednisone

(100 mg daily), which she would continue until her next dose of cyclophosphamide. The patient had a repeat Orbital Duplex scan on hospital day ten which showed stable parameters in the central retinal artery of the right eye and improved flow in the temporal vessel of the short posterior ciliary system in the left eye. On hospital day 11, the patient was medically stable for discharge with close follow up with Ophthalmology, Retina Clinic, and Rheumatology.

## Discussion

The initial differential diagnosis of sudden-onset vision loss includes infectious etiologies, primary ocular disorders, systemic vasculitides, connective tissue diseases, malignancy, and idiopathic processes. This patient's past medical history and clinical presentation were most consistent with a vasculitis secondary to an underlying connective tissue disease. Ultimately, the patient had symptoms suggestive of several different connective tissue diseases and was discharged with a diagnosis of non-ANCA autoimmune vasculitis.

## Key Points

Patients presenting with sudden onset vision loss suspected to be due to vasculitis warrant urgent diagnostic work-up to confirm the diagnosis. Although making a final diagnosis is a challenge due to the non-specific nature of clinical symptoms and lack of precise diagnostic modalities, early identification of vision loss secondary to an underlying connective tissue disease is critical in guiding management and maintaining visual acuity. Early initiation of steroids is the mainstay in preventing further vision loss while maintaining stability with immunomodulating drugs is an emerging treatment modality.

## References

1. Watts RA, Scott DG. Recent developments in the classification and assessment of vasculitis. *Best Pract Res Clin Rheumatol* 2009; 23:429.
2. Huey C, Jakobiec FA, Iwamoto T, et al. Discoid lupus erythematosus of the eyelids. *Ophthalmology* 1983; 90:1389.
3. Gold DH, Morris DA, Henkind P. Ocular findings in systemic lupus erythematosus. *Br J Ophthalmol* 1972; 56:800.
4. Lanham JG, Barrie T, Kohner EM, Hughes GR. SLE retinopathy: evaluation by fluorescein angiography. *Ann Rheum Dis* 1982; 41:473.
5. Giorgi D, Pace F, Giorgi A, et al. Retinopathy in systemic lupus erythematosus: pathogenesis and approach to therapy. *Hum Immunol* 1999; 60:688.
6. F.J. Stafford-Brady, M.B. Urowitz, D. et al. Lupus retinopathy; Patterns, associations, and prognosis. *Arthritis and Rheumatism* 1988; 31:9.1105.
7. EJ Feinglass, F.C. Arnett, C.A. Dorsch, et al. Neuropsychiatric manifestations of systemic lupus erythematosus: diagnosis, clinical spectrum, and relations to other features of the disease. *Medicine* 1976; 55: 323.
8. Giorgi D, Gabrieli CB. Optic neuropathy in systemic lupus erythematosus and antiphospholipid syndrome (APS): clinical features, pathogenesis, review of the literature and proposed ophthalmological criteria for APS diagnosis. *Clinical Rheumatology* 1999; 18:2.
9. Sokoloff, L, McCluskey RT, Bunim JJ. Vascularity of the early subcutaneous nodule of rheumatoid arthritis. *AMA Arch Pathol* 1953; 55:475.
10. Scott DG, Bacon PA, Tribe CR. Systemic rheumatoid vasculitis: a clinical and laboratory study of 50 cases. *Medicine (Baltimore)* 1981; 60:288.
11. Voskuyl AE, Zwinderman AH, Westedt ML, et al. Factors associated with the development of vasculitis in rheumatoid arthritis: results of a case-control study. *Ann Rheum Dis* 1996; 55:190.
12. Okhravi N, Odufuwa B, McCluskey P, Lightman S. Scleritis. *Surv Ophthalmol* 2005; 50:351.
13. Squirrel DM, Winfield J, Amos RS. Peripheral ulcerative keratitis 'corneal melt' and rheumatoid arthritis: a case series. *Rheumatology (Oxford)* 1999; 38:1245.
14. Durrani K, Papaliadis GN, Foster CS. Pulse IV cyclophosphamide in ocular inflammatory disease. *American Academy of Ophthalmology* 2004; 111:960.
15. Martin-Suarez I, D'Cruz D, Mansoor M, et al. Immunosuppressive treatment in severe connective tissue diseases: effects of low dose intravenous cyclophosphamide. *Ann Rheum Dis* 1997; 56: 481-7.
16. McCune WJ. Immunosuppressive drug therapy. *Curr Opin Rheumatol* 1996;8:183-7.
17. Pujari SS, Kempen JH, Newcomb CW, et al. Cyclophosphamide for ocular inflammatory disease. *American Academy of Ophthalmology* 2010; 117:356.
18. Nikolov NP, Smith JA, Patronas NJ, Illei GG. Diagnosis and treatment of vasculitis of the central nervous system in a patient with systemic lupus erythematosus. *Nat Clin Pract Rheumatology* 2006; 2:627.