A 27-Year-Old Man with Two Weeks of Blurred Vision and Floaters in his Left Eye

Avinash Honasoge, MD, PhD; Thanos Papakostas, MD

Introduction:

A 27 year-old black man presented to our clinic with two weeks of blurred vision and floaters in his left eye. His past medical and ocular histories were unremarkable. His vision was 20/20 in the right eye and 20/40-1 in the left eye. His anterior segment exam was unremarkable in both eyes, as was his right eye fundus exam. His left eye had focal vitritis overlying an area of juxtapapillary retinal whitening (Fig. 1a). Optical coherence tomography demonstrated retinal hyper reflectivity and subretinal fluid along the superior arcade with overlying vitreous opacities (Fig. 2a). Upon questioning, the patient had five snakes to which he tended. One of these snakes itself had a recent eye infection for which he had been administering intramuscular antibiotics (Fig. 3). In addition, he disclosed that he frequently eats raw venison that he hunts himself and a few months prior to presentation he developed fevers and lymphadenopathy after consumption of raw venison.

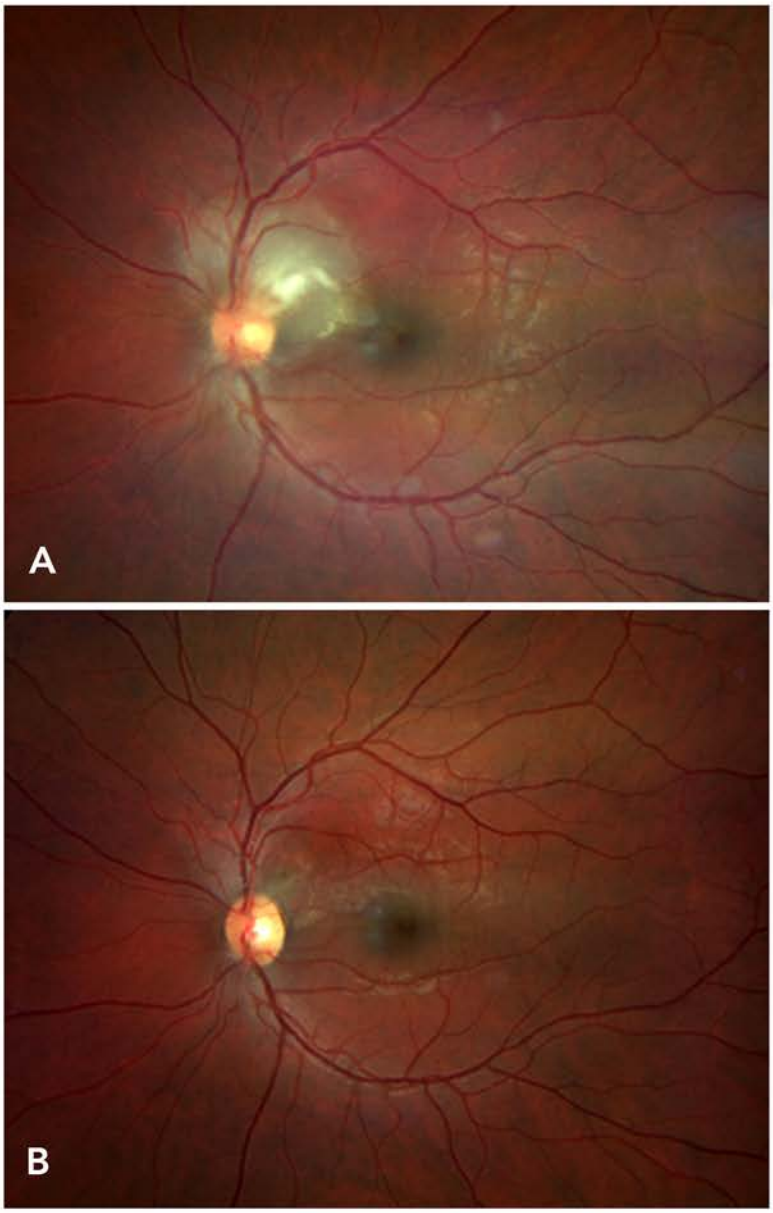

Figure 1. Fundus photo of the left eye at presentation (A) and three months after treatment (B).

Exam:

A workup (RPR, ESR, HIV, bartonella antibodies, quantiferon gold, toxoplasma antibodies) was unremarkable except for a positive toxoplasma IgG titer. Given the history, appearance of the lesion, and the serology, ocular toxoplasmosis was diagnosed. The patient was placed on trimethoprim-sulfamethoxazole and oral steroids. Within three months, his retinal edema and overlying vitritis had resolved and he regained 20/20 vision in his left eye (Figs. 1b and 2b).

Discussion:

Toxoplasmosis gondii is a single-cell obligate intracellular protozoan parasite. It is commonly hosted in cats, humans, and reptiles among other animals. IgG seropositivity rates for T. gondii vary widely but are

generally 10-15% in the United States and approximately 30% worldwide – indicating widespread past infection – with certain regions possessing an 80% infection rate. The two major routes of infection are consumption of contaminated food or water and transplacental migration during maternal infection. Risk factors for acquiring toxoplasmosis include handling of cat feces or handling of reptiles. Another risk factor is consumption of undercooked or raw meat.

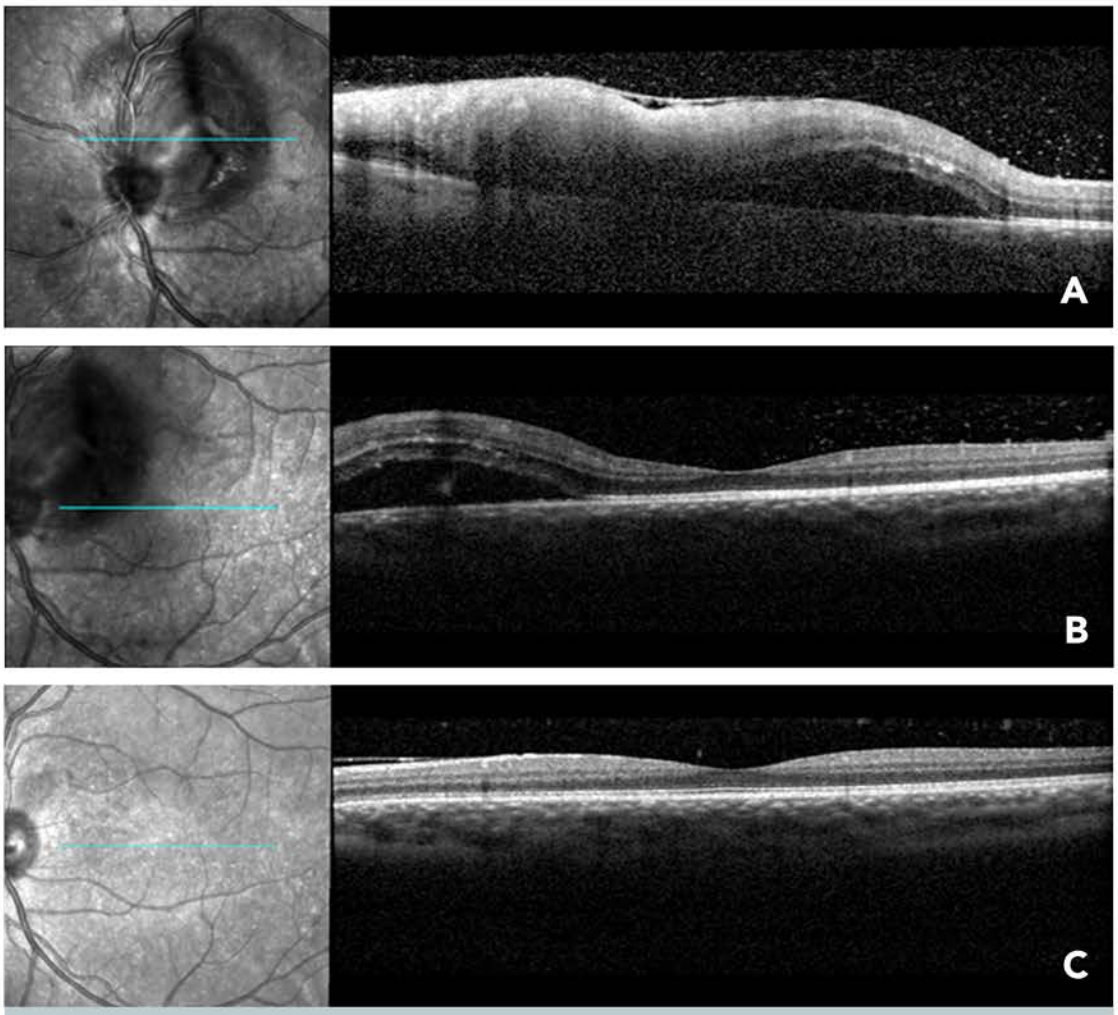

Figure 2. Optical coherence tomography of the left eye through the juxtapapillary lesion (A) and fovea (B) at presentation. Follow-up imaging three months later demonstrated full resolution of the lesion (C).

Ocular toxoplasmosis is the most common cause of infectious retinochoroiditis in the world. It typically presents as an area of retinitis with overlying vitritis. The vitritis can be quite profound and provide a "fog in the headlights" appearance. This area of retinitis may abut the pigmented chorioretinal scar of a past infection. Additional findings can commonly include keratic precipitates, anterior chamber cell, and inflammatory ocular hypertension and uncommonly include neuroretinitis and bone spicules mimicking retinitis pigmentosa. Patients usually complain of blurred vision and floaters, with accompanying eye pain if there is concomitant iridocyclitis.

Differential diagnosis for ocular toxoplasmosis includes other infectious (tuberculosis, viral infection, toxocariasis, syphilis, and bartonella) and autoimmune (sarcoidosis, Behcet's, systemic lupus erythematosus) diseases. Workup includes investigation of those other causative organisms and autoimmune diseases in addition to obtaining toxoplasma IgG and IgM blood titers. Importantly, in an immunocompromised individual, the antibody titers to toxoplasmosis may be negative, and clinical correlation with a positive medical history of exposure may be required. In equivocal cases, polymerase chain reaction of an aqueous or vitreous sample for T. gondii DNA can secure the diagnosis.

Classic treatment for toxoplasmosis is "triple therapy" which includes systemic pyrimethamine, sulfadiazine, and corticosteroids. More recently, trimethoprim-sulfamethoxozole has become widely prescribed due to availability and fewer side effects with excellent results. In those with a sulfa allergy, clindamycin can be used instead. One can also inject intravitreal clindamycin with intravitreal steroids with good efficacy. If the retinitis is peripheral, observation is also a reasonable approach. Patients should be educated that they have a

lifelong risk of reactivation. Some patients may require prophylactic low-dose antibiotic therapy long-term to prevent recurrence.

References :

1. Casoy J, Nascimento H, Silva LMP, et al. Effectiveness of Treatments for Ocular Toxoplasmosis. Ocul Immunol Inflamm. 2020;28(2):249-255. doi:10.1080/09273948.2019.1569242

2. Greigert V, Di Foggia E, Filisetti D, et al. When biology supports clinical diagnosis: review of techniques to diagnose ocular toxoplasmosis. Br J Ophthalmol. 2019;103(7):1008-1012. doi:10.1136/bjophthalmol-2019-313884

3. Nasiri V, Teymurzadeh S, Karimi G, Nasiri M. Molecular detection of Toxoplasma gondii in snakes. Exp Parasitol. 2016;169:102-106. doi:10.1016/j.exppara.2016.08.002

4. Smith JR, Ashander LM, Arruda SL, et al. Pathogenesis of ocular toxoplasmosis. Prog Retin Eye Res. 2021;81:100882. doi:10.1016/j.preteyeres.2020.100882

5. Soheilian M, Ramezani A, Azimzadeh A, et al. Randomized Trial of Intravitreal Clindamycin and Dexamethasone versus Pyrimethamine, Sulfadiazine, and Prednisolone in Treatment of Ocular Toxoplasmosis. Ophthalmology. 2011;118(1):134-141. doi:10.1016/j.ophtha.2010.04.020

Figure 3. Photos obtained by the patient of one of his snakes that had developed a recent eye infection for which it was receiving intramuscular antibiotics.

THE RETINA INSTITUTE

2201 Brentwood Blvd.
St. Louis, MO 63144
(314) 367-1181
tri-stl.com

Kevin J. Blinder, MD
Sabin Dang, MD
Alia K. Durrani, MD
Nicholas E. Engelbrecht, MD
M. Gilbert Grand, MD
Daniel P. Joseph, MD, PhD
Thomas K. Krummenacher, MD
Athanasios Papakostas, MD
Gaurav K. Shah, MD
Bradley T. Smith, MD