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CASE REPORT

Presumed acute unilateral toxoplasma papillitis without vitritis: A case report

Kasim Aktas,[1] Mehmet Canleblebici,[2] Mehmet Balbaba,[1] Hakan Yildirim[1]

[1]Department of Ophthalmology, Firat University, Faculty of Medicine, Elazig, Türkiye
[2]Department of Ophthalmology, Kayseri State Hospital, Kayseri, Türkiye

Abstract

Ocular toxoplasmosis is the most common cause of infectious retinochoroiditis in humans. Atypical and unilateral presentations such as papillitis without vitritis are especially challenging for diagnosis. Here, we report a case of a 17-year-old man with unilateral *Toxoplasma* papillitis without vitritis. Fundus examination revealed unilateral inflammation in the right optic disc and peripapillary area. *Toxoplasma* immunoglobulin (Ig)M titer was positive and IgG negative. During the follow-up, while the IgM titer decreased, the IgG titer increased. After possible etiologies were excluded, the patient was diagnosed with presumed *Toxoplasma* papillitis with a complete absence of vitritis at presentation. The patient was treated with appropriate antiparasitic agents and good response was observed without recurrence.

Keywords: Ocular toxoplasmosis, Papillitis, *Toxoplasma* immunoglobulin M

Ocular toxoplasmosis is caused by infection with the obligate intracellular parasite *Toxoplasma gondii*, which can affect all warm-blooded vertebrates.[1] The parasitic infection of the ocular structures caused by *T. gondii*, offers a wide variety of clinical presentations. Common clinical findings are unilateral chorioretinal lesions and posterior uveitis with vitritis.[2] In addition, posterior segment complications of ocular toxoplasmosis include cystoid macular edema, vasculitis, and choroidal neovascularization.[3] Another rare complication is unilateral papillitis, which has been reported previously in the literature.[4] Although the presence of any degree of associated vitreous inflammation and typical toxoplasmosis scars may support the diagnosis, the absence of vitreous inflammation at presentation should not exclude the diagnosis of *Toxoplasma* papillitis.[5] This study aims to discuss the clinical features of a case of unilateral papillitis presenting without vitritis.

Case Report

A 17-year-old male patient was applied clinic with the complaint of painless temporary vision loss in his right eye that had developed 15 days ago. He had no recent illness or other systemic complaints such as fever and/or lymphadenopathy and did not receive any medications. He was in good general health and had

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Correspondence: Mehmet Canleblebici, M.D. Department of Ophthalmology, Kayseri State Hospital, Kayseri, Türkiye
E-mail: mehmetcl@hotmail.com
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a history of contact with a cat that was not vaccinated for *Toxoplasma*. The best corrected visual acuities were 20/25 for the right eye and 20/20 for the left eye. Pupil reflexes were normal with no relative afferent pupil defect. Color vision, contrast sensitivity, and light brightness affection were normal for bilaterally. Intraocular pressure was 14 mmHg in both eyes with applanation tonometry. The anterior chamber was free of any inflammatory cells. In the posterior segment examination, there was no evidence of inflammation in the vitreous, bilaterally. In a fundoscopic examination, it was revealed a swollen right optic disc with associated peripapillary hemorrhage and blurred margins, venous engorgement, and exudate-like lesions in the right eye. Fundus examinations of the left eye were unremarkable (Fig. 1). Optic disc hyperfluorescence and leakage with hypofluorescence areas due to retinal hemorrhages were detected on fluorescein angiography in the right eye and left eye was normal (Fig. 2). Optical coherence tomography for both eyes was normal for the macula (Fig. 3).

General and neurological examinations were normal. Laboratory examinations revealed normal complete blood count, normal urea, creatinine, electrolytes, and urine analysis. The purified protein derivative test for tuberculosis was negative. Anti-HIV enzyme-linked immunosorbent assay (ELISA) antibodies and Western blot rapid test for HIV screening were negative. Serum anti-*Toxoplasma* antibody titer showed immunoglobulin (Ig) M positivity* at 2.80 IU/μL but IgG negative at 0.00 IU/μL (*The ARCHITECT immunoassay). After 3 days, IgM was again positive at 1.81 IU/μL studied and IgG was 0.01 IU/μL.

In the presence of clinical manifestations suggestive of toxoplasmosis papillitis and with positive IgM antibodies to *T. gondii*, systemic empirical treatment addressing *Toxoplasmosis gondii* was started. The treatment was initiated orally on day 3 post presentation and continued for 6 weeks with trimethoprim 160 mg/sulfamethoxazole 800 mg (Bactrim Forte, Deva Holding Corp. Istanbul, Türkiye) twice daily, clindamycin 150 mg (Klindan, Bilim Pharmaceuticals, Istanbul, Türkiye) two tablets 3 times daily, and folic acid 5 mg (Folbiol, I.E. ULAGAY-Menarini Group, Istanbul, Türkiye). We introduced oral prednisone under the shield of antibiotics on day 2 after start of anti-toxoplasmosis medications with a dose of 1 mg/kg daily and then tapered until the end of the treatment. Clinical improvement was noticed 3 weeks following treatment. Six weeks after treatment, the vision of right eye was 20/20; in fundus examination, the right optic disc edema had disappeared, whereas the peripapillary hemorrhage resolved without any retinochoroiditis pigmented scar (Fig. 4).

A written consent form was obtained from the patient to publish this case and images.

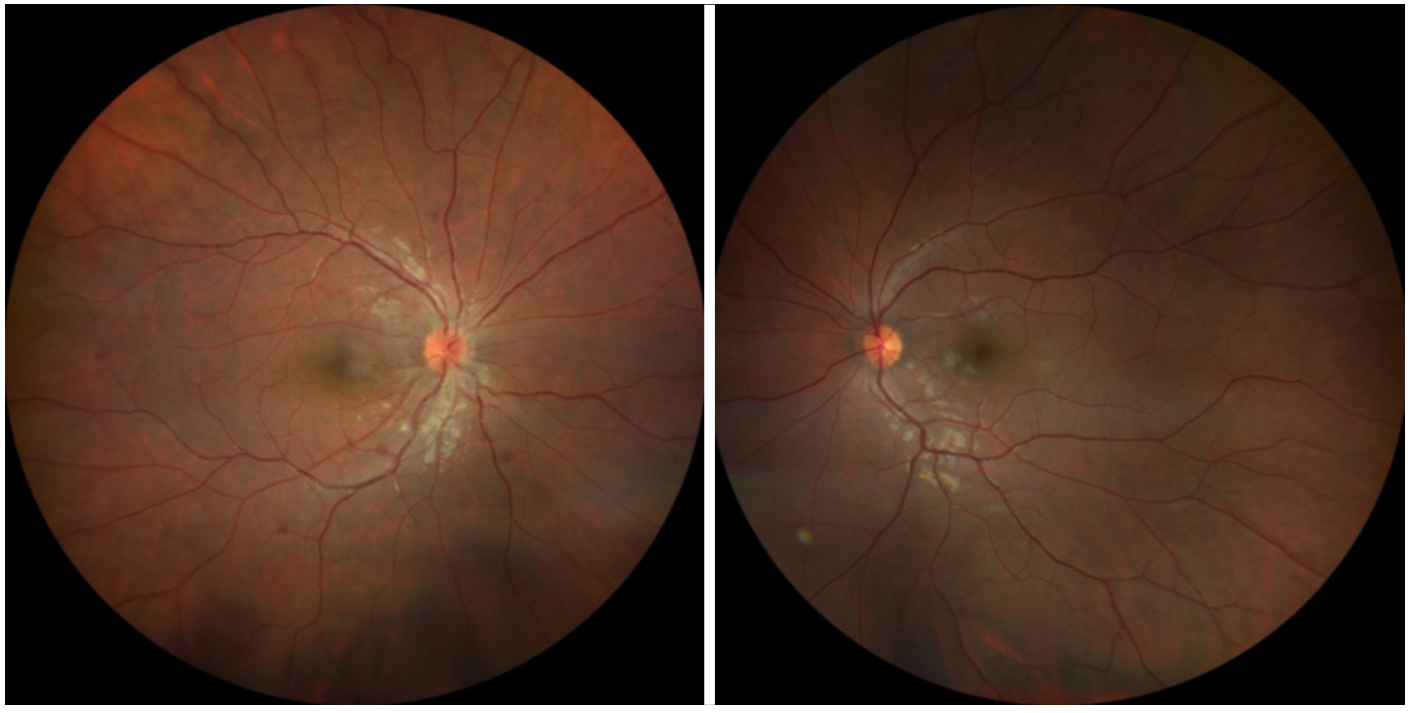

Fig. 1. Right eye with swollen optic disc with blurry margins and peripapillary hemorage with exudate like lesions and venous engorgement and normal left eye.

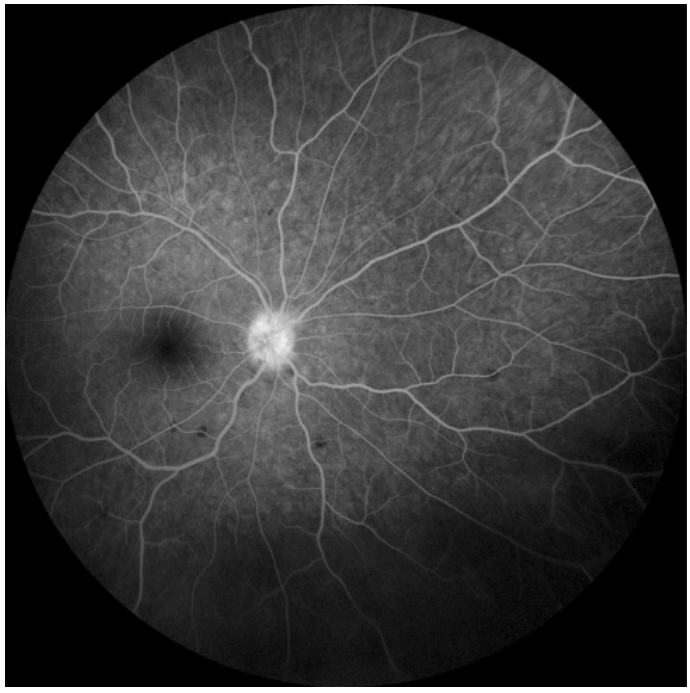

Fig. 2. Right eye optic disc hyperfluorescence and leakage and hypofluorescence areas retinal hemorrhages with fluorescein angiography.

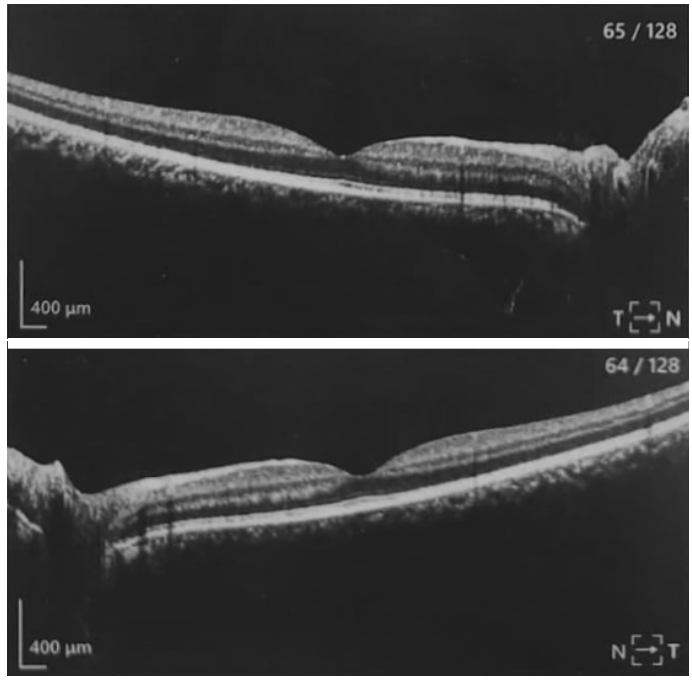

Fig. 3. Bilateral optical coherence tomography was revealed no pathology.

Discussion

Unilateral papillitis and neuroretinitis are rare manifestations of ocular *T. gondii* infection and it is a diagnostic challenge. In the presence of *Toxoplasma* papillitis or neuroretinitis, vitritis usually accompanies. An unusual presentation for toxoplasmosis, our patient had optic nerve involvement without vitritis. This atypical symptom required the exclusion of other infectious factors that could cause optic neuritis, such as tuberculosis, Lyme diseases, syphilis, herpes, and cytomegalovirus.[6]

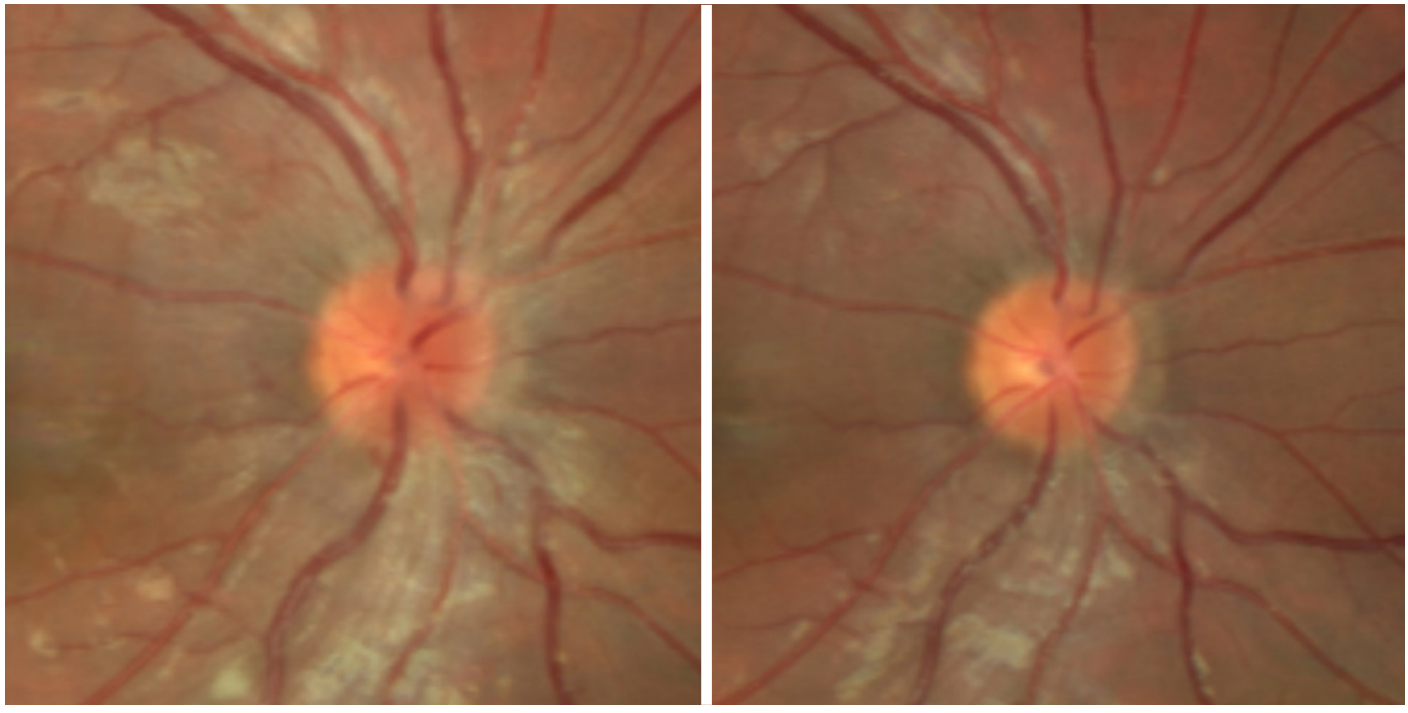

Fig. 4. Before and after treatment; resolution of right optic disc edema and peripapillary hemorrhage and exudate like lesions without any retinochoroiditis pigmented scar.

Acquired ocular toxoplasmosis is essentially a clinical diagnosis. A positive *T. gondii* IgM test supports the diagnosis, but acute illness is not always seen, as it can also be caused by reactivation.[2,7] *T. gondii* IgG avidity test can be used to distinguish between acute, chronic, and past *Toxoplasma* infections. Our patient had low IgG avidity, which indicates an acute infection along with a high IgM/IgG ratio. In the treatment of ocular *Toxoplasma*, steroid therapy is especially important when optic disc and macula are involved, and many authors recommend that it should be given under an antibiotic shield.[8] We think that steroid treatment, which was started under the antibiotic shield after the diagnosis of our case, provided a fast and good response and healing without tissue damage.

Mikhail and Varikkara reported a case of ocular *Toxoplasma* papillitis without vitreous inflammation at presentation with *Toxoplasma* IgG positivity and IgM negativity but the patient developed later neuroretinitis, juxta papillary retinochoroiditis, and vitritis which is reactivation of toxoplasmosis.[9] Moreover, Ngoma et al. reported another case with *Toxoplasma* papillitis without vitritis in the left eye but the patient also reactivation of ocular toxoplasmosis with obvious right eye retinochoroiditis scar.[10] The difference in our case is acute infection with IgM positivity, and absence of typical diagnostic findings but rapid and good response for appropriate treatment for an exclusion diagnosis of ocular toxoplasmosis.

Conclusion

Acute acquired ocular *Toxoplasma* in immunocompetent individuals may present with unilateral papillitis without vitritis. It was observed that a good response was obtained with appropriate treatment given with early diagnosis. Our case shows that such a diagnosis should be suspected even without vitritis with acute unilateral ocular *Toxoplasma* papillitis can be observed and clinicians should keep in mind this rare cause for the diagnosis of unilateral papillitis.

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report.

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