



## Unusual optic disc placement of toxoplasmosis in a diabetic patient

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### ABSTRACT

A 44-year-old woman presented to our clinic with reduced vision in the right eye for two weeks. Visual acuity was 4/10 in the right eye. A swelling optic disc, vascular attenuation in the optic nerve head, a few splinter hemorrhages around the optic disc, and moderate vitritis were detected in the right eye. The left eye was normal. She had a diabetes mellitus (DM) history for five years. Serum IgM and IgG found a high titer for toxoplasmosis. A papillitis was diagnosed that was caused by primary toxoplasmosis without any chorioretinal focus. The patient was treated with an appropriate systemic antibiotics for toxoplasmosis and per oral corticosteroid. Optic disc swelling resolved within four weeks. Visual acuity was 9/10 two months later. We aimed to emphasize that the unusual placement of toxoplasmosis should be kept in mind in the differential diagnosis of papillitis in diabetic patients.

**Key words:** *Toxoplasmosis, papillitis, diabetes mellitus*

### Introduction

Toxoplasmosis is one of the most common causes of posterior uveitis caused by *Toxoplasma gondii* [1]. These infections include focal inflammation and necrosis of the retina and choroid, classically presents at the focus of the new retinitis adjacent to an old chorioretinal scar [2]. The unusual focal inflammation within or around the optic nerve head is rare, characterized by subacute visual loss and optic nerve swelling [3,4]. The visual impairment may be affected by the location of lesion and/or the amount of inflammation [4,5]. The permanent visual impairment is related to location and

size of the lesion, especially in cases where the lesion affects the foveal and parafoveal center [5]. Often, ocular toxoplasmosis is controlled with medical therapy to resolve inflammation, but it generally results in a chorioretinal scar [5,6].

Papillitis is a general term implying inflammation, degeneration, or demyelization of the optic nerve. It is indistinguishable ophthalmoscopically from papilledema but papillitis is accompanied by a dramatic decrease in visual acuity and afferent pupil defect is readily apparent [3,7]. The term papilledema refers to true edema of the optic nerve head due to increased intracranial

pressure and usually demonstrates hyperemia, capillary dilatation and flame-shaped hemorrhage [7–9]. We report a case of papillitis caused by primary toxoplasmosis in diabetic patient that was treated with an appropriate systemic antibiotics and corticosteroid.

### Case Report

A 44 year-old woman presented to our ophthalmology clinic with reduced vision in her right eye for 2 weeks. At the initial examination, best-corrected visual acuity was 4/10, color discrimination was impaired, and relative afferent pupil defect was slightly positive in the right eye. In the fundus examination, moderate vitritis, optic disc swelling and a few splinter hemorrhages around the optic disc were detected in the right eye (Figure 1A). Intraocular pressure was within normal limits bilaterally (14/15 mmHg). The left eye was normal. She has a history of diabetes mellitus (DM) and has used oral antidiabetic medication for 5 years. Laboratory workup results included an erythrocyte sedimentation rate of 48 mm/h (Reference range [R] 0–30), glucose 244 mg/dL (R 74–106), HbA1c 10.5% (R 4–6).

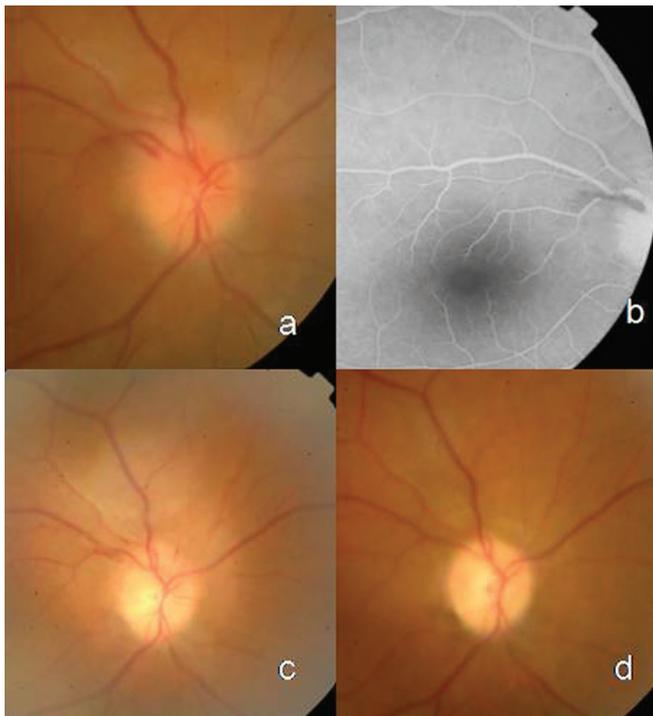
Serological testing for toxoplasmosis was positive for both IgG and IgM. IgM titer was 1.48 (R 0.8–1.19) and IgG was 88.8 (R 4–7.99). Serological testing for

*Treponema pallidum* and HIV were negative. Fluorescein angiography showed mild optic disc late hyperfluorescence leakage and hypofluorescence area formed by splinter hemorrhage at the temporal side of optic disc in right eye (Figure 1B). T1 weighed axial magnetic resonance images were found to be normal. As serum IgM and IgG both had a high titer for toxoplasmosis, the reduced vision was diagnosed as being caused by primarily toxoplasmal papillitis without any chorioretinal focus. She was treated with oral antibiotics including sulphadiazine and pyrimethamine combination (2 X 80/400mg/day), and clindamycin (4 X 150mg/day). A long-acting steroid (Depomedrol) was injected to the retrobulbar area. Prednisone (1 mg/kg) was introduced orally, at tapering doses, one week later. The inflammation decreased within 2 weeks (Figure 1C). After 2 months, visual acuity was 9/10 in the right eye. Vitritis, optic disc edema, and hemorrhages regressed with a small chorioretinal scar remaining adjacent to the infero-temporal margin of the optic disc (Figure 1D).

### Discussion

If one has papilledema and significantly decreased visual acuity, differential diagnoses should be considered for anterior ischemic neuropathy, diabetic papillitis, and other infectious and central nervous system infections [9,10]. Since the patient had a 5-year history of diabetes mellitus (DM), we considered diabetic papillitis in prediagnosis. Bayraktar et al. [11] reported that diabetic papillopathy may be found in older patients with type II diabetes, and nonproliferative or proliferative diabetic retinopathy as well as macular edema may also be associated with this disorder.

Toxoplasmic chorioretinitis can be usually diagnosed clinically with a characteristic fundus appearance. The fundus appearance is usually a solitary focus of active chorioretinitis adjacent to a chorioretinal scar [4,6]. The optical disc involvement without a particular focus of chorioretinitis is a rare placement in toxoplasmosis [8]. The laboratory analysis was performed to investigate for all of the papillitis etiology including *Toxoplasma gondii* in this patient. The diagnosis of toxoplasmosis was confirmed with the presence of high titer antibody both Ig M and Ig G in the blood samples and inflammation gradually regressed after anti-Toxo-



**Figure 1.** The clinical course of the case. (A) Fundus photograph at presentation, (B) Fluorescein angiogram at presentation, (C) Appearance two weeks later, and (D) Appearance at the final visit.

plasmal therapy. The seropositivity rate of toxoplasma in the community ranges from 14% to 90% depending on the living environment and hygiene conditions [12,13]. Although at least a third of the world human population are infected with the parasite, the infection usually has an asymptomatic nature and people may not be aware that they are experiencing disease [5,14].

However, primary maternal infection may cause health-threatening sequelae for the fetus, or even cause death in utero. In addition, reactivation of a latent infection in immune deficiency conditions such as AIDS and organ transplantation can cause fatal toxoplasmic infection; unusual placement of ocular toxoplasmosis is more common in these patients [5,8]. Barisani et al. [15] reported that a high percentage of uveitis was seen along with systemic diseases. According to their study, while infectious agents are involved in the cross etiology of uveitis in almost 19% of all cases, the high percentage is mainly due to the high numbers of ocular toxoplasmosis (7%). Moreover, the patients with diabetes mellitus (DM) have a poor immune system and they are susceptible to opportunistic infection agents.

As a result, the optic disc is one of the rare primary focuses in toxoplasmosis. As diabetes mellitus (DM) can be a cause of papillitis, it may also predispose to opportunistic infections such as toxoplasmosis. We aimed to emphasize that the unusual placement of toxoplasmosis should be kept in mind in differential diagnosis of papillitis in diabetic patients.

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