Bilateral ocular toxoplasmosis in an elderly immunocompetent patient: A rare case of sequential vision loss

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SUMMARY

We report a rare case of bilateral ocular toxoplasmosis in a 74-year-old immunocompetent woman who presented with sequential progressive visual loss, initially in the right eye followed by the left. The clinical picture was atypical for age, and initial differential diagnoses included endogenous endophthalmitis and masquerades syndrome. Despite initial intravitreal and systemic antibiotics her eye condition remains status quo hence diagnostic vitrectomy and vitreous biopsy was performed, however yielded negative findings. Investigations revealed positive Toxoplasma gondii IgG antibodies. Final diagnosis of ocular toxoplasmosis was established, and she responded to prolonged anti-toxoplasma treatment. This case highlights the importance of considering toxoplasmosis in the differential diagnosis of posterior uveitis, even in elderly immunocompetent individuals.

INTRODUCTION

Toxoplasma gondii is an obligate intracellular protozoan parasite that infects nearly one-third of the global population. Ocular involvement, in the form of toxoplasmic chorioretinitis, typically results from congenital infection or reactivation of latent cysts in the retina. Although generally seen in younger patients, especially adolescents and young adults, elderly cases have been documented but remain rare. Bilateral ocular toxoplasmosis is uncommon, particularly in immunocompetent individuals. It can pose a diagnostic challenge, especially when the clinical presentation mimics other infectious or non-infectious causes of posterior uveitis or endophthalmitis. Dense vitritis, as seen in this case, may obscure chorioretinal lesions and complicate the clinical assessment.

This case report illustrates an atypical presentation of bilateral ocular toxoplasmosis in elderly, immunocompetent woman, initially treated for bilateral endogenous endophthalmitis. Early recognition, appropriate antimicrobial therapy, and surgical intervention resulted in better visual recovery and resolution of inflammation.

CASE PRESENTATION

A 74- year-old woman with a background of hypertension, hyperlipidemia, and a history of benign breast lumpectomy presented with gradually worsening blurring of vision in her right eye for six months. Three months later, she developed similar symptoms in the left eye, along with bilateral eye floaters. There was no associated redness, eye pain, photophobia, or discharge. Her prior ophthalmic history included uncomplicated bilateral cataract surgeries performed years earlier. She reported no history of recent travel, trauma, animal contact, or pet ownership. Systemic review was otherwise unremarkable.

On presentation, her best-corrected visual acuity (BCVA) was counting fingers (CF) in both eyes. Anterior segment examination revealed bilateral mutton-fat keratic precipitates, anterior chamber cells 3+, and no hypopyon, fibrin, or iris nodules. The conjunctiva and eyelids appeared normal with no chemosis. Intraocular pressures were within normal range. Fundus examination was limited due to dense vitritis, although a faint hue of the optic disc was visible in both eyes. B-scan ultrasonography showed dense vitreous opacities bilaterally and inferior exudative retinal detachment in the left eye. Based on these findings, a provisional diagnosis of bilateral endogenous endophthalmitis was made, and she was admitted for further management.

Initial treatment included intravitreal vancomycin and ceftazidime in both eyes. The patient was treated with systemic ciprofloxacin to cover for infection. Vitreous taps were performed and sent for microbiological analysis, including gram stain, culture, and cytology. Laboratory workup, including complete blood count, ESR, CRP, renal and liver function tests, HIV screening, autoimmune panel, and tumor markers, was unremarkable. Notably, Toxoplasma gondii IgG was positive with negative IgM, suggesting prior exposure or reactivation.

Considering the positive Toxoplasma gondii IgG serology and unremarkable culture results, ocular toxoplasmosis was considered in the differential diagnosis. The patient was treated with oral trimethoprim-sulfamethoxazole twice daily and oral prednisolone, initiated 48 hours after antimicrobial therapy.

Due to persistently dense vitritis obscuring fundal view, the patient underwent pars plana vitrectomy and vitreous biopsy in both eyes for both diagnostic and therapeutic reasons.

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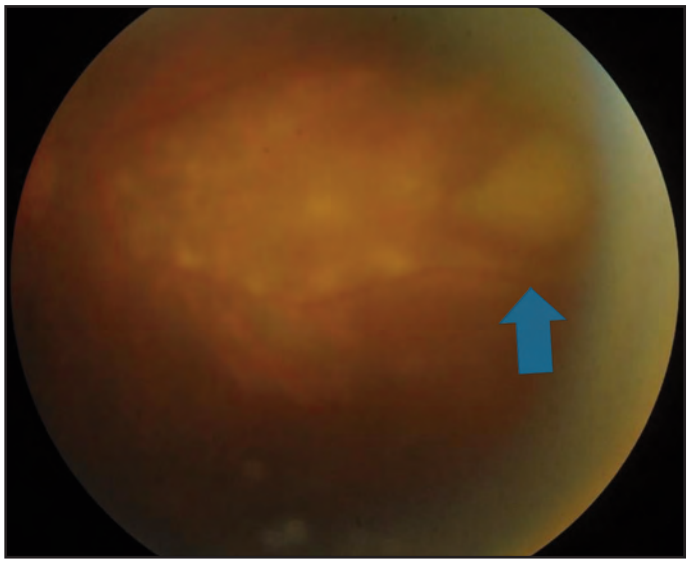

Fig. 1: Fundus photo 2 weeks post vitrectomy: Right eye showed large area of retinitis adjacent to chorioretinal scarring

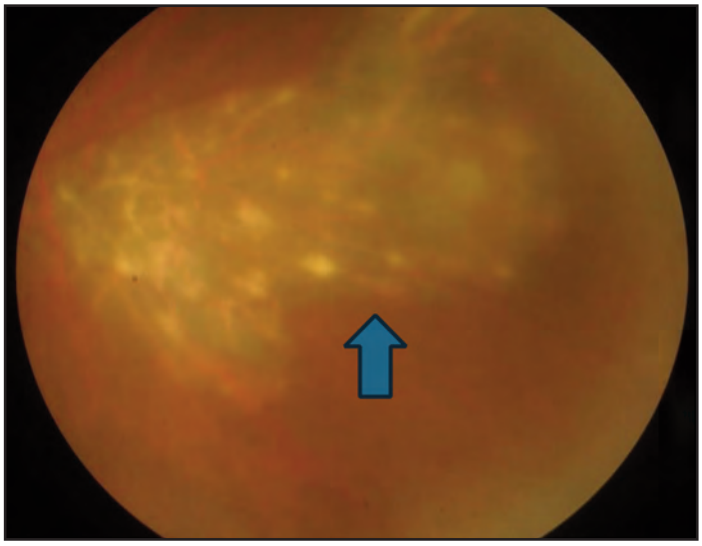

Fig. 2: Fundus photo at 7 month follow up showed extensive chorioretinal scarring

Intraoperative findings in the right eye included dense vitritis, a pink optic disc, and a large nasal retinal lesion with central yellowish activity surrounded by scarring. In the left eye, there were two chorioretinal lesions with well-demarcated scarring located superonasal to vascular arcade. Although positive Toxoplasma gondii IgG serology alone indicates previous exposure, the characteristic intraoperative retinal findings and exclusion of alternative diagnoses supported the diagnosis of reactivated ocular toxoplasmosis. Vitreous samples sent intraoperatively were negative for bacterial and fungal organisms. Cytology did not reveal any malignant cells. Postoperatively, her left eye showed significant improvement, with the retinal lesions progressing to inactive scarring and reduction in vitreous inflammation. The right eye, however, demonstrated slower recovery with ongoing low-grade inflammation, necessitating prolonged anti-toxoplasma therapy for a total of 20 weeks.

At final follow up, her vision had improved to 6/9 in the left eye and 6/36 complicated with vitreomacular traction (VMT) on right eye. Fundus examination showed resolution of active inflammation with well-formed chorioretinal scars. The patient remained systemically well, with no recurrence during the observation period.

DISCUSSION

Ocular toxoplasmosis remains the leading cause of posterior uveitis worldwide.[1] It typically presents in younger, immunocompetent individuals as a unilateral retinochoroiditis adjacent to a pigmented scar, associated with vitreous inflammation seen as headlight in the fog appearance in fundus examination. However, atypical presentation particularly in the elderly are increasingly reported.[2] Bilateral involvement, as seen in our patient, an immunocompetent host and often raises suspicion for masquerade syndromes such as intraocular lymphoma or other infectious etiologies like endogenous endophthalmitis or tuberculosis.[3]

The clinical diagnosis of ocular toxoplasmosis relies on the identification of characteristic retinal lesions, supported by serology. Although positive Toxoplasma gondii IgG indicates previous exposure rather than active infection, it supports the diagnosis when interpreted in the appropriate clinical context. In our patient, the diagnosis was established based on the characteristic intraoperative retinal findings following trans pars plana vitrectomy.

Polymerase chain reaction (PCR) of intraocular fluid could be considered if the diagnosis remains unclear but was not necessary here due to typical intraoperative retinal findings and clinical improvement with anti-toxoplasma therapy. In elderly patients, dense vitritis may obscure chorioretinal lesions, necessitating surgical intervention for diagnosis and therapeutic purposes.[4]

This case emphasizes the importance of considering toxoplasmosis even in the elderly patients, as age- related immune modulation or subclinical immunosuppression may predispose to reactivation. Although IgM was negative, the positive IgG, suggestive intraoperative retinal findings and favorable response to anti-toxoplasma therapy confirmed the diagnosis.[5]

Pars plana vitrectomy played a pivotal role in the management of this patient by providing both diagnostic and therapeutic benefits. Dense vitritis initially obscured the posterior segment, preventing adequate fundus examination and making clinical diagnosis challenging. Removal of the vitreous opacities restored visualization of the retina, allowing identification of the characteristic retinochoroidal lesions that strongly supported the diagnosis of ocular toxoplasmosis. In addition, vitreous biopsy facilitated microbiological analysis and cytological examination, enabling exclusion of bacterial and fungal infections as well as intraocular malignancy. Therapeutically, vitrectomy reduced the inflammatory burden by removing vitreous debris and inflammatory mediators, improved media clarity, and facilitated subsequent monitoring of treatment response. In patients with atypical presentations and dense vitritis, pars plana vitrectomy is therefore an important adjunctive procedure for both diagnostic clarification and therapeutic management.

While standard triple therapy for ocular toxoplasmosis includes pyrimethamine, sulfadiazine, and folinic acid, our patient was treated successfully with trimethoprim-sulfamethoxazole due to availability, cost, and tolerability. This regime has been shown in studies to be equally effective, especially in immunocompetent patients While the standard treatment for ocular toxoplasmosis traditionally consists of pyrimethamine, sulfadiazine, and folinic acid, alternative regimens have been increasingly adopted in clinical practice due to considerations of availability, cost, and safety profile. In our patient, oral trimethoprim-sulfamethoxazole (TMP-SMX) was selected as first-line therapy. This decision was supported by multiple studies demonstrating that TMP-SMX is an effective alternative to classical triple therapy, with comparable efficacy in terms of lesion resolution and visual outcomes, particularly in immunocompetent patients.[1,5,8] In addition, TMP-SMX offers advantages including better tolerability, simpler dosing, and reduced need for haematological monitoring compared to pyrimethamine-based regimens.

The prognosis is generally good with timely diagnosis and appropriate treatment. The recurrence rate may occur within the first year after resolution; hence, close monitoring is important, and in some cases, long-term prophylactic therapy may be required.[6-7]

CONCLUSION

This case highlights an atypical presentation of bilateral ocular toxoplasmosis in immunocompetent elderly. Although typically seen in younger individuals as a unilateral condition, clinicians should remain vigilant for atypical presentations, particularly when fundus visualization is limited by dense vitritis. In such cases, early diagnostic vitrectomy not only aids visualization and diagnostic clarification but also offers therapeutic benefit. The successful response to trimethoprim-sulfamethoxazole and corticosteroids underscores its value as a practical alternative to traditional therapy. Prompt recognition and appropriate management can lead to significant visual recovery, even in complex bilateral cases.

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DECLARATION OF PATIENT CONSENT

These authors certify that they have obtained all appropriate patient consent forms. In the form, the patient was given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

CONFLICT OF INTEREST

There was no conflict of interest.

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