LETTER TO THE EDITORS

Late isolated ocular toxoplasmosis in a belatacept-treated kidney transplant patient

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To the Editor,

Toxoplasmosis, and particularly an isolated ocular manifestation, is a rare complication after kidney transplantation [1].

A 74 year-old non-diabetic man, who had received a kidney allograft transplant for anti-PR3 antineutrophil cytoplasmic antibody (ANCA) vasculitis, presented at 11 years after transplantation with isolated acute right-eye blindness. Five years before transplantation, he had received a 6-month course of cyclophosphamide to treat ANCA vasculitis.

At transplantation, he was given basiliximab as an induction therapy, and since transplantation, the patient had received belatacept (10 mg/kg/4 weeks until month 3 post-transplant and then 5 mg/kg/4 weeks), mycophenolic acid (1 g/day), and prednisone (5 mg/day). Both the donor's and recipient's serologies were negative for cytomegalovirus. At transplantation, the CD4-positive cell count was 265/mm^3 and the CD4/CD8 ratio was 1.3. After transplantation, he was given trimethoprim-sulfamethoxazole prophylaxis for 12 months. He did not present any acute rejection episode, severe infection, or recurrence of ANCA vasculitis. He did not receive any T-cell-depleting agent. Serum creatinine level was stable since transplantation at 100 μmol/l (CKD-Epi GFR at 70 ml/min). After transplantation, CD4-positive cell count that was assessed yearly. It ranged from 69 to 350/mm^3 (median 158).

At admission, an ophthalmologic examination showed ischemic vasculitis. The fundus revealed edematous fulminant retinitis in the temporal quadrant, clear vitreous fluid, and necrotic hemorrhagic spots. The angiographic sequence showed a temporal infarct territory with micro-hemorrhage retinitis near the ischemic territory (ischemic vasculitis). Aqueous humor was collected. Ocular RT-PCR was positive for *Toxoplasma gondii*, but not for herpes simplex virus, cytomegalovirus, or varicella zoster virus. A brain MRI was normal. Extensive analyses performed on blood samples and cerebrospinal fluid were normal. Only the serology of *T. gondii*, which had remained negative since transplantation (donor positive/recipient negative), was now positive. However, the serum PCR was negative for *T. gondii*. ANCA was negative. CD4-positive cell count was 36/mm^3 and CD4/CD8 ratio was 0.52. He was tested negative for HIV. We concluded there was an isolated ocular manifestation of a late primary *T. gondii* infection in this kidney transplant patient. Although transplant patients are prompted not to consume raw meat, the investigations suggested that the origin of this infestation was caused by the consumption of undercooked meat. The patient was given pyrimethamine (100 mg loading dose, then 50 mg/day) and sulfadiazine (6 g/day) for 6 weeks. Unfortunately, after a 3 month follow-up, no recovery was observed (Fig. 1).

After kidney transplantation, toxoplasmosis usually occurs soon after transplantation in *T. gondii* seronegative recipients [1]. Induced isolated ocular *T. gondii toxoplasma* chorioretinitis is rare [1]. Analysis of intraocular fluid to identify *T. gondii* PCR is the most helpful diagnostic tool [2]. In the present case, ocular toxoplasmosis occurred late after transplantation in a patient with a low CD4 T-cell count since transplantation.

Similar to a recently reported case of isolated ocular chorioretinitis that was also observed in a kidney transplant patient [3], our patient was given belatacept. The co-stimulatory signal blockade seems to increase the risk of primary *T. gondii* infection [4]. We suggest that toxoplasmosis should be suspected in cases of isolated ocular manifestation, especially in deeply immunosuppressed patients.

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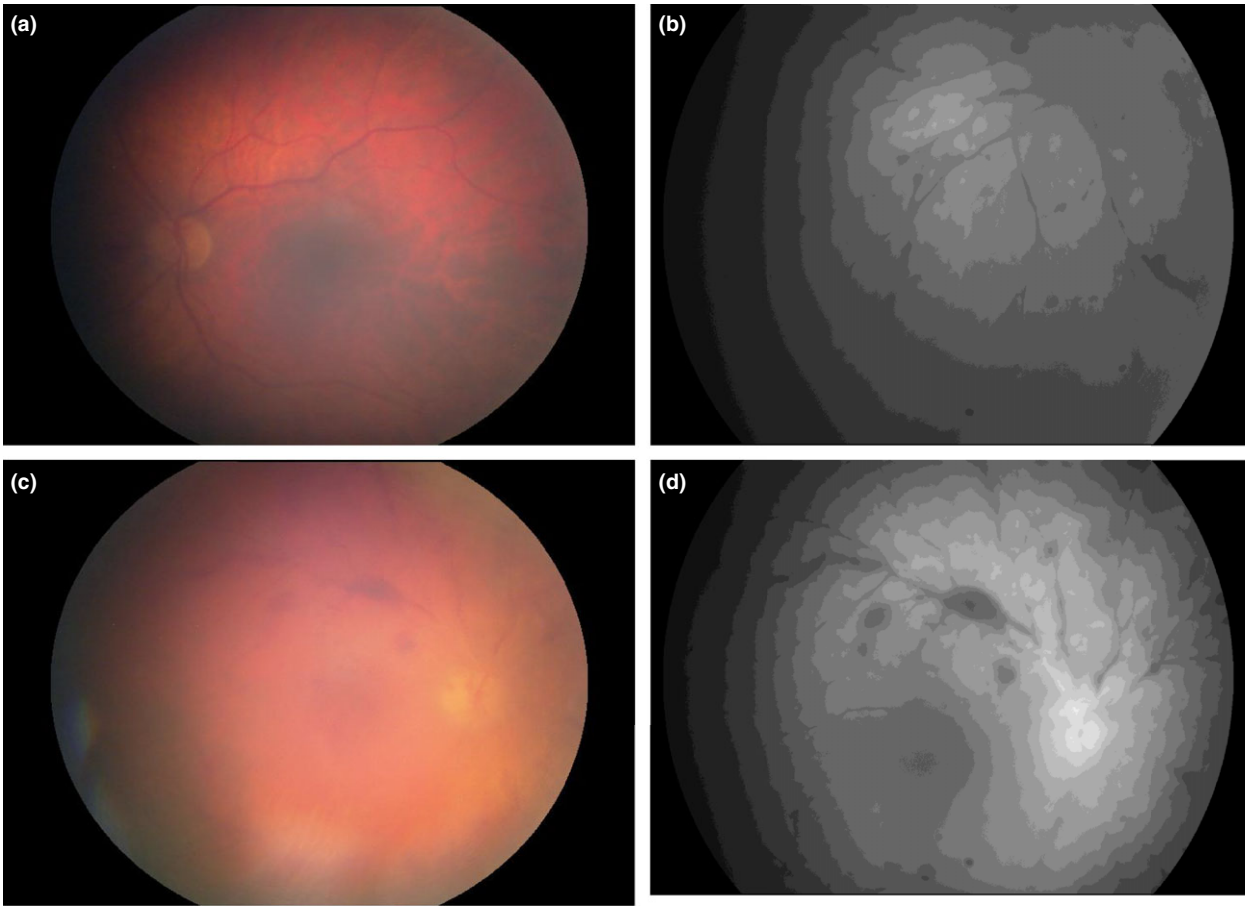

Figure 1 Left eye: Fundus color (a) and gray light-colored fundus of the posterior fundus and temporal periphery (b): Phacosclerosis. Right eye: Fundus color (c) and gray light-colored fundus of the posterior fundus and temporal periphery (d): The fundus showed edematous fulminant retinitis in the temporal quadrant, clear vitreous fluid, and necrotic hemorrhagic spots. The angiographic sequence showed a temporal infarct territory with micro-hemorrhagic retinitis near the ischemic territory (ischemic vasculitis).

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Conflicts of interest

All authors of this manuscript have no conflict of interests to disclose.

REFERENCES

1. Fernandez-Sabe N, Cervera C, Farinas MC, *et al.* Risk factors, clinical features, and outcomes of toxoplasmosis in solid-organ transplant recipients: a matched case-control study. *Clin Infect Dis* 2012; **54**: 355.
2. Talabani H, Asseraf M, Yera H, *et al.* Contributions of immunoblotting, real-time PCR, and the Goldmann-Witmer coefficient to diagnosis of atypical toxoplasmic retinochoroiditis. *J Clin Microbiol* 2009; **47**: 2131.
3. Sharma R, Shah N, Claus J, Patel S, Zachariah M. Toxoplasma chorioretinitis following renal transplantation. *Kidney Int* 2016; **89**: 724.
4. Dupont CD, Christian DA, Hunter CA. Immune response and immunopathology during toxoplasmosis. *Semin Immunopathol* 2012; **34**: 793.