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CASE REPORT

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Cytomegalovirus Retinitis in a Patient with Large Cell Diffuse Non-Hodgkin's Lymphoma

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Abstract

Non-Hodgkin lymphoma is a reticuloendothelial malignancy that generally presents with malignant proliferation of B-cell lymphocytes. Immunosuppressive drugs used in the treatment of such malignancies may cause opportunistic infections. Cytomegalovirus (CMV) can also cause such an infection.

A patient with nonhodgkin lymphoma who had decreased vision due to CMV retinitis is presented. Cytomegalovirus (CMV) retinitis is rarely seen in lymphoma patients and can be confused clinically with intraocular lymphomas.

A 27-year-old female patient who received chemotherapy for a non-Hodgkin lymphoma (NHL) presented to our clinic with loss of visual field and vision decrease, in both eyes. Fundus examination revealed retinal hemorrhages, exudative deposits and perivascular retinitis in both eyes. As it is thought to have CMV retinitis based on the clinical characteristics of the patient, we also examined serum CMV IgG, IgM and CMV DNA levels to support the diagnosis. Immediately, intravenous ganciclovir treatment was started followed by orally vanganciclovir.

Key Words: Non-hodgkin Lymphoma ; cytomegalovirus retinitis, ganciclovir, valganciclovir

Introduction

Cytomegalovirus (CMV) is a virus classified in the herpesviridae subgroup that can cause retinitis in immunocompromised patients. (1,2) Fundus examination findings and progressive decrease in vision are helpful in diagnosis.(3)

CMV retinitis can also occur in patients receiving immunosuppressive therapy due to autoimmune rheumatologic diseases and or after bone marrow transplant. (2–6)

Non-Hodgkin lymphoma is a reticuloendothelial malignancy that is generally characterized by proliferation of B-cell-derived lymphocytes. Chemotherapeutic drugs used in the treatment of this disease can exacerbate defects in the cellular immune system. Therefore, the susceptibility of these patients to opportunistic infections may increase. (7) Antiviral treatment must be started quickly, otherwise it may progress to progressive vision loss. Current drugs used in the treatment of CMV infections ganciclovir, valganciclovir, cidofovir, and foscarnet. (8)

We presented a case with cytomegalovirus retinitis, which occurred less frequently in a patient with systemic non-Hodgkin lymphoma.

Case Report

A 27-year-old female patient was admitted to our clinic with the complaints of decreased vision and loss of some parts of the visual field that started for about a month. The patient was diagnosed with grade 4 diffuse

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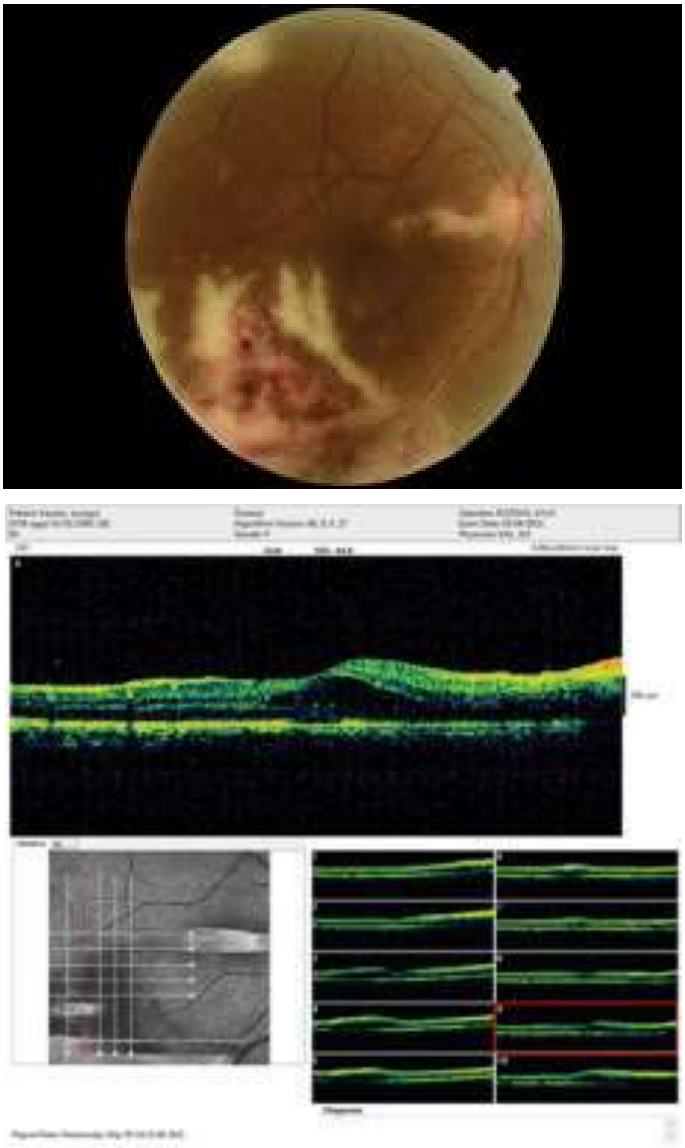
large cell non-Hodgkin lymphoma six months ago and received five cycles of combination chemotherapy that included cisplatin and rituximab. The general condition of the patient was moderate, conscious and cooperative. On examination, the best corrected visual acuity of both eyes was 20/30. Intraocular pressures were 16 mmHg and 18 mmHg, in the right and left eye, respectively. In the visual field test, there was a visual field defect in superior and superonasal quadrant in the right eye and a visual field defect in inferior and inferonasal quadrant in the left eye. She reported metamorphopsia in all quadrants on Amsler grid testing in both eyes. Extraocular movements were intact. The anterior chamber was deep and quiet. The vitreous was perfectly quiet. Dilated fundus examination revealed retinal hemorrhages, exudative deposits and perivascular retinitis of the inferior arcade extending temporally and a lesion nasal to the optic disk in the right eye. (Figure 1) Fundus examination revealed hemorrhages, exudative deposits and perivascular retinitis of the superior arcade extending temporally in the left eye. (Figure 2) Optical coherence tomography imaging showed subretinal fluid under the fovea in both eyes. (Figure1,2) Also, sheathing of some vessels in the form of icy branch angiitis was observed in both eyes. Fundus Fluorescein Angiography; hyperfluorescence that starts in the early phases and increases in the late phases and enlargements in vessel diameters associated with diffusion are considered in favor of vasculitis. (Figure 3) Laboratory results were remarkable for positive CMV IgG levels and an elevated CMV DNA to 1,158 IU/mL (normal< 137 IU/ mL). The treatment of the patient was planned in consultation with infectious diseases and oncology. In the treatment of the patient, it was planned to start intravenous ganciclovir (2.5 mg/kg per day for 3 weeks) and then continue with oral valganciclovir. Although the patient was given a control appointment 2 weeks later, she could not come because she was sent to another center for bone marrow transplantation.



Figüre 1: Right eye color fundus image and OCT

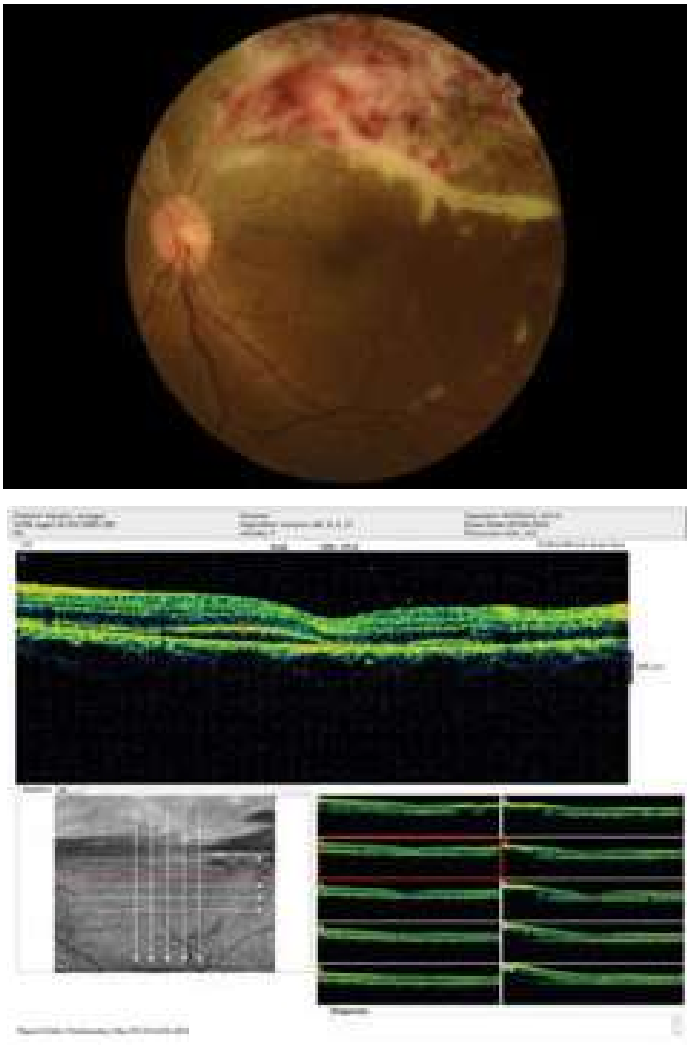


Figure 2: Left eye color fundus image and OCT

Discussion

It is known that CMV retinitis usually occurs in patients receiving immunosuppressive therapy for malignancy, organ transplantation or autoimmune diseases. Cytomegalovirus is a herpes virus that can remain latent and reactivated throughout the life of the patient. Although CMV infection in immunocompetent individuals is generally benign and self-limiting, it can cause important morbidity and mortality in immunocompromised patients. Cytomegalovirus retinitis is a rare and highly morbid CMV disease that occurs more frequently in immunosuppression. Even though hematogenous spread in the setting of viremia is the likely cause of CMV retinitis, recent studies have shown that even in immunocompetent hosts, systemic CMV infection can formed a reservoir of latent virüs in the eye itself. (9) Patients usually present with a monocular decrease in vision due to vitritis or macular involvement, and 50% progresses to bilateral involvement. In our case, firstly in the right eye and few days later in the left eye, vision loss occured. In the retina of the patients, yellow-white lesions are often seen that start at the periphery. In addition, whitish, granular retinal hemorrhages are seen. Because patients are immunocompromised, signs of vitreous inflammation may be minimal. In CMV retinitis; Three types of patterns have been described, such as granular pattern, fulminant/ hemorrhagic appearance, or "frozen branch" angiitis.The aim of treatment is to prevent further necrosis, to cure concurrent macular edema and vitreous clouding, and to repair retinal detachments that may occur. The disease is usually treated with a intravenous (ganciclovir or foscarnet) and oral (valganciclovir) or intravitreal (ganciclovir or foscarnet) antiviral therapy. (10) Şener et al. reported that a 29-year-old man was diagnosed with CMV retinitis included that to optical disc boundaries retinal edema, along the inferior temporal arch active retinitis focus and vasculitis during chemotherapy for non-Hodgkin lymphoma, and his visual complaints and retinal lesions improved with intravenous ganciclovir treatment. Such cases are clinically can be confused with intraocular lymphoma. In CMV retinitis, granular formations appear on the necrotic retinal background with bleeding and perivascular leaks, while in ocular lymphoma, dense creamy lymphomatous infiltration and sometimes retinal necrosis due to arterial occlusion are prominent. (11) In the development of CMV retinitis, predisposing factors such as corticosteroid use, chemotherapy, radiotherapy and blood transfusions are mentioned. (12) In our case, it is thought that chemotherapy applied due to her primary disease caused predisposition.

Pathanapitoon et al. In patients with uveitis with aqueous positive for CMV by PCR techniques; focal hemorrhagic retinitis, peripheral retinal necrosis, anterior segment inflammatory reaction, retinal vasculitis, and vitritis in all patients, five of whom had NHL. (13) Although, our case presented with focal haemorrhagic retinitis and retinal vasculitis, anterior chamber reaction and vitritis were not observed. In addition, bilateral CMV retinitis has been reported in NHL patients with atypically white retinal lesions due to chorioretinal inflammation in both eyes. Intraocular fluid analysis can help for the differential diagnosis between intraocular lymphoma and CMV infection. (14,15) Other authors have reported a case of non-Hodgkin's disease presenting with atypical retinitis, vasculitis, and serous macular detachment. For the differential diagnosis of involvement due to intraocular lymphoma, PCR test of the vitreous was performed and the diagnosis of CMV retinitis was confirmed.(16,17) Fan et al. reported two cases of cytomegalovirus (CMV) retinitis in patients receiving belatacept immunosuppression therapy after kidney transplantation. Fundus examination of these patients revealed perivascular retinitis, exudative deposits, and retinal necrosis areas. Optical coherence tomography showed exudative macular detachment.(18)

In conclusion, we present a case report of bilateral CMV retinitis in a patient receiving immunosuppressive therapy for grade 4 diffuse large cell non-Hodgkin lymphoma. Retinal hemorrhage, vasculitis, periphlebitis and retinitis foci are seen in these patients. In such immunosuppressive patients treated for lymphoma, especially intraocular lymphoma and CMV retinitis should be differentiated. In cases where clinical findings are insufficient, CMV can be detected quickly by PCR analysis in blood. In addition, cytological examination, culture and PCR analysis of intraocular fluids can be performed to confirm the diagnosis.

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