

AIDS PRESENTING EARLY CYTOMEGALOVIRUS RETINITIS – A CASE REPORT

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Purpose: To describe a patient had the only initial manifestation of cytomegalovirus (CMV) retinitis, was later diagnosed with Acquired immunodeficiency syndrome (AIDS). From early intervention of anti-CMV medication combined with anti-HIV drugs, the patient had good preservation of final visual outcome on follow-up examinations.

Methods: Case report

Case Report: A 30-year-old white female is an English teacher came to Taiwan for more than 2 years. She had been quite well before, without underlying disease mentioned, except for chronic allergic rhinitis. Blurred vision in progress was found herself since about 3 days ago before she visited our ophthalmologic department. Further examinations were performed, including slit lamp biomicroscopy, best-corrected visual acuity (BCVA) measurement, dilated fundus examination, visual field examination, color fundus photographs, and Fluorecein angiography.

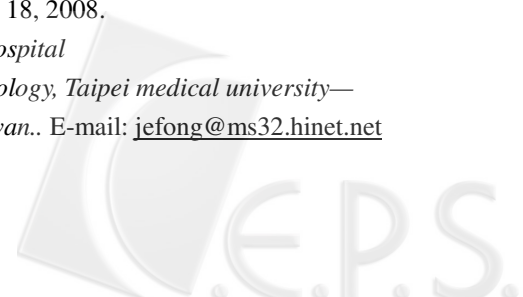
Result: Best-corrected visual acuity showed 0.7 on right eye and 1.0 on left eye initially. Relative afferent pupillary defect (RAPD) sign was observed on her right eye, whereas fundus examination showed extensive infiltration of retinitis in both eyes with “brushfire-like” pattern along retinal blood vessels. So that viral retinitis was highly suspected. Blood examination showed high titers of serum CMV antibody and anti-HIV antibody, but absolute neutrophil counts (ANC) and CD4 cell counts were still within normal limits. AIDS complicated with CMV retinitis was diagnosed. Following treatment with Gancyclovir 250 mg every 12 hours had been administered intravenously for 2 weeks. Then regimen of Gancyclovir was changed to 250 mg everyday intravenously. At the same time, anti-HIV agents with Highly-active anti-retroviral therapy (HAART, cocktail) were also given. After completing 3 weeks course of treatment, dilated fundus examination showed regressed infiltration of retinitis and good preservation of visual acuity with 0.8 on the right eye and 1.0 on the left eye. She was then discharged from ward under oral Valgancyclovir control.

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Conclusion: It is worthy to mention that CMV retinitis can still be the initial manifestation of AIDS. And satisfying outcome of final visual acuity can still be expected by early diagnosis and early intervention with anti-viral treatment.

Key words: Cytomegalovirus retinitis, AIDS, Gancyclovir, HAART

INTRODUCTION

Cytomegalovirus (CMV) retinitis is one of the most devastating complications, and is also the most common ocular opportunistic infection among patients with acquired immunodeficiency syndrome (AIDS).¹ However, CMV retinitis is rarely involved in the initial course of AIDS, or even more as the only sign of clinical manifestation.²

We want to present a patient who had been quite healthy, suffered from sudden onset of progressive blurred vision in both eyes, without complaining of other discomfort. CMV retinitis was strangely found, with HIV infection being later diagnosed, despite the patient had no immunocompromised status in blood examinations.

CASE REPORT

A 30-year-old white female is an English teacher

came to Taiwan for 2 years. She was quite healthy before, no special underlying disease mentioned, except chronic allergic rhinitis. Sudden onset of blurred vision had occurred, and got worse in progression about 3 days ago before she visited our department.

Further detailed examinations were performed, including pneumo-tonometry, best-corrected visual acuity (BCVA) measurement, slit-lamp biomicroscopy, dilated fundus examination, and automatic perimetry of visual field examination, and Fluororecein angiography.

Best-corrected visual acuity showed 0.7 on the right eye and 1.0 on the left eye when she initially visited. Relative afferent pupillary defect (RAPD) sign was also noted on the right eye. Slit-lamp biomicroscopy showed no significant findings among anterior segment of eyeball. Intraocular pressures were all within normal limits by pneumo-tonometry measurement. Further dilated fundus examination showed “brushfire-like” pattern of extensive infiltration of retinitis on both eyes, and more severe on the right eye. (Fig. 1) Visual field test also

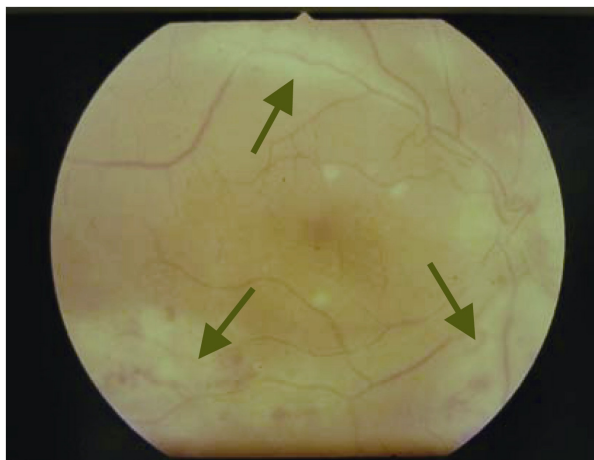


Fig. 1 Initial pictures of color fundus photography showed necrotizing retinitis over both eyes. Obvious extensive infiltration with “brushfire-like” pattern on the right eye was noted. (green arrow)

revealed compatible findings of advanced visual field loss. (Fig. 2) Fluororecein angiography revealed diffuse dye leakage accompanied with multiple patches of non-perfusion area, especially on the right eye. (Fig. 3)

Viral retinitis was highly suspected, and probable immune-compromised status was also considered. So that following examinations of blood test, chest X-ray

film, and urine analysis were performed. Normal blood cell counts and normal distribution of WBC differentiation were revealed, whereas absolute neutrophil counts (ANC) and CD4 / CD8 cell counts were all within normal range.

Chest X-ray plain film showed no significant findings, so was the result of urine analysis. However, posi-

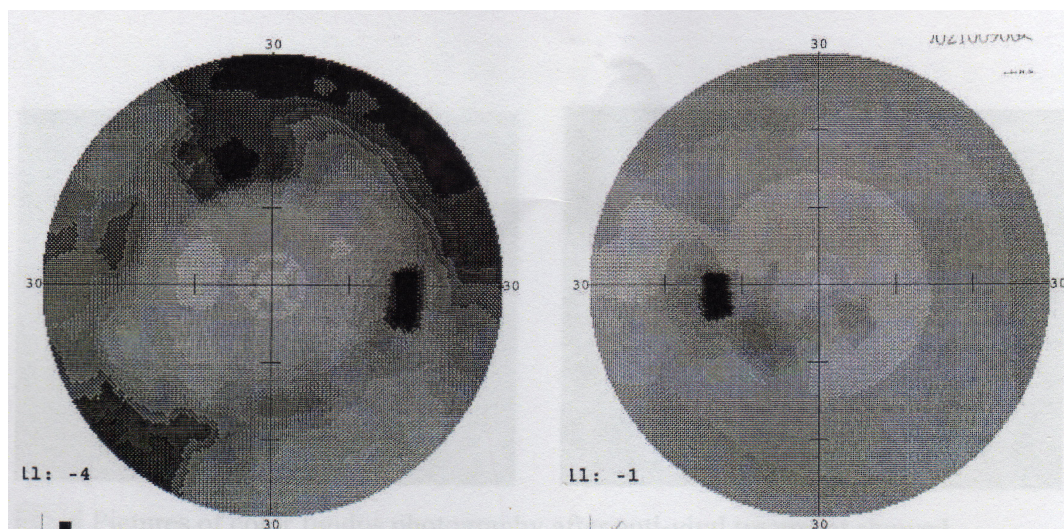


Fig. 2 Visual field examination by automatic perimetry revealed definite visual field defect on both eyes, and more severe on the right eye was showed.

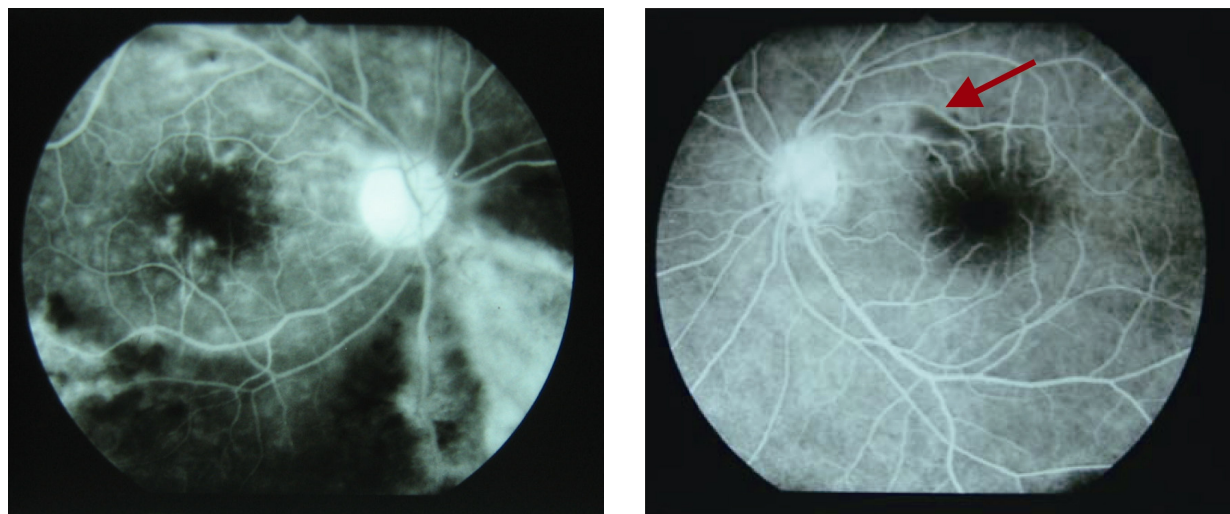


Fig. 3 Fluororecein angiography showed diffuse dye leakage, accompanied with non-perfusion area over superior nasal and inferior temporal sites on the right eye. Otherwise, minimal enhancement with small area of ischemis wa also noted on the left eye (red arrow).

tive anti-HIV antibody was showed with high titers of CMV IgM and IgG Antibody levels. Tests for other pathogens were all negative, including syphilis, herpes virus, rubella, toxoplasma, pneumocystosis, candidiasis, and mycobacterium. So AIDS complicated with CMV retinitis was diagnosed, and the patient was then admitted.

Following treatment for AIDS and CMV retinitis was immediately performed, with protocols of Highly Active Anti-retroviral Therapy (HAART) combined with intravenously gancyclovir administration. Broad-spectrum antibiotics administrations were also given. The patient was completely reverse isolated at ward.

Treatment with Gancyclovir 250 mg (5mg/Kg) every 12 hours was administered for 2 weeks. Then the regimen of Gancyclovir was changed to 250 mg everyday intravenously for another one week. Meanwhile, HAART regimen containing AZT and 3TC, so called cocktail therapy, was also given for HIV infection.

After completing 3 weeks course of treatment, dilated fundus examination showed regressed infiltration of retinitis on both eyes (Fig. 4), and best-corrected visual acuity showed good preservation of 0.8 on the right eye and 1.0 on the left eye. Followed-up visual field examination was performed after completing treatment course,

and no obvious deterioration revealed.

The condition of retinitis was stable, and she was then discharged from ward under oral medicine control for maintenance with valgancyclovir 900mg per day as the guideline suggested.³

DISCUSSION

Generally speaking, in the immunocompetent host, infection of cytomegalovirus is generally asymptomatic or limited to a mononucleosis-like syndrome. Like many other herpes viruses, CMV remains latent in the host and may reactivate if host immunity is compromised.^{4, 5}

On the other hand, to immunocompromised patients, initial infection with cytomegalovirus induces a primary immune response and subsequent establishment of long-term immunity, which restrains viral replication after reactivation from latency. Long-term immunosuppression can lead to uncontrolled replication and serious disease.^{1-2, 4}

In patients with HIV, cytomegalovirus can exert indirect effects that manifest as acceleration of the time to AIDS and time to death. Whether infection and disease are simply markers of the immune dysfunction that fol-

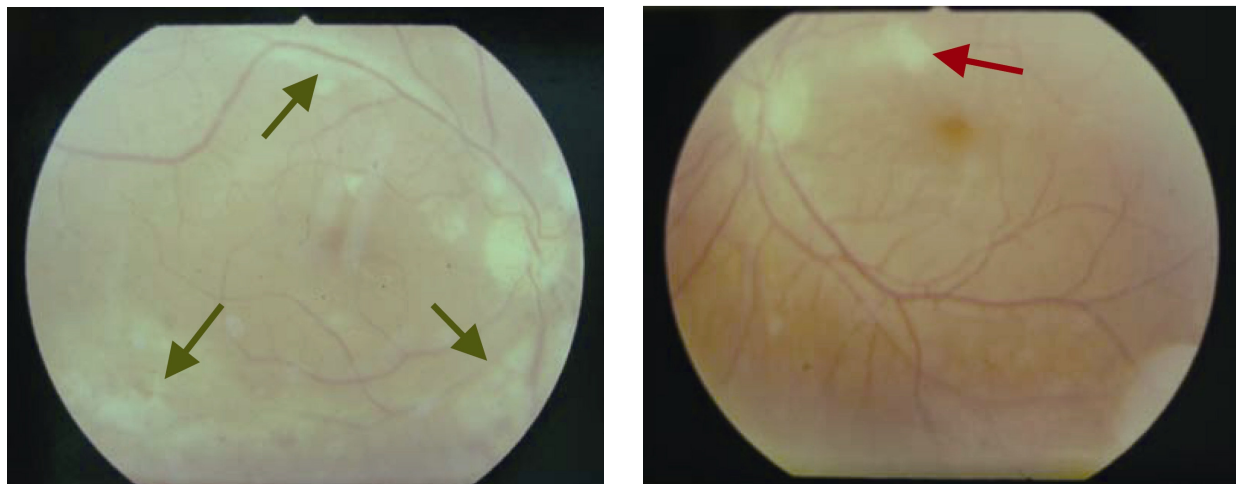


Fig. 4 Pictures of color fundus photography after anti-viral treatment showed regressed infiltration over both eyes. Notice the necrotizing area on superior and inferior temporal sites were all decreased on the right eye (green arrow). As to the left eye, residual lesion over superior arcade nearby superior macular vessel was showed, without further deterioration (red arrow).

lows HIV replication or whether cytomegalovirus infection itself promotes HIV progression, is unknown.⁶ Reduction of HIV viral loads after the introduction of HAART has greatly reduced the cytomegalovirus load and disease.^{7,8}

Cytomegalovirus is the leading cause of opportunistic infection in AIDS patient, usually presented as retinitis, and associated with a high risk of retinal detachment and vision loss.⁹ Infection of Cytomegalovirus is about affecting up to 25% of HIV-infected patients, although the incidence seems to be decreasing as anti-retroviral therapy improves. Clinical CMV infection can affect multiple organ systems, including the skin, lungs, gastrointestinal tract, peripheral nerves, the brain, and the eyes. CMV is ubiquitous; infecting 50-80% of the adult population.¹⁰ Clinically evident disease is found almost exclusively in immunosuppressed individuals.

Prior to HAART, CMV occurred in 25-40% of all AIDS patients and was the most common opportunistic infection in AIDS patients with a CD4 T-lymphocyte counts less than 50 cells/mL.⁷ So the CMV retinitis is usually seen late in the course of HIV infection. While HAART has decreased the incidence of CMV retinitis by 55-83%, the decline in AIDS-related mortality has led to an increase in the number of patients with CMV disease.¹¹ CMV retinitis remains a leading cause of visual loss in patients with AIDS and is increasing in organ transplant recipients as the number of those procedures performed each year increases.²

Patients with low CD4 counts should have routine dilated indirect funduscopy examinations. Warning signs for CMV retinitis include floaters, light flashes, blurred vision, loss of central vision, or scotoma. Examination of the CMV-infected retina reveals patches of necrosis with or without hemorrhage and edema.⁹ CMV retinitis is usually seen as part of systemic CMV infection. The disease usually progresses to complete blindness within 2 weeks if untreated.¹²

However, overlapping funduscopy findings often make diagnosis of CMV retinitis difficult in distinguishing from other necrotizing retinitis, such as herpes simplex virus, herpes zoster virus, varicella zoster virus, *Toxoplasma gondii* or *Treponema pallidum*.

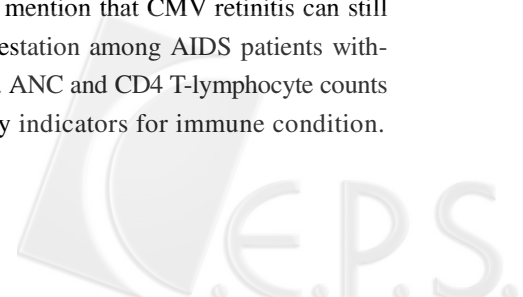
The diagnosis of viral retinitis is usually a clinical diagnosis based on funduscopy findings. Other diagnostic tests had been used to determine the cause of necrotizing retinitis when we felt confused clinically. Rising in systemic serotiters of antibody has been used, but is positive in only 20% of case. On the other hand, it usually takes several weeks to become positive. Conversely, it would be much of value in treating patient with CMV retinitis when early detection of elevated systemic antibody titers, depending on its high specificity.¹³

In our case, she had the only complaint of blurred vision in progress within few days, and acute necrotizing retinitis was seen by funduscopy, without neutropenia or other immunocompromised status. As we know, CMV rarely involved in the early course of AIDS, said nothing of patients without signs of immune deficiency. But the fundus picture of this patient was also much like CMV retinitis, compatible with significant elevation of anti-CMV antibody and anti-HIV antibody titers. So we confirmed our diagnosis of AIDS complicated with CMV retinitis. Therapeutic protocols were immediately planned for both CMV infection and HIV infection. Visual acuity was well preserved with early intervention of treatment, and the condition of HIV infection was also monitored closely.

It is strange that CMV retinitis presenting as the only sign of HIV infection without immunocompromised status, not really the same as situations we usually meet. So we should be noticed that ophthalmologists can still be the first-line detectors in diagnosing of AIDS. It is important to pay much more attention that CMV retinitis could still appear in the early phase of AIDS patient, no ever what the status of patient's immune system is. Finally, combination regimens of gancyclovir and HAART therapy could still effective to this kind of people, just like the patient we presented.

CONCLUSION

It is worthy to mention that CMV retinitis can still be the initial manifestation among AIDS patients without other symptoms. ANC and CD4 T-lymphocyte counts may not be the only indicators for immune condition.



All ophthalmologists should be notice that they can still be the first-line detectors on finding out patients with AIDS. Otherwise, early diagnosis with detailed examinations would be absolutely necessary, because early interventions bring satisfactory outcomes of control.

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愛滋病以巨細胞病毒性視網膜炎為 初始表徵之病例報告

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目的：描述一名病患僅以巨細胞性視網膜炎為初始表徵，進而被發現為愛滋病患之病例報告。

個案：三十歲白人女性，過去無特殊病史，因視力於數日內急速惡化求診，無其他之身體不適。就診時視力右眼 0.7，左眼 1.0，右眼並出現相對傳入性瞳孔缺失徵象，眼底檢查雙眼廣泛浸潤性視網膜炎，合併雙眼視野缺失。血清中抗巨細胞病毒及抗 HIV 抗

體力價昇高，其他血液學檢查皆正常，無明顯免疫低下之徵象。病患立即接受抗巨細胞病毒合併抗愛滋病毒之療程治療三週後，視力右眼 0.8，左眼 1.0，雙眼視網膜炎皆明顯消退，視野缺損程度無進一步惡化。

結論：值得注意巨細胞病毒性視網膜炎仍可能為愛滋病之初始表徵，儘早正確診斷及積極介入治療則具有令人滿意的效果。

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