# MACULAR CMV RETINITIS: A CASE REPORT

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## SUMMARY

*Purpose:* Cytomegalovirus (CMV) retinitis is the most common ocular opportunistic infection associated with AIDS. It usually affects the peripheral retina, sparing the macula. We describe an atypical CMV retinitis exclusively confined to the macula.
*Methods:* A 43-year-old man with the diagnosis of AIDS developed a white retinal lesion confined to the macula of the right eye. Two weeks later, a more typical granular appearance was observed leading to presumption of CMV retinitis.
*Results:* The patient was treated with ganciclovir without success. With foscarnet, a good response was obtained, leading to total healing of the lesion.
*Conclusions:* CMV retinitis has to be taken into consideration in all lesions confined to the macula in immunodepressed patients. An early diagnosis is crucial to avoid blindness.

## RÉSUMÉ

*Propos:* La rétinite à Cytomégalovirus (CMV) est l'infection oculaire opportuniste la plus fréquente. Elle affecte en général la rétine périphérique, épargnant la macula. Nous décrivons un cas atypique de rétinite à CMV qui affecte exclusivement la macula.
*Méthodes:* Un homme de 43 ans avec le diagnostic de SIDA a développé une lésion rétinienne blanche au niveau maculaire de l'oeil droit. Une apparence granulaire plus typique en faveur d'une rétinite à CMV est apparue 15 jours plus tard.
*Résultats:* Le patient a été traité par ganciclovir sans succès. L'utilisation de foscarnet a montré une bonne réponse jusqu'à cicatrisation complète de la lésion.
*Conclusions:* La rétinite à CMV doit être prise en considération dans toutes les lésions confinées à la macula chez les patients immunodéprimés. Un diagnostic précoce est crucial pour éviter la cécité.

## KEY WORDS

CMV retinitis, macula.

## MOTS-CLÉS

Rétinite à CMV, macula.

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## INTRODUCTION

Cytomegalovirus (CMV) retinitis is the most common ocular opportunistic infection associated with the acquired immunodeficiency syndrome (AIDS) even though its incidence has decreased since the introduction of highly active antiretroviral therapy. It affects severely immunodepressed individuals (CD4 count < 50/$mm^3$).
The diagnosis is commonly based on the recognition of its characteristic appearance.
We describe an unusual CMV retinitis, exclusively confined to the macula.

## CASE REPORT

A 43-year-old, man with a diagnosis of AIDS made in 1987, developed in April 2000 a generalized Mycobacterium avium infection and was treated with clarithromycin, ethambutol and rifabutine.
The patient had a history of cutaneous Herpes simplex and H. zoster infection and had recurrent bouts of oral candidiasis treated with fluconazole.
He was not compliant to his tritherapy and the virus he carried became multiresistant.
In January 2001, the patient mentioned some loss of vision in the right eye. This complaint had been present for one month. He had discontinued rifabutine and fluconazole. He had a rebound of his M.avium-related complaints and suffered again from candidiasis involving the oesophagus as well as the oral cavity. The latter was undoubtedly worsened by the steroids prescribed for M.avium-related inflammation, and that had not been discontinued. The $CD_4^+$ T-lymphocyte count was extremely low at 5 cells per $\mu$l. CMV detection by polymerase chain reaction in blood and urine was negative.
Visual acuity was counting fingers in the right eye and 20/20 in the left eye. Ophthalmoscopy disclosed a white retinal lesion confined to the macula of the right eye with a fibrotic appearance and a single superficial haemorrhage (Figure 1A). There were no vitreous cells. The left eye was not affected.
A presumptive diagnosis of advanced Candida macular retinitis was made, and fluconazole 800 mg qid was given.
Two weeks later, on 1st February, the lesion had enlarged with more haemorrhages (Figure 1B). It presented a granular appearance more compatible with a CMV retinitis which nevertheless remained atypical by its isolated macular location.
Patient was given an induction regimen of ganciclovir 5 mg/kg bid for 2 weeks without improvement, and with an extension of the retinal necrosis and severe drug-induced neutropenia on 13th February (Figure 1C). The treatment was then modified to induction foscarnet 90 mg/kg bid.
On March 2, the CMV retinitis was less active, showing at this time a good therapeutic response (Figure 1D).
A maintenance regimen of foscarnet 90 mg/kg once a day was started 1 week later for patient comfort but the retinitis dramatically reactivated on March 23 (Figure 2A).
We then added intravitreal foscarnet 2.4 mg twice a week until total healing of the retinitis after 16 injections (Figure 2B). The maintenance therapy consisted of foscarnet iv 90 mg/kg qid and intravitreal 2.4 mg once a week. Final visual acuity was counting fingers.
The lesion remained inactive until the patient died in August 2001 of a cerebral toxoplasmosis.

## DISCUSSION

The diagnosis of CMV retinitis is clinical and based on ophthalmoscopic appearance.
Two distinct presentations have been described (1).
The fulminant/oedematous type is characterized by a dense retinal opacification without a clear central atrophic area unless the lesions are large. Haemorrhages may be numerous and inflammatory vascular sheathing may be present. The retinitis is located mostly in the posterior pole and along the blood vessels.
The indolent/granular type is defined by a grainy opacification of the retina with only few or no haemorrhages and without vascular sheathing. This type displays a slower progression with an oval or circular shape and an atrophic central area. The location is rather peripheral and not along the blood vessels.

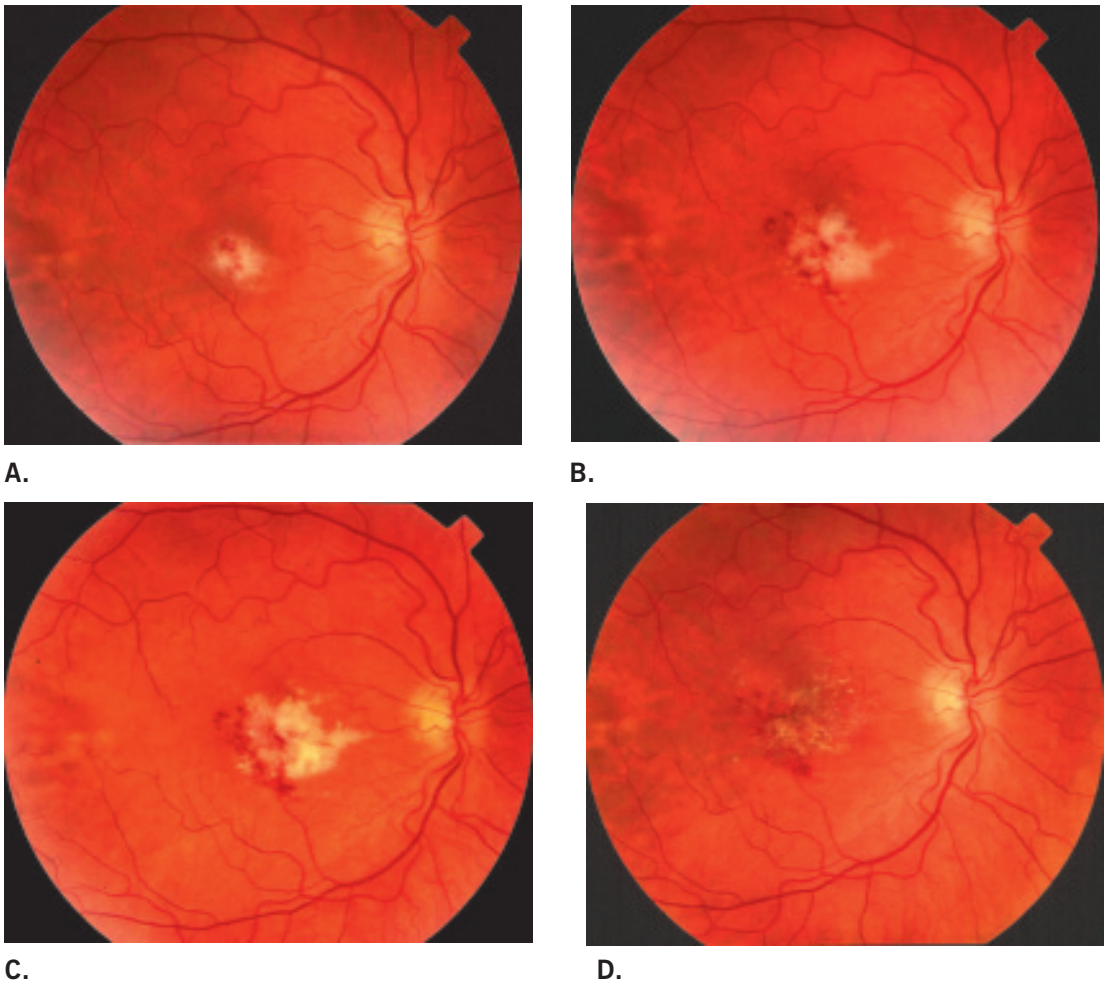
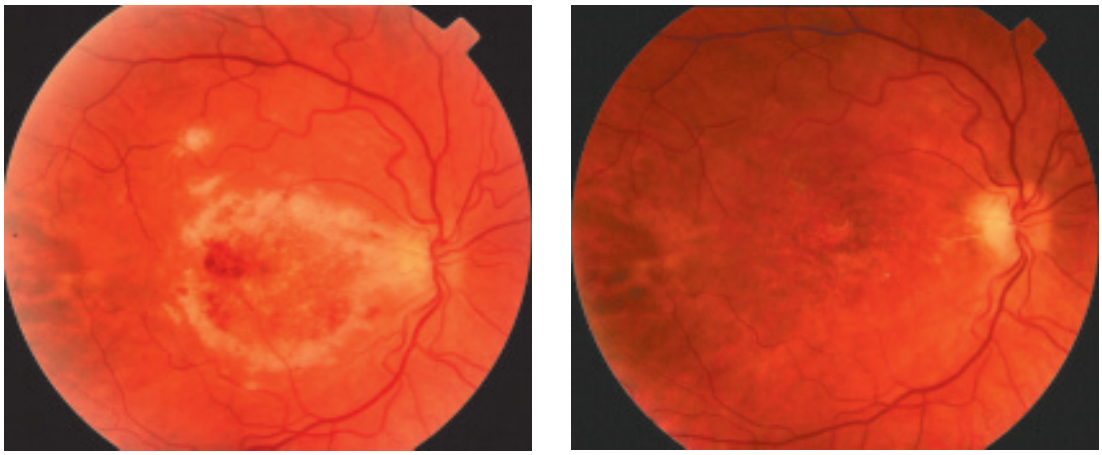



*Fig 1.*
A. White macular lesion with only traces of haemorrhage (12 January 2001).
B. Increased retinal necrosis with granular appearance and more haemorrhages (1 February 2001).
C. Evolution of the necrosis with more haemorrhages (13 February 2001).
D. Favourable evolution with beginning central atrophy and decrease of the borders activity (2 March 2001).

Nevertheless, many lesions cannot be classified and are included in an indeterminate type. The 2 most common types can be recognized only on evolved lesions and not on early ones. Antibody levels or viral DNA from ocular fluids can support the diagnosis in difficult cases but the results, especially in immunosuppressed patients, must be interpreted with some reserve.

The lesion that we observed here initially could be considered as early CMV retinitis not yet classifiable. This indeterminate type of retinitis in such a location led to a challenging differential diagnosis.

Macular necroses are uncommon diseases. The most frequent causes or underlying diagnoses are fungal infection, acute retinal necrosis (ARN), progressive outer retinal necrosis (PORN), CMV, toxoplasmosis, Behçet's disease, syphilis, sarcoidosis, bacterial endophthalmitis and lymphoma.



**A.** **B.**

*Fig 2.*
A. Dramatic reactivation from the borders with some satellite lesions (23 March 2001).
B. Total healing of the retinitis (21 May 2001).

In case of fungal disease, some fluffy deep yellow-white retinal or choroidal lesions are frequently present, associated with dense vitritis. The evolution of these retinal lesions can lead to a white fibrotic-like appearance similar to our case except that the absence of vitritis was suspicious.

ARN affects healthy immunocompetent individuals. The retinal lesions are white-yellow patchy areas that tend to enlarge quickly. They usually start in the midperiphery and only occasionally occur in the posterior pole. Retinal vasculitis and dense vitritis are other characteristics of this disease.

PORN is a variant of a necrotizing herpetic retinitis occurring in immunocompromised patients. It is a rapidly progressive necrotizing retinitis with early patchy choroidal and deep retinal lesions. There is little or no vasculitis and mild vitritis. The posterior pole is involved early in the course of the disease.

In toxoplasmosis, areas of necrotizing retinopathy appear thick and densely opaque with smooth, nongranular borders. In addition, there are more severe intraocular inflammation and minor retinal haemorrhages.

In our case, the first diagnosis retained was fungal retinitis, which commonly affects the macula. The lesion progressed later to a granular type of CMV retinitis, which responded well to foscarnet treatment but was resistant to ganciclovir.

The presentation of this CMV retinitis can be considered quite atypical due to its early stage. This is related to its unusual departure from the foveal area whereas CMV retinitis is considered a macula sparing disease. The involvement of the fovea is uncommon (4%) and is essentially secondary to the extension by proximity of retinitis (2).

A single other report of a macular confined presumed CMV retinitis has been found and shows many similarities to ours. The duration of observation without appropriate treatment was 1 year (3).

## CONCLUSIONS

Our observation demonstrates that the diagnosis of CMV retinitis has to be taken into account in all macular confined lesions in immunodepressed patients. An early and accurate recognition is imperative to avoid destruction of the whole posterior pole and the optic nerve which can lead to complete blindness.

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