



CMV RETINITIS IN A PATIENT OF HIV WITH SIGNIFICANTLY LOW CD4 COUNT: A CASE REPORT

General Medicine

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ABSTRACT

A 50 year old male came with the complaints of diminution of vision in both eyes and later developed complete vision loss in left eye. Patient was a Known case of HIV on treatment since 6 years. He was diagnosed as having CMV retinitis and oral Valganciclovir was started and gradually vision his improved in both eyes.

KEYWORDS

INTRODUCTION:

Human immunodeficiency virus (HIV) has the ability to affect any organ in the body. In 70% of HIV-infected patients ocular manifestations were observed, which in the vast majority reflect the systemic disease and may be the first sign of a disseminated infection^[2]

CMV retinitis is one of the most serious ocular complications in immune-suppressed individuals and can lead to irreversible vision loss.^[1] CMV is an opportunistic infection. So if your HIV isn't well managed (you have a CD4 count below 50), you're extremely likely to get CMV retinitis again.^[3]

The virus infects and damages cells in your retina, which causes scars to form. It also may prevent blood from supplying your eyes with oxygen.^[3] CMV retinitis can cause retinal detachment. This is when the retina peels away from the blood vessels that feed it. Without treatment, CMV retinitis can cost you your eyesight. Starting on antiviral medicine right away after your diagnosis can help save your vision.^[3]

Pathogenesis:

Active CMV in the eye primarily infects vascular endothelial cells followed by retinal pigment epithelial cells in the retina causing viral cytopathic effect and subsequent retinal necrosis, as characterized in CMVR^[6]. The large viral genome of CMV quickly translocates to the infected cell nucleus and starts production of viral progeny in a lytic lifecycle^[6,7,8]. Viral progeny then bud out of the infected cell to infect neighbouring cells and repeat the process. Uncontrolled replication of the virus leads to cell death in the involved retinal tissue leading to blurred vision, retinal detachment and ultimately blindness

Symptoms:^[4]

Many people with CMV retinitis experience no symptoms. However, there are certain signs that may be indicative of the virus:

- Floaters in the eye
- Flashes in the eye
- Blurred vision
- Blind spot in vision
- Loss of peripheral vision

Diagnosis:

The diagnosis of CMVR is primarily clinical and based on the observation of characteristic retinitis on dilated fundusoscopic examination by a trained ophthalmologist. Polymerase chain reaction (PCR) analysis of aqueous or vitreous ocular fluid can further confirm the diagnosis and may be helpful in cases with atypical clinical presentations.^[9] Serum CMV antigenemia and PCR tests are sensitive measures that may predict CMV disease up to several months prior to clinical manifestation^[9]

Prevention:

A key way to avoid CMV retinitis is to keep HIV under control. That means taking highly active antiretroviral therapy (HAART) medications every day. HAART lowers the viral load in body and improves CD4 count. This makes the immune system stronger so it can better fight off invaders like CMV. There is need of regular ophthalmic examination in HIV patients irrespective of CD4 count because CMV retinitis also occurs in HIV patients with normal CD4 Counts. Minimal

symptoms of eye should be evaluated properly and treatment should be started as soon as possible.

Treatment and Prognosis

Even with the advent of intravenous (IV) ganciclovir (GCV), the treatment of CMV disease was 'relatively straightforward'. The availability of valganciclovir (VGC) has introduced a new dimension to CMV treatment, and drug resistance has introduced new challenges.^[5]

For patients with immediate sight-threatening lesions, intravitreal injections in conjunction with systemic therapy are currently recommended. For patients without immediately sight-threatening lesions, systemic therapy alone with close observation is reasonable. The main virostatic drugs employed today include valganciclovir (oral), ganciclovir (IV, IVI), foscarnet (IV, IVI), and Cidofovir (IV, IVI). Acyclovir is not used in the treatment of CMV as this drug specifically requires phosphorylation by viruses to become active, a mechanism which CMV is not capable of as it does not encode for virus-specific thymidine kinase^[10].

ART and CMVR:

Successful ART treatment reduces the plasma HIV load and increases the CD4+ T-lymphocyte levels. CMV and HIV transactivate one other giving an additive immunosuppressive effect^[11,12]. With ART, a significant decrease in the incidence and recurrence of CMVR parallels an increase in CD4-lymphocyte count and decrease in levels of plasma CMV-DNA, which tends to become undetectable with CD4+ counts above 100 cells/ μ L^[13,14,15]. Patients with CMVR treated with ART also now have increased time to relapse and prolonged survival. No prior antiretroviral regimen has produced such marked, sustained decrease in viral load suggesting that ART regenerates anti-CMV immunity^[11,14].

CASE REPORT

A 50 year old male came with chief complaints of diminution of vision in both eye since 6 months with sudden onset of loss of vision in left eye since 15 days. Patient also complained of floaters, generalised weakness and anorexia.

Patient was known case of retroviral disease on treatment since 6 years on TLE regimen but the patients was complaint to the treatment. There was no other significant history.

Examination -

Patient was conscious, oriented and had stable vitals. Systemic examination of RS, CVS and Per abdomen were normal.

All routine laboratory tests like complete blood count and LFT, RFT and serum electrolytes were done and revealed Haemoglobin of 11.4 gm%, Total leucocyte count of 3300, Platelet count of 194000, serum creatinine of 0.8 and total bilirubin of 1.2 mg/dl. Chest X-ray and ECG were normal. Patients CD4 count on admission was 22. Cytomegalovirus antibodies (IgG) were found to be Reactive.

Examination of eye -

Right eye:

1. Conjunctiva: Normal

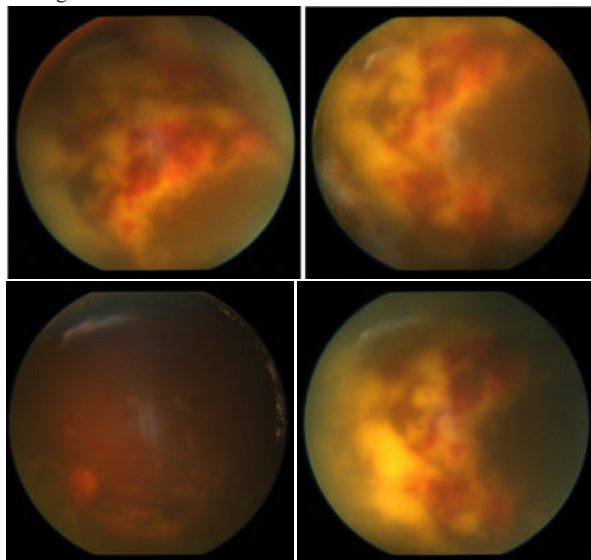
2. Cornea: Keratic precipitates were seen
3. Pupil: Dilated and Non-Reactive to light
4. Iris: pigmented
5. Vision: No perception of light

Left eye:

1. Conjunctiva: Chronic cicatrizing conjunctivitis seen
2. Cornea: Keratic precipitates seen
3. Pupil: Festooned
4. Iris: Muddy
5. Vision: No perception of light

Fundus Examination

bilaterally optic disc appeared pale. Blood vessel sclerosis and attenuation were noted. Multiple haemorrhages with cotton wool spots and atrophic patches were seen. Retinal haemorrhages which were classically seen as Pizza pie appearance were seen. Above mentioned findings were s/o CMV retinitis.



Treatment:

After diagnosed as CMV retinitis patient was started with Valganciclovir. Treatment was continued till 2 weeks of duration. The vision of patient gradually improved and was discharged after treatment.

DISCUSSION :

There are many studies which has proven significance of CD4 count in HIV patients and its relationship with secondary infections. During the course of HIV patients CD4 count shows graphical trends in various stages of HIV. HIV patients are more prone for infection towards late stage of disease where there is significant decrease of CD4 count seen towards late stage of disease. When patient have CD4 count more than 500, there are very less cases reported for patients having opportunistic infections. It's have been studied in past relationship of low CD4 count and its relation to Infection.

After HAART regimen there was drastic decrease of such infection seen in patient of HIV increasing their quality of life and expectancy. Patients who remains complaint to therapy has a better prognosis and life expectancy. For those patients who due to some reasons were not able to remain complaint for HAART has shown to have drastic decrease in CD4 count making them prone for the infection.

Ophthalmic involvement by CMV in patients of HIV is still remains undiagnosed in many patients due to lack of diagnosing facility and expertise. It has been studied in literature were patient who were diagnosed late for ophthalmic involvement with CMV had to suffer from range of symptoms ranging from diminution of vision to permanent loss of vision. It is documented in literature were early diagnosis of patient for ocular involvement of CMV have saved patient from morbidities and even prevents permanent loss of vision. Regular intake of HAART therapy in combination with Valganciclovir has proven to be effective treatment for patients suffering from CMV retinitis and has proven to be effective for many patients as mentioned in literature.

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