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## Case Report

# Viridocoria –Green reflex in immunocompromised cytomegalovirus retinitis patient

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### ABSTRACT

We report a case of middle aged immunocompromised female with cytomegalovirus retinitis presenting with green reflex in pupillary area of Right eye, her chief complaints were diminished vision in both eyes since one month, she was on HART for 3 years, discontinued for one and half year and again started after the advice of physician, apart from history, systemic and ocular examination done in detailed. BCVA, slit lamp examination, indirect ophthalmoscopy, FFA, B Scan and documentation done, Right eye was observed to note the further changes in fundus where as Left eye was treated with intra vitreal injection Ganciclovir to preserve the vision. Patient treated with intra vitreal Ganciclovir 500 micro grams, twice weekly with interval of 3days for three weeks, once the activity is decreased, injections were given weekly once, same dose continued for three more weeks and advised to follow every month to observe the fundus changes in left eye. Every visit patient was examined in detail, BCVA, anterior segment, fundus and also OCT in left eye to see the central macular thickness. Documentation done in every visit, macular changes after intra vitreal injection was documented by taking both horizontal and vertical OCT.

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## 1. Introduction

Immune status predicts the risk of opportunistic infections in immunocompromised persons. Screening in these patients is very important to prevent the blindness. 40% of the immunosuppressed patients will become blind due to cytomegalovirus retinitis. Many opportunistic infections can occur simultaneously like ocular tuberculosis and cytomegalovirus retinitis can occur same time and cause damage to the retina which may lead to blindness. In our country due to inadequate knowledge patients are presenting in the end stage where no treatment will help to preserve the vision, patient education is very important to prevent the blindness.

Green reflex in our patient is due to atrophy of the all inner retinal layers due to full thickness retinal necrosis with

active and inactive areas which are exposing the choroidal reflex could be the possibility or due to drug toxicity which needs meticulous workup. Here we are presenting the unique case with various changes in fundus.

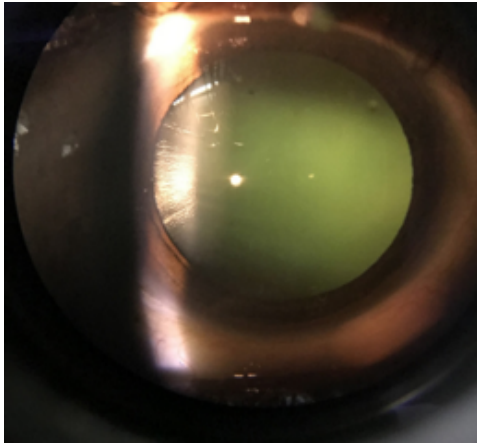
## 2. Case Report

36 years old HIV positive female presented with diminished vision in both eyes. Known case of HIV since 5 years. Patient used Tab Tenofovir 300mg, Tab Lamivudine 300mg and Tab Efavirenz 600mg one tablets a day for 3years. Patient discontinued treatment for one and half year and again started medication since 4 months. Her CD4 count was 34 /micro litre.

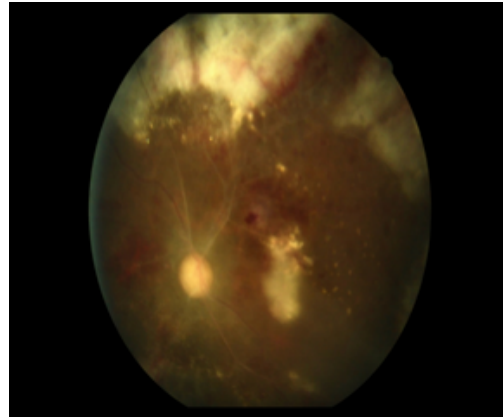
On examination her BCVA in Right eye (RE) was no perception of light, Left (LE) was hand motion. On examination RE showed mid dilated and fixed pupil, green reflex noted in pupillary area (Figure 1), fundus was hazy

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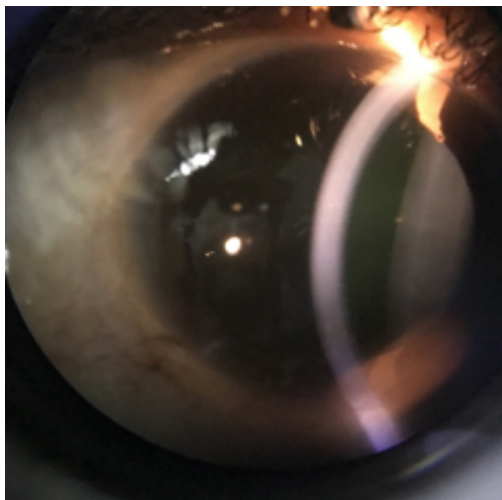
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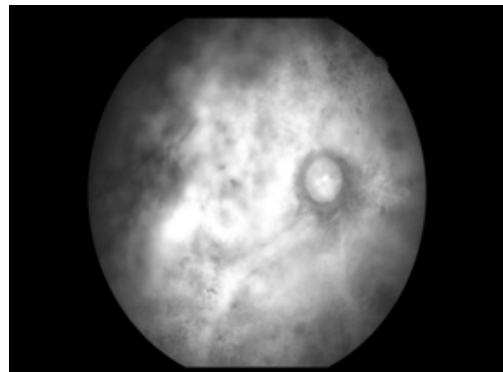
**Fig. 1:** Re slit lamp examination showing green reflex.



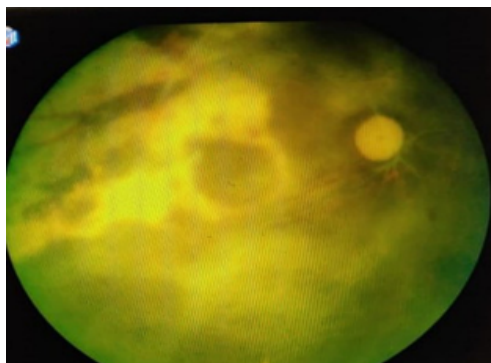
**Fig. 4:** Le fundus showing pale disc with attenuated vessels, haemorrhagic necrotic areas in all quadrants with macular thickening.



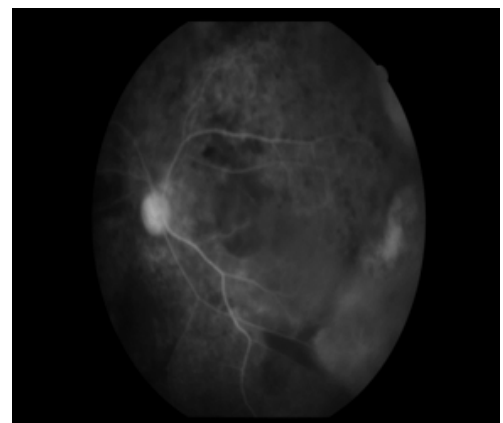
**Fig. 2:** Le slit lamp examination showing normal.



**Fig. 5:** FFA of re showing staining of healed retina in all quadrants.

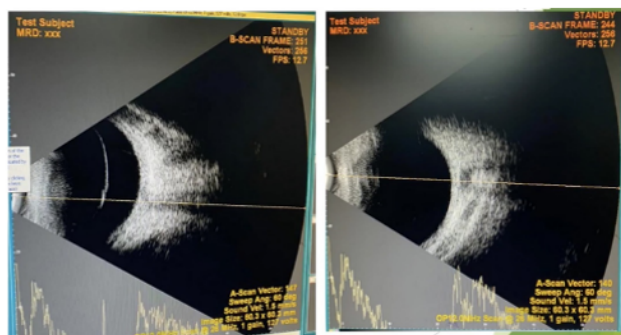


**Fig. 3:** Re showing fundus is green discoloration with pale disc, partly healed lesions of retinitis with enlarged vessel temporally.



**Fig. 6:** FFA of le showing hypo corresponding to superficial retinal haemorrhages with mild hyperfluorescence in the macular area suggestive of macular edema;

## B SCAN ULTRASONOGRAPHY: RE and LE



**Fig. 7:** Scan of re showing thick posterior vitreous detachment with retina, choroid sclera, le showing echo free vitreous cavity with normal RCS complex.

due to vitritis, optic disc was pale, sclerosed retinal vessels, full thickness active retinal necrosis in the posterior pole with green colour fundus glow in mid and far periphery, hemorrhagic necrosis is seen in supero temporal quadrant, enlarged vessel and fibrosed retina in the infero temporal quadrant (Figure 3).

On examination LE anterior segment was normal (Figure 2), pupil was mid dilated, sluggishly reacting to light, fundus examination revealed pale disc, attenuated sclerosed vessels, superficial retinal haemorrhages in the posterior pole with full thickness retinal necrosis in equatorial and peripheral area, sub macular exudation and frosted branch angitis noted in the mid peripheral retina (Figure 4).

FFA of RE showed staining of healed retina in all quadrants (Figure 5), LE showed hypo corresponding to superficial retinal haemorrhages with mild hyper fluorescence in the macular area suggestive of macular edema (Figure 6).

Thick and complete posterior vitreous detachment with normal RCS complex noted in RE on B Scan whereas LE was normal (Figure 7).

### 3. Discussion

The word green means Viridis in latin language, we report a unique case report of HIV female patient with green reflex in the pupillary area in RE, fundus glow is normally red due to reflection of light from the retina, in our case green reflex is probably due to destruction of inner retinal layers. In immunosuppressed individuals the risk of opportunistic infections is increased when their immune status is poor. HIV patients with Cytomegalovirus retinitis will present with full thickness retinal necrosis and superficial retinal hemorrhages in periphery, can extend to the posterior pole when the disease is active, during inactive phase the

necrosed part of the retina will become atrophic, there is full thickness destruction of the retinal architecture.

Due to retinal atrophy and thinning of chorio capillaries in healed lesion areas, the choroidal reflex is enhanced, possibility of green reflex in our case is enhanced choroidal reflex due to atrophy of retina and choriocapillaries.<sup>1</sup>

Our case could be atypical presentation of cytomegalovirus retinitis, necrosis in some areas of retina and healed lesions in some areas of the retina,<sup>2</sup> both active necrosis and atrophic scars of healed lesions were present in all quadrants of the retina.

Green reflex is due to thinned out atrophic retina or due to ocular side effect of drugs which were used for HIV is really a debatable topic which needs further study to know the exact cause. With highly active antiretroviral therapy (HAART), infected retinal lesions were resolved but non-infectious ocular manifestations like drug-related toxicity have been noted as side effects.

Retinal toxicity with HAART drugs has been reported, efavirenz-related retinal toxicity can lead to irreversible loss of vision.<sup>3</sup>

Retinal toxicity due to other ART drugs such as Didanosine (DDL), Clofazimine and Ritonavir have been reported to cause damage to the retinal pigment epithelium (RPE).<sup>4</sup>

One-third of patients with AIDS developed CMV retinitis, accounting for more than 90% of cases of HIV-related blindness. Untreated, CMV retinitis is progressive and will destroy the entire retina in 4-6 months.<sup>5</sup> Patients with CD4 < 100 cells/mm<sup>3</sup> should be referred to Ophthalmologist without delay for screening.

### 4. Conclusion

Green reflex is noted first time; we are not sure whether it is due to healed necrosed retina or prolong use of HART. Screening and follow up of other cases is required to find out the cause. Screening in immunocompromised patients has major role of Ophthalmologist to detect the opportunistic infections which can be diagnosed early and also can be managed to prevent the blindness. CD4 count is very important predictor of immune status. CD4 count is repeated every six months to know the response of drug and also the immune recovery in this patients.

### 5. Conflict of Interest

The authors declare no relevant conflict of interest with respect to research, authorship and or publication of this article

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None.

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