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OCULAR EXPEDIENTS IN HIV POSITIVE PATIENTS -A THERAPEUTIC CHALLENGE

Ophthalmology

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ABSTRACT

We report a case series of opportunistic infections in patients of HIV/AIIDS who presented with varied ocular features. As these infections have potentially blinding course. A detailed ophthalmic examination, systemic workup and an apt approach to the management is crucial for better visual outcome.

KEYWORDS

INTRODUCTION

HIV infection leads to numerous ophthalmic manifestations which may involve both the anterior and posterior segment of the eye. Periocular tumors like kaposi's sarcoma and external infections such as molluscum contagiosum commonly involve anterior segment whereas posterior segment findings mainly include HIV associated retinopathy and opportunistic infections of retina and choroid. The ocular manifestation varies as per the disease severity, specifically, the CD4 count. With the advent of highly active anti-retroviral therapy (HAART) the lifespan of these individuals has seen an increasing trend, but for these timeserving infections. Though these opportunistic infections can be dealt with newer therapeutic agents but it is imperative to recognize them at an early stage for appropriate management and better visual outcome. Treatment with ART leads to immune recovery which may affect the clinical picture as well as the response to treatment.

As multiple infections occur at the same time and often show a rapid with potentially blinding course, it poses a great therapeutic challenge to the treating ophthalmologist. We hereby report a case series of three HIV positive patients on anti-retroviral therapy presenting with ocular manifestations of different opportunistic infections.

Case 1

A 30-year-old male presented with blurring of vision in the both the eyes for the past 2 months. The patient was HIV positive with high titers of antibodies against Herpes simplex (HSV)/ Herpes zoster virus (HZV)/ Cytomegalovirus (CMV). His CD4 count was 26 cells/µL. He was on anti-retroviral therapy (ART) for the past 2 months. On examination the visual acuity was hand movements (HM) in both the eyes. Anterior segment examination in both the eyes was normal. The media were clear in both the eyes. The fundus examination in both the eyes showed multiple necrotic patches along with the hemorrhages in all four quadrants. There was superior 180 degrees peripheral retinal detachment in left eye. Clinical picture was suggestive of CMV Retinitis in both the eyes with superior retinal detachment in left eye (Fig 1). He was given intravitreal injection of ganciclovir (2mg/ 0.1 ml) twice weekly in the both the eyes. Right eye received 6 injections and left eye received 4 injections in all. Patient was also given oral valganciclovir 900 mg twice a day. After 4 intravitreal injections of ganciclovir the lesions in the left eye were healed. Thereafter, he underwent surgical management for retinal detachment in the left eye. Pars plana vitrectomy with scleral buckle and laser demarcation with silicon oil injection was done. The vitreous aspirate was sent for PCR which came out to be negative for CMV and HSV both. The lesions in the right eye healed completely after intravitreal injections of ganciclovir.

The patient was continued on ART along with oral valganciclovir 900 mg twice a day. After 6 months right eye also developed retinal detachment corresponding to the necrotic retinal patches, which was also managed surgically. The BCVA (best corrected visual acuity) in both the eyes was 6/9 after surgery.

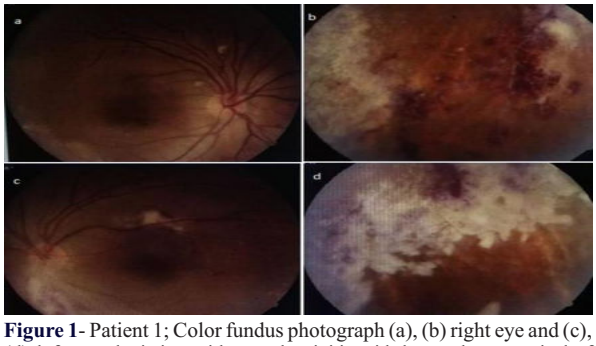

Figure 1- Patient 1; Color fundus photograph (a), (b) right eye and (c), (d) left eye depicting widespread retinitis with hemorrhages typical of CMV retinitis.

Case 2

Second patient was a 38-year-old female who presented with marked diminution of vision in left eye followed by right eye. She was on ART since one month. Right eye had mild anterior uveitis and fundus showed a hyperemic disc with few yellowish placoid lesions on posterior pole within and close to inferotemporal arcade with overlying clear vitreous suggestive of acute syphilitic posterior placoid chorioretinitis (ASPPC) (Fig 2a, 2b and 2c). Left eye had moderate anterior uveitis and a hyperemic disc with severe vitritis and superficial punctate yellowish lesions (Fig 3a, 3b and 3c). Laboratory investigations revealed VDRL (Venereal Disease Research Laboratory) and TPHA (Treponema pallidum haemagglutination assay) positive. CSF (Cerebro spinal fluid) analysis was also positive for VDRL. Her CD4 count was 198cells/µL. She was treated for neurosyphilis and started on injection ceftriaxone twice a day for fourteen days. After two weeks all the lesions in the retina healed and inflammation resolved with marked improvement in vision in the right eye (Fig 2d). CSF for VDRL also became negative post treatment.

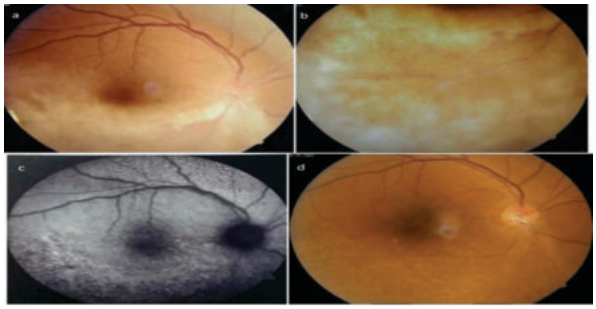

Figure 2- Patient 2; Right eye (a) and (b) Color fundus photograph

showing placoid yellowish lesion along the inferotemporal arcade; (c) Hyperautoflourescence corresponding to lesion; (d) After 2 weeks of therapy-RPE mottling

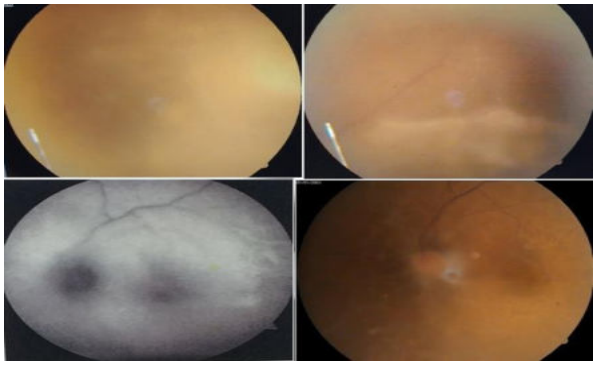

Figure 3- Patient 2 Left eye (a) and (b) color fundus photograph showing severe vitritis; (c) Hyperautoflourescence (d) Sclerosed vessels and RPE mottling on posterior pole inferiorly after 2 weeks of therapy

Case 3

Third case was a 28year old male who presented with marked diminution of vision in left eye. He was on ART since past 3 months. The presenting visual acuity in left eye was finger counting close to face and right eye visual acuity was 6/6 and N6. Left eye showed signs of panuveitis with severe vitreous inflammation. Examination of right eye was normal. His CD4+ T cell count was 250 cells/μL. Core vitrectomy with vitreous biopsy via pars plana route was performed in the left eye. Intra operatively, multiple patches of retinal necrosis were seen in the periphery (Fig 4a and 4b). Endo laser was done around all necrotic patches. The vitreous aspirate was sent for PCR (Polymerase Chain Reaction) and was tested for CMV and HSV. The sample came out to be positive for both HSV 1and 2. Thereafter intravitreal injection of ganciclovir (2mg/0.1 ml) was given biweekly for 3 weeks. The eye responded to treatment and inflammation was controlled (Fig 4c and 4d). The final visual acuity in the left eye was 6/12, N9.

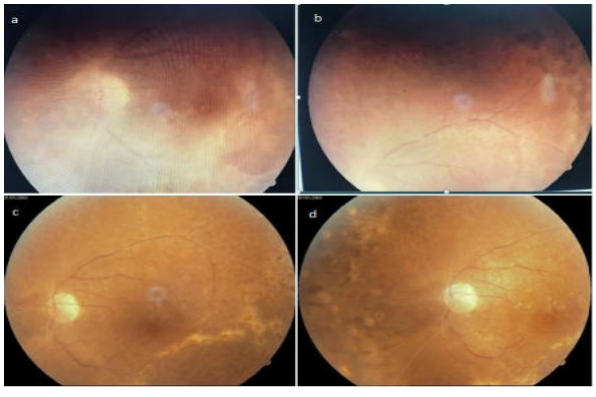

Figure 4- Patient 3. Color fundus photographs: (a) Left eye showing vitritis, fibrous bands and retinitis at posterior pole; (b) Pigmentary changes and necrosed retina superotemporally; (c) and (d) Minimal vitritis with fibrous bands, RPE changes and laser marks after treatment 6 weeks later.

DISCUSSION

A compromised immunity may host multiple infections caused by organisms like bacteria, viruses, fungi or protozoa, in patients with HIV.

Cytomegalovirus retinitis (CMVR) is the most common acquired immunodeficiency (AIDS) related ocular opportunistic infection even in the era of HAART[1]. Up to 50% cases are bilateral and occur in patients with CD4 counts less than 100 cells/cu.mm[2]. Classical clinical finding is characterized by confluent retinal necrosis with hemorrhage involving mostly the posterior retina which may progress over weeks leading to full thickness necrosis and subsequent pigment epithelial atrophy. Main cause for visual loss is progressive retinal necrosis or retinal detachment(RD). The incidence of RD as a complication of CMV Retinitis is 50% per patient per year or 33% per eye per year [3].

Ganciclovir is the drug of choice for treatment of CMVR. Direct intraocular administration of ganciclovir has a benefit of achieving maximal therapeutic concentration with a long-lasting control of retinitis. Intravitreal therapy involves twice weekly injections along with systemic treatment for other susceptible sites and contralateral eye as well [4, 5]. As seen in the first case who responded well to the biweekly intravitreal injections of ganciclovir given in both the eyes for three weeks. Complicated cases may present with exudative or rhegmatogenous RD. Pars plana vitrectomy with scleral buckle and silicon oil tamponade with laser demarcation has been effective in repair of RD related to CMVR. This was seen in both the eyes of first patient, with peripheral RD for which he underwent successful pars plana vitrectomy with scleral buckle and silicon oil tamponade with laser demarcation. He is maintaining a stable visual acuity of 6/9 N9 after silicon oil removal in both the eyes.

Chorioretinitis is the predominant feature of syphilitic posterior uveitis [6]. Acute syphilitic posterior placoid chorioretinitis (ASPCC) is a distinctive form of syphilitic outer retinitis which is characterized by presence of placoid, round or oval, ill defined, yellow white lesions with variable vitreous inflammation occurring predominantly at posterior pole [7, 8]. It has been reported to be bilateral in approximately 50% of patients [9]. Clinical diagnosis of ocular syphilis can be challenging, hence laboratory tests like VDRL, TPHA are usually done to confirm syphilis [8]. All patients of ocular syphilis should be evaluated for neurosyphilis especially if coinfected with HIV as in these cases neurosyphilis may occur earlier due to their immune status [7] as described in our case also. Recently, there has been resurgence in cases of syphilis in spite of a steady decline in the past [10].

Therefore, high index of suspicion is required to diagnose this entity so that prompt treatment can be instituted early to salvage vision of these patients.

ARN (Acute Retinal Necrosis) is rare disease. Incidence is reported as one case per 2 million populations per year [11, 12]. It is a type of herpetic necrotizing retinitis found most commonly in immunocompetent patients and caused predominantly by VZV (Varicella Zoster Virus) but it has been also reported in immunocompromised patients like HIV and caused by HSV also [13]. ARN is characterized by marked inflammation presenting as anterior uveitis, marked vitritis, and full thickness retinal necrosis with occlusive periarteritis [14].

Dense vitritis produces fibrotic bands which can lead to complex RD in 75% and blindness in 64% within 2 to 3 months [15]. Although ARN is a clinical diagnosis but presence of severe vitritis may masks fundus evaluation [14].

PCR analysis of vitreous sample or even aqueous sample may be required to confirm etiologic agent and aid in diagnosis [13]. As seen in third case, where PCR sample from vitreous came out to be positive for HSV1 and 2 both and eye responded to treatment after vitrectomy.

CONCLUSION

These cases highlight the importance of timely diagnosis and management of opportunistic infections in HIV positive patients. As these infections have a potentially blinding outcome and treatment with HAART may affect the clinical picture and response to treatment, it is important to diagnose these entities on time for appropriate management. All the HIV positive patients should undergo complete ocular examination as appropriate management can result in good visual outcome.

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