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A Clinical study of Multiple Ocular Motor Nerve Palsies in people living with HIV/AIDS in a Tertiary Eye care Hospital

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Abstract: *Neuro-ophthalmic lesions are known to occur in human immunodeficiency virus (HIV) infection and AIDS. Neuro-ophthalmic manifestations are about 8% of the ocular lesions in AIDS patients. Neurological complications occur in approximately 40% of patients with AIDS, about 10-20% of them are initially examined because of neurological complaints. Ocular cranial nerve palsies occur in 4% of patients with ocular involvement with AIDS. Palsy of the third, fourth, sixth and seventh cranial nerves in AIDS have been reported and may be unilateral or bilateral and isolated or combined. A majority of these cases are due to focal brainstem toxoplasmic lesions. Others are due to cryptococcosis, varicella zoster, cytomegalovirus (CMV), progressive multifocal leucoencephalopathy, central nervous system and orbital lymphomas and cavernous sinus and orbital apex eosinophilic granulomas. Cranial nerve palsies can be the earliest manifestation in a patient with AIDS. We have studied certain cases of Ophthalmoplegias presented to us, known or suspect HIV/AIDS patients , in the Department of Ophthalmology, Guntur Medical College/Government General Hospital, Guntur.*

Keywords: *Diplopia, Oculomotor nerve , Abducens nerve Palsies, Ophthalmoplegia , CMV, HIV/AIDS ,CD4 count, Anti-retroviral therapy*

I. Introduction

HIV/AIDS is a global pandemic with cases reported from almost every country in the world. AIDS was first clinically observed in 1981 in the United States and the etiologic agent, the human immunodeficiency virus (HIV), a cytopathic retrovirus was first identified in 1983. HIV, a neurotrophic virus enters the CNS in the early stages of infection and invades mainly the microglia and macrophages, and rarely the neurons. HIV/AIDS can produce neurological and neuro-ophthalmic abnormalities either as a direct effect of the virus on the nervous tissue or indirectly through opportunistic infections and malignancies resulting due to immunodeficiency. The prevalence of neurological disease in symptomatic HIV infected patients is estimated to be 39%–70%. HAART (Highly Active Anti Retroviral therapy) has largely changed the incidence and prognosis of HIV associated neurological disorders in the developed countries, but this may not be the case in developing countries. Ocular manifestations of HIV/AIDS were first reported in 1982.About 50%–75% of patients infected with HIV will develop ocular manifestations with a cumulative lifetime rate of developing at least one ocular lesion in 52%–100% of cases. The neuro-ophthalmological manifestations result from involvement of the afferent visual pathways, the efferent oculomotor, the pupillary system, and the visual centers in the brain. Not infrequently, neuro-ophthalmic manifestations may be a presenting feature of HIV infection.

Case Report 1

A 35-year old male presented to the Ophthalmology out-patient department with a complaint of binocular diplopia since 4 days.He also complained of giddiness, headache with nausea. He is a known case of retroviral disease diagnosed eight years ago and he is on ART for the past three years. He is also being treated for oral candidiasis.

On examination: His best corrected visual acuity(BCVA) is 6/24 in both the eyes.Complete restriction of abduction in RE and partial restriction of abduction in LE was noticed. Other extraocular movements in both eyes were normal. The pupillary reactions were brisk in both eyes. Slit lamp examination and fundus examination revealed no abnormality.IOP was normal in both eyes. Systemic examination revealed oral candidiasis. Neurological examination showed bilateral sixth nerve palsy.

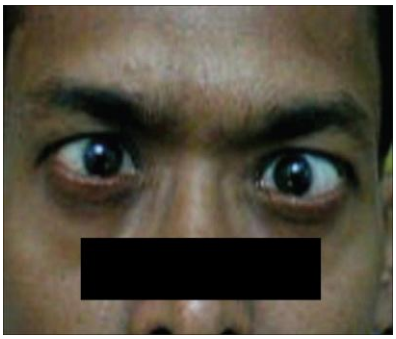

Figure 1: showing bilateral sixth nerve palsy

Case Report 2

A 55-year old male patient presented to ophthalmology out-patient department with a history of drooping of left upper eye lid and hearing loss in both ears since 2 months. He had been recently admitted and treated for a febrile illness. He is a known case of retroviral disease on ART and anti-tuberculous treatment.

On examination: His BCVA was RE-6/24 and LE- 6/36. There was partial ptosis of left upper eye lid up to 2mm.

Primary position of the eyes - LE deviated out. In the LE there is restriction of adduction, elevation and depression. In the RE, there is restriction of abduction . The pupil in RE is of normal size and reacting to light and the pupil was mid-dilated and sluggishly reacting in LE. Neurological examination revealed 6th nerve palsy in the RE and partial 3rd nerve palsy in the LE.

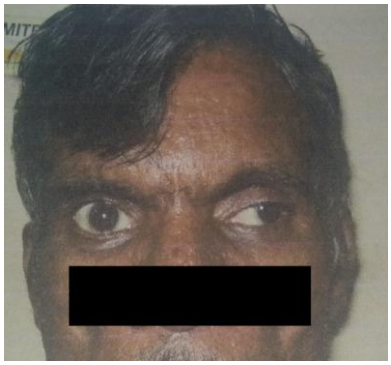

Figure 2: Showing RE Esotropia and LE Ptosis with Exotropia

Case Report 3:

A 45-year old male patient presented to ophthalmology out- patient department with complaint of drooping of Right upper eye lid since one week. He also complained of headache and vomitings. He has been recently diagnosed with pulmonary tuberculosis, and is on ATT since one month. . He is a known case of retroviral disease since 6yrs and is on ART.

On examination: His BCVA is RE- 6/60 and LE- 6/36.

Primary position of eyes- The right eye was deviated outwards and there is restriction of adduction, elevation and depression in right eye. Extraocular movements in LE were normal in all gazes. There was partial ptosis of right eye. Examination revealed mid-dilated and sluggishly reacting pupil in Right eye and normal size and reactive pupil in Left eye. Nuclear sclerosis were present in both eyes. Neurological examination revealed third nerve palsy in the RE.

Figure 2: Showing RE Esotropia and LE Ptosis with Exotropia

CD4 counts for all the above patients were below 200 . CT reports of the three patients showed normal brain study. CSF tap was done – bacterial, fungal and acid fast bacillus smears were negative in three cases. Immuno flourosence staining for CMV was positive for the three patients. Serum antibodies IgG and Ig M for CMV were highly positive in all the three cases. Serum antibodies for Toxoplasma and Herpes simplex were negative. TPHA and VDRL were non-reactive. . There was no evidence of Systemic hypertension or diabetes in any of the patients .The above three patients were provisionally diagnosed as CMV encephalitis and treatment started with IV Ganciclovir 5mg/kg body weight.

II. Discussion

The neuro-ophthalmic manifestations of HIV were described in the early years of the HIV pandemic. Neuro- ophthalmic abnormalities have been estimated to occur in 2%–8% of patients with AIDS. Other studies have reported neuro- ophthalmic abnormalities in as much as 60% of neurologically symptomatic HIV patients. Toxoplasma has a predilection for involving the brainstem and thalamus and can produce nuclear third, fourth, and sixth cranial nerve palsies. Other opportunistic infections such as CMV, herpes simplex and herpes zoster can cause brainstem encephalitis resulting in brainstem neuro-ophthalmic signs such as internuclear ophthalmoplegia, vertical gaze palsy, horizontal gaze palsy, bilateral fourth nerve palsy, sixth nerve palsy, seventh nerve palsy, and nystagmus. Dorsal midbrain syndrome characterized by impaired upgaze, lid retraction (Collier's sign), convergence retraction nystagmus, light near dissociation and ataxia has also been described in AIDS.

Isolated and multiple cranial neuropathies have been reported in HIV/AIDS. These result from brainstem encephalitides, neoplastic meningitides (lymphoma), mass lesions and vasculitis. Nine percent of HIV related neurological disease is heralded by cranial neuropathy. In a study of 589 patients with neurological manifestations, 3% had ocular cranial nerve palsy with third and sixth nerve palsies being the most common. Toxoplasmosis and cryptococcosis have been reported as the two most common causes. Multiple cranial neuropathies can occur at the time of HIV seroconversion and have been reported with cryptococcal meningitis, toxoplasmosis, CNS lymphoma, and multifocal CMV encephalitis.

The abducens nerve is the most commonly affected cranial nerve in HIV/AIDS. It has been reported in toxoplasmosis, cryptococcal meningitis, tuberculosis, histoplasmosis, herpes encephalitis, primary HIV infection, CMV infection and meningeal lymphomatosis.Neurosyphilis can rarely affect the abducens nerve.Abducens nerve palsy in AIDS has also been reported with petrous apex involvement (Gradenigo's syndrome) and with lymphomatous involvement of the cavernous sinus.

Third nerve and the seventh nerve were the commonly involved cranial motor nerves.we have not seen any case in which trochlear nerve was affected even though it was reported in the earlier studies

Cytomegalovirus encephalitis, a recognised opportunistic infection in HIV patients, is also known to cause cranial nerve palsies. In our present study the above patients were provisionally diagnosed as CMV encephalitis in view of the high IgM and IgG antibody level to CMV. With clinical suspicion and positive antibodies to cytomegalovirus, the patients were treated with intravenous Ganciclovir. Microbiological, histopathological and molecular biological study including PCR and viral culture, which could not be done due to financial constraints, would have established the aetiological diagnosis.CMV can cause cranial nerve palsies, optic neuritis, retrobulbar neuritis, slowed saccades, abnormal oculokinetic response and internuclear ophthalmoplegia.

CMV infection usually occurs when CD4 count is below 50. In our cases CD4 count was relatively higher. Fekrat and associates reported two cases of CMV retinitis with CD4+ T lymphocyte counts of more than 200 cells/mm. Our study indicated that multiple cranial nerve palsies can be a presenting feature of AIDS, but an elaborate further study is required to establish the rate of incidence and various presentations of cranial motor

nerve palsies in immuno-compromised patients. General Ophthalmologists should be aware of the varied presentations of HIV/ AIDS and should advise the patients regarding the immuno-compromised status .

Conclusion

Neuro-ophthalmic manifestations of AIDS are protean and complex and could involve any part of the afferent and efferent system. The bulk of the problems arise from opportunistic infections and malignancies. However, HIV itself may be the underlying cause in some cases. Given the varied presentations and challenges in diagnosis and treatment, we opine that an integrated team approach consisting of an ophthalmologist, neurophysician and infectious disease specialist is crucial for the effective management of these patients.

References

[1]. Yanoff and Duker Ohthalmology; 4th Edition;Part 7;Section 2;7.5-704-708.
[2]. Walsh and Hoyt's Clinical Neurophthalmology;6th Edition;58-3323-3368.
[3]. Biswas J, Madhavan HN, George AE, Kumarasamy N, Solomon S. Ocular lesions associated with HIV infection in India: A series of 100 consecutive patients evaluated at a referral center. Am J Ophthalmol 2000;129:9-15.
[4]. Jabs DA, Van Natta ML, Thorne JE, et al. Course of cytomegalovirus retinitis in the era of highly active antiretroviral therapy: Ophthalmology2004;111(12):2224–2231.
[5]. Mansour AM. Neuro-ophthalmic findings in acquired immunodeficiency syndrome. J Clin Neuroophthalmol. 1990;10(3):167–174. 40.
[6]. Keane JR. Neuro-ophthalmologic signs of AIDS: 50 patients. Neurology. 1991;41(6):841–845.
[7]. Grossniklaus HE, Frank KE, Tomsak RL. Cytomegalovirus retinitis and optic neuritis in acquired immune deficiency syndrome. Report of a case. Ophthalmology. 1987;94(12):1601–1604.
[8]. Patel SS, Rutzen AR, Marx JL, Thach AB, Chong LP, Rao NA. Cytomegalovirus papillitis in patients with acquired immune deficiency syndrome. Visual prognosis of patients treated with ganciclovir and/or foscarnet. Ophthalmology. 1996;103(9):1476–1482.
[9]. Ioannidis AS, Bacon J, Frith P. Juxtapapillary cytomegalovirus retinitis with optic neuritis. J Neuroophthalmol. 2008;28(2):128–130.
[10]. Fekrat S, Dunn JP, Lee D, Miller T, Jabs DA. Cytomegalovirus retinitis in HIV infected patients with elevated CD4+ counts. Arch Ophthalmol 1995;113:18.