

OCULAR MANIFESTATION IN HIV- A CLINICAL STUDY AT TERTIARY CENTREChelluboyina Manga Venkat¹, Chodipelli Guru Murthy²¹Civil Assistant Surgeon, Department of Ophthalmology, Government Regional Eye Hospital, Andhra Medical College, Visakhapatnam, Andhra Pradesh.²Assistant Professor, Department of Ophthalmology, GEMS, Srikakulam, Andhra Pradesh.**ABSTRACT****BACKGROUND**

The human immunodeficiency virus (HIV) infection has spread worldwide with various adverse health and economic implications, particularly in the developing world.⁽¹⁾ Ocular involvement in AIDS is very common and includes various clinical presentations.^(2,3,4,5,6,7,8,9)

The aim of this study is to study various ocular manifestations in the cases known to be infected with HIV (Human Immunodeficiency Virus).

MATERIALS AND METHODS

Prospective clinical study from October 2010 to November 2012 at Govt. Regional Eye Hospital, Visakhapatnam, in association with Antiretroviral treatment (ART) Centre, KGH, Visakhapatnam.

RESULTS

Out of 960 HIV positive patients examined, 201 (20.93%) patients had ocular manifestations. Of these 201 patients, adults were 192 (95.5%) and children were 9 (4.5%). Out of these 201 patients age group 0 - 20 were 16 (7.96%), age group 20 - 40 were 120 (59.7%), age group 40 - 60 were 55 (27.36%), age group > 60 were 10 (4.97%). 126 cases (62.7%) had anterior segment manifestations and 75 (37.3%) had posterior segment manifestations. Anterior segment manifestations include dry eye (12.43%), blepharitis (7.46%), molluscum (4.97%), OSSN (0.99%), dendritic ulcer (4.47%), fungal ulcer (3.98%), iridocyclitis (7.46%), HZO (9.45%), conjunctivitis (5.47%), nerve palsy (0.99%), stye (4.47%) and chronic dacryocystitis (0.49%). Posterior segment manifestations include HIV retinopathy (15.42%), CMV retinitis (12.43%), optic atrophy (1.49%), choroiditis (4.47%), PORN (1.49%) and retinal detachment (1.99%). Out of 201, 23 (11.44%) had CD4 count < 50, 40 (19.9%) had CD4 count 50 - 100, 120 (59.7%) had CD4 count 200 - 500 and 18 (8.95%) had CD4 count > 500. 93 (46.3%) were on HAART and 108 (53.7%) were on pre-HAART.

CONCLUSION

The prevalence of ocular manifestations in HIV patients is 20.93%, commonly involving age group between 20 - 40 yrs. of age. HIV microangiopathy was the most common ocular manifestation in HIV patients and it was the common posterior segment manifestation. Anterior segment being the commonly involved segment in HIV patients and common anterior segment manifestation was dry eye. CMV retinitis was the most common opportunistic infection in patients with HIV and it was associated with CD4 count < 50 cells/microlitre. Patients on HAART therapy showed less manifestations compared to pre-HAART patients.

KEYWORDS

HIV, Ocular Manifestations.

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BACKGROUND

The human immunodeficiency virus (HIV) infection has spread worldwide with various adverse health and economic implications, particularly in the developing world.⁽¹⁾ Ocular involvement in AIDS is very common and includes various clinical presentations.^(2,3,4,5,6,7,8,9) The latest statistics of the global HIV and AIDS epidemic published by UNAIDS, WHO and UNICEF in Nov 2011 estimated that 34 million people were living with HIV/ AIDS.^[10] HIV causes a wide spectrum of diseases^(2,3,4) including an acute mononucleosis-like syndrome, an asymptomatic carrier state, persistent generalised lymphadenopathy, AIDS-related complex and AIDS itself.

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Numerous ophthalmic manifestations of HIV infection may involve the anterior or posterior segment of the eye. Since the first report of the ocular manifestations of AIDS by Holland et al in 1982,^(11,12) subsequent studies have described several AIDS related conditions in the eye and orbit. 70% - 80% of adult AIDS patients will experience an ocular complication at some point of their illness.^(11,13) Orbital and adnexal findings include tumours of the periocular tissues and external infections. Anterior segment manifestations consist of keratitis, keratoconjunctivitis sicca, iridocyclitis and other complications. Posterior segment findings include a HIV associated retinopathy and a number of opportunistic infections (OI) of the retina and choroid. HIV has also been related to neuro-ophthalmic manifestations such as nerve palsies, visual field defects, papilloedema and diplopia.

Inclusion Criteria

- All patients with HIV positive status presenting to ART centre at KGH.
- Patients presenting to Govt. REH with fundus pathologies suspected to have HIV retinopathy were taken.

MATERIALS AND METHODS

After obtaining an informed consent from the patient satisfying the inclusion criteria, the patient was subjected to the following Examinations:

- Examination of Orbit and Ocular Adnexa with diffuse illumination.
- Slit Lamp Examination of Anterior Segment of the Eye which includes examination of Eyelids, Conjunctiva, Cornea, Anterior Chamber, Iris, Pupil and Lens.
- Instillation of Mydriatic eye drops for dilating pupil (Tropicamide eye drops) is done after examination of anterior segment, so as to visualise the posterior segment.
- Examination of Fundus is done with Direct as well as Indirect Ophthalmoscopy.
- Fundus pictures are documented with the help of Zeiss digital fundus camera.
- B-Scan Ultrasonography for assessment of posterior segment is done in case of media opacities where ophthalmoscopy is not possible.
- Blood test for CD4 count, Haemoglobin, TC, DC and ESR.
- Mantoux, chest x-ray PA view.

RESULTS

201 patients had ocular manifestations out of 960 HIV positive patients examined, which was 20.93%. Of these 201 patients, adults were 192 and children were 9.

Gender	No. of Cases	Percentage
Male	110	54.7%
Female	82	40.79%
Children	9	4.47%

Table 1. No. of Cases according to Gender

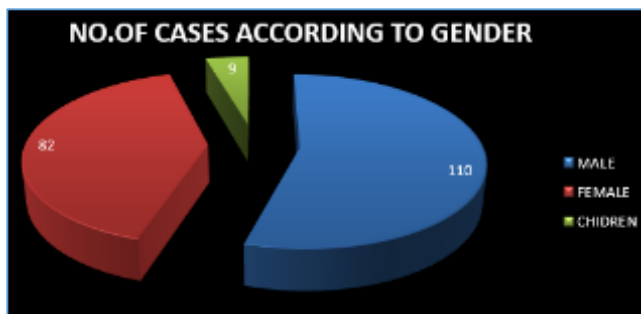


Figure 1. HIV Patients with Age

The following were the number of cases according to age group in 201 patients. Age group between 20 - 40 yrs. was commonly affected.

Age Group	No. of Patients	Percentage
0-20	16	7.96%
20-40	120	59.70%
40-60	55	27.36%
>60	10	4.97%

Table 2. Number of Patients according to Age Group

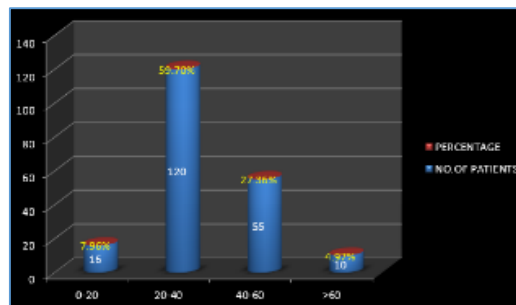


Figure 2. Age Group with HIV Patients

The following were the number of cases according to involvement of segment of the eye in 201 patients.

Segment of the Eye	No. of Cases	Percentage
Anterior	126	62.68%
Posterior	75	37.31%

Table 3. No. of Cases according to Involvement of Segment

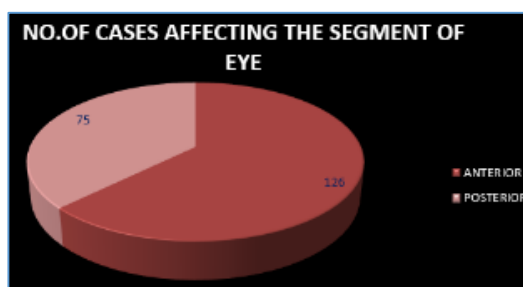


Figure 3. Anterior Segment vs Posterior Segment Involvement

The following were the various anterior segment manifestations encountered in 201 patients.

Manifestation	No. of Cases	Percentage
Dry eye	25	12.43%
Blepharitis	15	7.46%
Molluscum	10	4.97%
OSSN	2	0.99%
Dendritic ulcer	9	4.47%
Fungal ulcer	8	3.98%
Iridocyclitis	15	7.46%
HZO	19	9.45%
Conjunctivitis	11	5.47%
Nerve Palsy	2	0.99%
Stye	9	4.47%
Chronic dacryocystitis	1	0.49%

Table 4. Anterior Segment Manifestations

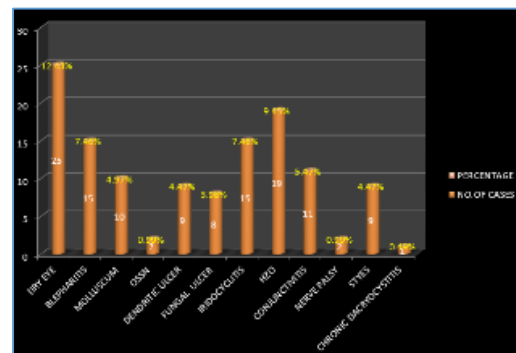


Figure 4. Shows various Anterior Segment Involvement

The following were the various posterior segment manifestations encountered in 201 patients.

Manifestation	No. of Cases	Percentage
HIV Retinopathy	31	15.42%
CMV Retinitis	25	12.43%
Optic atrophy	3	1.49%
Choroiditis	9	4.47%
PORN	3	1.49%
RD	4	1.99%

Table 5. Posterior Segment Manifestations

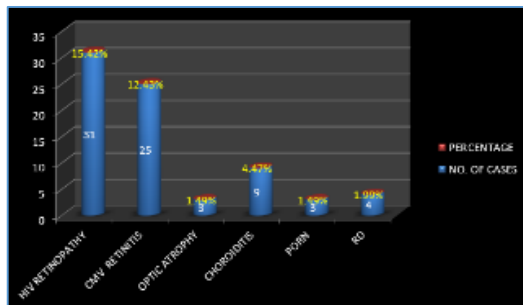


Figure 5. Shows various Posterior Segment Involvement

The following were the no. of patients in relation to CD4 count in 201 patients.

CD4 Count	No. of Patients	Percentage
<50	23	11.44%
50-200	40	19.90%
200-500	120	59.70%
>500	18	8.95%

Table 6. No. of Patients according to CD4 Count

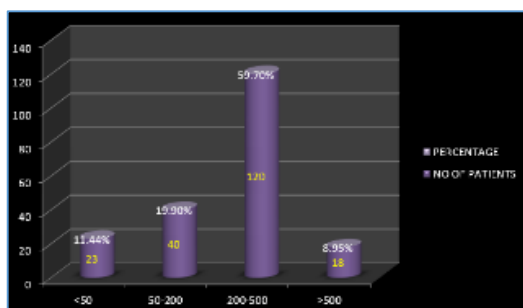


Figure 6. Shows HIV Patients and CD4 Count

Treatment	No. of Patients	Percentage
On HAART	93	46.26%
Pre-HAART	108	53.73%

Table 7. No. of Patients in Relation to Treatment

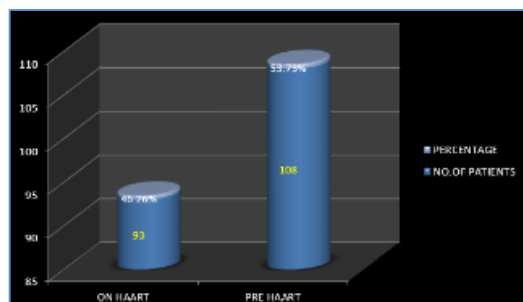


Figure 7. HIV Patient with Treatment

The following were the various common manifestations encountered in 201 patients according to CD4 count.

CD4 Counts	Common Manifestation
<50	CMV Retinitis
50-200	HIV Retinopathy
200-500	Choroiditis
>500	Dry Eye

Table 8. Most Common Manifestations in Relation to various Ranges of CD4 Count in our Study

CMV Retinitis - HIV Retinopathy



Figure 8

Figure 9



Figure 10. HZO

Figure 11. Molluscum



Figure 12. Dendritic Ulcer; Figure 13. Fungal Ulcer; Figure 14. Retinal Detachment

DISCUSSION

According to study done by Dr. Md. Ather, Dr. Mustafa Ahtesham and Mr. Siva Rama Krishna⁽¹⁴⁾- Incidence of ocular involvement in HIV Positive Clients/ Attending Integrated Counselling and Testing Centre- out of 595 HIV positive cases 119 (20%) were found to be having ocular involvement, but in our study 20.93% showed ocular manifestations. Among those who were having ocular involvement, 71 (59%) were males and 48 (41%) were females. In our study 54.70% were males and 40.79% were females having ocular manifestations. Various manifestations are Molluscum contagiosum (4) 3.36%, in our study 4.97%; Herpes zoster ophthalmicus (6) 5.04%, in our study 9.45%; Orbital lymphomas (2) 1.68%, in our study no orbital lymphomas were noted; OSSN (11) 9.24%, in our study 0.99%; Dendritic ulcer (2) 1.68%, in our study 4.47%; Fungal keratitis (1) 0.84%, in our study 3.98%; Iridocyclitis Ac/Ch (63) 52.94%, in our study 7.46%; Choroiditis (3) 2.52%, in our study 4.47%; CMV retinitis (13) 10.92%, in our study 12.43%; HIV retinopathy (11) 9.24%, in our study 15.42%; Optic atrophy

(1) 0.84%, in our study 1.49% were noted. According to this study most common ocular manifestation was iridocyclitis, in our study most common manifestation was HIV macroangiopathy.

According to the study, ocular manifestations in HIV/AIDS cases in Nepal by Lamichhane et al⁽¹⁵⁾- A total of 117 HIV infected cases were included in this study. The mean age of the subjects was 30.04 +/- 11.32 years. In our study, 20 - 40 years' age group were having more ocular manifestations. Ocular involvement was seen in 55 (47%) patients; in our study ocular manifestations were seen in 20.93%. The common anterior segment findings were herpes zoster ophthalmicus (4.27%), in our study it was 9.45%; anterior uveitis was (2.56%), in our study anterior uveitis was 7.46%, blepharitis was (2.56%), in our study it was 7.46%; conjunctivitis was (1.7%), in our study it was 5.47%; whereas HIV retinopathy was (19.6%), in our study it was 15.42%; CMV retinitis was (5.1%), in our study it was 12.43%; ocular toxoplasmosis was (2.5%) and presumed ocular tuberculosis of (0.85%) were common posterior segment findings.

Kestelyn et al⁽¹⁶⁾ described the ocular manifestations of HIV/ AIDS infection in an African paediatric population. The overall rate of ophthalmic involvement was 54%, in our study it was 20.93%. The most common finding was a perivasculitis of the peripheral retinal vessels, observed in 38% of the patients. According to our study, it was 15.42%. CMV infection of the retina was diagnosed in 10.43%; in our study, it was 12.43%. They concluded that cotton-wool spots and CMV retinitis are the most common ocular manifestations of HIV/ AIDS. In our study, HIV microangiopathy was the most common ocular manifestation.

In the present study, the prevalence of ocular manifestations in HIV patients is 20.93%. HIV microangiopathy (15.42%) was the most common ocular manifestation in HIV patients. Common anterior segment

manifestation was dry eye (12.43%) and common posterior segment manifestation was HIV microangiopathy (15.43%). CMV retinitis (12.43%) was most common opportunistic infection in patients with HIV. Males (54.70%) are being more commonly affected than females (40.79%). Anterior segment (62.68%) being the commonly involved segment in HIV patients. Commonly involving age group is between 20 - 40 years (59.70%) of age. Patients on HAART (46.26%) therapy showing less manifestations compared to pre-HAART (53.73%) patients. CMV retinitis was associated with CD4 count < 50 cells/ microlitre. Various ocular manifestations are as follows: Table 9.

Manifestation	No. of Cases	Percentage
Dry Eye	25	12.43%
Blepharitis	15	7.46%
Molluscum	10	4.97%
OSSN	2	0.99%
Dendritic Ulcer	9	4.47%
Fungal Ulcer	8	3.98%
Iridocyclitis	15	7.46%
HZO	19	9.45%
Conjunctivitis	11	5.47%
Nerve Palsy	2	0.99%
Styes	9	4.47%
Chronic Dacryocystitis	1	0.49%
HIV Retinopathy	31	15.42%
CMV Retinitis	25	12.43%
Optic Atrophy	3	1.49%
Choroiditis	9	4.47%
PORN	3	1.49%
RD	4	1.99%

Table 9. Comparison with various Other Studies

Ocular Lesion	Awan et al, Kenya ⁽¹⁷⁾	Jabs et al, USA ⁽¹⁸⁾	Biswas et al, India ⁽¹⁹⁾	S. K. Mandal et al	S. P. Sahoo et al	Md. Ather et al ⁽¹⁴⁾	Lamichhane et al ⁽¹⁵⁾	In Our Study
Molluscum	*	*	*	*	1.5%	3.36%	*	4.97%
HZO	*	*	*	*	4.54%	5.04%	4.27%	9.45%
Orbital Lymphoma	*	*	*	*	*	1.68%	*	7.46%
OSSN	*	*	*	*	*	9.24%	*	0.99%
Dendritic Ulcer	*	*	*	*	*	1.68%	*	4.47%
Fungal Ulcer	*	*	*	*	*	0.84%	*	3.98%
Iridocyclitis	*	*	*	*	4.5%	52.94%	2.56%	7.46%
Choroiditis	*	3%	*	0.57%	*	2.52	3.25%	4.47%
CMV Retinitis	3%	4.7%	17%	10.6%	11%	10.92%	5.1%	12.43%
HIV Retinopathy	25%	6.4%	15%	10.65%	12%	9.24%	19.6%	15.42%
Optic Atrophy	3%	5%	7%	3%	3%	0.84%	*	1.49%
PORN	*	*	*	*	*	*	*	1.49%
RD	*	*	*	*	*	*	*	1.99%
Dry Eye	*	*	*	*	*	*	*	12.43%
Blepharitis	*	*	*	*	*	*	2.56%	7.46%
Conjunctivitis	*	*	*	*	*	*	1.7%	5.47%
Nerve Palsy	*	*	*	*	*	*	*	0.99%
Styes	*	*	*	*	*	*	*	4.47%

CONCLUSION

1. The prevalence of ocular manifestations in HIV patients is 20.93%.
2. Males are being more commonly affected than females and commonly involving age group is between 20 - 40 yrs. of age.
3. HIV microangiopathy was the most common ocular manifestation in HIV patients and it was the common posterior segment manifestation.
4. Anterior segment being the commonly involved segment in HIV patients and common anterior segment manifestation was dry eye.
5. CMV retinitis was the most common opportunistic infection in patients with HIV and it was associated with CD4 count < 50 cells/microlitre.
6. Patients on HAART therapy showing less manifestations compared to pre-HAART patients.

HIV/ AIDS is a disease at once amazingly virulent and shockingly new. Only a generation ago, it lay undetected. Yet in the past two decades by the rocking of the Joint UN Programme on HIV/ AIDS (UNAIDS), about 65 million people have contracted the illness and perhaps 25 million of them have already died. The affliction is almost invariably lethal. Scientists do not consider a cure to be even on the horizon. For now, it looks as if AIDS could end up as the coming century's top infectious killer.

At present, the HIV/ AIDS pandemic, though global, is overwhelmingly concentrated in Sub-Saharan Africa. Although, this situation has exacted a terrible human cost, the rest of the world has been largely unaffected by Africa's tragedy. Things will be very different, however, in the next major area of HIV infection. Eurasia (which for the purposes of this essay is considered to be the territory encompassing the continent of Asia plus Russia) will likely be home to largest number of HIV victims in the decades ahead. Driven by the spread of the disease in the region's three largest countries- China, India and Russia- the coming Eurasian pandemic threatens to derail the economic prospects of billions and alter the global military balance. And although the devastating costs of HIV/ AIDS are clear, it is unclear that much will be done to head off the looming catastrophe.

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