

## A CLINICAL STUDY OF OCULAR MANIFESTATIONS IN HIV PATIENTS

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### ABSTRACT

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#### BACKGROUND

HIV/AIDS is a multi system disorder with ocular involvement is about 70-80% of HIV patient occupational exposure to HIV is a significant health hazard for the treating clinicians including Eye Surgeons.

#### AIM

To study and evaluation of ocular manifestation in HIV patients attending out patient.

#### MATERIALS AND METHODS

It is observational study of 104 HIV+ve cases for a period of 1 year those patients who attended ophthalmic out patient department.

#### RESULTS

73 were males (70.19%) and 31 were females (29.80%). Majority of the patients belongs to age group of 15-50 years. Out of 104 patients 83(79.80%) were married and 21(20.20%) were unmarried. HIV was predominantly seen in labourers 41(32.42%). The predominant mode of transmission of sexual (Hetero Sexual) transmission. HIV infection was predominantly seen in uneducated patients 64(61.53%). Total No. of ocular findings in 51 cases out of 75 with anterior Uveitis, Conjunctival microvasculopathy, Herpes Simplex Keratitis and Conjunctivitis are the most common anterior segment manifestation. CMV retinitis, HIV Microvasculopathy are the most common posterior segment manifestation.

#### CONCLUSIONS

Ophthalmologists should be familiar with common and uncommon ocular manifestations of AIDS+ve cases and their diagnosis and treatment, as early and proper treatment can Salvage their vision and improve the quality of life.

#### KEYWORDS

HIV Infection, Ocular Manifestations, Anterior Segment, Posterior Segment.

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**INTRODUCTION:** Human Immunodeficiency virus (HIV)/Acquired Immunodeficiency syndrome (AIDS) is one of the most feared infectious disease of the late 20<sup>th</sup> century. AIDS is caused by Human Immunodeficiency virus (HIV)<sup>1,2</sup> which is a retrovirus with RNA Genome and Unique "Reverse transcriptase enzyme". HIV is of two types 1) HIV-I, 2) HIV-II. Most human diseases are caused by HIV-I. The HIV-I sub types prevalent in India are A, B, and C. The term AIDS refer to an advanced stage of HIV infection when the immune system has sustained substantial damage. Not every one who has HIV infection, develop AIDS. The CDC definition of AIDS is "All HIV infected people with fewer than 200 CD4 T cells per cubic millimeter of blood".<sup>3</sup>

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The first case of HIV/AIDS was reported in 1981 amongst a group of homo sexual males in Philadelphia. When the centre for disease control and prevention reported unexplained occurrence of Pneumocystis carinii pneumonia, in previously healthy Homo sexual men in 'Los Angeles' and of Kaposi sarcoma in previously healthy homo sexual men several years later, it was co-discovered by 'LUC Montagnier' and 'Robert Gollit'. In 1983 HIV-I was isolated from Patient with lymphadenopathy and in 1984 it was clearly demonstrated as the cause of AIDS.<sup>4</sup> In Andhra Pradesh- first HIV case is a microbiologist died in Hyderabad at fever Hospital in 1987.

AIDS is Global Pandemic with cases from every country. The number of people living with HIV has rises from around 8 million in 1990 to 33 million today (2008) and is still growing. Around 67% of people living with HIV are in sub Saharan Africa. There are about 14000 New HIV infections occurring Globally each day. 80% are due to heterosexual transmission and about 12000 are in persons aged 15 to 49 years. (50% are women and about 50% are 15 to 24 years old) of these 25 millions have already died since 1981<sup>5</sup> NACO supported by UNAIDS and WHO indicate

that national adult HIV prevalence in INDIA is approximately 0.36% which corresponds to an estimated 2 million to 3.1 million people living with HIV in the country.<sup>6</sup>

In Andhra Pradesh—Seventeen out of 23 districts in the State reported less than 1% of incidence with Highest incidence is Prakasam District (4.00%) and lowest incidence is Rangareddy district (0.50%).

HIV/AIDS is a multi system disorder with ocular involvement is about 70–80% of HIV patient occupational exposure to HIV is a significant health hazard for the treating clinicians including Eye Surgeons. The Universal precautions like gloves & protective Eye wear and Post Exposure Prophylaxis (PEP) therapy is highly effective in preventing occupational transmission.

The life time cumulative risk of developing at least one abnormal ocular lesion for a HIV positive person ranges from 52–100% in various studies.<sup>7</sup> To study and evaluate the various ocular manifestation in HIV/AIDS patients and to determine the prevalence of ocular involvement in the form of various manifestation.

**MATERIALS AND METHODS:** This is observational study of 104 HIV+ve cases who presented at Regional Eye Hospital and ART centre (HIV clinic) at M.G.M. Hospital, Warangal between October 2013 to November 2014. In this study AIDS/HIV positive cases with various ocular manifestation who were referred from peripheral centres and other departments and those patients who attended ophthalmic out patient department for Eye complaints and those who did not know their HIV status were also included.

For all these patients a detailed history including occupation, socio-economic status, presenting complaints, ocular complaints, duration of illness, past history. Treatment history including Blood transfusion, family history including HIV status of spouse and children were investigated. Personal history including IV drug use and sexual history including history of any extramarital or illegal contacts were recorded. General examination with thorough examination of all vital systems with recording of all vital data were done. Ocular motility visual acuity and refraction was done. Ocular Examination of anterior segment with slit lamp Biomicroscopy and fundus evaluation with Direct, I.O. and +78D lens evaluation of O.D. and Macula was done.

Corneal sensations were tested, schirmers tests tear film break up time, corneal staining was done. I.O.P. was recorded with schitzo tonometer and after which the tonometer was sterilized with 70% Ethanol. Fields were recorded with confrontation methods, Bjerrums screen and automated perimeter when ever indicated. Photographs of the anterior segment with slit lamp and Digital Camera and fundus photographs with fundus camera were taken.

Laboratory Investigation i.e. Hb% CBP, ESR, RBS, Blood urea, CUE, Mantoux test, conjunctival and corneal scrapings were sent for staining and culture sensitivity. Specific Investigations serum antitoxoplasma, VDRL, HIV

test, CD4 cell count was done. Radiological investigations like chest X-Ray and B-Scan was done.

All these patients were followed up during the study period and were asked to report at the ophthalmic out patient department when ever they develop new ocular manifestations. Patients were diagnosed depending up on the clinical findings and were confirmed with relevant laboratory investigations.

## RESULTS:

Age Group	Males	Females
0–14 Yrs	2	1
15–29 Yrs	29	12
30–49 Yrs	37	16
>50 Yrs	5	2

**Table 1: Age Distribution**

One hundred four patients were examined. 73 were males (70.19%) and 31 were females (29.80%). Majority of the patients belongs to age group of 15-50 years. The youngest patients was 12 years of age and oldest 56 years of age.

Marital Status	Total No. of HIV +ve cases
Married	83
Unmarried	21
<b>Occupation</b>	
Labourers	41
Businessman	24
Drivers	22
Housewives	12
CSW	3
Students	2
<b>Mode of Transmission</b>	
Sexual	91
IDU	4
Blood Transfusion	3
Unreported	6
<b>Education status</b>	
Uneducated	64
School Education	37
Graduation	3

**Table 2: Details of Study Group**

Out of 104 patients 83(79.80%) were married and 21(20.20%) were unmarried. Out of 83 married, 66 are males and 17 are females. Out of 83 married patients, 39 had children out of which 11 were HIV+ve and 28 are HIV-ve.

HIV was predominantly seen in labourers 41 (32.42%), drivers 22(21.15%), businessman 24(23.07%), Housewives 12(11.53%), CSW 3(2.88%) and students 2(1.92%).

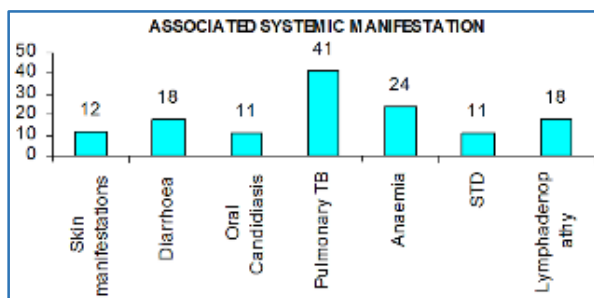
The predominant mode of transmission of sexual (Hetero sexual) transmission. It is seen in 91(87.5%) of patients, 4(3.4%) patients has History of IDU, 3(2.88%) patients has History of blood transfusion, 6(5.76%) patients did not revealed the History of risk factor for AIDS.

HIV infection was predominantly seen in uneducated patients 64 (61.53%).

Anterior Segment	No. of HIV +ve Cases	% of Disease
Molluscum contagiosum	3	5.88%
Blepharitis	4	7.84%
Meibominitis	4	7.84%
Conjunctivitis	5	9.80%
Conjunctival Microvasculopathy	7	13.72%
Dry Eyes	4	7.84%
Herpes Simplex Keratitis	6	11.76%
H. Z. O.	4	7.84%
Corneal Ulcer	2	3.92%
Anterior Uveitis	11	21.56%
Complicated cataract	1	1.96%
<b>Total</b>	<b>51</b>	
Posterior Segment		
Cotton wool spots	8	15.68%
CMV retinitis	10	19.60%
Toxoplasma retinitis	1	1.96%
Retinal detachment	1	1.96%
Optic atrophy	2	3.92%
Papillitis	1	1.96%
P. carinii Choroidopathy	1	1.96%
<b>Total</b>	<b>24</b>	

**Table 3: Ocular Manifestation Of HIV+Ve Patients**

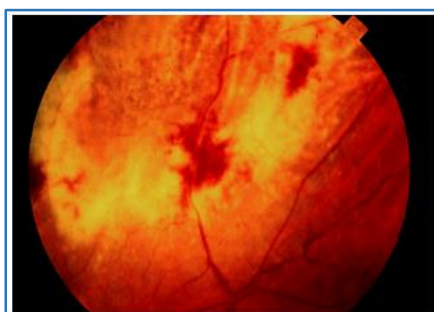
Total No. of ocular findings in 51 cases are 75 (anterior segment-51+posterior segment-24) and more than one ocular manifestation was present in 12 cases.



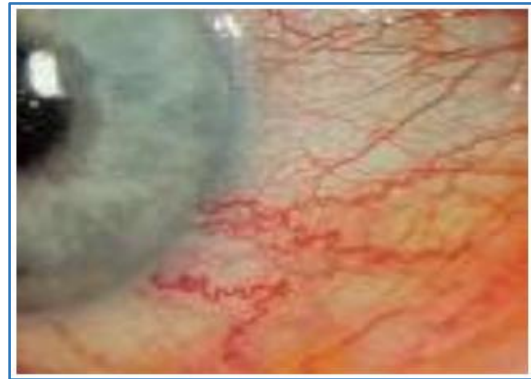
**Graph 1: Associated Systemic Manifestation**

Most common systemic disease seen was pulmonary TB 41(39.42%), Anaemia 24(23.07%), Lymphadenopathy 18(17.30%), Diarrhoea 18(17.30%), Skin manifestations 12(11.53%), Oral candidiasis 11(10.57%) and STD 11(10.57%).

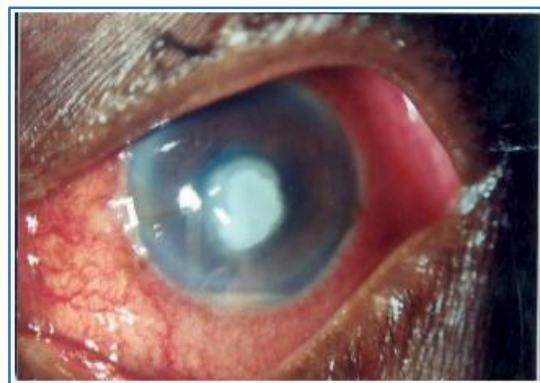
**OCULAR PRESENTATIONS IN THE STUDY:**



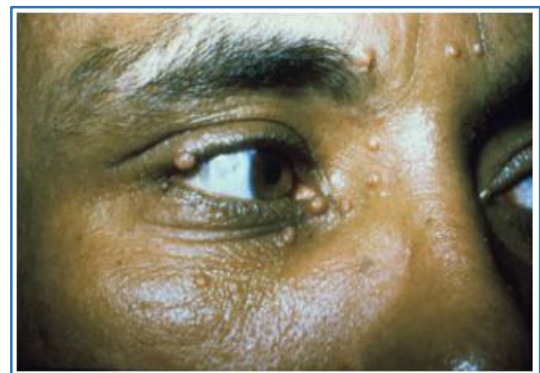
**Fig. 1: Cytomegalo Viral Retinitis**



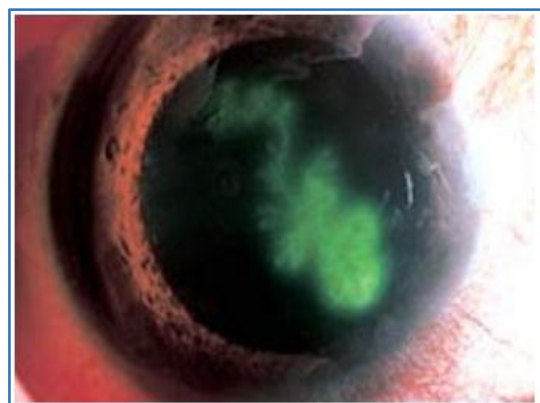
**Fig. 2: Conjunctival Microvasculopathy**



**Fig. 3: Fungal Ulcer With Hypopyon**



**Fig. 4: Molluscum Contagiosum of Eyelid**



**Fig. 5: Herpes Simplex Viral Keratitis**



**Fig. 6: Toxoplasmosis Retinitis**

**DISCUSSION:** The WHO reported an estimate of 33 million HIV infected cases World wide at the End of 2007. According to NACO, New Delhi, the number of HIV+ve patients in India are 5.7 million with Male: Female ratio is 3:1. Various studies report that ocular involvement occurs in around 70% (ranging from 52% to 100%) of patients with HIV infection. In our present study we found ocular involvement is about 49.03%(\*44.54%).

Out of 104 patients the percentage of males affected were 70.19%(\*74.6%) and 29.80% were females with M: F ratio 2.4:1. Male preponderance was due to social and

economic freedom and higher degree of promiscuity and there fore increased risk of Acquiring HIV infection. Majority of the Patients belonged to Age group of 15–50 years of age.

The most common risk factor for infection was Heterosexual exposure 87.5% (\*77.60%). The infection was also Acquired through blood transfusion 2.88% (\*5.95%), IDU 3.84% (\*2.16%). In 5.76% of patients did not revealed the history of risk factor for AIDS (\*8.52%). 2.88% of patients had blood transfusion as the risk factor for AIDS which shows that the majority of blood banks at the peripheral central are not doing the routine HIV screening and therefore strict regulations and public awareness is essential.

Highest incidence of HIV is seen in uneducated (61.53%) and Labourers (39.42%), which is mainly due to illiteracy, unprotected sex and multiple partners. This can be minimized by improving the literacy, Eradication of child labour, health education and protective measures about the disease. 79.80% patients were married and majority of them gave History of promiscuity which can be due to changing attitude of life, increased liberalizations and ever increasing Obscenity and vulgarity in the media.

Study	Awan et al. Kenya 1996 <sup>8</sup>	Jabs et al. USA 1995 <sup>9</sup>	J. Biswas et al India 2000 <sup>10</sup>	Sriprakash K. S. et al. India 2001-2003 <sup>11</sup>	Joshi Purushottam 2006 <sup>12</sup>	Present study
Blepharitis	0	0	1%	2(1.14%)	2(1.9%)	7.84%
Conjunctivitis	0	0	0	0	4(3.9%)	9.80%
Herpes zoster Ophthalmicus	23%	23%	1%	18(10.65%)	1(1%)	7.84%
Corneal opacity	0	1%	1%	6(3.42%)	0	3.92%
Molluscum contagiosum	0	0	1%	1(0.57%)	1(1%)	5.88%
Anterior uveitis	0	0	6%	10(5.71%)	1(1%)	21.56%

**Table 4: Anterior Segment Findings In Different Studies**

Study	Awan et al. Kenya 1996 <sup>8</sup>	Jabs et al. USA1995 <sup>9</sup>	J. Biswas et al. India 2000 <sup>10</sup>	Sriprakash K. S. et al. India 2001-2003 <sup>11</sup>	Joshi Purushottam 2006 <sup>12</sup>	Present Study
CMVretinitis	3%	37%	17%	18(10.65%)	4(3.9%)	19.60%
HIV retinopathy	25%	50%	15%	18(10.65%)	24(23.3%)	15.68%
Fungal retinitis	0	1%	0	0	0	15.68%
Toxoplasmic retinochoroiditis						1.96%
Retinal Detachment	0	6.9%	8%	20	2(1.9%)	1.96%
Retinal Degeneration	0	0	0	0	2(1.9%)	1.96%

**Table 5: Posterior Segment Lesions In Different Studies**

The difference in the percentage of ocular findings may be due to change in Environmental conditions, poor conditions of hygiene, delay in seeking medical attention, different degree of immuno suppression due to racial factors and lack of medical facilities and Health Education.

**CONCLUSIONS:** The most common risk factor for HIV infection is Heterosexual exposure with the highest

incidence in the uneducated and labourers. Anterior Uveitis, Conjunctival microvasculopathy, Herpes Simplex Keratitis and Conjunctivitis are the most common anterior segment manifestation. CMV retinitis, HIV Microvasculopathy are the most common posterior segment manifestation. The ophthalmologists should be familiar with common and uncommon ocular manifestations of AIDS+ve cases and their diagnosis and

treatment, as early and proper treatment can Salvage their vision and improve the quality of life.

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