

When CMV retinitis is first diagnosed, an induction therapy with intravenous gancyclovir twice a day for 14 days is recommended followed by maintenance therapy once a day for six days a week, life-long. There are atleast two more drugs which are equally effective in CMV retinitis and approved by the Federal Drugs Agency (FDA) in the U.S. Ganciclovir alternatively can also be given by injection in the vitreous cavity of the eye directly at a much lower dose or by inserting the pellet of the drug in a sustained released implant. The occurrence of CMV retinitis indicates poor prognosis for the life of the AIDS patient.

In the final stages of the disease, the brain is frequently involved, either with direct infection by HIV or with opportunistic infections. Because over half of the brain is concerned in some way with the act of seeing, the eyes may show signs of brain involvement. Blurred vision, problems with eye movement or double vision may result.

As ocular lesions are the earliest manifestation of AIDS, the ophthalmologist has a very important role in the identification of primary HIV infection from suspected ocular lesions in patients.

HIV positive patients, if they develop ocular lesions due to AIDS or otherwise can be treated just like other patients. An ophthalmologist should not discriminate a patient if found to be HIV positive. AIDS is particularly not contagious. However strict health care regulations should be followed by examining HIV patients to prevent spread of infection from patient to patient and from patient to health care personnel. Early and proper treatment can salvage their vision and improve the quality of life. Central or scleral tissues used for

transplantation should be screened for HIV, although no documented transmission of HIV infection through donor corneal or scleral tissue has been reported so far.

A new approach of "cocktails" or "combothrapy" that combine protease inhibitors with other anti-viral drugs has shown great promise for the first. But the cost is quite high, beyond the reach of an average citizen of the even developing countries (around \$ 20,000 a year)

In countries like India, AIDS patients can hardly afford such treatment. These drugs also need to be continued indefinitely. There is still a long way to go. In the first place, to find an effective prevention, a vaccination is a must, which does not exist currently.

## Patient Information



# AIDS and the EYE



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## AIDS and the EYE

Acquired Immunodeficiency Syndrome (AIDS) was first described in 1981, and three years later, the causative virus which is currently known as 'Human Immunodeficiency Virus' was identified. Since 1981, AIDS has become a global pandemic with more than 36.1 million people in the world being affected causing enormous human, social and economic burden. In India till May 2001, 22,912 cases were reported to the National AIDS Control Organisation. Experts estimate that about 3.86 million people are affected by end of the year 2000. Center for Disease Control in 1993 has revised its classification of HIV infection & expanded the AIDS surveillance definition to include those individuals with severe immunosuppression (defined as CD4+, T- lymphocyte count of less than 200 cells/ml). Since the first description of ocular lesions in 1982, there are several reports of ocular involvement in AIDS from different parts of the world.

The report of the first case of AIDS with ocular manifestation was from Sankara Nethralaya, Chennai, in 1995, made by this writer. Till July 2004, we have seen 650 AIDS cases. Forty-five percent of them had ocular lesions due to AIDS. Though the disease is mainly prevalent among commercial sex workers and their clients, it has now moved into the general population spread through sexual contact. It is, therefore, important now that the public should be made aware of various ways in which AIDS can affect different organs in the body.

The eye is the one of the most common organs affected due to AIDS. Ocular involvement in AIDS can occur in as high as 75 percent of patients. Ocular

lesions are varied and affect almost all structures of the eye. A patient can have ophthalmic complaints during the early phase of the disease and this manifestation in fact helps in the identification of the primary HIV infection and its associated opportunistic infections. The ocular lesions associated with AIDS can be categorized into four main groups:

1. Non-infectious retinopathy.
2. Opportunistic infections caused by viruses, bacteria and protozoa.
3. Unusual neoplasms such as Kaposi's sarcoma and Burkitt's lymphoma.
4. Neuro-ophthalmic lesions.
5. CMV Retinitis.

Tiny retinal haemorrhages and cotton wool spots are early signs of infection and are often detected during screening eye examination. A cotton wool spot, which looks white and fluffy, is caused by a circulatory disturbance in an area of the retina (Figure 1). This disturbance may also cause small blood spots or haemorrhage. Since other diseases like hypertension and diabetes can produce the similar findings, cotton wool spots and tiny retinal haemorrhages are not diagnostic of AIDS.

AIDS patients can contract infections from several opportunistic viruses, bacteria, fungi, protozoa which would not usually cause infection otherwise in healthy persons. The cytomegalovirus (CMV) is the kingpin of all these infectious agents. CMV retinopathy develops in 15 to 25 percent of patients with AIDS. It is an ubiquitous virus. While CMV does not cause disease in healthy people throughout their lives, it can

"reactivate" especially in people whose immune systems cannot fight back. CMV can infect any part of the body. When it infects the retina, it causes CMV retinitis.

The retina is a thin, light-sensitive tissue at the back of the eye. Like a film in a camera, the retina reacts to light that has been focused by the lens. Nerve endings in the retina send signals to the brain along with the optic nerve, and the brain changes the signals into the pictures that one see. CMV reaches different part of the retina through the blood vessels and can permanently destroy retinal cells is through inflammation and other harmful effects of the virus.

Floaters may be the earliest warning sign of CMV retinitis. They appear as small dark specks that move slowly throughout the visual field and are best seen against a blue or white background. An increase in the number of floaters is an important early warning sign. Brief flashes of light that vary in shape occur less frequently in the early stages of CMV retinitis and may not appear until after the diagnosis has been made. Distortions and blind spots may occur in any part of the field of vision. CMV retinitis can usually easily be diagnosed by ophthalmic examination by the characteristic features of white necrotising lesions associated with haemorrhage often with what is called "a pizza-pie" or "cottage cheese with tomato ketchup" appearance.

Prior to 1981, no effective treatment for CMV retinitis existed. Currently, several drugs are available which can arrest such retinal infection. But these drugs cannot kill the CMV. They prevent a proliferation of the virus within the cell.