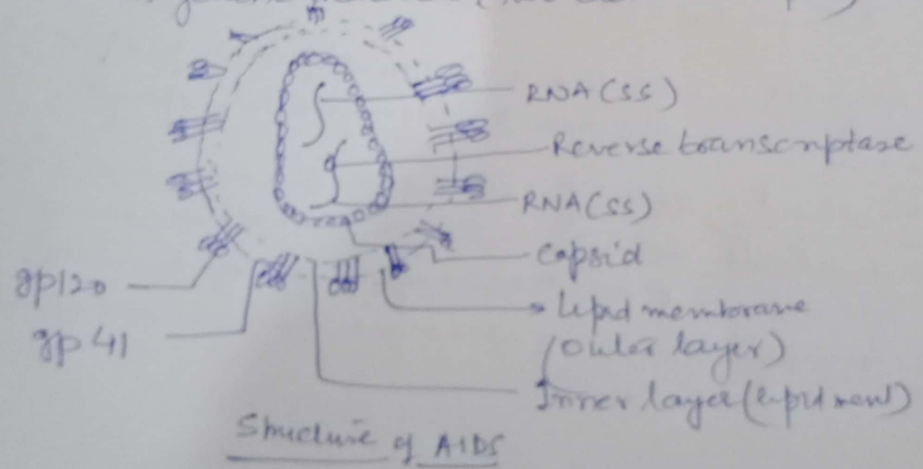
AIDS (Acquired Immunodeficiency Syndrome)

AIDS was first recognised as a distinct disease in 1981 and is considered the first great pandemic disease of the second half of 20th century. The disease appears to have began in Central Africa as early as 1950s and the united nations reported that from 1981 to 2000 56 million people have been infected with AIDS virus, 20 million people have already died and 36 million are still surviving with the disease.

Pathogen: It is a Retrovirus means containg Single str. RNA as genetic material (Two identical copies)



Structure of AIDS

Using enzyme reverse transcriptase already present in infected virion, HIV forms cDNA which is single stranded and then DS-DNA. It is the DS-DNA that enters into host cell genome.

Mechanism of Infection:- HIV infection normally occurs in Macrophages which has CD4 receptor on its surface. gp120 protein of HIV binds to CD4 Protein of macrophage at the cell surface Here HIV envelope made up of lipid membrane fuses with host cell membrane allowing insertion of viral Nucleocapsid. HIV then enters and destroy the T cell. Thus HIV first infect Macrophages then T cells.

As a result of AIDS infection, No of CD4 lymphocytes has been greatly Reduced

(Normal person has 600-1000 CD4 lymphocytes/ml of blood)
AIDS person has fewer than 200 CD4 lymp/ml

Diagnosis:- RT-PCR test is Recently developed for detection. Reduced CD4 lymphocytes.

Treatment:- It is a fatal disease and no complete cure is available although advance Research is going on Vaccine and chemotherapy. All drugs basically developed are acting on enzyme Reverse transcriptase.