

ANS:

a. The patient most likely has early-stage AIDS caused by HIV

b. Thrush caused by Candida albicans, Meningitis caused by Cryptococcus neoformans

Hairy leukoplakia caused by Epstein-Barr virus, Esophagitis caused by Herpes simplex virus-1

Kaposi's sarcoma caused by Human herpesvirus 8

B cell lymphoma

Non-hodgkins lymphoma

c. HIV-1 and HIV-2 cause AIDS. HIV-1 is found worldwide, whereas HIV-2 is found primarily in West Africa.

d. ELISA: Although very sensitive, ELISA may yield non-specific reactions resulting in false positive results.

Western Blot: Positive or indeterminate ELISA tests for anti-HIV antibodies are confirmed by immuno-blotting (Western Blotting) which identifies specific HIV virus proteins.

PCR can also be used. Detects pro-viral DNA or viral RNA. It is highly sensitive and specific but is more costly than ELISA. Can be used to identify infants born to HIV-infected mothers.

e.

Treatment

- No cure, continuously mutates
- Highly Active Antiretroviral Therapy (HAART)
 - Fusion Inhibitor
 - Nucleoside Analogs
 - Reverse Transcriptase Inhibitors
 - Protease Inhibitors

HAART

- Fusion Inhibitors
 - Work by preventing HIV from entering healthy T-cells in the body
 - This drug targets the gp41 protein on HIV's surface
- Nucleoside Analogs
 - Inhibit production or activity of disease causing proteins

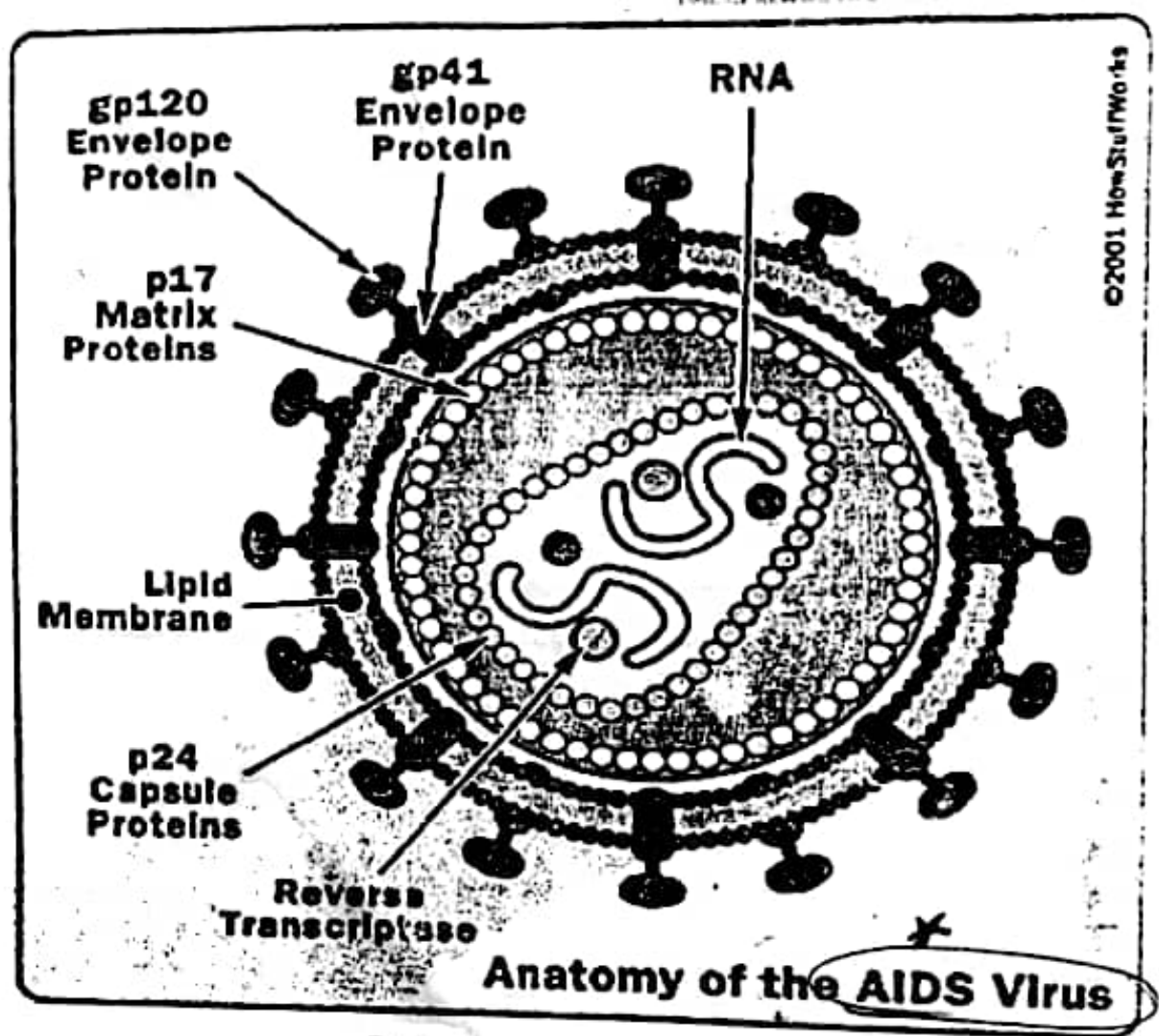
Highly Active Antiretroviral Therapy

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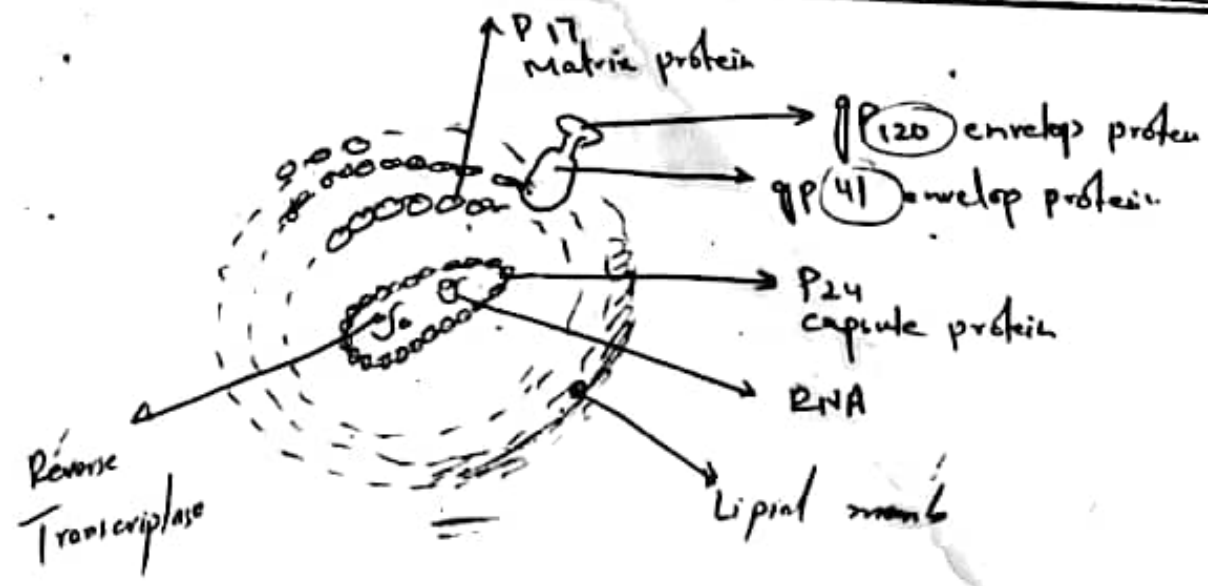
Virusology

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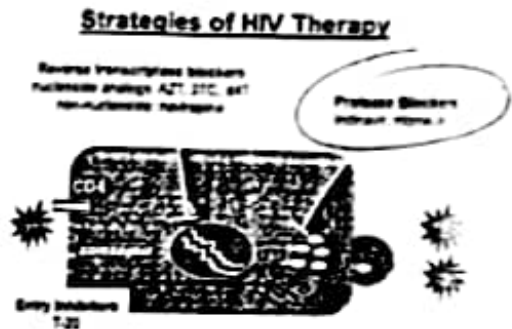
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HAART

- Reverse Transcriptase Inhibitors
 - (RTI) Nucleoside (NRTI)
 - Non-nucleoside (NNRTI)
- Protease Inhibitors
 - Prevents maturation of virions capable of infecting other cells.



f.

* Ritonavir Ritonavir
* Abacavir Darunavir

| Gene | Proteins Encoded by Gene | Function of Proteins |
|--|--------------------------|--|
| I. Structural genes found in all retroviruses | | |
| gag | p24, p7 | Nucleocapsid |
| | P17 | Matrix |
| pol | Reverse transcriptase ✓ | Transfers RNA genome into DNA |
| | protease ✓ | Cleaves precursor polypeptides |
| | Integrase | Integrates viral DNA into host cell DNA |
| env | Gp 120 ✓ | Attachment to CD4 protein |
| | Gp 41 | Fusion with host cell |
| II. Regulatory genes found in human Immunodeficiency virus that are required for replication | | |
| tat | Tat | ✓ Activation of transcription of viral genes |
| rev | Rev | ✓ Transport of late mRNAs from nucleus to cytoplasm |
| III. Regulatory genes found in human Immunodeficiency virus that are not required for replication (accessory genes) | | |
| nef | Nef | Decreases CD4 proteins and class I MHC proteins on surface of infected cells; induces death of uninfected cytotoxic T cells; important for pathogenesis by SIV |
| vif | Vif | Enhances infectivity by inhibiting the action of APOBEC3G (an enzyme that causes hypermutation in retroviral DNA) |
| vpr | Vpr | Transports viral core from cytoplasm into nucleus in nondividing cells |
| vpu | Vpu | Enhances virion release from cell |

RN
P17
Gp120
Gp41
P7
P17
P17

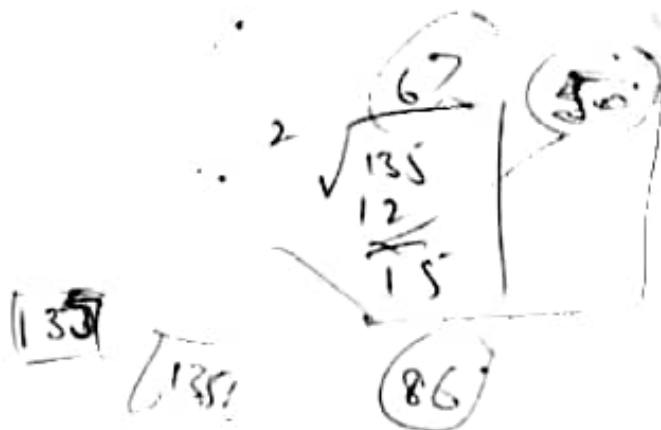
Clinical manifestations

I. Primary HIV infection: Acute stage
Nonspecific, including fatigue, rash, headache, nausea and night sweats & resolves in 2 weeks

last for 7-11 years
II. Clinical latency period: latent stage
HIV continues to reproduce, CD4 count gradually declines from its normal value of 500 cells/ μ L-1200 cells/ μ L.

HIV being produced in lymph nodes
III. Progression to AIDS: AIDS or late stage.
Once CD4 count drops below 500 cells/ μ L, HIV infected person at risk for opportunistic infections.

• fever fatigue weight loss lymphadenopathy



Pathogenesis

^{eNA enveloped}
Course of HIV infection

- There are six stages of HIV infection:
 1. Primary infection
 2. Dissemination of virus to lymphoid organs
 3. Clinical latency
 4. Elevated HIV expression
 5. Clinical disease
 6. Death

The duration b/w primary infection and progression to clinical disease averages about 10 yrs. In untreated cases death usually occurs within 2 yrs after the onset of clinical symptoms.

HIV AID → Sexual Active Patient with oral herpes and candidiasis
fast WBC count
(CD 4 positive T-cell count was 500 cells/ml)

