



Case 1:

- **Drug addict – severe weight loss (10kg in 1 month) – suspicion of HIV.**
 - **Differential diagnosis:** tuberculosis, malignancy and many other common diseases associated with severe weight loss.
- **How can you confirm that the patient is HIV-positive?**

- **By lab tests which include:**

- ✓ ELISA method:

- * Procedure: an antigen is present and attached to a solid support → specific antibody in test serum attaches to the antigen → an anti-antibody labeled with enzyme will be added → chromogen is added → there will be a color change.

- ✓ HIV western blot (it is conformational test done after ELISA):

- * Principle: immunoblotting assay.

- * Procedure: antigens which are normally present in HIV virus will be ready and present in the form of bands (which are transparent and cannot be seen) in electrophoresis → patient's serum will be added and if it contains antibodies specific to these antigens (they will bind) and appearance of colored bands is noticed.

- * Interpretation:

- No bands → (-) test

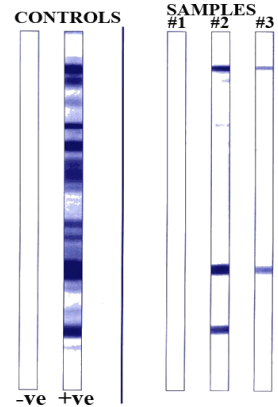
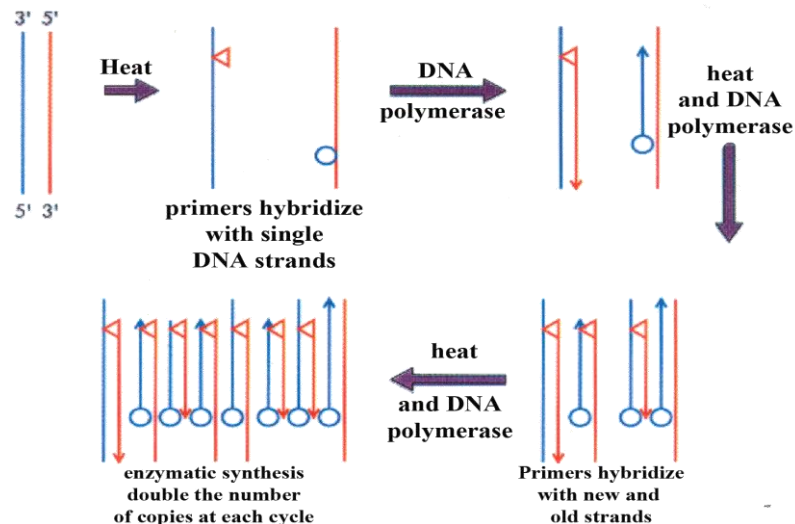
- Two bands → intermediate (repeat the test within 6 months)

- Three bands or more → (+) test

- ✓ PCR (by using thermal cyclor):

- * When is it done? For babies born to HIV-positive mothers and also to monitor treatment and check for viral load in patients receiving antiretroviral therapy.

- * Procedure:

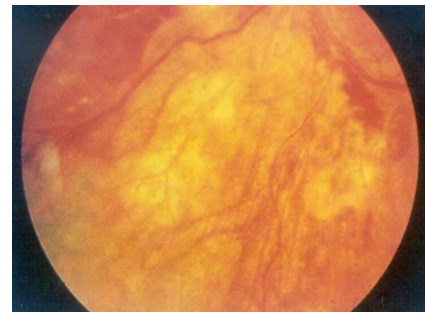


- **A report (to check CD4 count) was provided:**

- **Method used for CD4 count is:** flow cytometry.
 - CD4 count was below normal because CD4+ helper T-cells are the main targets of HIV virus.
 - CD8 is slightly increased initially in the infection because cytotoxic T-cells are the one which are responsible of killing virus infected cells. Eventually, they will be decreased as they will not be supported by IL-2 which is secreted from CD4 helper T-cells (Th-1).

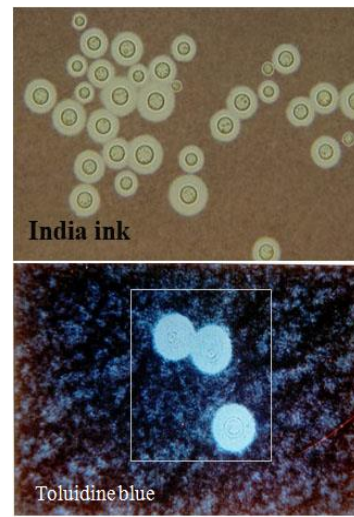
- **The patient developed visual disturbances (retinitis):**

- **This is caused by cytomegalovirus (CMV).**
 - **Diagnosis of CMV is made by:**
 - ✓ CMV antigenemia assay: Which is performed with monoclonal antibodies able to detect early antigen (pp65) within infected PMNs (an important sign of viral reactivation).
 - **Treatment:** ganciclovir (acyclovir is used for infection with herpes).



Case 2:

- It is about an HIV-positive patient.
- Who developed (fever, headache, altered personality & seizures). This is indicating CNS involvement.
- This condition is caused by: *Cryptococcus neoformans* (fungal infection: yeast cells with capsules surrounding them). These organisms are transmitted through the lungs and reaching the brain.
- The test used to confirm the diagnosis with these organisms is called india ink or toluidine blue.
- Also culture in sabouraud agar or blood agar can be used (giving creamy mucoid colonies).



Case 3:

- A pregnant lady who is HIV-positive.
- Near the time of delivery: IgG was positive for toxoplasma. (the test used to diagnose toxoplasma is serology which means detection of antibodies in the patient's blood).
- Congenital toxoplasmosis in the baby will cause:
 - Hydrocephalus.
 - Underweight.
 - Jaundice.
 - Petechial rash: pinpoint, non-raised, perfectly round purplish red spot caused by intradermal or submucous hemorrhage.

