

Pathophysiological Mechanisms of HIV

HIV, a retrovirus, targets the immune system by infecting CD4+ T- Cells, resulting in immune suppression. After binding to CD4 receptors, the virus enters the cells, integrates into the host's DNA replicates, and cause cell death. This ongoing depletion of CD+ cells diminishes immune defenses, allowing opportunistic infections and unseals conditions to develop as immunity weakens. As CD4+ counts decline and viral load increase, individuals may progress to Acquired Immunodeficiency Syndrome (AIDS), a severe form of immunodeficiency (Fauci & Lane, 2020).

Explanation if Wilbur's Clinical Manifestations

Wilbur's flat, purple rash could indicate Kaposi's sarcoma, a common AIDS- associated malignancy due to immunosuppression. Additionally, the white coating on his tongue suggests oral candidiasis (thrush), common in immunocompromised patients and a sign of advanced HIV. His frequent illness and stem from recurrent infections linked to immune systems weakening, aligning with HIV progression (CDC, 2021).

Analysis if Clinical Findings in Relation to HIV

Wilbur's symptoms support HIV diagnosis, as clinical manifestations align with advanced HIV stages, particularly opportunistic infections like thrush and AIDS-defining illness like Kaposi's; sarcoma. These findings likely indicate a significantly reduced CD4+ count suggestive of advanced HIV or possible AIDS.

Diagnostic Tests for HIV

Rapid HIV antibody tests are used to detect HIV antibodies, while P24 antigen testing directly detects the virus, facilitating early diagnosis (CDC, 2021). Additionally, a CD4+ T-Cell count below 200 can confirm AIDS, while viral load testing measures the viruses' activity, aiding in diseases progression assessment and treatment monitoring (Fauci & Lane, 2020). Oral swabs for Candida and skin biopsies for suspected Kaposi's sarcoma are also common for evaluating opportunistic infections in advanced HIV cases (CDC, 2021).

Anticipated Test Results

For Wilbur, a positive HIV antibody or antigen test, a low CD4+ count, and a high viral load would support a diagnosis of advanced HIV. The presence of Candida or Kaposi's sarcoma would further confirm immune compromise, supporting HIV related complications.

References:

Centers for Disease Control and Prevention, (2021). *HIV basics*. U.S. Department of Health and Human Services. <https://www.cdc.gov/hiv/index/html>