

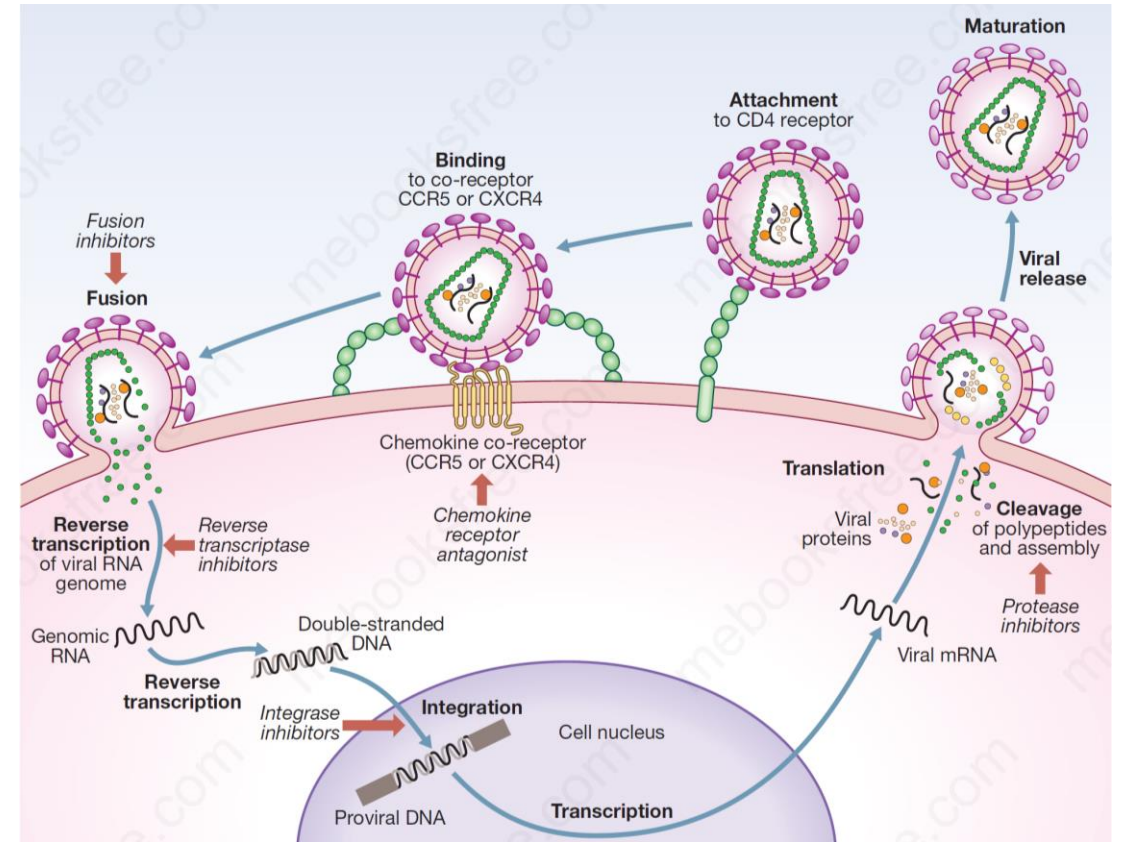
HIV infection & AIDS

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HIV virus

- HIV is an enveloped ribonucleic acid (RNA) retrovirus from the lentivirus family.
- Incubation period 2-4 weeks.



Mode of transmission

Risk of HIV transmission after single exposure to an HIV-infected source	
HIV exposure	Approximate risk
Sexual	
Vaginal intercourse: female to male	0.05
Vaginal intercourse: male to female	0.1
Anal intercourse: insertive	0.05
Anal intercourse: receptive	0.5
Oral intercourse: insertive	0.005
Oral intercourse: receptive	0.01
Blood exposure	
Blood transfusion	90
Intravenous drug-users sharing needles	0.67
Percutaneous needlestick injury	0.3
Mucus membrane splash	0.09
Mother to child	
Vaginal delivery	15
Breastfeeding (per mouth)	0.5

Factors increase risk of transmission

Common to all transmission categories

- High viral load

Sexual transmission

- STIs, especially genital ulcers
- Cervical ectopy
- Rectal or vaginal lacerations
- Menstruation
- Uncircumcised male partner
- Receptive anal intercourse
- Depot intramuscular progesterone contraceptive use

Injection drug use transmission

- Sharing equipment
- Linked commercial sex
- Intravenous use
- Concomitant cocaine use
- Incarceration

Occupational transmission

- Deep injury
- Visible blood on device
- Needle was in a blood vessel

Vertical transmission

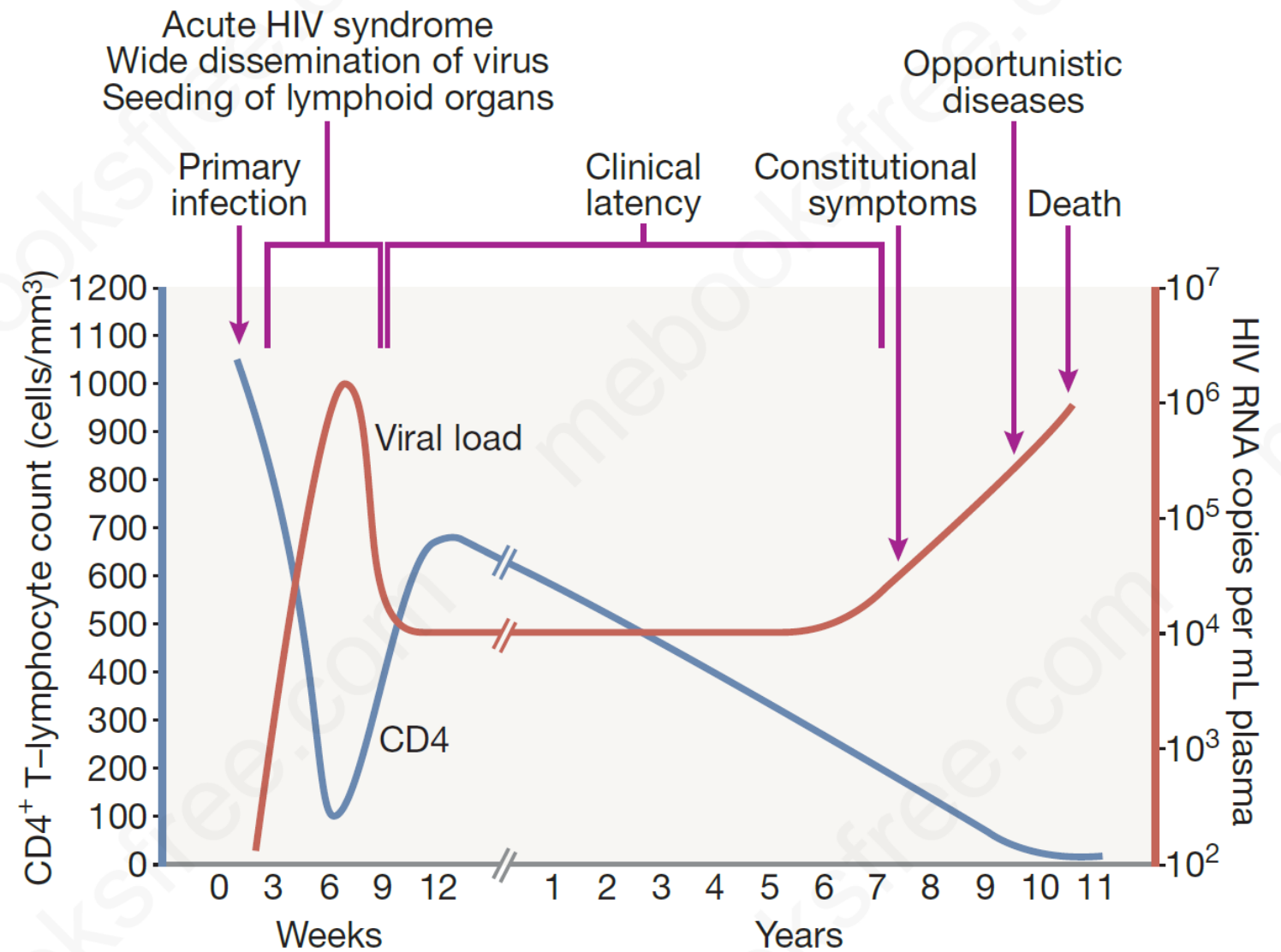
- Prolonged rupture of membranes
- Older gestational age

(STIs = sexually transmitted infections)

Diagnosis and investigation

- Rapid point of care test or ELISA for HIV Abs, two positive tests from different immune assays.
- Test for p24 Ag for primary infection.
- PCR for HIV-RNA for infants of infected mothers
- CD4 count
- Viral load
- Hepatitis B surface antigen
- Hepatitis C antibody
- Liver function tests
- Full blood count
- Urinalysis, serum creatinine
- Syphilis serology
- Cervical smear in women
- Serum cryptococcal antigen (if CD4 < 100)
- Tuberculin skin test
- Sexually transmitted infection screen

Clinical manifestations of HIV infection



Clinical manifestations of HIV infection (Primary)

- Incubation period 2-4 weeks.
 - Symptomatic in 50% of cases.
 - Duration of illness up to 2 weeks
 - Early diagnosis is made by detecting HIV RNA by PCR or p24 antigenaemia. The appearance of specific anti-HIV antibodies in serum (seroconversion) occurs 2–12 weeks after the development of symptoms.
- Fever
 - Maculopapular rash
 - Pharyngitis
 - Lymphadenopathy
 - Myalgia/arthralgia
 - Diarrhoea
 - Headache
 - Oral and genital ulceration
 - Meningo-encephalitis
 - Bell's palsy

Clinical manifestations of HIV infection (asymptomatic)

- A prolonged period of clinical latency follows primary infection, during which infected individuals are asymptomatic.
- Persistent generalized lymphadenopathy with nodes typically < 2 cm diameter is a common finding.
- Viremia increases and CD4 decrease.
- Median time 9 years.
- Opportunistic infection is rare.

Clinical manifestations of HIV infection (minor HIV-associated disorders)

- WHO stage 2 and 3, impairment of cellular immunity and decrease CD4 count.
- Careful oral examination as oral hairy leukoplakia and oral candidiasis is common.
- Requires prophylaxis initiation irrespective of CD4 count.

Clinical manifestations of HIV infection (AIDS)

- More reduction in CD4 count.
- AIDS is defined by the development of specified opportunistic infections, cancers and severe manifestations of HIV itself.
- WHO stage 4.

Clinical staging of HIV disease (WHO)

<p>Primary HIV infection Asymptomatic Persistent generalized lymphadenopathy</p>	1	
<p>Unexplained moderate weight loss (< 10% of body weight) Recurrent upper respiratory tract infections Herpes zoster Angular cheilitis Recurrent oral ulceration Papular pruritic eruptions Seborrhoeic dermatitis Fungal nail infections</p>	2	
<p>Unexplained severe weight loss (> 10% of body weight) Unexplained chronic diarrhoea for > 1 month Unexplained persistent fever (> 37.5°C for > 1 month) Persistent oral candidiasis Oral hairy leucoplakia Pulmonary tuberculosis Severe bacterial infections Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis Unexplained anaemia (< 80 g/L (8 g/dL)), neutropenia (< 0.5 × 10⁹/L) and/or chronic thrombocytopenia (< 50 × 10⁹/L)</p>	3	<p>Candidiasis of oesophagus, trachea, bronchi or lungs Cervical carcinoma – invasive Cryptococcosis – extrapulmonary Cryptosporidiosis, chronic (> 1 month) Cytomegalovirus disease (outside liver, spleen and nodes) Herpes simplex chronic (> 1 month) ulcers or visceral) HIV encephalopathy HIV wasting syndrome Cystoisosporiasis Kaposi's sarcoma Lymphoma (cerebral or B-cell non-Hodgkin) Mycobacterial infection, non-tuberculous, extrapulmonary or disseminated Mycosis – disseminated endemic (e.g. coccidioidomycosis, histoplasmosis) <i>Pneumocystis pneumonia</i> Pneumonia, recurrent bacterial Progressive multifocal leucoencephalopathy Toxoplasmosis – cerebral Tuberculosis – extrapulmonary (CDC includes pulmonary) Sepsis, recurrent (including non-typhoidal <i>Salmonella</i>)</p>

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CD4 count and risk of HIV associated diseases

< 500 cells/mm³

- Tuberculosis
- Bacterial pneumonia
- Herpes zoster
- Oropharyngeal candidiasis
- Non-typhoid salmonellosis
- Kaposi's sarcoma
- Non-Hodgkin lymphoma
- HIV-associated idiopathic thrombocytopenic purpura

< 200 cells/mm³

- Pneumocystis jirovecii pneumonia
- Chronic herpes simplex ulcers
- Oesophageal candidiasis
- Cystoisospora belli (syn. Isospora belli) diarrhoea
- HIV wasting syndrome
- HIV-associated dementia
- Peripheral neuropathy
- Endemic mycoses

< 100 cells/mm³

- Cerebral toxoplasmosis
- Cryptococcal meningitis
- Cryptosporidiosis and microsporidiosis
- Primary CNS lymphoma
- Cytomegalovirus
- Disseminated Mycobacterium avium complex (MAC)
- Progressive multifocal leucoencephalopathy

Oral conditions - Oropharyngeal candidiasis

- Very common, nearly always caused by *C. albicans*.
- Pseudomembranous candidiasis is the most common manifestation, with white patches on the buccal mucosa that can be scraped off to reveal a red raw surface.
- Erythematous candidiasis is more difficult to diagnose and presents with a reddened mucosa and a smooth shiny tongue.
- Angular cheilitis due to *Candida* is a common manifestation.
- Topical antifungals are usually effective. Antifungal lozenges are more effective than antifungal solutions.
- Systemic azole therapy, usually fluconazole, should be given if topical therapy fails or if there are oesophageal symptoms.



Oral conditions – oral hairy leukoplakia

- Oral hairy leukoplakia appears as corrugated white plaques running vertically on the side of the tongue and is virtually pathognomonic of HIV disease.
- It is usually asymptomatic and is due to EBV.

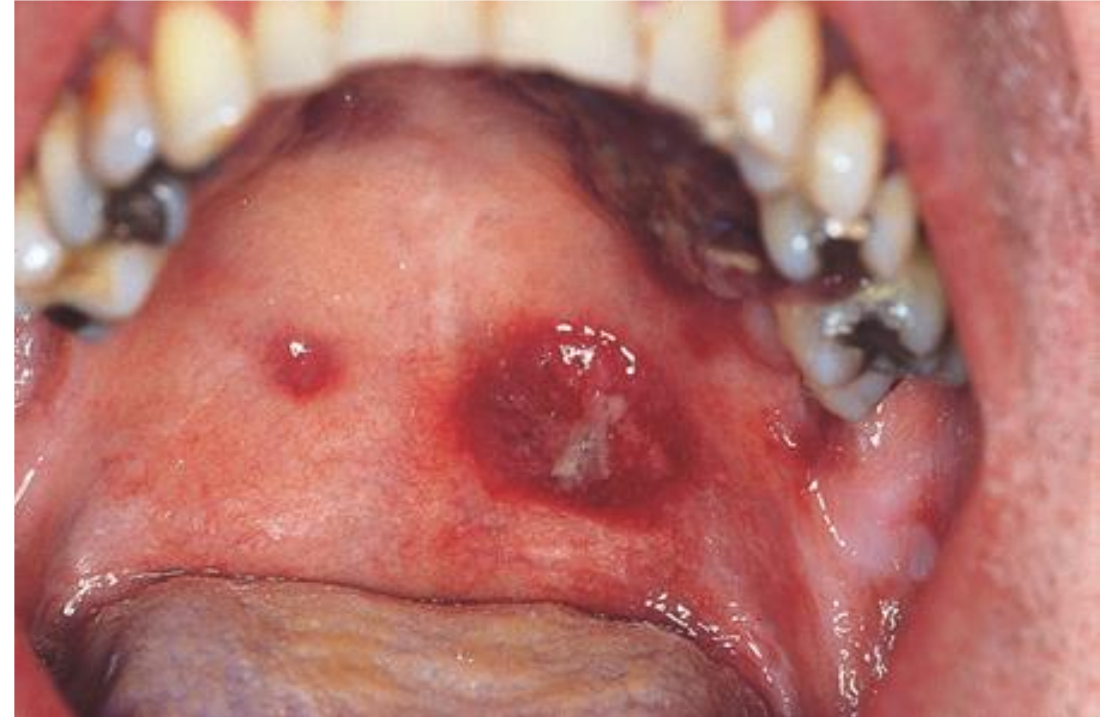


Oral conditions – oral ulcers

- Herpetiform and minor aphthous oral ulcers are common and occur in primary infection.
- In advanced disease, giant aphthous ulcers occur. These destroy tissue, are painful and need to be differentiated from herpes simplex and CMV ulcers by biopsy. They respond to systemic glucocorticoids and ART.
- Ulcer as a manifestation of disseminated endemic mycoses but with systemic symptoms.
- Stevens–Johnson syndrome, usually caused by sulphonamides or NNRTIs.

Oral conditions – Kaposi sarcoma KS

- Kaposi's sarcoma (KS) is a spindle-cell tumour of lymphoendothelial origin. All forms of KS are due to sexually transmitted human herpesvirus 8, also known as KS-associated herpesvirus.
- KS occurs in four pattern
- KS often involves the mouth, especially the hard palate. Nodular oral lesions are associated with a worse prognosis.
- KS may respond to ART. Chemotherapy should be reserved for those patients who fail to remit on ART



Oral conditions - Oropharyngeal candidiasis

- Gingivitis is very common.
- Good oral hygiene and regular dental check-ups are important. Acute necrotizing ulcerative gingivitis and periodontitis can result in loss of teeth;
- They should be treated with a course of metronidazole and a dental referral should be made.



Anti-retroviral therapy

The goals of ART are to:

Reduce the viral load to an undetectable level for as long as possible

Improve the CD4 count to over 200 cells/mm³ so that severe HIV-related disease is unlikely

Improve the quantity and quality of life without unacceptable drug toxicity

Reduce HIV transmission.

i 12.17 Commonly used antiretroviral drugs	
Classes	Drugs
Nucleoside reverse transcriptase inhibitors (NRTIs)	Abacavir, emtricitabine, lamivudine, tenofovir, zidovudine*
Non-nucleoside reverse transcriptase inhibitors (NNRTIs)	Efavirenz*, rilpivirine (only if viral load < 100 000)
Protease inhibitors (PIs)	Atazanavir, darunavir, lopinavir*
Integrase inhibitors	Raltegravir, dolutegravir, elvitegravir
Chemokine receptor inhibitor	Maraviroc

*These drugs are no longer recommended as first-line options in high-income countries due to their toxicity.

Thanks