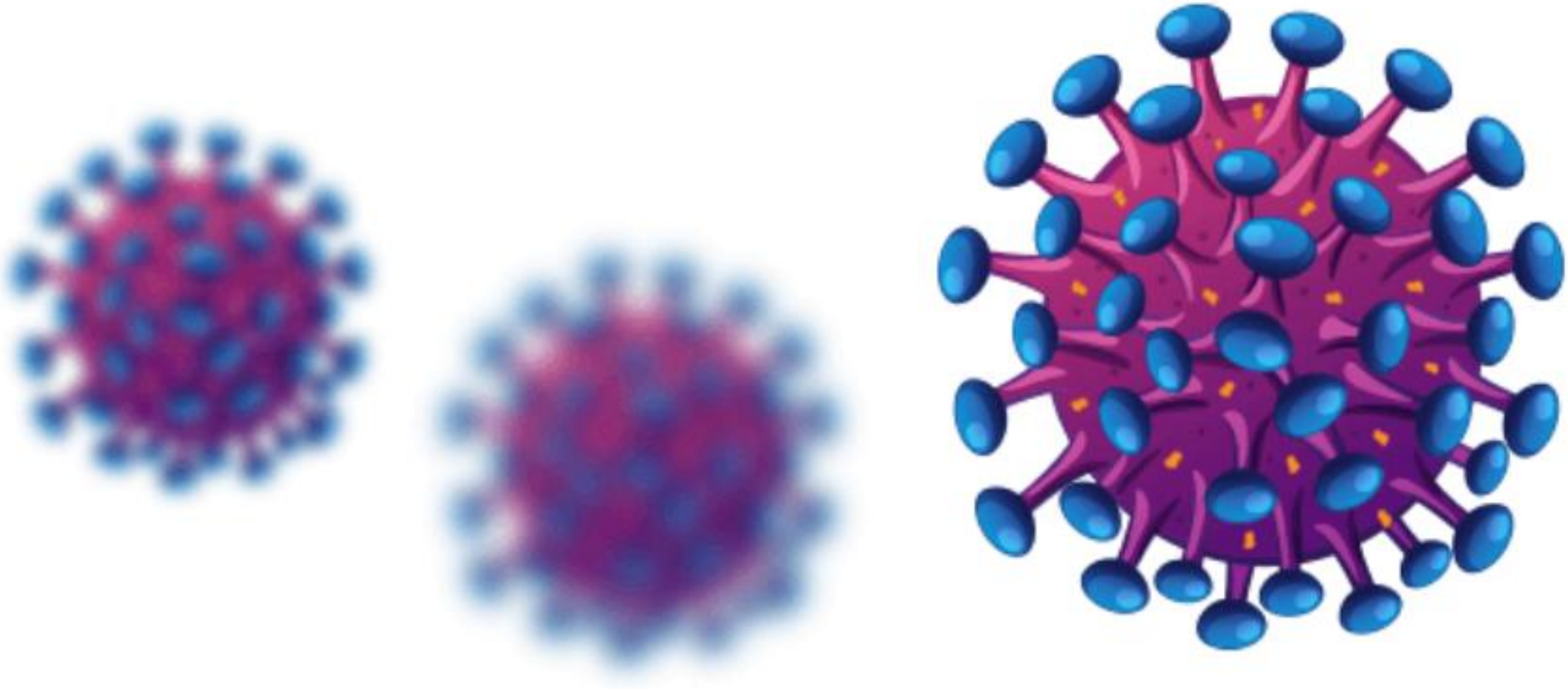
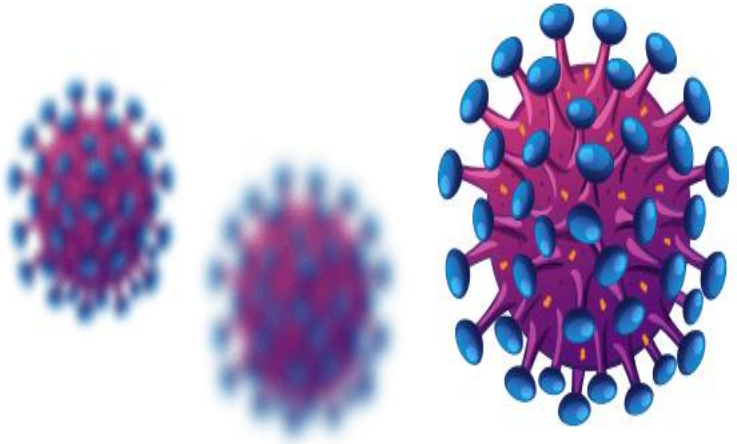
AIDS and HIV infection



PROF. ABBAS AY TAHER

What is HIV/AIDS?:



HIV (human immunodeficiency virus) is the virus that causes AIDS (acquired immunodeficiency syndrome).
HIV (*human immunodeficiency virus*) is a virus that attacks cells that help the body fight infection, making a person more vulnerable to other infections and diseases.

It is spread by **contact with certain bodily fluids of a person with HIV**, most commonly **during unprotected sex (sex without a condom** or **HIV medicine to prevent or treat HIV)**, or **through sharing injection drug equipmentf left untreated**, **HIV can lead to the disease AIDS (*acquired immunodeficiency syndrome*).**
The human body can't get rid of HIV and no effective HIV cure exists. So, once any person have HIV, will have it for life.
Luckily, however, effective treatment with HIV medicine **(called antiretroviral therapy or ART)** is available. If taken as prescribed, HIV medicine can reduce the amount of HIV in the blood (also called the viral load) to a very low level. This is called viral suppression.
If a person's viral load is so low that a standard lab can't detect it, this is called having an undetectable viral load. People with HIV who take HIV medicine as prescribed and get and keep an undetectable viral load can **live long and healthy lives** and **will not transmit HIV to their HIV-negative partners through sex**
This virus is passed from **one person to another through blood-to-blood contact (blood** transfusions, HIV-infected needles) and is a sexually transmitted disease or STD. Also, an infected pregnant woman can pass HIV to her baby during pregnancy and delivery and even through breastfeeding.
AIDS occurs when the HIV infection has weakened one's immune system to the point that it has difficulty fighting off certain illnesses and infections.
"Opportunistic" infections also occur, taking the opportunity to cause **illness in a weakened immune system**.

Sign and symptom of infection with HIV:

Rapid weight loss ,Dry cough , Recurring fever or profuse night sweats, Profound and unexplained fatigue Swollen lymph glands in the armpits, groin, or neck, Diarrhea that lasts for more than a week, White spots or unusual blemishes on the tongue, in the mouth, or the throat, Pneumonia, Red, brown, pink, or purplish blotches on or under the skin or inside the mouth, nose, or eyelids, Memory loss, depression, and other neurological disorders

Most people infected with HIV experience a short, flu-like illness that occurs 2-6 weeks after infection. After this, HIV may not cause any symptoms for several years.

It's estimated up to 80% of people who are infected with HIV experience this flu-like illness.

The most common symptoms are:

•raised temperature (fever) , sore throat , body rash, tiredness, joint pain , muscle pain ,swollen glands

The symptoms usually last 1-2 weeks, but can be longer. This should be supported with an HIV test.

After the initial symptoms disappear, HIV may not cause any further symptoms for many years.

During this time, the virus continues to be active and causes progressive damage to the immune system.

This process can vary from person to person, **but may take up to 10 years**, *during which person will feel and appear well.*

Once the immune **system becomes severely damaged, symptoms can include:**

•weight loss ,chronic diarrhoea ,night sweats ,skin problems,recurrent infections, serious life-threatening illnesses

Earlier diagnosis and treatment of HIV can prevent these problems.

Oral manifestation of HIV patient

The oral manifestations of HIV disease are manifold, prevalent, and clinically significant.
The recognition and management of HIV-related oral manifestations remains an important area of study for clinicians who provide medical care to persons with HIV.
Oral lesions may be the first clinical sign of HIV and can cause significant morbidity.

ORAL EXAMINATION

A comprehensive oral examination should include **both** visual and **tactile** components, beginning with careful :

1-**Inspection** of the **face, neck**, **lips** and mouth (including the roof, floor, and sides of the mouth; the tongue, tonsillar pillars, and back of throat) and followed by

2-Manual palpation.

A detailed patient history is often helpful in directing the examiner to explore a particular area in greater detail.

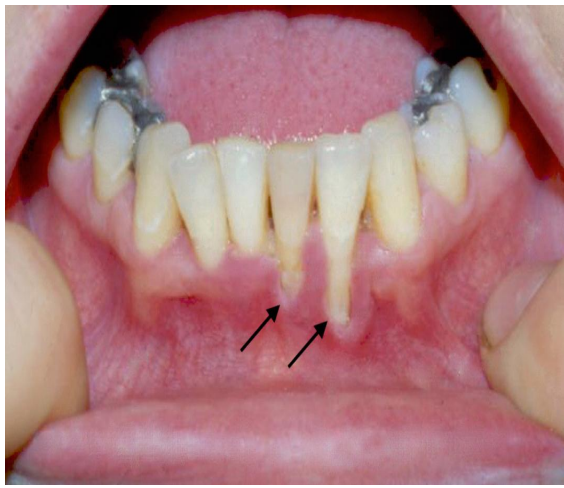
With the advent of effective antiretroviral therapy, the overall prevalence of HIV-related oral manifestations has decreased.

In addition, with the improved long-term health of persons with HIV, there has been a renewed focus on the importance of preventative oral health through regular dental care.[

Good oral health increases quality of life as measured by self-confidence, social acceptance, and employability.

Dental decay, gingivitis, and periodontal disease are common problems for individuals with HIV. In addition, persons with HIV have an increased incidence of more severe manifestations of periodontal disease, particularly linear gingival erythema ,necrotizing ulcerative gingivitis ,

Linear Gingival Erythema



Necrotizing Ulcerative Gingivitis

and necrotizing ulcerative periodontitis.
Multiple factors that likely contribute to higher rates of dental decay and periodontal disease in persons with HIV include inadequate dental hygiene, poor diet, xerostomia, changes in immune cells in the salivary glands, and overgrowth of atypical bacterial pathogens.
In addition, profound oral changes can occur with chronic methamphetamine use and is often referred to as “meth mouth”.
Persons with HIV may have barriers to receiving oral health care and prevention services, most notably lack of insurance coverage for dental care and a shortage of dentists who are trained or willing to see individuals with HIV, even for routine periodontal care.

ORAL CANDIDIASIS

Oropharyngeal candidiasis is seen frequently among individuals with HIV and is an indicator of immune suppression.
It occurs most often in **patients with CD4 cell counts less than 200 cells/mm^3**.
Candida albicans is the most common species involved, but non-*albicans* species (*C. dubliniensis*, *C. glabrata*, *C. tropicalis*) can also cause disease.
The introduction and widespread use of effective antiretroviral therapy has led to a marked decrease in the prevalence of oral candidiasis. Although HIV-related immune suppression is typically the most important risk factor for developing oral candidiasis, other causes for oral candidiasis include antibiotic use, corticosteroids, chemotherapeutic drugs, and diabetes.
By maximizing immune status with effective antiretroviral therapy, most cases of candidiasis can be avoided.

Pseudomembranous Candidiasis

Among individuals with HIV, there are four different manifestations of oral candidiasis: pseudomembranous candidiasis (thrush),
atrophic (erythematous) candidiasis,
angular cheilitis (perleche) and rarely,
hyperplastic candidiasis.

Pseudomembranous candidiasis manifests as painless, creamy white plaques or patches that may involve any oral mucosal surface, including the palate , buccal mucosa , gingiva , and tongue ; the pseudomembranous plaques can be easily scraped off with a tongue blade.

Erythematous candidiasis typically presents as flat red patches most commonly on the hard palate and surface of the tongue .

Patients with either pseudomembranous or erythematous disease often complain of a burning sensation and altered taste.

Angular cheilitis manifests as erythema and splitting of the corners of the mouth ; if not treated, this can progress to a chronic, non-healing lesion

Pseudomembranous Candidiasis on Buccal Mucosa

Erythematous Candidiasis on Palate

Erythematous Candidiasis on Tongue

Angular Cheilitis

Diagnosis

A presumptive diagnosis of oropharyngeal candidiasis is based on typical clinical appearance or on a favorable response to an empiric trial of antifungal medication.
A definitive diagnosis of oropharyngeal candidiasis requires obtaining a direct smear and performing a potassium hydroxide (KOH) wet mount or Gram's stain and seeing characteristic yeasts. Fungal cultures are reserved for patients who do not respond to first-line therapy or for cases of suspected antifungal resistance.

Treatment

Treatment of Oropharyngeal Candidiasis: Initial Episodes,
In the Adult and Adolescent Opportunistic Infection Guidelines,
Oral fluconazole is the drug of choice for treating oropharyngeal candidiasis based on its efficacy,
Convenience, and tolerance Treatment duration is **for 7 to 14 days**, regardless of which type of medication is used

Diagnosis:

A presumptive diagnosis of oropharyngeal candidiasis is based on typical clinical appearance or on a favorable response to an empiric trial of antifungal medication.
A definitive diagnosis of oropharyngeal candidiasis requires obtaining a direct smear and performing a potassium hydroxide (KOH) wet mount or Gram's stain and seeing characteristic yeasts. Fungal cultures are reserved for patients who do not respond to first-line therapy or for cases of suspected antifungal resistance

Tratment:

In the Adult and Adolescent Opportunistic Infection Guidelines, oral fluconazole is the drug of choice for treating oropharyngeal candidiasis based on its efficacy, convenience, and tolerance
Treatment duration is for **7 to 14 days**, regardless of which type of medication is used

•**Preferred Therapy**: Oral fluconazole is not recommended for pregnant persons, especially those in the first trimester. Topical therapies include miconazole buccal tablets, clotrimazole lozenges (troche), miconazole mucoadhesive buccal tablets, nystatin suspension, nystatin lozenges (pastille), and a topical gentian violet application; topical therapy reduces the risk of systemic drug exposure and adverse events, but they are not as effective and thus all are considered alternative therapies.

•**Alternative Therapy**: Alternative systemic therapy consists of either itraconazole oral solution, or posaconazole oral solution. Episodic treatment of clinical episodes is strongly preferred over chronic suppressive therapy, mainly because of the risk of developing antifungal drug resistance with chronic therapy. Chronic suppressive therapy is not recommended unless the individual has frequent or severe recurrences of mucosal candidiasis. In addition, routine primary prophylaxis is not recommended because oral candidiasis has relatively low attributable morbidity and acute treatment is highly effective.

Fluconazole-resistant candidiasis

Refractory oropharyngeal candidiasis in persons with HIV and advanced immunosuppression emerged in response to the widespread and frequent use of fluconazole; in earlier years of the epidemic, it occurred in approximately 5% of persons with HIV.

There are multiple risk factors for the development of **fluconazole-resistant candidiasis**, including greater number of fluconazole-treated episodes, longer median duration of fluconazole therapy, and advanced immunosuppression (especially a CD4 count less than 50 cells/mm^3).

For persons who have clinically refractory oropharyngeal candidiasis and/or azole-resistant candidiasis, expert consultation is advised.

ORAL HAIRY LEUKOPLAKIA(OHL)

Oral hairy leukoplakia (OHL) **occurs in up to 20% of individuals with HIV**, typically among those with moderate to advanced immune suppression.

As with other opportunistic infections, the prevalence of OHL has decreased with the advent of effective antiretroviral therapy.

Epstein-Barr virus (EBV) has been strongly associated with OHL although the mechanism by which EBV infects the oral epithelium has not been fully elucidated.

Clinical Manifestations Individuals with OHL

Typically present with raised, white, corrugated lesions most often on the lateral aspect of the tongue .

Less often, OHL can manifest with extensive oral mucosal involvement, including the buccal mucosa and pharynx.

The OHL lesions are adherent and not removed when scraping the lesion with a tongue blade.

This feature serves to distinguish **OHL from oral candidiasis**, since pseudomembranous candidiasis lesions typically are easily removed by scraping with a tongue blade.

Typically, OHL does not cause symptoms, but some individuals may **complain of glossodynia** (burning mouth syndrome).

Diagnosis :

The diagnosis of OHL is usually made based on clinical findings.
A histologic confirmation of the diagnosis is **rarely required**, but if a biopsy is performed, characteristic histopathologic findings include cellular nuclear changes (acanthosis, Cowdry type A inclusions, ground glass and nuclear beading), absence of an inflammatory infiltrate, regions of **ballooning cells**, and **epithelial hyperplasia.** Additional confirmation can be made by **demonstrating replicating EBV** in the histologic sample, but this is rarely done.

Treatment :

In most persons with HIV, antiretroviral therapy will cause OHL lesions to resolve. Thus, other than using antiretroviral therapy, no specific therapy for OHL is generally required. If an individual requested immediate treatment due to symptoms or cosmetic reasons, reports have described benefit from **valacyclovir** and from topical therapy (podophyllin resin combined with acyclovir cream).

Guidelines :
For the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIVTreatment of Oropharyngeal Candidiasis: Initial Episodes
Preferred Therapy (Duration: 7-14 Days)
•Fluconazole 100 mg PO once daily (**AI**)

Alternative Therapy:

•Clotrimazole one 10-mg troche PO 5 times daily (**BI**), *or*
•Miconazole one 50-mg mucoadhesive buccal tablet once daily. Apply to mucosal surface over the canine fossa (do not swallow, chew, or crush tablet). Refer to product label for more detailed application instructions (**BI**), *or*
•Itraconazole oral solution 200 mg PO daily (**BI**), *or*
•Posaconazole ;oral suspension 400 mg PO twice daily for 1 day, then 400 mg daily (**BI**), *or*
•Nystatin suspension 4–6 mL 4 times daily or 1–2 flavored pastilles 4-5 times daily (**BII**), *or*
•Gentian Violet (0.00165%) topical application twice daily (**BI**)

Rating of Recommendations:

A = Strong; B = Moderate; C = Optional
Rating of Evidence:
I = Data from randomized controlled trials;
II =Data from well-designed nonrandomized trials, observational cohort studies with long-term clinical outcomes, relative bioavailability/bioequivalence studies, or regimen comparisons from randomized switch studies;
III =Expert opinion

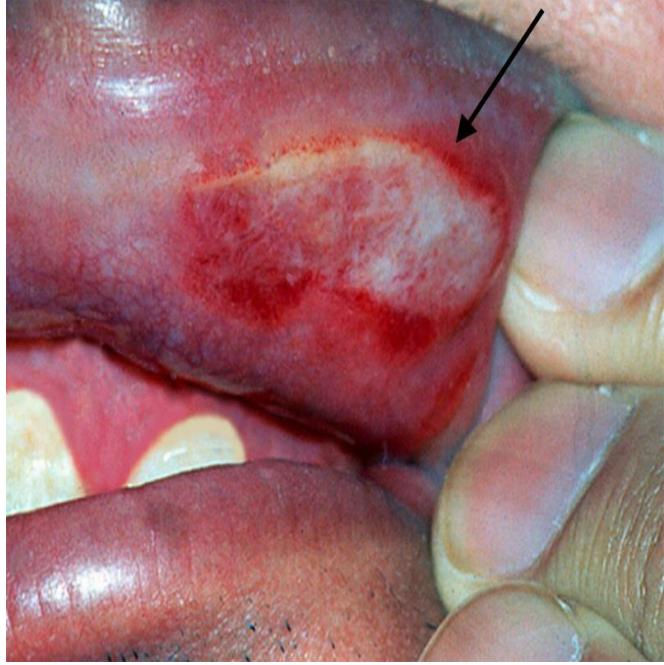
Source:

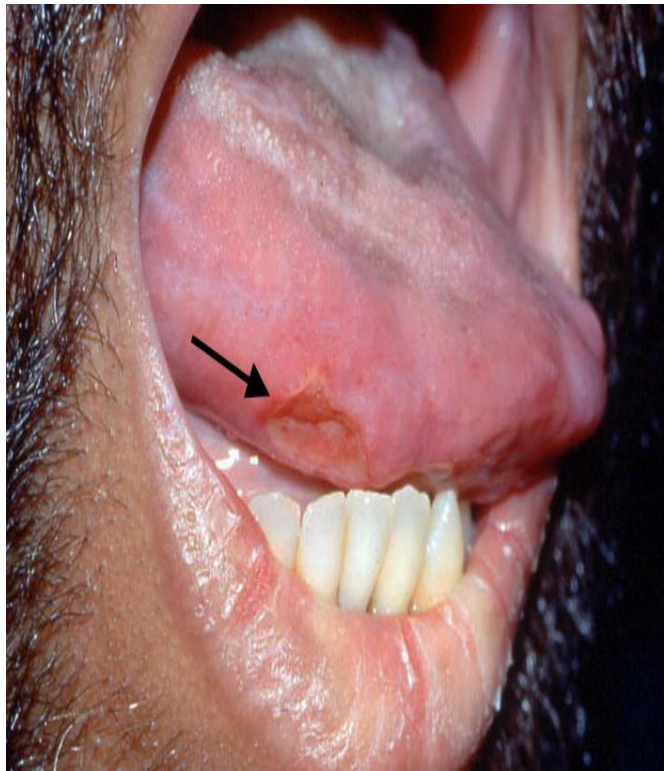
Panel on Opportunistic Infections in Adults and Adolescents with HIV.
Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Candidiasis (mucocutaneous).

Aphthous Stomatitis:

Background

Aphthous stomatitis affects up to 15% of persons with HIV and the incidence has not significantly changed
since the advent of effective antiretroviral therapy.
The cause of these ulcers remains unclear, but may
represent an overstimulation of tumor necrosis factor, perhaps stimulated by an unidentified pathogen. Other
possible etiologies include trauma and stress, systemic disease, nutritional deficiencies, and food
allergies.
When compared with aphthous lesions in immunocompetent individuals, patients with HIV
typically have oral ulcers that are more extensive, more frequent in occurrence, and slower to heal.





Clinical Manifestations

Aphthous stomatitis manifests as round to oval lesions with a raised red halo on nonkeratinized mucosal
surfaces in the mouth, including the lip , and tongue , often with a yellow-gray pseudomembranous covering.

Aphthous stomatitis lesions are characterized as minor, major, or herpetiform based on the size and number of lesions. Minor lesions are 0.2 to 0.5 cm in diameter and typically persist for 7 to 10 days; major lesions are greater than 0.5 cm in diameter and often persist for weeks.

Herpetiform lesions manifest as a crop of lesions with each lesion smaller than 1 to 2 mm in diameter, but these small lesions can coalesce into large lesions.

Aphthous stomatitis lesions often can cause intense pain,

particularly when patients ingest spicy, salty or acidic foods or beverages. This disorder is referred to as recurrent aphthous stomatitis in patients who have repeated episodes.

Diagnosis:

No causative agent has been identified for aphthous stomatitis. The diagnosis of aphthous stomatitis is based on clinical presentation and exclusion of other possible causes, including HSV, syphilis, neoplasm, or drug reaction.

Treatment

Treatment of aphthous lesions in persons with **HIV typically** consists of a combination of symptomatic relief and anti-inflammatory medications.

Topical anesthetics are helpful for **pain control** of all lesions.

Minor lesions can be treated with a **mucosal binding agent and topical corticosteroid**, ideally combined in a dental paste preparation.

In contrast, more **severe lesions may require systemic or intralesional corticosteroids**, or the immunomodulator, thalidomide.

Antiretroviral therapy is an important component in treating **aphthous stomatitis**.
Objective evidence shows **most efficacy from corticosteroids** and **antimicrobials used topically**.
In general, treatment of aphthous ulcers should focus on **both acute ulcer control** and also on **preventing recurrences**, and treatment **algorithms should follow a stepwise progression**, starting with topical preparations and proceeding if necessary to first- and second-line systemic therapies.

The following summarizes several key aspects of treatment options.

•**Chlorhexidine**: Bioadherent oral rinse gel and chlorhexidine gluconate mouth rinses reduce the severity and pain of ulceration but not the frequency.
•**Anti-Inflammatory Agents**: In patients with mild to moderate aphthous lesions, anti-inflammatory agents, such as benzydamine hydrochloride mouthwash and topical amlexanox paste, may provide symptomatic benefit with transient pain relief.
•**Topical Corticosteroids**: The use of topical corticosteroids remains the mainstay of treatment, with a recent randomized placebo-controlled trial showing a statistically significant improvement in healing ratio in patients treated with dexamethasone ointment compared with placebo.[32] A spectrum of different topical corticosteroids can be used. Although package inserts for most topical steroids have a warning “not for internal use”, extensive experience over several decades has shown efficacy and safety with the use of topical steroids for aphthous stomatitis. Topical corticosteroids usually reduce painful symptoms, but they do not impact the rate of ulcer recurrence. The patient should avoid eating or drinking anything for at least 30 minutes after the topical agent has been applied. The commonly used preparations are as follows:

- Fluocinonide 0.05% ointment rubbed into the affected area three times daily, *or*
- Hydrocortisone mucoadhesive buccal tablets 2.5 mg used 4 times daily, *or*
- Triamcinolone acetonide 0.1 dental paste applied to ulcer 4 times daily, *or*
- Betamethasone sodium phosphate as a 0.5 mg tablet dissolved in 15 mL of water to make a mouth rinse, used 4 times daily for 4 minutes each time.

Safety of Topical Corticosteroids: Hydrocortisone and triamcinolone topical preparations are popular because neither causes significant adrenal suppression, but ulcers typically recur unless effective antiretroviral therapy is also used.
Betamethasone, fluocinonide, fluocinolone, fluticasone, and clobetasol are more potent and more effective than hydrocortisone and triamcinolone, but they carry an increased risk for adrenocortical suppression and a predisposition to candidiasis. All corticosteroids, even when given in non-oral formulation, have the potential to induce serious complications, such as Cushing's syndrome in persons with HIV taking ritonavir or cobicistat, as well as with some protease inhibitors.[33] Corticosteroids should be used with caution in these patients.

- **Tetracyclines:** Topical tetracyclines may reduce the severity of ulceration, but they do not alter the recurrence rate.

A doxycycline capsule of 100 mg in 10 mL of water administered as a mouth rinse for 3 minutes or tetracycline 500 mg plus nicotinamide 500 mg administered 4 times daily may provide relief and reduce ulcer duration. Avoid tetracyclines in children younger than 12 years who might ingest them and develop tooth staining.

- **Thalidomide**: In patients with severe aphthous lesions, the medication thalidomide (200 mg per day for 4 weeks) has been shown to significantly improve healing and resolution. The use of thalidomide is hampered by its pregnancy category X classification and the requirement that clinicians need to enroll in a special thalidomide distribution program.

Herpes simplex virus

Infections with herpes simplex virus (HSV) occur frequently in persons with HIV and more than 95% of individuals with HIV test seropositive for either HSV-1 or HSV-2.
Infection with HSV is characterized by periodic reactivation, during which shedding from mucosal surfaces is increased. Shedding of HSV persists despite highly active antiretroviral therapy among persons coinfected with **HIV and HSV**

Clinical manifestation:

Oral herpes manifests most often as lesions on the outer mouth region inner lips ,tongue or palate; oral herpes is usually caused by infection with HSV-1, but HSV-2 can also cause oral lesions. Individuals with their first episode of oral HSV may have more severe and extensive lesions .

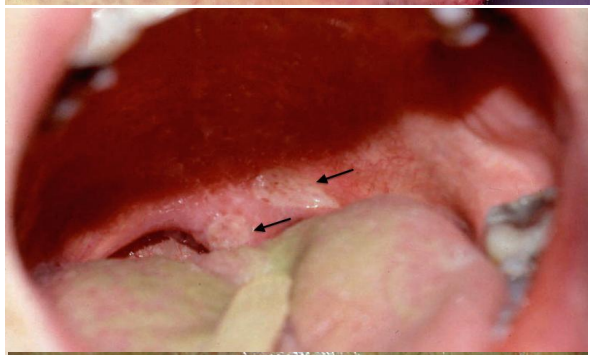
Oral infection with HSV-1 and HSV-2 are indistinguishable from a clinical perspective. Patients classically experience a sensory prodrome followed by evolution of the lesion(s) from papule to vesicle to crusting stage.

If untreated, symptoms **persist 5 to 10 days**; antiviral therapy initiated at onset of the prodrome can shorten the symptomatic period or even abort the outbreak. Patients with HIV infection and a CD4 count less than 100 cells/mm^3 may have deep, extensive and non-healing ulcers and are more likely to develop acyclovir-resistant HSV

Diagnosis

The clinical diagnosis of oral HSV can be challenging since HSV lesions can mimic many other infections, particularly when present in the ulcerated form. Therefore, establishing the diagnosis via laboratory testing is recommended.Performing HSV DNA PCR testing is the most sensitive method for diagnosis, but viral culture and antigen detection are also frequently used for diagnostic purposes

The recommended therapy for **Oral HSV lesions** in persons with HIV consists of a 5- to 10-day course of **oral valacyclovir 1 g twice daily**, **famciclovir 500 mg twice daily,** or **acyclovir 400 mg three times daily**;



intravenous acyclovir 5 mg/kg every 8 hours may be required for severe mucocutaneous disease

Long-term suppressive therapy reduces the number of recurrences of mucocutaneous HSV disease in persons with HIV. For individuals who have severe outbreaks or who want to minimize the frequency of recurrences, suppressive therapy can be initiated using valacyclovir 500 mg twice daily, famciclovir 500 mg twice daily, or acyclovir 400 mg twice daily.

KAPOSI'S SARCOMA:

Kaposi’s sarcoma is a vascular tumor caused by human herpes virus-8 (HHV-8), also known as KS-associated herpes virus (KSHV). Kaposi’s sarcoma remains the most frequent HIV-associated oral malignancy, with a peak incidence occurring among men who have sex with men aged 25 to 59 years. In the current era of the HIV epidemic, as patients are living longer, the overall frequency of non-AIDS malignancies has increased while rates of Kaposi's sarcoma have dramatically decreased.Research suggests a relationship between immunodeficiency and malignancy, possibly through a mechanism of decreased immune surveillance

CLINICAL MANIFESTATIONS

When Kaposi’s sarcoma involves the mouth, lesions are usually located on the gums or hard palate and and can appear macular, nodular, raised, or ulcerated, with color ranging from red to purple. Individuals with Kaposi's sarcoma frequently present with both intraoral and cutaneous lesions. In addition, persons with HIV who have intraoral Kaposi's sarcoma may also have lesions in the lower gastrointestinal tract

Diagnosis

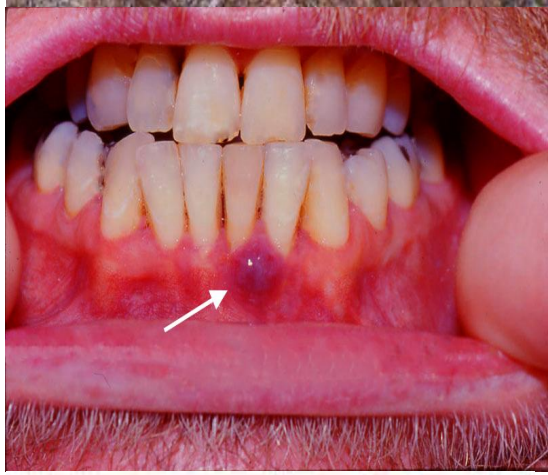
The diagnosis of oral Kaposi's sarcoma is usually suspected based on characteristic clinical findings. A definitive diagnosis requires biopsy of the oral lesion(s). Classic findings on pathology include neovascularization with aberrant proliferation of small vessels, atypical spindle-shaped cells with leukocytic infiltration, and hemosiderin-laden macrophages.

Treatment:

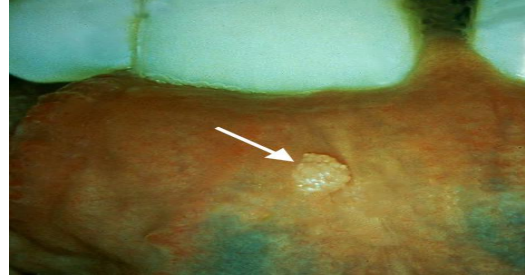
Combination antiretroviral therapy is recommended for all persons with HIV-related Kaposi's sarcoma and these lesions often regress with antiretroviral therapy alone.When lesions do not resolve or the initial manifestations are severe, additional treatment may involve a combination of radiation, intralesional chemotherapy, topical therapy, or surgical excision.Systemic cytotoxic chemotherapy is generally reserved for treatment of disseminated disease beyond the oral cavity. The liposomal anthracyclines either **liposmal doxorubicin or liposomal daunorubin** are typically used when systemic cytotoxic chemotherapy is required.

HUMAN PAPILLOMAVIRUS

Despite current widespread use of effective antiretroviral therapy for persons with HIV, oral lesions associated with human papillomavirus (HPV) have increased in recent years.Oral HPV infection is common among individuals with HIV, particularly men who have sex with men, and these infections more frequently involve the oncogenic subtype



Previous studies have shown an oral HPV prevalence **of 20 to 40%** among men with HIV compared to an overall prevalence of **6.9% among men and women without HIV.**
A recent analysis of pooled data from prospective studies in the North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD) between 1996 and 2009 found that HPV-related and HPV-unrelated head and neck squamous cell cancers are both elevated in individuals with HIV, **possibly due to immunosuppression.**
The increased risk of HPV-related **oral complications in persons with HIV persists even with use of effective antiretroviral therapy.**
Although there are no clinical trial data to demonstrate efficacy **of HPV vaccination** in reducing incidence of HPV-related oral cancers, the 9-valent **HPV (9vHPV) vaccine may have some efficacy in preventing oral vaccine-type HPV infections**



CLINICAL MANIFESTATIONS

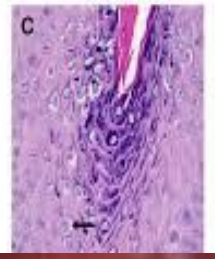
Oral warts can be cauliflower-like, spiked, or raised with a flat surface.[1] Lesions may be white, red, or the color of normal mucosa. Oral warts often arise at the base of the tongue or tonsillar region, where they can easily be missed on routine oral examination .In addition, oral warts may appear on the lips or gingiva (Figure 23). It is difficult to differentiate benign and malignant lesions based on visual examination alone.

Diagnosis

The diagnosis of HPV-related oral disease is often made on the basis of a typical clinical appearance; if needed, biopsy can confirm the diagnosis. Due to the increased frequency of oral lesions and oral cancers in immunocompromised patients, clinicians should maintain a low threshold for performing a biopsy on any suspicious lesion. It is important to note that lesions, including malignant lesions, may not be readily visible on routine oral examination and may remain asymptomatic until they are at later stage.

Treatment

No clear standard for the treatment of HPV-related oral lesions has been established, but approaches to
therapy may involve surgery, laser therapy, or cryotherapy. The specific treatment chosen is usually based on
the location of the lesions, extent of disease, and whether the lesions are malignant.



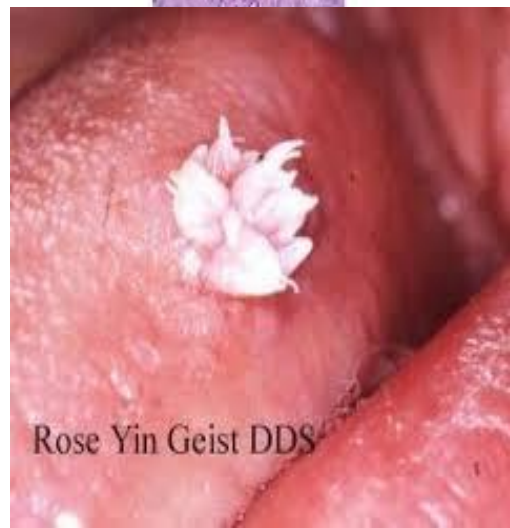
Dental managements of patient with HIV:

There are three types of patients with HIV

Asymptomatic patient.

Symptomatic patient.

Patient with severe symptoms



Oral lesions are among the earliest and most common clinical signs of HIV, and detection of oral lesions may signal progression of HIV disease or increase in the plasma HIV-1 RNA level.Still, oral abnormalities alone are not diagnostic of HIV infection.

HIV infection can be diagnosed by **serologic tests** that detect antibodies against HIV-1 and HIV-2 and by virologic tests that detect HIV antigens or ribonucleic acid (RNA).

Infection control is very important stage in patient's management

- Infection with human immunodeficiency virus (HIV) predisposes people to certain oral health problems.
- Patients who are HIV-positive can receive routine dental care.
- Obtaining and reviewing a comprehensive medical history may help identify patients who may require treatment plans adapted to their unique medical condition(s).
- Dentists and all staff with direct patient contact should comply with all standard precautions (e.g., wearing appropriate personal protective equipment and disinfecting all equipment and surfaces after each patient) for all patients.

Infection Control:

HIV is a bloodborne pathogen and avoiding exposure to blood and bodily fluids is the primary way to prevent transmission of HIV in dental care settings.

Blood has the greatest proportion of infectious viral particles but all bodily fluids, secretions, and excretions other than sweat may contain transmissible infectious agents.

During dental procedures, saliva tends to become contaminated with blood, increasing the risk of HIV transmission from saliva.

Standard precautions should be followed with all patients, Dental personnel should wear barrier precautions (e.g., **gloves, masks, and protective eyewear**) .

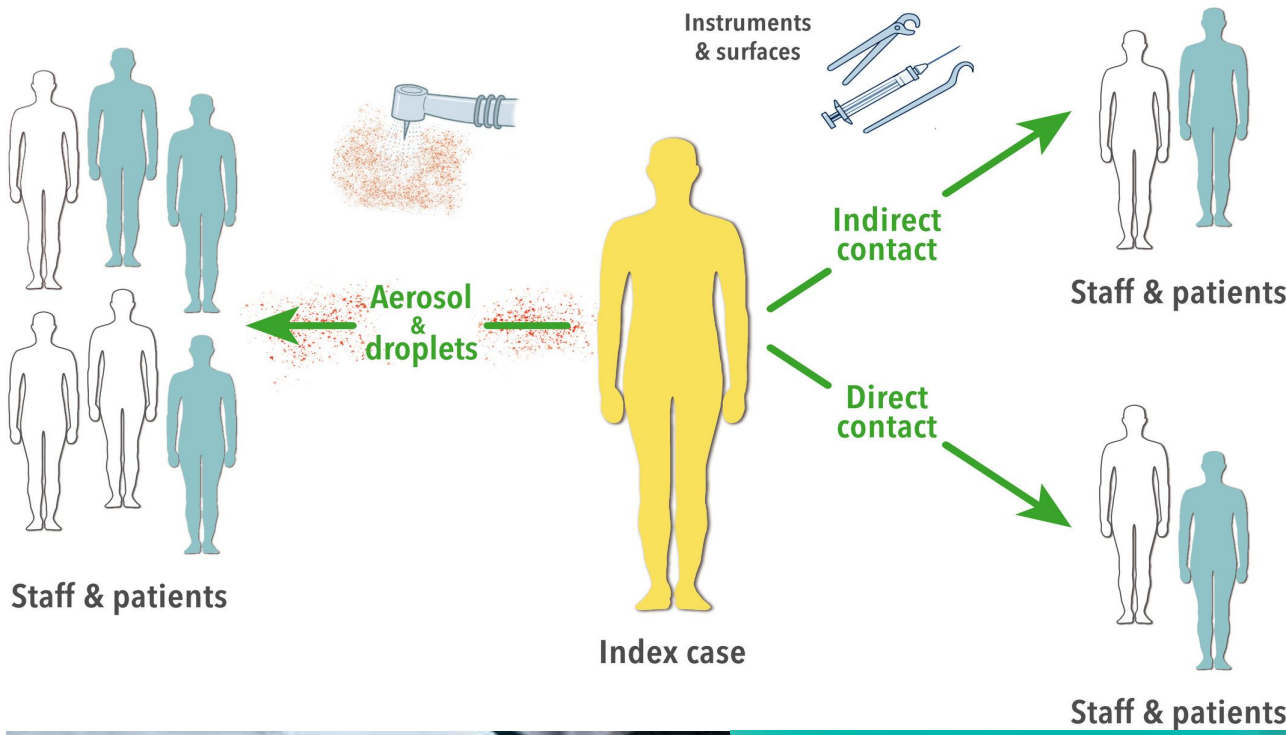
whenever there is potential for contact with body fluids, non-intact skin, or mucous membranes.

Personal protective equipment must be removed after leaving work areas, and remember that gloves are never to be reused.

Although the occupational source of greatest risk of HIV transmission is percutaneous injuries, it is good to understand that after a needlestick exposure to HIV-infected blood, the average risk of HIV transmission is approximately 0.3% per exposure.

Dental health care personnel can reduce their risk of percutaneous injuries by following standard precautions, having engineering controls and work-practice controls for all sharps, and following safe injection practices.

Any direct contact with potentially infectious material is considered an exposure that requires clinical evaluation.



If an exposure incident occurs to material known or suspected to be infected with HIV, the incident should be **reported to a supervisor** (if applicable) and **the exposed individual should consult with a doctor immediately**.Antiretroviral drugs may be prescribed as post-exposure prophylaxis (PEP) within the first 72 hours of exposure in order to help prevent HIV infection.The sooner PEP is started, the more effective it is

Dental Patient Management

A comprehensive intraoral soft tissue, periodontal and hard tissue examination should be conducted at an HIV-positive patient's initial assessment.

Dentists should continuously monitor dental and oral health for disease progression. If any oral manifestations of HIV are present, the first priority is to relieve pain and treat infections.
To help prevent further disease, dentists can provide counseling about modifiable risk factors, such as use of tobacco, alcohol, or other drugs that may increase risk of oral abnormalities or complications, as well as work with the patient to implement oral hygiene regimens.
Prevention is even more important for HIV-positive patients, who are more susceptible to oral disease.
All dental practices should be able to provide routine dental care for adult or pediatric HIV-positive patients.
Nearly all patients with HIV are able to tolerate routine dental care and procedures, including oral surgery.
Still, ***dental treatment planning must be done on an individual basis***, in **conjunction with consultations with the patient and their physician as appropriate**.

HIV and antiretroviral therapies may be associated with **abnormal bleeding**, **glucose intolerance**, or **hyperlipidemia,** which may be identified through **consultation with the patient and their physician**.

Other conditions that may require modification of dental treatment are reduced platelet count <60,000 cells/mL, which may affect clotting, or white-blood-cell neutrophil counts <500 cells/mL, which may require antibiotic prophylaxis.

However, antibiotic use may predispose patients to adverse drug reactions, superinfection and drug-resistant microorganisms, so antibiotics should be used judiciously, **not routinely**.

In select circumstances, it may be appropriate to consult with the patient's physician to determine if there are any recent abnormal laboratory findings (e.g., low platelet count) that may require dental treatment modification or the provision of invasive procedures in a hospital setting.

Indications for dental extractions and other oral surgical procedures are the same for HIV-positive patients as for any other patient.
Preoperative scaling may be performed to help reduce the risk of postoperative complications. All procedures must be performed in a manner to minimize bleeding and avoid bringing oral pathogens into the deeper fascial planes and oral spaces

THANK YOU