

FUNGAL LESION

Candidal infection (Candidosis — Candidiasis)

Is a disease caused by infection with yeast like fungal organism called candida albicans. In about half of the population candida albican can be shown in the normal oral flora without causing any clinical evidence of infection. Predisposing factors are local (poor oral hygiene, xerostomia, mucosal damage, dentures, and antibiotic mouthwashes) and systemic (broad-spectrum antibiotics, steroids, immunosuppressive drugs, radiation, HIV infection, hematological malignancies, neutropenia, iron deficiency anemia, cellular immunodeficiency, and endocrine disorders). Clinical features: Oral candidiasis is classified as primary, consisting of lesions occurs on the oral and perioral area, and secondary, consisting of oral lesions of mucocutaneous disease. Primary candidiasis includes four clinical varieties:

- Pseudomembranous (thrush)
- Erythematous,
- Papillary hyperplasia of the palate,
- Candida-associated lesions (angular cheilitis, median rhomboid glossitis, denture stomatitis).

THRUSH (Pseudomembranous candidosis)

Thrush clinically is seen as white creamy lesion or patch seen on the tongue, palate, cheek.

These white patches resemble curdled milk which can be removed by scraping them with wooden spatula or with dry gauze.



The underlying mucosa may appear normal or erythematous, the white lesion contains candidial hyphae and yeast together with desquamated epithelial cells & debris.



Thrush may be initiated by exposure of the patient to broad spectrum antibiotic or by impairment of the patient's immune system.

The immune dysfunction seen in leukemic patients or those with human immunodeficiency virus (HIV), infant may also be affected because of their under developed immune system.

Management of thrush:

Control of any local cause, such as topical antibiotic treatment, may alone cause thrush to resolve.

If not a course of nystatin or amphotericin lozenges.

Failure of response to topical antifungal suggests immune deficiency. HIV infection should always be suspected when thrush is seen in an adult male in which there is no other detectable cause.

Acute antibiotic stomatitis:

This can follow topical use of antibiotics especially tetracycline, which can cause suppression of normal flora.

Clinically the whole mucosa is red & sore; spot of thrush can be present.

Resolution may follow with removal of the antibiotic.

Denture induced stomatitis (chronic)

This lesion is seen in patients wearing a well fitting upper denture which cuts off the underlying mucosa from the protective action of the saliva.

This condition is characterized by varying degree of erythema, sometimes accompanied by petechial hemorrhage, localized to the denture bearing area of a maxillary removable dental prosthesis.

Whether this represents actual infection by *C.albicans* or is simply a tissue response by the host to the various M.O. living beneath the denture remain controversial, or

this reaction could be due to improper design of the denture, allergy of the denture base or inadequate curing of the denture acrylic.



Chronic hyperplastic candidosis or candidal leukoplakia

This lesion characterized by the appearance of white plaque or patch that cannot be removed by scraping, such lesions are usually located on the anterior buccal mucosa and cannot clinically be distinguished from a leukoplakia only by taking a biopsy.



It is not clear whether this lesion is caused by candida or candida is superimposed on preexisting leukoplakia.

In H&E stained section, hyphae are difficult to see but by using PAS (periodic acid Schiff) stain clearly shows the hyphae growing through the full thickness of the keratin to the prickle cell layer.

Chronic mucocutaneous candidiasis

Is a condition in which persistent & refractory candidiasis occurs on the mucous membranes, skin, & nail.

Most of these patients show endocrinopathies or defect of the immune system

Erythematous candidosis

This lesion clinically appears as patchy red mucosal macules, and some time appear as smooth or granulated red or fissures, this lesion mostly occur in hard palate, dorsum of the tongue and soft palate and mostly associated with HIV-positive patients

There is varying form of erythematous candidosis:

Acute atrophic candidosis or antibiotic sore mouth: Due to long term, antibiotic therapy the patients suffer from burning sensation which may be accompanied by a diffuse loss of the filiform papilla of the dorsal tongue.

Median rhomboid glossitis or central papillary atrophy: In the past, this was thought to be a developmental defect of the tongue, but now consider as one type of candidial infection. This lesion is a symptomatic as a well demarcated red zone in the mid line of post dorsal tongue.



Angular stomatitis (Perleche): This occurs in the angles of the mouth which appear as red, fissured and scale. Seen typically in an older person with reduced vertical dimension and many folds at the corner of the mouth so the saliva tend to pooler flow in these folds keeping the moist and thus inducing a yeast infection. This may be caused by candida albicans alone or combined with other M.O such as Staphylococcus aureus.



VIRAL INFECTION

Herpes simplex infection:

A- Acute primary herpetic gingivostomatitis

An uncommon clinical presentation of an initial HS infection occurs as a highly visible & acutely symptomatic primary infection, in which multiple shallow ulcers are present throughout the keratinized intraoral surfaces accompanied by a fever, lymphadenopathy, & myalgia. Usually occur in young children & adults,

Mild forms exhibit multiple small ulcers (shallow) involving both keratinized & nonkeratinized oral mucosa. Mostly affect the gingiva, & may involve various sites from the lips & perioral skin to the gingiva.

Sever forms may present as large diffuse whitish ulcers that exhibit scalloped borders & erythematous halos. This result from coalescence of many small ulcers into single large superficial ulcers.



B- Secondary herpes simplex infection

Occurs in 2 main clinical types:

1- Recurrent herpes labialis:

Episodic occurrences of a cluster of vesicles & shallow ulcers localized to the lateral aspect of the lip.



Is by far the most common form of recurrent HS infections. Occur in 15-20% of those who have a primary infection.

It is commonly termed a cold sore because it often occurs after an upper respiratory viral infection.

The reactivation also can be triggered by prolonged exposure to sun light, trauma, manipulation of the lips, fever, immunosuppressant, menstruation, stress, & anxiety. However, the patient doesn't exhibit elevated temperature & rarely exhibit lymphadenopathy.

Treatment:

By keeping the lesions soft & covered with an ointment to prevent further spreading & secondary bacterial infection.

The use of Antiviral such as Acyclovir has been beneficial.

2- Herpetic whitlow:

A primary or secondary HS infection localized to the hands or fingers & acquired by direct contact with an active lesion.



It can occur by autoinoculation from oral or genital lesions.

The lesions are usually vesicular or pustular & surrounded by a wide zone of erythema.

The patient suffering from throbbing pain, high fever, & regional lymphadenopathy of the arm or axilla, usually for one or more weeks. The lesions are highly contagious.

Varicella zoster infection:

Is a member of the herpes family, occur either as primary infection known as Varicella (chicken pox), or as recurrent or secondary termed as Herpes Zoster (shingles).

Primary infections are followed by a period of latency during which the virus resides in the regional ganglia. Then, if the host's immune system is suppressed, the virus may emerge to produce recurrent disease.

Varicella (chicken pox):

Is the initial infection of VZV & is usually acquired in childhood, unlike HSV infection, the primary infection is usually symptomatic & include fever, headache, malaise, sore throat, & lung congestion.

After an incubation period for 2 weeks, patients develops a cutaneous hemorrhagic maculo-papular rash accompanied by malaise & low grade fever.

Lesions quickly progress to vesicle & pustules that rupture & become crusted.

For approximately one week lesions will continue to appear so that a mixture of lesions at various stages of development & resolution is always present.

Small numbers of vesicular lesions are usually present on the oral mucosa, including the tongue, buccal mucosa, gingiva, palate, & oropharynx.

The oral lesions (vesicles) rupture early & are usually seen as small ulcers resemble aphthous ulceration.



The disease when acquired in adulthood, may be severe & progress to interstitial pneumonia. If the patients are immunocompromised, can lead to death.

Secondary varicella zoster infection (shingles):

Is the recurrent form of Varicella infection. It affects 10-20% of the population & can occur at any age, but is more common in the elderly & immunocompromised.

On the skin the main clinical feature is a unilateral linear vesicular rash outlining the distribution of the affected peripheral nerve. These vesicles coalesce followed by crusting.

When involves the trigeminal nerve, unilateral facial & oral lesions may develop along the ophthalmic, maxillary, & mandibular distribution of the nerve.

The mucosal lesions develop as fragile vesicles that rupture easily & are usually as crateriform ulcers that may persist from 2-3 weeks usually healing within a month.



The lesions produce pain on both skin & mucous membrane during few days before vesicle erupted. The patient felt pain, paresthesia, & dysesthesia in the affected area.

When lesions appear, patients usually experience a stinging pain.

In older patient, the pain may persist for month or more, this condition is termed as postherpetic neuralgia. Histopathology:

The varicella zoster virus produces similar epithelial lesions to those of herpes simplex.

Histopathology:

The epithelial cells show cytoplasmic swelling due to intracellular edema (ballooning degeneration), margination of chromatin & intranuclear inclusion bodies. Multinucleated cells also seen.

Treatment:

By antiviral drugs Acyclovir (IV).

Herpangina

Herpangina is an acute viral infection caused by Coxsackie type A virus. It is transmitted by contaminated saliva and occasionally through contaminated feces.

Clinical Features. Herpangina is usually endemic, with outbreaks occurring typically in summer or early autumn. It is more common in children than in adults. Those infected generally complain of malaise, fever, dysphagia, and sore throat after a short incubation period.

Intraorally, a vesicular eruption appears on the soft palate, faucial pillars, and tonsils and persists for 4 to 6 days. A diffuse erythematous pharyngitis is also present. No associated skin lesions are typically seen. Signs and symptoms are usually mild to moderate and generally last less than a week.



Treatment. Because herpangina is self-limiting, is mild and of short duration, and causes few complications, treatment usually is not required.

The disease runs its course in 7-10 days, symptomatic treatment is required.

Hand-foot & mouth disease:

Is usually caused by subtypes A9 & A16 of Coxsackie virus A.

It is highly contagious & occurs in local outbreaks, mostly among children in the 1-5 year-age group.

Clinically:

During the short incubation period the patient complain from malaise, low grade fever, nausea, & an eruption of small vesicles on an erythematous base on the palms of the hands & the feet.

Within 1-2 days oral vesicles & ulcers appear on the mucous membrane & are usually confined to the anterior part of the mouth.

Histopathology:

Show intra epith vesicles & epith cells exhibit ballooning degeneration.

The infected cells usually contain eosinophilic intracytoplasmic inclusion bodies.

Treatment:

Is self-limiting & lasts from 1-2 weeks with only mild symptoms.

Only specific treatment is necessary.

Measles (Rubeola) and German measles (Rubella)

Measles is a highly contagious viral infection caused by a member of the paramyxovirus family. Typically, oral eruptions consist of early pinpoint elevations over the soft palate that combines with ultimate involvement of the pharynx with bright erythema.

German measles, or rubella, are a contagious disease that is caused by an unrelated virus of the toga virus family. It shares some clinical features with measles, such as fever, respiratory symptoms, and rash. However, these features are very mild and short lived in German measles.

Clinical Features: After an incubation period of 7 to 10 days, prodromal symptoms of fever, malaise, conjunctivitis, photophobia, and cough develop. In 1 to 2 days, pathognomonic small erythematous macules with white necrotic centers appear in the buccal mucosa, these lesion spots, known as Koplik's spots.



Koplik's spots generally precede the skin rash by 1 to 2 days. The rash initially affects the head and neck, followed by the trunk, and then the extremities.



Histopathology: Infected epithelial cells, which eventually become necrotic, overlie an inflamed connective tissue that contains dilated vascular channels and a focal inflammatory response. Lymphocytes are found in a perivascular distribution. In lymphoid tissues, large characteristic multinucleated macrophages, are seen.

Treatment. No specific treatment for measles is known. Supportive therapy of bed rest, fluids, adequate diet, and analgesics generally suffices.

AIDS

The acquired immune deficiency syndrome (AIDS) was recognized as a disease entity in the early 1980 in the United States.

The disease is caused by a virus known as human immunodeficiency virus (HIV) mainly HIV-type I, HIV-type II is as yet only widely prevalent in West Africa.

Transmission of HIV occurs mainly by sexual contact or by blood; also, infected pregnant women can transmit the infection to the fetus.

The incubation period of AIDS is highly variable, in male homosexual it average approximately 5 years but in sometimes as long as 10 years.

The virus multiplies in T-helper lymphocytes cells, the virus kill T-helper & reverse the ratio of helper to suppressor lymphocytes. The main effect of the immunodeficiency and chief cause of death is infection by a great variety of microbes.

The earliest clinical manifestation of HIV infection can be a transient illness resembling glandular fever associated with antibody production.

Later in progressive cases: there will be generalized lymphadenopathy syndrome with wide spread persistent enlargement of lymph nodes is a typical early sign. The full syndrome of AIDS is characterized by multiple infections by bacteria, fungi, parasite & virus.

Though infections are main cause of death, there is also a greatly raised incidence of tumors particularly Kaposi's sarcoma & lymphoma which is frequently affect the oral or perioral tissue.

AIDS is transmissible to health care personal particularly surgeons, dental surgeons & nurses, via needles or other sharp instrument, however the risk of acquiring HIV infection by such means is considerably smaller than that of hepatitis B.

The oral manifestation of HIV infection is numerous and have been divided into three groups based on the strength of their association with HIV infection. the main lesions in each group are listed in table below

Group 1-Lesions strengthly associated with HIV infections

Candidiasis

Erythematous

Hyperplastic

Pseudomembranous

Hairy leukoplakia (EB virus)

HIV associated periodontal disease HIV
gingivitis

Necrotizing ulcerative gingivitis

HIV associated periodontitis

Necrotizing stomatitis

Kaposi sarcoma

Non-Hodgkin's lymphoma

Group 2- Lesions less commonly associated with HIV infections

Atypical ulceration

Idiopathic thrombocytopenic purpura

Salivary gland disorders

Dry mouth, decreased salivary flow rate

Unilateral or bilateral swelling of major glands

Viral infection other than (EB virus)

Cytomegalovirus Human

papilloma virus

Varicella zoster virus

Group 3-lesions possibly associated with HIV infection Bacterial
infections other than gingivitis/periodontitis

Fungal infection other than candidiasis

Melanotic hyperpigmentation

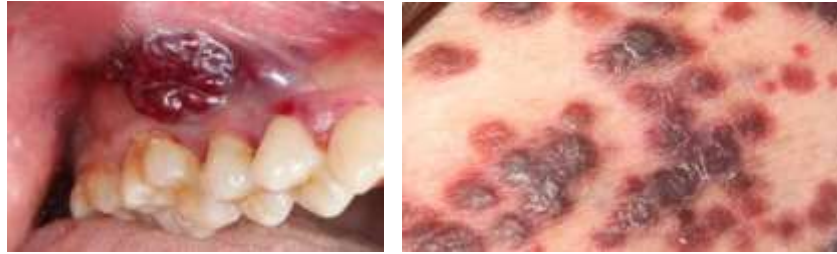
Neurologic disturbances

Facial palsy

Trigeminal neuralgia

Kaposi's sarcoma (KS).

KS is a multifocal neoplasm of vascular endothelial cell origin, KS begins with single or, more frequently. Multiple lesions of the skin or oral mucosa, the trunk, arms, head, and neck are the most commonly involved anatomic sites. Oral lesions are seen in approximately 50% of affected patients and are the initial site of involvement in 20% to 25%. Although any mucosal site may be involved, the hard palate, gingiva, and tongue are affected most frequently the neoplasm mean invade bone and create tooth mobility.



Human papillomavirus (HPV).

HPV is responsible for several facial and oral lesions in immunocompetent patients. the most frequent of which are the verruca vulgaris (common wart) and oral squamous papilloma

Epstein-Barr virus (EBV).

Although EBV is thought to be associated with several forms of lymphoma in HIV infected patients, the most common EBV-related lesion in patients with AIDS is oral hairy leukoplakia (OHL). This lesion has a somewhat distinctive (but not diagnostic) pattern of hyperkeratosis and epithelial hyperplasia that is characterized by white mucosal lesions that do not rub off.