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Viral Lesions of Oral Cavity

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Abstract

Oral examination is an integral part of general dentistry. So it is not uncommon to come across various viral diseases in the oral cavity. The clinical diagnosis of these viral lesions sometimes become confusing due to similar clinical presentations, confusion leads to misdiagnosis and eventually the treatment.This article discusses about the viral lesions, their clinical presentation, diagnosis and appropriate management which are usually manifested in oral cavity that will eventually provide the general dental practitioner with an up to date guide for better diagnosis and management.

Keywords : *Herpes simplex, herpes zoster, HIV.*

Introduction

Viral infections are one of the frequently encountered infectious diseases by dental practitioner. But often the clinical diagnosis becomes confusing because of various clinical similarity with other disease of oral cavity. So, thorough examination with vivid idea about those particular lesions and ability to distinguish clearly is important for appropiate diagnosis. management and treatment. Thus the Lesions are described individually in the following article.

COMMONLY ENCOUNTERED LESIONS OF VIRAL ORIGIN :-

1) HERPES SIMPLEX

2) VARICELLA ZOSTER

3) COXSACKIE VIRUS

4) HUMAN PAPILLOMA VIRUS

5) MEASLES OR RUBELLA

6) RUBEOLA

7) HUMAN IMMUNODEFICIENCY VIRUS (**HIV**)

l HERPES SIMPLEX :-

An acute infectious disease, probably the most common viral disease affecting man.

Two immunologically different types of HSV : Type 1 & Type 2.

HSV Type 1 can be isolated from the following two lesions of Oral cavity -

1. ACUTE HERPETIC GINGIVOSTOMATITIS
2. HERPES LABIALIS.

ACUTE HERPETIC GINGIVOSTMATITIS :-

Usually seen between the ages of six months and 6 years.

SYMPTOMS : Along with the oral lesions patients suffers from High fever, headache, malaise, anorexia, irritability, regional lymphadenopathy and sore mouth lesions.

MANIFESTATION OF MUCOSA [(8)]

Affected mucosa is red and edematous with

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numerous coalescing vesicles which rapidly rupture leaving painful small round ulcers covered by yellow fibrin. New lesions continue to develop during the first 3-5 days. Healing of ulcers take place in 10-14 days without scar formation. It is important to recognize that the gingival inflammation preceeds the formation of the ulcers by several days. Sometimes in case of cervical lymphadenopathy the vesicles and ulcers on the tonsils (fig.) and posterior pharynx can resemble- a) Infectious mononucleosis or b) streptococcal sore throat infections.

Culture sensitivity test can be done where isolation of HSV Type 1 virus can be done otherwise histopathological sectioning of tissue of interest can be used as confirmatory test.

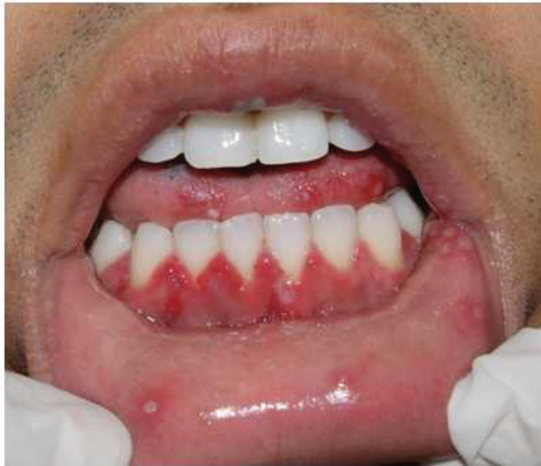


Fig. 1. Multiple ulcerative lesions on lips, gum and tongue.

HISTOPATHOLOGICAL FEATURES suggests characteristic **ballooning degeneration** which are actually the swollen infected cells with pale eosinophilic cytoplasm and large vesicular nuclei. Sometimes in other cases **Lipschutz bodies** I.e eosinophilic, ovoid, homogenous structures within the nucleus tending to displace the nucleus and nuclear chromatin peripherally can be seen.

DIAGNOSIS :

Most of the time Clinical identification is the primay mode of diagnosis. Confirmatory Laboratory tests are also done to rule out the virus.

1. Wright's and Giemsa stain

2. Pap stain - demonstrated the particular ballooning degeneration, multinucleated giant cells, intranuclear inclusions.

3. Cytology - Thorough Cytological smear can give immediate result but the only drawback is its lack of ability to differentiate between Herpes Simplex and Varicella Zoster Virus.

4. Most sensitive and accurate method is PCR technique

DIFFERENTIAL DIAGNOSIS :

Recurrent aphthous ulceration, which forms ulcers on non-keratinised oral mucosa without a vesicle phase.

RECURRENT OR SECONDARY HERPES LABIALIS [1,7,8] :-

Usually seen in adult patients. Spreads through contact so the medical, dental and nursing personnel are at higher risk of developing this disease because of their nature of their occupation.

SIGNS AND SYMPTOMS :-

The lesions are most often seen at the mucocutaneous junction of the lip (fig.) or peri-oral skin. A burning sensation usually precedes the development of a small cluster of vesicles. These vesicles enlarge, coalesce, ulcerate and become crusted before healing within 10 days.

As been emphasized by Weathers and Griffin the recurrent intraoral herpetic lesions almost invariably develop on the oral mucosa that is tightly bound to periosteum. Seldom do they occur on mobile mucosa.

MOST COMMON SITE :- hard palate, Attached gingiva, alveolar Ridge.

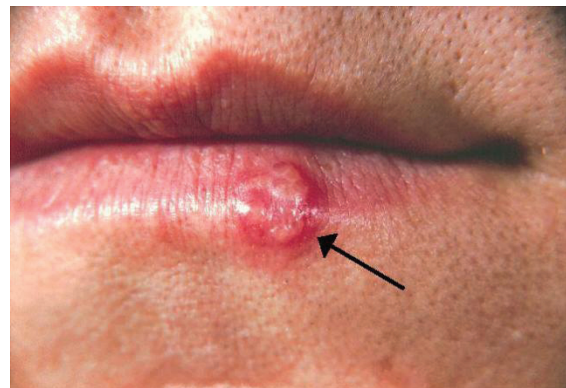


Fig. HERPES LABIALIS, CONSISTING OF A CLUSTER OF VESICLES ON THE VERMILION (ARROW)

HISTOPATHOLOGICAL FEATURE :- Characterized by Ballooning degeneration, chromatin margination and typical Lipschutz bodies, and multinucleated giant cells.

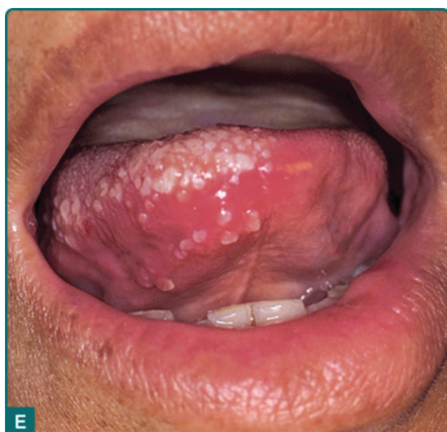
VARICELLA-ZOSTER-VIRUS:- [8]

Chickenpox (varicella) results from primary infection, while reactivation of the virus is known as herpes zoster (shingles).

SITE :- Intra-oral vesicles of varicella, when present, are seen on the tongue, buccal mucosa, gingival, palate and oropharynx. They generally are not very painful.

PREDISPOSING FACTORS : Conditions leading to herpes zoster are usually those that cause immunosuppression, such as cytotoxic drugs, radiation, internal malignancies, malnutrition, old age, and alcohol and substance abuse. Occasionally, dental manipulation in a localised area can lead to reoccurrence.

SIGNS AND SYMPTOMS :- The first signs of herpes zoster are pain and tenderness in the dermatome corresponding to the affected sensory ganglion. In the head and neck area, vesicles from on one side of the face or in the oral mucosa in one of the divisions of N. trigeminus. These unilateral vesicles form clusters with areas of surrounding erythema, ending abruptly in the midline (fig.) The vesicles ulcerate and form pustules within three to four days. A crust lesion then forms, and healing takes place within seven to ten days. These lesions often heal with scarring and areas of hypo/ hyperpigmentation may be seen.



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(FIG.) HERPES ZOSTER : Abrupt ending of the ulcers in the midline

Ramsay-Hunt syndrome [3] :- facial paralysis, vesicles on the external ear, tinnitus, deafness and vertigo which is usually the result of involvement of N. facialis & N. auditorius.

Post-herpetic neuralgia :- A complication of herpes zoster. It occurs in 10% of patients with herpes zoster and affects the trigeminal nerve, most commonly the ophthalmic division. There is persistent, unilateral pain in the affected area.

A history of previous skin lesions and possible scarring may aid in the diagnosis

DIAGNOSIS :- The clinical picture is often distinctive. Herpes zoster may be confused with recurrent Herpes simplex virus infection. Herpes zoster has a longer duration, a more severe prodromal phase, unilateral vesicles and ulceration, with abrupt ending at the midline and postherpetic neuralgia. Differentiation between Herpes Zoster and Herpes Simplex done only by Fluorescent Antibody staining technique, viral culture and serological diagnosis.

Cytological smear : helps in identification of virus from skin or oral lesions.

COXSACKIE VIRUS [7,8]

a)HERPANGINA :- Caused mainly by Coxsackie Virus group A. Herpangina affects children, mainly during summer, and is characterised by a sudden onset of malaise, low grade fever, sometimes vomiting, prostration abdominal pain and sore throat.

Manifestation in oral mucosa as vesicles, ulcerations, and diffuse erythema on the soft palate, fauces and tonsillar areas.The ulcers grow in crop like fashion and with an grey base with inflamed periphery on the anterior faucial pillars and sometimes on hard and soft palate. The ulcers are not extremely painful. Generally the systemic symptoms subside in 3-4 days and the vesicles and ulcers heal in 7-10 days.

DIAGNOSIS : Generally clinical signs & symptoms mostly help in concluding the diagnosis.

b)HAND,FOOT, AND MOUTH DISEASE :-

An epidemic infection generally. Caused by the enterovirus Coxsackie A16. Mainly affecting Young children generally between 6 months to 5 years.

CLINICAL FEATURES : Mainly affects skin, particularly involving the hands, feet, legs, arms and occasionally the buttocks as maculopapular rashes, exanthematous vesicular lesions. Anorexia, low grade fever, sometimes lymphadenopathy, diarrhea, nausea are common. It also Oral manifestations which usually most of the time gets avoided due to the name itself.

Oral Manifestation :- Dysphagia one of the most common findings, which can be a differential diagnosis with other oral ulcerations and vesicular lesions like Herpangina. The lesions are characterized by small, multiple, vesicular and ulcerative oral lesions but more numerous than seen in Herpangina. Most common sites are hard palate, tongue, and buccal mucosa. Tongue may also become red and edematous. Least commonly on lips, gingiva and pharynx including the tonsils.

DIFFERENTIAL DIAGNOSIS :- the cutaneous vesicles of this disease can resemble chickenpox but in chickenpox the vesicles usually start on the face and trunk and then spread to the extremities. Involvement of the palms and soles is rare in chickenpox infections. Oral lesions are also rare in chickenpox.

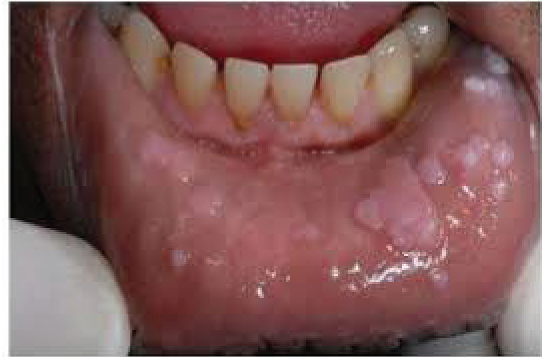
l DIFFERENTIAL DIAGNOSIS AND DISTINGUISHABLE FEATURES BETWEEN COXSACKIE VIRUS AND HERPES SIMPLEX

The clinical features of Coxsackie virus are distinctive. The distribution of the lesions of herpangina differentiates it from primary herpetic gingivostomatitis, which affects the gingivae, whereas herpangina is an oropharyngitis. The systemic symptoms differentiate it from recurrent aphthous ulceration. The vesicles also help to distinguish herpangina from streptococcal pharyngitis.

HUMAN PAPILLOMA VIRUS (HPV) [1,5]

a) Focal epithelial hyperplasia (Heck's disease)

Presents with multiple asymptomatic, slightly elevated, mucosa-coloured, smooth-surfaced nodules that occur on the labial or buccal mucosa gingivae or tongue of children. (FIG.) Individual lesions tend to be small (0.3 to 1 cm), but they frequently cluster and coalesce, giving the mucosa a cobblestone or fissured surface. Most lesions are found in children, although they occasionally can be found in older age groups. They usually regress spontaneously with age.



(FIG. HUMAN PAPILLOMA VIRUS)

b) Squamous cell papilloma and verruca vulgaris

Fourth most common oral mucosal mass and found in 3-4% of all biopsied oral soft tissue lesions. Caused by HPV type 6 and 11. It can occur at any age, but is most commonly diagnosed in the age group 30 to 50 years. It is clinically and microscopically indistinguishable from verruca vulgaris which is a viral induced focal hyperplasia of epidermis.

CLINICAL FEATURES : exophytic growth made up of numerous small finger like projections which result in a lesion with a roughened verrucous and cauliflower like surface. Nearly always a well circumscribed pedunculated tumor, occasionally sessile. It may initially grow rapidly, but seldom grows beyond 5 mm in diameter Generally painless usually white but sometimes pink in colour.

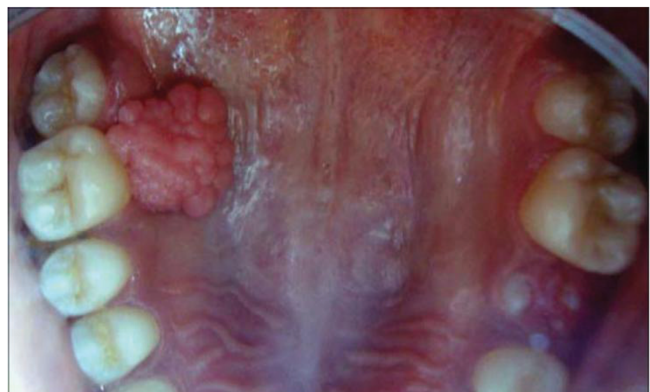


FIG. Squamous papilloma presenting as a single cauliflower-like lesion

INTRAORAL MANIFESTATION : most commonly in tongue, lips, buccal mucosa, palate, particularly the area adjacent to uvula.

VERRUCA VULGARIS : Also can be called as Common Wart. Frequent tumor to skin analogous to oral papilloma. Verruca vulgaris is a very common childhood infection.

Oral Manifestation : Oral lesions usually arise from autoinoculation, most commonly on the labial mucosa, tongue and gingiva.

c)Condyloma accuminatum [6]

Usually infection of the genitals, although it may be found in the oral cavity. Oral lesions are predominantly transmitted through oral-genital sexual contact. . It also characterized by multiple cauliflower-like lesions, some of which are larger than 0.5 cm which may become as large as 3 cm in size. The most common intra-oral sites are the labial mucosa and the lingual frenum and soft palate.

MEASLES or RUBEOLA Vs RUBELLA

Acute, contagious, dermatotrophic and endemic viral infections, primary affecting children and occurring many times in endemic form. Caused by **CLINICAL FEATURES** : Characterized by acute febrile illness and erythematous maculopapular skin rash. Fever, malaise, conjunctivitis, cough and coryza are mainly seen as prodromal symptoms which is followed by a generalized exanthematous skin rash.

ORAL MANIFESTATION : The oral manifestation of measles is known as **Koplik's spots.** Occur early in the course of the infection and often precede the skin rash by 1 to 2 days. These are white-red macules on that appear on the buccal and labial mucosa. These macules represent foci of epithelial necrosis.[7]

RUBELLA OR GERMAN MEASLES [8]

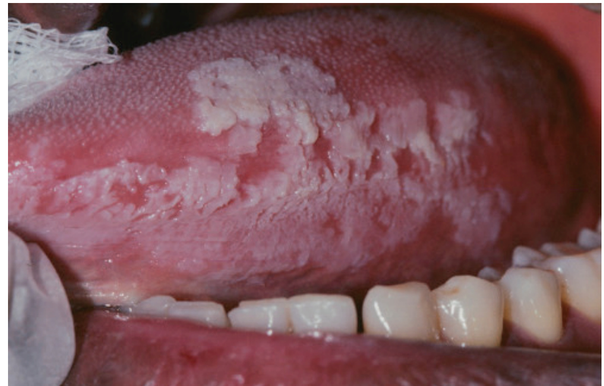
It should not be confused with rubeola. Main difference between the two is absence of Koplik's Spot in Rubella. The oral mucous membrane in this case is not usually inflamed as in Rubeola although tonsils can be somewhat swollen and red macules can appear on the palate.

HUMAN IMMUNODEFICIENCY VIRUS[1,5]

Although no oral lesions are found as a direct result of HIV infection itself, a range of HIV-associated oral lesions, some with a viral aetiology, have been described.

a) Oral hairy leukoplakia

Characterized by a white, vertically corrugated, non-removable lesion on the lateral or ventral margin of the tongue. Surface may or may not be corrugated but corrugation can be seen on inferior surface of the tongue or in the buccal mucosa. This lesion is caused by the Epstein-Barr virus and has no premalignant potential. It has also been reported in HIV-negative persons in association with immunosuppresive therapy. It must be differentiated from chronic hyperplastic candidiasis or leukoplakia (a potentially malignant lesion). In order to do that A biopsy must be performed to establish a reliable diagnosis. Once the diagnosis has been made, no treatment for the lesion is necessary.



b) Kaposi's sarcoma

Characterised by erythematous or violaceous plaque like lesions that develop into tumorous growths over time.These larger lesions may become ulcerated and painful and may interfere with function.

ORAL SITES : Predominantly seen in the palate or on the attached gingivae, but can appear on other mucosal sites.

DIAGNOSIS :- Clinical diagnosis should be confirmed by biopsy, as several other lesions may have similar clinical presentations. This is especially true for early lesions that may have similar clinical features as vascular malformations, bacillary angiomatosis and even well differentiated angiosarcoma.

Conclusion

Since oral cavity harbours many infectious diseases thorough examination and routine check up needed. Viral infection is always infectious and can spread through kissing like Ebstein-Barr virus so parents also from refrain themselves from kissing infants. Some diseases as has been described above spread through autoinoculation so careful diagnosis and proper education to patients about not tampering with vesicles or papules can reduce the spread of infection. Risky sexual relationship should also be avoided to prevent the spread of any oro-genital viral infection. On the top of that general and dental practitioner should be extremely careful in handling the patients with these infectious diseases so prompt and early diagnosis is required. Persistent lesions, especially if ulcerated, should be biopsied to exclude the possibility of a non-infective, more serious aetiology. Biopsies or other laboratory investigations should also be performed if a clinical diagnosis can not be established. This is especially true in the setting of HIV/AIDS that can influence the typical clinical features of viral infections.

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