

A Short Review of Common Viral Lesions Seen in the Oral Cavity of Children

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Abstract

Parents often are not very well informed about the ulcerative lesions that appear in the mouths of children. It is common for Dentists to encounter oral ulcerative lesions caused by viruses in their practice. A thorough knowledge of clinical characteristics can help prevent the spread of such contagious lesions to other children in contact. Some common viral lesions seen in oral cavity of children, their diagnosis and treatment recommendations are reviewed in this write up.

Keywords: Viral lesions; Oral cavity; Children

Introduction

Parents often are not very well informed about the ulcerative lesions that appear in the mouths of children. It's common for Dentists to encounter oral lesions regularly in practice. A thorough knowledge of clinical characteristics and history taking should be helpful. It can give a clue to any underlying systemic/immune mediated disease if present. They should be able to diagnose various painful ulcerative lesions and should be able deliver appropriate treatment especially the virus induced oral lesions. This will help prevent the spread of such contagious lesions to other children in contact. Some common viral lesions seen in oral cavity of children, their diagnosis and treatment recommendations are reviewed.

Human Herpesvirus (HHV) infections may occur as primary or recurrent infections in children. Different subtypes of HHV cause oral manifestations in kids. Each one is discussed individually related to the clinical presentation, diagnosis and management.

HHV-1/herpes simplex virus-1 cause's primary herpetic gingivostomatitis. Herpes virus is a DNA virus which replicates in the nucleus of host cell. The vesicles formed by the lysis of epithelial cells rupture to leave behind ulcers which heal without scar formation. Spread occurs through the infected saliva or droplets. Infectivity exists even in the absence of visible lesions. The virus remains latent in the regional ganglion after the primary infection and reappears whenever there is a trigger [1].

Primary herpes infection which is very common in children is called primary herpetic gingivostomatitis. Symptoms in the oral cavity include painful erythematous, swollen gingiva and numerous small, clustered vesicles. The vesicles are also seen in pharynx and on the skin of head and neck area. Systemic symptoms include fever, arthralgia, malaise and headache. Regional lymph nodes will be enlarged. Lesions resolve in two weeks and the virus remains latent in the trigeminal ganglion [1,2].

The virus resurfaces by travelling along the branches of trigeminal nerve to produce recurrent lesions called cold sores. Stress, trauma, any systemic illness or just exposure to sunlight could all act as triggers for reactivation of the virus. The lesions are more limited and vesicles occur on keratinized mucosa like gingiva, hard palate and vermilion border of lips [1]. Vesicles rupture sooner to leave behind ulcers. Accompanying systemic symptoms in recurrent lesions are much milder than the primary infection. Patients who are not Immunocompetent exhibit a

severe, atypical form of herpes lesions which should lead the dentist to investigate further [1,2].

Herpes Labialis and Recurrent Herpetic Stomatitis

Up to 45 percent of the population in the U.S. is affected by Herpes Labialis or cold sores [3]. Classic manifestation of this form of recurrent herpes is well-localized cluster of small vesicles along the vermilion border of the lip or peri-oral skin. The vesicles eventually turn to ulcers, and crust within 24 to 48 hours. The crust falls off later and uneventful healing occurs within 7 to 10 days. It's highly contagious and spreads even when the sores are not visible. Kissing, sharing food, drinks, cosmetics or utensils are some of the common ways to spread the disease. Generalized involvement of the oral mucous membrane intra-orally is referred to as recurrent herpetic Stomatitis and affects almost always the hard palate or attached gingiva. It usually follows trauma to the site, such as injections or any dental therapy 4-8.

Laboratory studies

Clinical picture alone is sufficient to make the diagnosis. Culture and immunofluorescence can be employed for a more accurate diagnosis.

Histologic findings

Smear results may reveal virally altered nuclei beading the cell.

Medical care

Antiviral medication is prescribed in patients with frequent outbreaks. Hot or cold compresses can be used to reduce the discomfort. Hydration of the child should be maintained. Medications for fever and pain reduce the discomfort and antibiotics might prevent secondary bacterial infection. Auto-inoculation to other sites like eyes, nail beds and even genitalia should be avoided by educating child and

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parents. Isolation prevents the spread to other children as it is very contagious [1-8].

HHV-3/Varicella-Zoster Virus

HHV-3/varicella-zoster virus causes chickenpox in non-immunized children aged 3-6 yrs. Itchy vesicles on skin, intraoral and pharyngeal ulcer are the clinical manifestations which rupture and heal uneventfully. Vaccination has reduced the incidence of chickenpox to great extent.

Laboratory studies

Clinical picture alone is sufficient to make the diagnosis. Culture and immunofluorescence can be employed for a more accurate diagnosis.

Histologic findings

Smear results may reveal virally altered nuclei beading the cell.

Medical care

The patient should stay hydrated. Analgesics and topical anesthetics make the patient comfortable. Controlling autoinoculation to other sites can be a challenge in a child patient. Systemic antiviral treatment if at all given should be initiated as early as possible in the prodromal stage [1].

HHV-5/cytomegalovirus cause infection of salivary glands. Immunocompetent patients do not exhibit any symptoms but can mimic mononucleosis. The virus is spread by saliva. Orally is seen to cause enamel hypoplasia in deciduous dentition. It is treated by systemic antiviral treatment. HHV-6 and 7 causes roseola infantum. Virus is seen to persist in the saliva [1].

Another common virus to cause lesions is Coxsackievirus. Coxsackievirus is an Enterovirus responsible for hand-foot-and-mouth disease, herpangina, and acute lymphonodular pharyngitis which show oral manifestations in children. Spread is via oro-fecal route and by nasopharyngeal droplets and is considered highly contagious.

Hand-foot-and-mouth disease is seen in kids below the age of 5 years in spring and summer. Vesicles that arise in the oral cavity rupture and leave behind shallow ulcerations with a surrounding zone of erythema in sites like buccal mucosa, tongue, and the soft palate. Skin lesions, fever, malaise, anorexia are some other symptoms seen. Skin lesions that appear are either vesicular or papular surrounded by erythematous halos [1,2,8].

Herpangina might be seen in children of age 3-10 years usually in summer. Infection is of sudden onset which is accompanied by fever, throat pain and difficulty in swallowing. Other symptoms may be anorexia, headache, and vomiting. The lesions of oral cavity are macular in onset and later grow into erythematous papules. Vesicular change occurs which rupture later to leave behind shallow ulceration surrounded by erythematous halos which can be painful. Soft palate is the most common site of involvement usually between the tonsils and the uvula. Lesions heal spontaneously after few days [1,2,8].

Acute Lymphonodular Pharyngitis

Acute lymphonodular pharyngitis is considered a variant of Herpangina with similar clinical symptoms. The difference in acute lymphonodular pharyngitis is that the pharyngeal lesions tend to remain papular and do not vesiculate and ulcerate [1,2,8].

Laboratory studies

Clinical picture is usually sufficient to make a diagnosis. If a confirmed diagnosis necessitates, viral culture helps isolate the virus. PCR is another method used.

Histologic findings

Edema is seen both intracellular and intercellular with an intraepithelial vesicle. Reticular degeneration, and ulceration surrounded by mixed inflammatory cell infiltrate is often present.

Medical care

Palliative treatment and maintaining hydration is the goal.

Measles

Measles is also known by the name Rubeola. It is a highly contagious infection commonly seen in children. The causative agent is measles virus which is a paramyxovirus. The virus is spread by direct contact via respiratory tract droplets. It is a highly communicable disease. Since the advent of vaccination there is a decline in the infection. People who do not take vaccinations make up for a large population of victims. Studies have shown how students who have not been vaccinated get easily infected by the virus when travelling to developing countries where measles is common in children below the age of 1 year. It also affects pre-school and school aged children. Symptoms include Koplik spots, fever, malaise and rashes. Conjunctivitis and respiratory difficulty can be seen.

Laboratory studies

Serologic analysis is positive for IgM response.

Histologic findings

Histologically multinucleated, Warthin-Finkeldey giant cells, are seen along with necrosis of superficial epithelium and inflammatory infiltrate.

Medical care

Oral lesions require supportive treatment. Patients should be referred to a physician [1-8].

Rubella

Rubella is also known by the name German measles. Its appearance clinically is very similar to rubeola/measles. Like measles it is seen in children and adults and sometimes can even result in congenital abnormality if mother of the fetus is infected. The causative agent is rubella virus which is an RNA virus. The virus is shed from the throat and is spread via respiratory tract droplets. It is especially contagious when rash appears. Fortunately the virus is quite unstable and is killed easily by disinfectants. Since the advent of vaccination there is a decline in the infection. People who do not take vaccinations make up for a large population of victims. Symptoms include exanthematous rashes, fever, malaise and lymphadenopathy. Intra-orally palatal petechiae are seen on the soft palate known as the Forchheimer sign. Conjunctivitis, orchitis, and arthritis are some other complications of rubella infection.

Laboratory studies

Serologic analysis is diagnostic.

Histologic findings

There are no specific histological findings.

Medical care

Oral lesions do not require any specific treatment. Patients should be referred to a physician [1-8].

HIV

HIV Infection is usually acquired by the child during pregnancy or during birth from infected mother. Other routes of HIV transmission like transfusion of blood and its products, and even breast milk are considered a source. The most common viral infection in children with HIV infection is HSV. Oral candidiasis might go on to become esophageal candidiasis. Gingivitis either generalized or localized may occur in young children who do not respond to oral prophylactic treatment. Somehow parotid swelling is seen in children more commonly than in adults with HIV1.

Conclusion

Differential diagnosis of viral lesions in the oral cavity of children is challenging since most of them display misleadingly similar clinical pictures. Virus culture helps differentiate Herpes from Coxsackievirus and from other maculopapular lesions which appear in the oral cavity like Erythema multiformae. Aphthous does not occur over keratinized

mucosa, does not form vesicles and starts as an ulcer from the onset and is not accompanied by fever or gingivitis. The dentist can play a major role in diagnosis, treatment and prevention of spread of such contagious infections.

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