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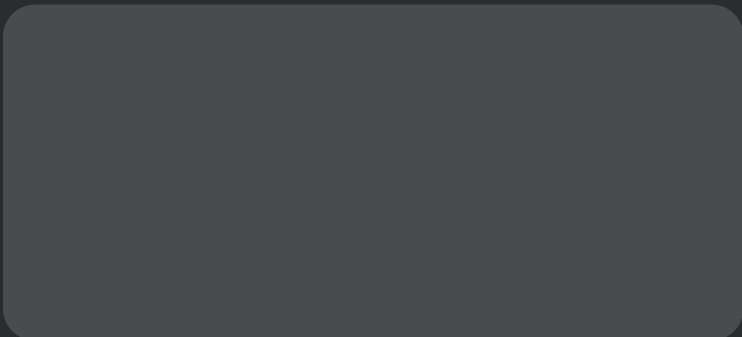
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Soft-tissue lesions in the oral cavity of the pediatric patient: A review

A peer-reviewed article written by Juan F. Yepes, DDS, MD, DrPH, MPH, MS



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Soft-tissue lesions in the oral cavity of the pediatric patient: A review

Abstract

Practitioners who provide dental treatment to children must be aware that oral soft-tissue lesions can occur. This review will provide a synopsis of some of the most common soft-tissue lesions in children. Special emphasis is placed on the differential diagnosis together with the main clinical features. For some lesions, details of the available treatments will be included in the discussion.

Educational objectives

Upon completion of this course, the reader should be able to:

1. Recognize the importance of a differential diagnosis based on the clinical presentation of oral lesions in the pediatric patient.
2. Describe the most common soft-tissue lesions found in infants, children, and adolescents.
3. Provide the most updated treatment for common oral conditions besides gingivitis and dental caries.



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Common lesions in the baby

Palatal cyst of the newborn (Epstein's pearls and Bohn's nodules): Small developmental cysts are often found on the palate and alveolar ridge of newborns. Two theories exist that explain the origins of this cyst. First, as the palatal shelves meet and fuse in the midline during embryonic life to form the secondary palate, a small island of epithelium may become entrapped below the surface along the median palatal raphe and form a cyst. Second, these cysts may arise from epithelial remnants derived from the development of the minor salivary glands.^{1,2}



FIGURE 1: Epstein's pearls in a 1.5-month-old male



FIGURE 2: Bohn's nodules in a 1-month-old female

Epstein's pearls (**figure 1**) occur along the median palatal raphe and apparently arise from epithelium entrapped along the line of fusion. Bohn's nodules (**figure 2**) are scattered over the buccal aspect of the alveolar ridge and look like erupting teeth. Palatal cysts of the newborn are very common (65% to 85% of neonates). The cysts are small white or yellow-white papules that appear more often along the midline near the junction of the soft and hard palate (Epstein's pearls) and buccal aspect of the alveolar ridge (Bohn's

nodules). No treatment is necessary. They are self-healing.^{1,2}

Congenital epulis (CE) of the newborn: CE of the newborn is an unusual benign tumor arising from the alveolar ridge of newborns (**figures 3a and 3b**). The most common place is at the canine area of the maxilla. CE is often an alarming mass for the parents, and they look for advice without delay. The lesion is more common in females than in males (10:1 ratio). It generally presents as a smooth, firm, pedunculated mass over the future canine area. Congenital epulis is usually an isolated finding without any association with a systemic condition. There is no family tendency reported.³⁻⁵

The differential diagnosis depends on the size and speed of the growth. The differential diagnosis can include congenital malformations such as cephalocele, dermoid cyst, vascular tumors, or neuroectodermal tumor of infancy. Congenital epulis can be diagnosed prenatally using ultrasound. From a histology perspective, CE includes undifferentiated epithelial and mesenchymal cells, fibroblasts, histiocytes, nerve-related cells, smooth muscle, and myofibroblast cells. Because of the variety of cells and tissues that can be found in the histologic analysis, it is important to perform immunohistochemical and histomorphological analysis to look for specific proteins such as vimentin.³⁻⁵

The treatment recommended is complete excision of the lesion under local or general anesthesia. There is also the possibility of spontaneous regression without treatment. There has been no mention of recurrence or malignant transformation in the literature.

Premature eruption

Natal and neonatal teeth: Natal teeth (**figure 4**) are erupted primary teeth present at birth. Neonatal teeth are primary teeth that erupt during the first 30 days of life. There are usually one or two teeth involved, most frequently the mandibular primary incisors. Natal and neonatal molars are very rare. Natal and neonatal teeth are not usually supernumerary teeth. They are hypermobile, opaque to yellow-brownish

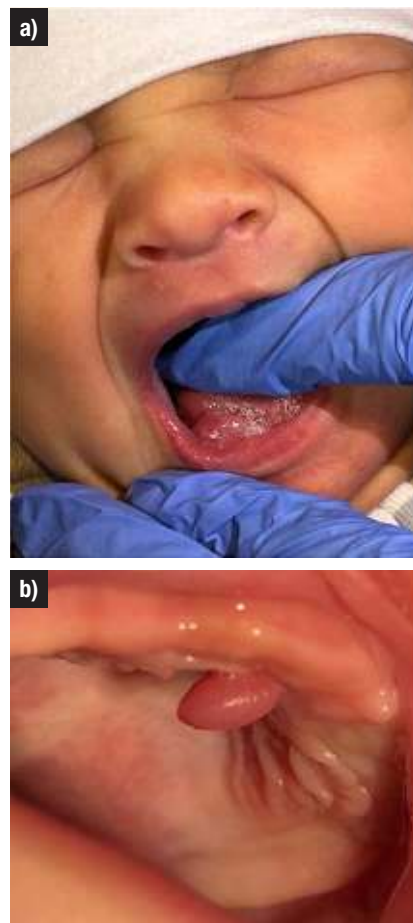


FIGURE 3: Congenital epulis in (a) a 2-month-old male; (b) a 7-month-old female

in color, and they are associated with difficulty in breastfeeding. The etiology of natal and neonatal teeth is unknown, and a familial pattern is often observed.⁶⁻⁹

Treatment depends on the specific circumstance. If natal or neonatal teeth are causing breastfeeding issues, extraction is suggested. If extraction is determined to be the appropriate treatment, it is



FIGURE 4: Natal tooth in a 1-month-old female

recommended to perform the extraction after the neonate is 10 days old, and the need for administration of vitamin K should be assessed. If the teeth are not causing issues, it is preferable to leave them in place and consider additional fluoride applications.⁶⁻⁹

RNA viruses

Herpangina: Herpangina (**figure 5**) is a viral infection that causes ulcers in the oral cavity of children. The oral ulcerations are limited to the soft palate, uvula, tonsils, and fauces. Herpangina is caused by the



FIGURE 5: Herpangina in a 7-year-old male

Coxsackievirus group A. The incidence of herpangina peaks during the initial months of summer and fall. The infection is associated with sudden fever, sore throat, headache, and malaise. No specific treatment is indicated besides supportive measures (pain and fever control).¹⁰⁻¹²

Hand, foot and mouth disease (HFMD): HFMD is a common viral infection usually affecting infants and children. HFMD is caused by Coxsackievirus A16, an RNA type virus. HFMD affects children without gender predilection. Usually the child is between 4 and 7 years old. However, cases of HFMD have been reported in adults. The typical time of year for the outbreak is during the months before the summer and early autumn. After entrance into the body (usually by direct contact), the virus replicates in the lymphoid tissue of the lower intestine and the pharynx and then spreads to the regional lymph nodes. HFMD starts with low-grade fever, reduced appetite, and general malaise. After about 24 hours, the lesions start in the mouth (small, round ulcers usually in the nonkeratinized mucosa) and spread to the hands and feet (**figures**



FIGURE 6: (a) A 6-year-old male presented to the general dentist with sores in the mouth for the past 24 hours; (b) HFMD hand lesions; (c) HFMD foot lesions



FIGURE 7: Primary herpetic gingivostomatitis in a 4-year-old male

6a-6c). The lesions are not painful and are nonpruritic.¹³⁻¹⁵

The diagnosis of HFMD is usually clinical. In some severe cases or in immunocompromised patients, detection of the virus by immune techniques is necessary. HFMD does not have a specific antiviral treatment. The condition is generally self-limiting and resolves in seven to 10 days. The treatment is primarily supportive. Pain and fever can be managed with acetaminophen. It is important to make sure that the patient is well hydrated.¹³⁻¹⁵

DNA viruses

Primary herpetic gingivostomatitis: Herpetic gingivostomatitis (**figures 7a, 7b**) is an infection caused by the herpes simplex virus (HSV). HSV is a double-stranded DNA virus categorized into two types: HSV-1 and HSV-2. HSV-1 is predominantly responsible for oral, facial, and ocular infections whereas HSV-2 is responsible for most genital and cutaneous lower body herpetic lesions. Both HSV-1 and HSV-2 can be the cause of herpetic gingivostomatitis, although HSV-1 is the source of infection in approximately 90% of cases.

Primary herpetic stomatitis presents as small sores, usually located in the nonkeratinized mucosa. Generalized marginal gingivitis is also a key clinical feature that appears together with the small sores. Fever and neck lymphadenopathy can be part of the disease spectrum. Herpetic gingivostomatitis infections can present as acute or recurrent. Acute infection refers to the first invasion of the virus, and recurrent is when reactivation of the latent virus occurs. Acute herpetic gingivostomatitis primarily occurs in children, particularly in those under the age of six.¹²⁻¹⁶

On external surfaces, the virus is short lived; however, it is extremely contagious. Most people acquire the virus via direct contact. It can enter the body by disrupting the integrity of skin or mucous membranes or can enter via infected secretions such as saliva. The virus replicates once it has penetrated the epithelial cell, and then it travels to the corresponding nerve ganglion (e.g.,

trigeminal ganglion) via sensory nerve endings. At the nerve ganglion, the virus enters a latent phase and remains dormant until it is reactivated. Reactivation can be spontaneous or stimulated by a number of factors such as reinfection by direct effect of stimuli, immunosuppression, ultraviolet light, febrile illnesses, and stress. Treatment includes fluid intake, good oral hygiene, gentle debridement of the mouth, and oral acyclovir. In healthy individuals, the lesions heal spontaneously in seven to 14 days without scarring.¹²⁻¹⁶

Common soft-tissue lesions in children

Lingual epidermoid cyst: Epidermoid cysts are developmental lesions that are lined with simple squamous epithelium with a fibrous wall and no attached structures. They are uncommon lesions of unclear etiology and are rarely seen in

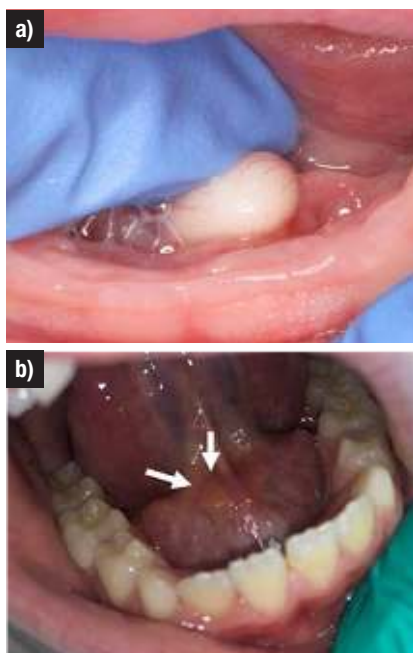


FIGURE 8: Lingual epidermoid cyst in (a) a 2-month-old male; (b) an 8-year-old male

infants. They are usually solitary lesions. The lesions can be on the tongue, hard palate, or floor of the mouth. It is suggested that epidermoid cysts are derived from epithelial remains from the closure process of the first and second branchial arches. From a clinical standpoint, these lesions are characterized by slow growth,

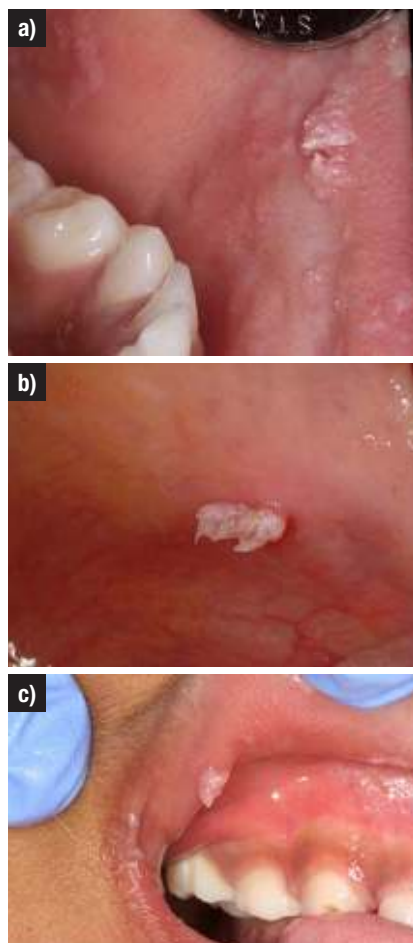


FIGURE 9: Squamous papilloma (a) buccal mucosa in a 7-year-old male; (b) soft palate in a 4-year-old female; (c) upper lip in a 6-year-old female.

yellow color, and soft consistency with palpation (**figures 8a, 8b**). The treatment is surgical excision and histopathological analysis.¹⁴⁻¹⁷

Squamous papilloma: Squamous papilloma is a benign proliferation of stratified squamous epithelium. The lesion is induced by human papillomavirus (HPV). The exact mode of transmission is unknown. This lesion can occur anywhere in the oral cavity; however, it is more common in the palate, lateral borders of the tongue, and mucosal surface of the lips. The lesion is usually solitary and there is no difference in the prevalence of the lesion in boys versus girls. Squamous papilloma can be recognized by its small fingerlike projections, resulting in an exophytic lesion with a rough or cauliflowerlike verrucous surface (**figures 9a-9c**). Squamous papilloma

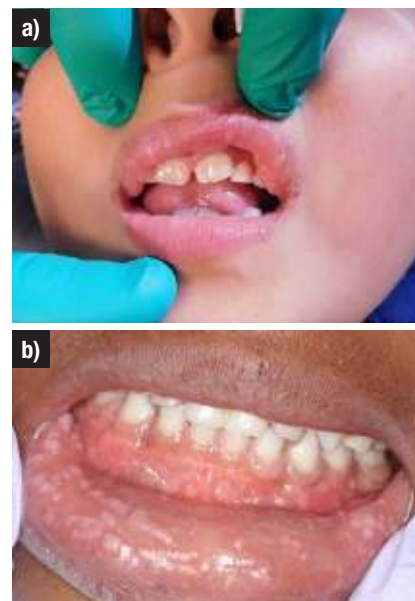


FIGURE 10: Focal epithelial hyperplasia (Heck's disease) in (a) a 7-year-old female; (b) a 5-year-old male

lesions are thought to be induced by HPV 6 or HPV 11. The indicated treatment is surgical excision, which occurs during the excisional biopsy.⁶

Focal epithelial hyperplasia (Heck's disease): Focal epithelial hyperplasia (FEH) or Heck's disease is a rare infection of the oral mucosa associated with HPV. The lesion is benign and typically associated with the HPV subtypes 13 or 32. A genetic predisposition has been proposed as a risk factor. A site-specific predilection for keratinized and nonkeratinized surfaces has been observed in these two types of HPV. The disease prevalence is associated with different geographical areas of the world. Most of the cases published have described this condition in Northern Canada and South and Central America. FEH occurs more often in children without any gender predilection. The condition is characterized by the presence of multiple small papules or nodules in the oral cavity (**figures 10a, 10b**). The most common places in the oral cavity are the lips, gingiva, and palate.¹⁷⁻²⁰

A diagnosis of FEH requires a biopsy. Differential diagnosis includes inflammatory fibrous hyperplasia, inflammatory papillary hyperplasia, verruciform xanthoma, verrucous carcinoma, condyloma acuminatum,

and focal hyperplasia syndrome. From a histopathology perspective, FEH presents as focal parakeratosis, hyperkeratosis, acanthosis, verrucous proliferation, marked papillomatosis, hyperplasia of basal cells, isolated perinuclear cellular vacuolization (koilocytosis), cellular binucleation, and nuclear irregularities. The subtype of HPV is usually detected with the use of polymerase chain reaction (PCR).¹⁷⁻²⁰

FEH usually requires no treatment, except in some cases when the lesions are constantly traumatized or for esthetic concerns. Several treatment options have been proposed for FEH, including cryotherapy, electrocoagulation, treatment with carbon dioxide laser, or systemic treatment with interferon alpha or topical treatment with interferon beta and retinoic acid.¹⁷⁻²⁰

Fibroma: Fibroma is one of the most common soft tissue benign lesions of the



FIGURE 11: Fibroma in a 15-year-old male

oral cavity. From a histology perspective, these small masses represent hyperplasia rather than a true neoplasm. Fibromas are the most frequent benign lesion of the oral cavity, accounting for nearly 50% of all benign lesions of the oral cavity (**figure 11**). Fibromas are also known as local irritation fibromas or reactive fibromas. Fibromas are slightly more common in females, and they can occur at any age. The most accepted etiology is chronic irritation or trauma. The lesions are usually less than 1 centimeter in diameter. The most common places in the oral cavity are the buccal mucosa, lips, and tongue. Treatment is surgical excision, and the prognosis is excellent.²¹

Giant cell fibroma: The giant cell fibroma (**figure 12**) is a fibrous tumor that, unlike the traumatic fibroma, is probably not related to chronic trauma. However, the clinical appearance of both benign tumors is very similar. Typically, the giant cell fibroma is asymptomatic and represents 2% to 5% of all oral fibrous proliferations submitted for biopsy. A common differential diagnosis



FIGURE 12: Giant cell fibroma in a 4-year-old female

is papilloma. Compared with traumatic fibroma, the lesion occurs at a younger age. There is a slight female predilection. The mandibular gingiva is affected twice as often as the maxillary gingiva. The palate and tongue are also common places. From a histopathology perspective, the hallmark is the presence of fibroblasts within the superficial connective tissue. The treatment is conservative surgical excision.²¹

Pyogenic granuloma: Pyogenic granuloma is an inflammatory hyperplasia. Pyogenic granuloma is an inaccurate term, because the lesion is unrelated to infection and, based on histology, does not show the presence of granuloma. Pyogenic granuloma is a reactive tumorlike lesion that arises in response to different stimuli, such as chronic, low-grade local irritation or trauma. Hormonal factors also have been associated with the presence of this condition. Approximately one-third of the lesions occur after trauma, so a history of trauma before development of the lesion is not unusual, especially for extragingival pyogenic granulomas. Poor oral hygiene may be a precipitating factor in some cases.^{22,23}

Clinically, pyogenic granuloma is a smooth or lobulated exophytic lesion

that presents as small, red erythematous papules on a pedunculated or sessile base, which is usually hemorrhagic and compressible (**figures 13a, 13b**). The size varies from a few millimeters to several centimeters. Pyogenic granulomas typically grow fast, and they reach full size within weeks or months. It is very unusual for the lesion to cause bone changes. The lesion is usually asymptomatic, and the

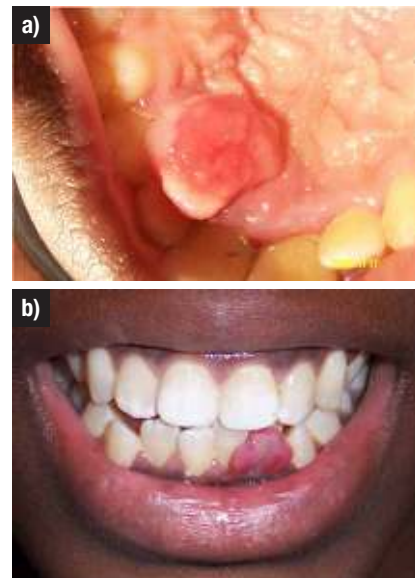


FIGURE 13: Pyogenic granuloma in a (a) 5-year-old male; (b) 10-year-old male

surface is ulcerable and friable. From the histopathology examination, pyogenic granulomas show a highly vascular proliferation that resembles granulation tissue. Numerous small and large channels are formed and filled with red blood cells and lined by flat endothelial cells.^{22,23}

The differential diagnosis includes peripheral giant cell granuloma, peripheral ossifying fibroma, hemangioma, hyperplastic gingival inflammation, and malignant tumor. Peripheral giant cell granuloma is an exophytic lesion that is seen exclusively in the gingiva, but clinically it is very similar to pyogenic granuloma.^{22,23}

The treatment of pyogenic granuloma is excisional biopsy, except when the procedure would produce marked deformity. After excision, recurrence occurs in approximately 10% of the cases. In some cases, reexcision is necessary.^{22,23}

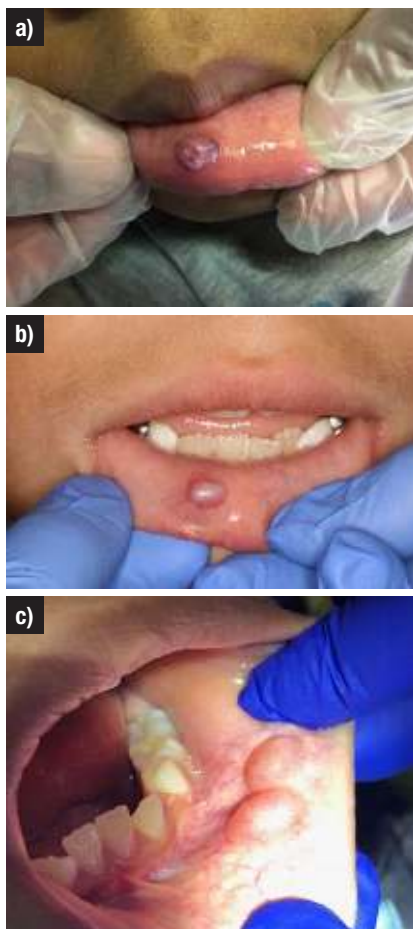


FIGURE 14: Mucocela in (a) an 8-year-old female; (b) a 7-year-old male, (c) an 8-year-old male presents with two mucocelae in proximity located at the lower lip.

Mucocela: The mucocela is a lesion commonly seen in the oral cavity. Mucocelae are probably the most common disease of the minor salivary glands. Mucocelae affect both genders in all age groups with a peak incidence between 10 and 30 years. Mucocelae are usually asymptomatic, so patients frequently do not seek medical treatment. Mucocelae are cavities filled with mucus and lined by epithelium or covered by granular tissue. They are usually caused by the extravasation of mucus followed by trauma to the duct of the salivary gland. The lower lip is the most common site for mucocelae. Approximately 60% to 80% are located on the lower lip. Other places in the oral cavity are the cheek and ventral surface of the tongue. Clinically, mucocelae present as soft, smooth, painless swellings ranging from deep blue

to the normal color of the oral mucosa (**figures 14a-14c**). Mucocelae can cause interference with speech, mastication, and swallowing.^{24,25}

The treatment for mucocelae is surgical excision. Cryosurgery and laser have



FIGURE 15: Eruption cyst in a 10-month-old female

also been reported as alternatives for the treatment of mucocelae. The rate of recurrence is approximately 5%.^{24,25}

Eruption cyst: The eruption cyst (or in some textbooks, eruption hematoma) develops from separation of the dental follicle from around the crown of an erupting tooth. It is a soft swelling in the gingiva overlying the crown of an erupting primary or permanent tooth (**figure 15**). Most cases are seen in children under the age of 10. The lesion is most associated with the central permanent incisors or central primary molars. The specimen observed under the microscope shows oral epithelium in the superior aspect with variable cell infiltrate. Treatment is usually not required because the eruption cyst ruptures spontaneously.²⁶

Conclusion

This brief review covers some of the most common oral soft-tissue lesions that can occur in children. It is critical to remember that the final diagnosis is based on histopathological analysis. A detailed clinical exam and history (when available) are critical to determining a differential diagnosis.

References

- Diaz de Ortiz LE, Mendez MD. Epstein pearls. StatPearls. Updated July 22, 2021.
- Rangaswamy S, Singh M, Yumnum R. True median palatal cyst; a rare case report. *J Oral Maxillofac Pathol.* 2018;22(2):286.
- Kumar RM, Bavle RM, Umashankar RM, Sharma R. Congenital epulis of the newborn. *J Oral Maxillofac Pathol.* 2015;19(3):407.
- Sharma D, Murki S, Pratap T, Leelakumar V. Twin congenital epulis in the alveolar ridge of the maxilla and mandible in a newborn: a rare and interesting case. *BMJ Case Rep.* 2014.
- Aparna HG, Jayanth BS, Shashidara R, Jaishankar P. Congenital epulis in a newborn: a case report, immunoprofiling and review of literature. *Ethiop J Health Sci.* 2014;24(4):359-362.
- Hurnanen J, Sillanpää M, Mattila M-L, et al. Staircase-pattern neonatal line in human deciduous teeth is associated with tooth type. *Arch Oral Biol.* 2019;104:1-6.
- Adekoya-Sofowora CA. Natal and neonatal teeth: a review. *Niger Postgrad Med J.* 2008;15(1):38-41.
- Bankole OO, Lawal FB, Ibiyemi O. Development of a tool for dispelling myths associated with natal/neonatal teeth: "Adunni" a health education video in a native Nigerian language. *Ann Ib Postgrad Med.* 2017;15(2):137-141.
- Barfiwala DR. Natal and neonatal teeth: a review of 50 cases. *J Indian Soc Pedod Prev Dent.* 1996;14(1):21-23.
- Chang YK, Chen KH, Chen KT. Hand, foot and mouth disease and herpangina caused by enterovirus A71 infections: a review of enterovirus A71 molecular epidemiology, pathogenesis, and current vaccine development. *Rev Inst Med Trop Sao Paulo.* 2018;60:e70.
- Kim B, Moon S, Bae GR, et al. Factors associated with severe neurologic complications in patients with either hand, foot and mouth disease-mouth disease or herpangina: A nationwide observational study in South Korea, 2009-2014. *PLoS One.* 2018;13(8):e0201726.
- Takechi M, Fukushima W, Nakano T, et al. Nationwide survey of pediatric inpatients with hand, foot, and mouth disease, herpangina, and associated complications during an epidemic period in Japan: estimated number of hospitalized patients and factors associated with severe cases. *J Epidemiol.* 2019;29(9):354-362.
- Kimmis BD, Downing C, Tyring S. Hand, foot and mouth disease-and-mouth disease caused by Coxsackievirus A6 on the rise. *Cutis.* 2018;102(5):353-356.
- Chadsuthi S, Wichapeng S. The modelling of hand, foot, and mouth disease in contaminated environments in Bangkok, Thailand. *Comput Math Methods Med.* 2018;5168931.
- Anh NT, Nhu LNT, Van HMT, et al. Emerging Coxsackievirus A6 causing hand, foot and mouth disease, Vietnam. *Emerg Infect Dis.* 2018;24(4):654-662.
- Patel P, Hemond M, Silkiss RZ. Atypical presentation of squamous papilloma. *Ophthalmic Plast Reconstr Surg.* 2018;34(5):e179.
- Mohammed IA, Prabhu SR. Focal epithelial hyperplasia (Hecks' disease) in a Sudanese boy. Report of a case and review of literature. *Odontostomatol Trop.* 1983;6(2):85-90.
- Mendez-Flores S, Esquivel-Pedraza L, Hernández-Salazar A, et al. Focal epithelial hyperplasia in adult patients with HIV infection: clearance with topical Imiquimod. *Skinmed.* 2016;14(5):395-397.

19. de Castro LA, de Castro JG, da Cruz AD, et al. Focal epithelial hyperplasia (Heck's disease) in a 57-year-old Brazilian patient: a case report and literature review. *J Clin Med Res.* 2016;8(4):346-350.
20. Ghalayani P, Tavakoli P, Eftekhari M, Haghighi MA. Oral focal epithelial hyperplasia: report of three cases. *Turk Patoloji Derg.* 2015;31(1):60-63.
21. Neville BW, Damm DD, White DK. *Color Atlas of Clinical Oral Pathology.* 2nd ed. Williams & Wilkins; 1999:xi, 488.
22. Damm DD. Oral pathology. *Oral Surg Oral Med Oral Pathol.* 1994;77(1):4-5.
23. Said J, Hoda ST, Muhlrads S. Pyogenic granuloma: a tumor that mimics infection. *JAAPA.* 2018;31(2):27-29.
24. Sinha R, Sarkar S, Khaitan T, et al. Nonsurgical management of oral mucocele by intralesional corticosteroid therapy. *Int J Dent.* 2016;2896748.
25. Jones AC, McGuff HS. Oral and maxillofacial pathology case of the month. Mucous extravasation phenomenon (mucocele). *Tex Dent J.* 2011;128(11):1204, 1208-1209.
26. Nagaveni NB, Umashankara KV, Radhika NB, Satisha TSM. Eruption cyst: a literature review and four case reports. *Indian J Dent Res.* 2011;22(1):148-151.



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QUESTIONS

1. Which of the following is true about the palatal cyst of the newborn?
 - A. Very common
 - B. No treatment is indicated
 - C. Found on the palate
 - D. All are true
2. All the following are true about natal teeth except:
 - A. Erupt within the first 30 days of life
 - B. They are supernumerary teeth
 - C. Verify vitamin K before extraction
 - D. Not associated with systemic conditions
3. Focal epithelial hyperplasia (Heck's disease) is associated with which of the following subtypes of human papillomavirus?
 - A. 20
 - B. 32
 - C. 12
 - D. 18
4. Which of the following options is true regarding the giant cell fibroma?
 - A. It is related to chronic trauma.
 - B. There is a slight male predilection.
 - C. The mandibular gingiva is often more affected than the maxillary gingiva.
 - D. The presence of epithelial cells is a hallmark of the histopathology.
5. Which of the following options is true regarding pyogenic granuloma?
 - A. Usually asymptomatic
 - B. Most common place is the upper lip
 - C. Related to infection
 - D. None of the above
6. The most common differential diagnoses for pyogenic granulomas are:
 - A. Fibroma and mucocele
 - B. Mucocele and giant cell fibroma
 - C. Papilloma and fibroma
 - D. None of the above
7. The eruption cyst develops because of:
 - A. Trauma over the eruption area
 - B. Separation of the dental follicle around the crown
 - C. Separation of the dental follicle from the root
 - D. None of the above
8. Which of the following options is true regarding congenital epulis of the newborn?
 - A. Very common benign tumor in newborns
 - B. Most common place is the anterior mandible
 - C. No treatment is indicated
 - D. More common in females than males
9. Herpangina is caused by:
 - A. Herpesvirus
 - B. Epstein-Barr virus
 - C. Coxsackievirus
 - D. Influenza virus
10. Which of the following options is true regarding the lingual epidermoid cyst?
 - A. Very common lesion
 - B. Usually occur as multiple lesions
 - C. Most common place is the floor of the mouth
 - D. No treatment is indicated
11. All the following are clinical characteristics of mucoceles, except:
 - A. Can cause interference with speech
 - B. Hard palate is the most common place
 - C. Dome shaped and filled with mucus
 - D. Painless
12. Chronic irritation and trauma are probably the most likely etiology of:
 - A. Giant cell fibroma
 - B. Fibromas
 - C. Mucoceles
 - D. Papilloma

Use this page to review questions and answers. Visit dentalacademyofce.com and sign in. If you have not previously purchased the course, select it from the Online Courses listing and complete your online purchase. Once purchased, the exam will be added to your Archives page, where a Take Exam link will be provided. Click on the Take Exam link, complete all the program questions, and submit your answers. An immediate grade report will be provided. Upon receiving a grade of 70% or higher, your verification form will be provided immediately for viewing and printing. Verification forms can be viewed and printed at any time in the future by visiting the site and returning to your Archives page.

QUESTIONS

13. Herpesvirus is a type of:
- DNA virus
 - RNA virus
 - Picornavirus
 - None of the above
14. Papillomavirus is a type of:
- DNA virus
 - RNA virus
 - Picornavirus
 - None of the above
15. Coxsackievirus is a type of:
- DNA virus
 - RNA virus
 - Picornavirus
 - None of the above
16. All the following are clinical features of intraoral herpes, except:
- Marginal gingivitis
 - Prodromal symptoms
 - Initial infection is in children between 8 and 10 years old
 - Very contagious
17. Hand, foot and mouth disease is caused by:
- Herpesvirus
 - Coxsackievirus
 - Influenza virus
 - None of the above
18. Which of the following options is true regarding squamous papilloma?
- Benign proliferation of stratified epithelium
 - Mode of transmission is unknown.
 - The lesion is often solitary.
 - All are true.
19. Which of the following options is true regarding focal epithelial hyperplasia?
- No treatment is usually required.
 - There are multiple small papules and nodules.
 - It is common in Central America.
 - All are true.
20. From the histology perspective, pyogenic granuloma is characterized by:
- High vascular proliferation
 - Granulomas
 - Adipocytes
 - Both A and B
21. The recurrence of pyogenic granulomas after complete excision of the lesion is approximately:
- 20%
 - 50%
 - 60%
 - 10%
22. The recurrence of congenital epulis of the newborn after complete excision is approximately:
- 20%
 - 10%
 - 40%
 - None of the above
23. The most appropriate treatment for giant cell fibroma is:
- No treatment indicated
 - Surgical excision
 - Cryotherapy
 - None of the above
24. The recurrence of mucoceles after complete excision of the lesion is approximately:
- 20%
 - 50%
 - 60%
 - 5%
25. The most common place in the oral cavity for pyogenic granuloma is:
- Tongue
 - Gingiva
 - Soft palate
 - Hard palate
26. Neonatal molars are:
- Very common
 - Usually associated with systemic conditions
 - Usually supernumeraries
 - None of the above
27. Which of the following statements is true regarding hand, foot and mouth disease?
- More common in winter
 - More common in adolescents
 - A and B are correct
 - None of the above
28. Which of the following is the most common place for ulcers associated with herpangina?
- Tongue
 - Gingiva
 - Floor of the mouth
 - None of the above
29. The most common place for ulcers in patients with herpangina is:
- Hard palate
 - Gums
 - Floor of the mouth
 - Soft palate
30. The specific subtype of HPV associated with Heck's disease is:
- HPV 6
 - HPV 32
 - HPV 10
 - None of the above

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EXPIRATION DATE:	JULY 2025

ANSWER SHEET

Soft-tissue lesions in the oral cavity of the pediatric patient: A review

NAME: _____ TITLE: _____ SPECIALTY: _____

ADDRESS: _____ EMAIL: _____ AGD MEMBER ID (IF APPLIES): _____

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Educational Objectives

1. Recognize the importance of a differential diagnosis based on the clinical presentation of oral lesions in the pediatric patient.
2. Describe the most common soft-tissue lesions found in infants, children, and adolescents.
3. Provide the most updated treatment for common oral conditions besides gingivitis and dental caries.

Course Evaluation

1. Were the individual course objectives met?

Objective #1: Yes No Objective #2: Yes No Objective #3: Yes No

Please evaluate this course by responding to the following statements, using a scale of Excellent = 5 to Poor = 0.

- | | | | | | | |
|---|-----|----|---|---|---|---|
| 2. To what extent were the course objectives accomplished overall? | 5 | 4 | 3 | 2 | 1 | 0 |
| 3. Please rate your personal mastery of the course objectives. | 5 | 4 | 3 | 2 | 1 | 0 |
| 4. How would you rate the objectives and educational methods? | 5 | 4 | 3 | 2 | 1 | 0 |
| 5. How do you rate the author's grasp of the topic? | 5 | 4 | 3 | 2 | 1 | 0 |
| 6. Please rate the author's effectiveness. | 5 | 4 | 3 | 2 | 1 | 0 |
| 7. Was the overall administration of the course effective? | 5 | 4 | 3 | 2 | 1 | 0 |
| 8. Please rate the usefulness and clinical applicability of this course. | 5 | 4 | 3 | 2 | 1 | 0 |
| 9. Please rate the usefulness of the references. | 5 | 4 | 3 | 2 | 1 | 0 |
| 10. Do you feel that the references were adequate? | Yes | No | | | | |
| 11. Would you take a similar course on a different topic? | Yes | No | | | | |
| 12. If any of the continuing education questions were unclear or ambiguous, please list them. | | | | | | |

13. Was there any subject matter you found confusing? Please describe.

14. How long did it take you to complete this course?

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| 5. (A) (B) (C) (D) | 20. (A) (B) (C) (D) |
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| 8. (A) (B) (C) (D) | 23. (A) (B) (C) (D) |
| 9. (A) (B) (C) (D) | 24. (A) (B) (C) (D) |
| 10. (A) (B) (C) (D) | 25. (A) (B) (C) (D) |
| 11. (A) (B) (C) (D) | 26. (A) (B) (C) (D) |
| 12. (A) (B) (C) (D) | 27. (A) (B) (C) (D) |
| 13. (A) (B) (C) (D) | 28. (A) (B) (C) (D) |
| 14. (A) (B) (C) (D) | 29. (A) (B) (C) (D) |
| 15. (A) (B) (C) (D) | 30. (A) (B) (C) (D) |

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