

ORAL DISEASES IN ADOLESCENTS AND THEIR PREVENTION

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Abstract: Adolescence is a critical period characterized by rapid growth and significant physiological changes. During this phase, the oral cavity undergoes considerable transformations, as the permanent dentition is generally completed and the influence of internal and external factors on oral health becomes more pronounced. Diseases of the oral cavity that occur in adolescence hold specific relevance, as they can affect overall health, psychological well-being, self-confidence, and even social adaptation.

Key words: Adolescent oral diseases, dental caries, gingivitis, oral hygiene, periodontal disease, oral mucosal lesions, prevention, oral health education, fluoride, dietary habits.

The oral cavity is not merely a gateway to the digestive system, but a complex ecosystem hosting diverse microbial populations, soft and hard tissues, and dynamic immune defenses. Throughout adolescence, hormonal changes can significantly affect the equilibrium of this ecosystem, rendering it more susceptible to pathological processes. It is essential to address the most prevalent oral diseases in this age group—such as dental caries, gingivitis, periodontitis, and other mucosal lesions—along with their underlying causes and preventive strategies. Dental caries remains the most widespread disease among adolescents. The development of caries is dictated by several interrelated factors, such as the proliferation of acidogenic bacteria, frequent consumption of fermentable carbohydrates, inadequate oral hygiene, and genetic predispositions. During adolescence, dietary habits often change, with an increase in the consumption of sugary drinks and snacks, which adds to the risk. Salivary composition changes in response to hormonal fluctuations, sometimes reducing its buffering capacity and antimicrobial potential, thereby facilitating acid attacks and demineralization of dental tissues. Moreover, a lack of awareness or insufficient motivation to maintain oral hygiene further contributes to the incidence of caries in this population [1].

Next to dental caries, diseases of the gingival and periodontal tissues are particularly common. Gingivitis, the inflammation of the gums, arises due to the accumulation of dental plaque—a structured biofilm that forms on the tooth surface and at the gum line. If not removed through proper brushing and flossing, this biofilm harbors pathogenic microorganisms that elicit an inflammatory response in the adjacent gingival tissue, leading to redness, swelling, and bleeding. Although gingivitis is reversible at this stage, persistent inflammation may progress to periodontitis, which is characterized by the destruction of supporting structures of the teeth—including the periodontal ligament and alveolar bone. This progression is influenced by factors such as genetic susceptibility, hormonal changes, stress, and certain systemic diseases, which are particularly prominent during adolescence. Another group of oral diseases encountered in adolescents includes various mucosal lesions. These can encompass recurrent aphthous stomatitis, angular cheilitis, and acute or chronic infections caused by viruses, bacteria, or fungi. The changes in the immune system during puberty can render adolescents more prone to these conditions. Disruptions in the balance of the oral microbiome, micronutrient deficiencies, endocrine disorders, and fatigue can all contribute to the development of mucosal diseases. Furthermore, habits like smoking or the use of oral piercings—which some adolescents may experiment with—can predispose to injuries, infections, and delayed healing in the oral cavity. Oral hygiene, nutrition, and lifestyle are fundamental determinants of oral health during

adolescence. Proper brushing techniques, the use of fluoridated toothpaste, and regular flossing are essential preventive practices. Adolescents must be educated about the importance of removing dental plaque daily to disrupt the pathogenic biofilm. The regular use of mouth rinses containing antibacterial agents or fluoride may provide additional protection against caries and gingivitis. Since many adolescents tend to neglect dental check-ups, it is crucial to encourage routine dental visits not only for professional cleaning and detection of abnormal changes but also for personalized oral health guidance [2].

Dietary choices significantly influence oral health. Frequent snacking, especially on carbohydrate-rich and sugary foods, promotes the proliferation of caries-causing bacteria and exposes dental tissues to prolonged acid attacks. Adolescents should be guided to limit the consumption of sugar-laden foods and beverages, instead opting for balanced meals with adequate amounts of vitamins, minerals, and fiber. Hydration with water, as opposed to acidic soft drinks and juices, helps maintain the integrity of oral soft tissues and supports the natural cleansing effect of saliva. During adolescence, psycho-social factors also impact oral health behaviors. Peer influence, self-image concerns, and stress may foster unhealthy habits. Some may perceive oral hygiene routines as tedious or unnecessary, particularly when not supported by a positive home or school environment. Educators and health professionals must work together to promote oral health education and establish supportive routines. This collaborative approach nurtures a sense of responsibility and personal investment in maintaining good oral hygiene. Prevention extends beyond the mere mechanical removal of plaque, encompassing fluoride therapies, sealant applications, and the early identification of malocclusion or developmental anomalies of the teeth and jaws. The provision of topical fluoride, whether via toothpaste, gels, or professionally applied varnishes, enhances enamel resistance to acid dissolution and reduces the incidence of caries. Dental sealants, applied to the chewing surfaces of molars and premolars, act as physical barriers against food particles and bacterial colonization in deep grooves. Early orthodontic assessment allows for timely intervention in cases of malalignment or crowding, which can complicate oral hygiene and predispose to periodontal disease [3].

Equally important is the recognition and management of systemic conditions that may manifest in the oral cavity during adolescence. Hormonal changes associated with puberty can intensify pre-existing periodontal issues, and certain chronic conditions—such as diabetes mellitus or immunodeficiency states—may increase susceptibility to infections or delay healing. Health professionals should adopt a holistic approach by considering the broader medical context in the management of oral diseases. Another layer of prevention encompasses education about the dangers of tobacco use, alcohol consumption, and oral piercings, all of which can jeopardize oral and general health. Raising awareness about these risk factors through school-based programs, community outreach, and family involvement can help adolescents make informed choices and foster resilient, health-preserving attitudes. In technological terms, digital platforms enable the dissemination of oral health information in attractive and interactive formats, tailored to the interests and preferences of adolescents. Mobile applications, videos, and social media campaigns can supplement traditional education, motivating adolescents to adopt and sustain healthy practices. However, guidance from parents, caregivers, and dental professionals remains indispensable. The psychological impact of oral diseases during adolescence should not be underestimated. A healthy smile contributes to self-esteem, effective communication, and positive social interactions. Conversely, untreated caries, bad breath, or bleeding gums may incite embarrassment, withdrawal, or bullying, further reinforcing the need for proactive management and prevention [4].

Cultural beliefs and socio-economic status also play roles in the oral health of adolescents. Access to dental care, cultural attitudes towards oral hygiene, and the availability of oral health products determine the extent to which preventive measures are adopted. Building community partnerships, offering school-based dental services, and ensuring affordability can help bridge gaps and promote equity in oral health outcomes [5].

Conclusion:

In summary, the oral cavity of adolescents is uniquely vulnerable to a spectrum of diseases driven by the interplay of biological, behavioral, and environmental factors. The challenges of puberty, changing dietary and hygiene habits, and the influence of peers and family underscore the complexity of maintaining oral health during this pivotal life stage. Prevention must be holistic and multi-faceted, integrating education, behavioral modification, clinical intervention, and support at individual, family, and community levels. Effective oral health promotion in adolescents entails regular and meticulous oral hygiene, sensible dietary habits, timely dental check-ups, professional preventive treatments, and the cultivation of a positive attitude toward oral health. Parents, educators, health professionals, and society as a whole have vital roles to play in empowering adolescents with the knowledge, skills, and motivation necessary to safeguard their oral health both in the present and for the future. Oral health is inextricably linked to systemic health and quality of life. By prioritizing prevention and creating supportive environments, the burden of common oral diseases among adolescents can be significantly reduced. This investment in oral health during adolescence yields substantial benefits—improving not only dental outcomes but also fostering confidence, well-being, and productivity throughout adolescence and beyond.

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