

Exploring the Oral Microflora in Children with Herpetic and Candidal Stomatitis

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Annotation: Herpetic and candidal stomatitis are common infectious diseases affecting the oral mucosa in children. These conditions are frequently associated with significant changes in the composition of the oral microflora. This review highlights current knowledge on the oral microbiota in children, focusing on how it is altered during herpetic and candidal infections. Understanding these microbial shifts is essential for improving prevention, diagnosis, and treatment strategies in pediatric dental care.

Keywords: Oral microflora, herpetic stomatitis, candidal stomatitis, children, oral microbiome, opportunistic infections.

The oral cavity hosts a diverse and dynamic microbial ecosystem, which plays a critical role in maintaining oral and systemic health. In children, this microbiome is still developing and can be easily disrupted by infections, antibiotic use, poor oral hygiene, and immune immaturity. Two of the most frequent infections in pediatric dental practice are herpetic stomatitis (caused by herpes simplex virus type 1) and candidal stomatitis (primarily caused by *Candida albicans*). Both conditions are characterized by inflammation, pain, and lesions in the oral mucosa, and are often associated with microbial imbalance. In healthy children, the oral cavity contains a balanced mix of bacteria, fungi, viruses, and protozoa. Predominant bacterial genera include *Streptococcus* (especially *S. salivarius* and *S. mitis*), *Veillonella*, *Actinomyces*, and *Neisseria*. Fungi, mainly *Candida* species, are present in low numbers and are usually non-pathogenic. This balance is maintained by host immunity, salivary factors, and microbial interactions. Herpetic stomatitis leads to viral-induced damage of the oral mucosa, which facilitates secondary bacterial or fungal colonization. Several studies have demonstrated that during acute herpetic episodes:

Opportunistic bacteria such as *Staphylococcus aureus*, *Streptococcus mutans*, and *Fusobacterium* species increase in number.

Candida albicans may also proliferate due to mucosal barrier breakdown.

Commensal bacterial diversity often decreases, leading to dysbiosis.

These changes contribute to prolonged healing and a higher risk of recurrence. Oral candidiasis is a fungal infection, often seen in infants, immunocompromised children, and those using antibiotics or corticosteroids. The primary pathogen, *Candida albicans*, can form biofilms on the mucosal surface and prosthetic devices. During infection:

The fungal load increases dramatically.

There is often a co-infection with bacteria like *Streptococcus mutans* or *Lactobacillus spp.*, which can enhance fungal pathogenicity

Salivary protective components (e.g., IgA, lysozyme) may be reduced, weakening microbial control.

Diagnostic and Therapeutic Implications. Routine microbiological examination of oral swabs can aid in identifying causative agents and guiding targeted therapy. Management of herpetic and candidal stomatitis may benefit from:

Antiviral or antifungal medications, respectively.

Probiotics to restore microbial balance.

Improved oral hygiene practices and dietary modifications.

Recent studies suggest that adjunctive therapies such as antiseptic mouthwashes and photodynamic therapy may also help normalize the oral microflora.

Literature

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