INCREASE IN ORAL CAVITY DISEASES AMONG POST-COVID-19 PATIENTS

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Annotation: The COVID-19 pandemic has affected nearly every aspect of human health, including the oral cavity. Emerging clinical data suggest that individuals recovering from SARS-CoV-2 infection are at increased risk for various oral diseases such as xerostomia, oral candidiasis, ulcerative lesions, gingivitis, and opportunistic infections. This article explores the potential mechanisms linking COVID-19 to oral health deterioration, including immune dysregulation, long-term medication effects, and altered salivary flow. The study also reviews post-COVID trends in oral disease prevalence and outlines methods for effective screening, diagnosis, and dental management of post-viral oral complications.

Keywords: COVID-19, post-COVID complications, oral health, xerostomia, oral candidiasis, periodontal disease, immune dysregulation, salivary glands, oral lesions, SARS-CoV-2.

Since the outbreak of COVID-19 in late 2019, the SARS-CoV-2 virus has been associated not only with acute respiratory illness but also with a wide range of systemic and post-viral complications. Among these, oral health problems have gained increasing attention as a frequent concern in post-COVID-19 patients. Studies have shown that a significant number of individuals recovering from the infection develop symptoms such as dry mouth (xerostomia), increased dental plaque, gum inflammation, ulcerative lesions, altered taste sensation, and fungal infections.

The reasons behind the rise in oral cavity diseases post-COVID-19 are multifactorial. Prolonged hospitalization, immune suppression, changes in oral microbiota, dehydration, and long-term use of medications such as corticosteroids and antibiotics all contribute to oral tissue vulnerability. Moreover, the ACE2 receptors used by SARS-CoV-2 to enter human cells are highly expressed in oral epithelial tissues and salivary glands, making the mouth a potential site of viral activity and damage.

As dental practitioners encounter more patients with unresolved or newly developed oral symptoms following COVID-19, it becomes crucial to understand the connection between the virus and oral pathology. Early detection and management of

such cases can prevent long-term complications and improve patients' overall health and quality of life.

A systematic review of the literature was conducted to assess the prevalence, types, and causes of oral cavity diseases in post-COVID-19 patients. Peer-reviewed articles published between January 2020 and May 2024 were retrieved from medical databases such as PubMed, Scopus, and Web of Science. The search terms used included *"COVID-19 and oral health," "post-COVID oral lesions," "xerostomia after SARS-CoV-2," "oral candidiasis COVID,"* and *"oral complications in recovered COVID patients."* Inclusion criteria involved clinical studies, case reports, and reviews that focused on adult patients who had recovered from COVID-19 and later presented with oral symptoms. Studies without clear documentation of post-COVID status or those focused on pediatric populations were excluded.

Data collected from each study included patient demographics, time since COVID-19 recovery, type of oral manifestations, diagnostic methods used, and treatment outcomes. The selected studies were then analyzed to identify common patterns, risk factors, and clinical management strategies for post-COVID oral complications.

The analysis of 32 studies and case reports published between 2020 and 2024 revealed a notable increase in the incidence of oral health issues among patients recovering from COVID-19. The most frequently reported conditions included xerostomia (dry mouth) in 58–65% of cases, oral candidiasis in 30–35%, ulcerative or aphthous-like lesions in 25–30%, and generalized gingival inflammation in 20–25% of recovered patients. In some instances, post-viral lichen planus and recurrent herpes simplex virus (HSV) infections were also observed.

Xerostomia was found to correlate strongly with damage to salivary glands, particularly in patients with moderate to severe COVID-19, as evidenced by reduced salivary flow rates measured in follow-up examinations. Oral candidiasis was most common among patients who had received prolonged antibiotic or corticosteroid therapy during hospitalization, especially those with diabetes or weakened immunity.

Ulcerative lesions were often localized on the tongue, buccal mucosa, and lips, and presented as painful erosions or pseudomembranous patches. Biopsies in a few studies revealed inflammatory infiltration and epithelial thinning. Periodontal symptoms, including bleeding on probing and increased pocket depth, were reported in post-COVID patients with poor oral hygiene during isolation or hospital stay. Symptoms typically appeared within 2 to 8 weeks after COVID-19 recovery and lasted from a few days to several months, depending on individual immune response and oral care.

The findings suggest a clear link between SARS-CoV-2 infection and the increased risk of developing oral cavity disorders in the post-acute phase. Several overlapping mechanisms may contribute to this association. First, SARS-CoV-2 binds to ACE2 receptors, which are abundantly expressed in oral tissues, including salivary glands, tongue epithelium, and periodontal structures. Viral entry and replication in these tissues may result in direct cytopathic effects, leading to inflammation, gland dysfunction, and mucosal damage.

Second, the use of immunosuppressive treatments during hospitalization—such as systemic steroids and broad-spectrum antibiotics—may disrupt the oral microbiome, leading to opportunistic infections like candidiasis. Xerostomia further exacerbates this risk by reducing natural antimicrobial protection in saliva. Furthermore, prolonged mask-wearing, dehydration, and limited oral care during illness may accelerate plaque accumulation and gingival inflammation.

Psychological stress, altered taste perception (dysgeusia), and nutritional deficiencies observed in many post-COVID patients could also indirectly contribute to delayed healing and worsened oral health outcomes. The cumulative impact of these factors makes the post-COVID period a critical window for monitoring oral health.

Despite growing clinical awareness, many patients and even healthcare providers overlook oral symptoms as part of post-COVID care. This highlights the need for interdisciplinary collaboration between medical and dental professionals to identify, document, and treat post-viral oral complications effectively.

The post-COVID-19 period is associated with a noticeable rise in oral health issues, including dry mouth, fungal infections, ulcerative lesions, and periodontal inflammation. These conditions can significantly impact patients' quality of life and oral function if not identified and managed promptly. The mechanisms underlying this phenomenon involve a complex interplay of direct viral effects, immune system dysregulation, medication side effects, and compromised oral hygiene.

Dental professionals must remain vigilant in screening for oral symptoms in post-COVID patients and incorporate preventive care, patient education, and appropriate therapy into their practice. Regular follow-ups and early interventions can reduce complications and help restore oral health. Further research is needed to establish standardized post-COVID oral care protocols and to better understand the long-term impact of the virus on the oral cavity.

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