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Short Report

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The SARS-CoV-2 manifestations within the oral cavity

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Short report

The COVID-19 pandemic that began on 31 December 2019 is considered as the world's most deadly infectious disease of the century. COVID-19 is predominantly a respiratory disease, but it can really affect any organ in the body. This capability depends on several factors such as the method that is utilised by the virus for cell entry. The virus binds to Angiotens in Converting Enzyme 2 (ACE2) receptors which are present in many cell types and tissues including salivary glands and oral mucosal epithelia [1].

It is therefore not surprising that several tissues in the oral cavity could be a target of SARS-CoV-2 infection. Patients with COVID-19 show wide range of oral manifestations, that has become a major concern for the dental and oral health specialists. The majority of oral health conditions in patients with COVID-19 are: aphthous-like ulcers, herpes-like lesions, fungal infections, glossitis/depapillation/geographic tongue, parotitis and angular cheilitis. These signs and symptoms can be detected in different anatomical subsites of the oral cavity such as oral mucosa, tongue, palate, gingiva and lips [1]. Brandão et al. have shown that older patients with severe form of disease tend to have more severe and widespread oral lesions [2].

In addition to the above mentioned symptoms, taste disorders and hyposalivation are two main types of mouth problems in COVID-19. Therefore, it has been suggested that the triad xerostomia, taste dysfunction and lesions of oral mucosal can be considered as a pathognomonic findings in SARS-CoV-2 infection. These information also indicate that study of oral manifestations will contribute to the early diagnosis of infected patients and successful treatment.

Several pathogenic mechanisms have been proposed to explain the putative association between oral symptoms and the SARS-CoV-2 infection. Although there is controversy surrounding the pathogenesis of oral lesions in patients with COVID-19, there is ample empirical evidence to support a direct role of the virus in the induction and development of virus oral manifestations. For instance, it has been indicated that SARS-CoV-2 is capable of infecting and replicating in the cells of the oral regions such as oral mucosa and taste buds, leading to painful oral ulcers and the alteration of the sense of taste. High viral load in the saliva and nasal secretion provides further reason for the direct impact of the virus on the oral tissues [3].

In addition to direct adverse consequences, oral lesions evidenced in this disease may be explained by indirect mechanisms such as poor oral hygiene, opportunistic pathogens, stress, some adverse drug reactions, vasculitis and hyper-inflammatory response that occur after COVID-19 infection [4].

SARS-CoV-2 may begin an overt immune response that could contribute to the exacerbation of oral inflammation. Uncontrolled production of inflammatory mediators including cy-

tokines and their pleiotropic effects on local cells on the one hand and their capacity to facilitate the infiltration of innate and adaptive immune cells on the other hand amplify the immune response. Oral manifestations may also be associated with systemic immune dysregulation. Several evidence indicates that systemic diseases in some patients with COVID-19 may exacerbate oral diseases and their manifestation [5].

Altogether, infection of the mouth and oral cavity can be caused by SARS-CoV-2. The clinical manifestations of this infection are diverse and complex. However, the exact role of virus in the induction or development of oral lesions remains unclear. So, more clinical studies with larger sample sizes and accurate patient's medical history are needed to clarify effects of COVID-19 on the oral cavity.

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