Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to Editors

Is the gingival sulcus a potential niche for SARS-Corona virus-2?

Respiratory pathogens have the potential for oral colonization, especially among institutionalized, elderly and debilitated patients [1–4]. It has also been documented that microorganisms released from saliva can get aspirated into the respiratory tract causing or aggravating respiratory infections [5,6]. Gingival sulcus, a well-established microbial niche has been associated with respiratory diseases [2,7]. Enzymes such as mannosidase, fucosidase, hexosaminidase, and sialidase released by the gingival sulcus microbes, can modulate the respiratory surfaces, promoting microbial colonization [2]. These gingival microbes can also cause loss of fibronectin from oral, oropharyngeal and respiratory mucosa, increasing adherence of microorganisms [2,8]. Oral inflammatory molecules and peripheral mononuclear cells have also been shown to modulate the respiratory epithelium thereby promoting microbial colonization [2].

Gingival sulcus has also been implicated as a favored site for the proliferation of pathogenic viruses like Human papillomavirus and Human herpesviruses 6 and 7 [9–12]. Symbiotic relationship between gingival microbes could be a potential reason for the high viral proliferation in the gingival sulcus. It is presumed that the virus modulates the local environment aiding in the retention of bacterial colonies, which in turn aid in triggering the reactivation of viruses [13].

A previous study has suggested that the SARS-CoV RNA has been reported to be present in the saliva even before pulmonary changes were detected [14]. This underlines the potentially strong correlation between viral presence in the oral cavity and the development of respiratory pathologies. Angiotensin-converting enzyme 2 (ACE2), the major receptor for the SARS-CoV2 virus is present in many tissues in the body, including the epithelium of the salivary glands and gingiva [15,16]. Thus, considering the conducive symbiotic local microbial environment, and the presence of ACE2 inhibitors, it can be hypothesized that the gingival sulcus is a potential ecological niche for the SARS-CoV-2 virus.

A recent publication has reported salivary SARS-CoV-2 positivity in a patient who was in convalescence [17]. In such cases, it is plausible that the positive result could be at least partly be attributed to the SARS-CoV-2 viral load in the gingival crevicular fluid. To confirm the hypothesis, future studies must assess the presence of SARS-CoV-2 in the gingival crevicular fluid and salivary samples of COVID-19 patients both during the disease progression and post-recovery. It is plausible that even in patients in convalescence the SARS-CoV-2 could be detected in the saliva/gingival fluid.

The CDC guidelines highlight the precautions to be taken regarding aerosols generated during prophylactic procedures for cleaning gingival crevices [18,19]. The authors fully concur with the same but in the light of potential virus colonization in these crevices, we would like to emphasize the need to formulate safe therapeutic strategies to reduce the overall oral SARS-CoV-2 load. Reducing the oral viral load could potentially reduce the risk of viral aspiration on the respiratory epithelium.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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