



## Oral Manifestations and Fungal Infections in COVID-19

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The oral health team, professionals, technicians, dental students and teachers in the courses of Dentistry were not considered as the health workers on the “front line”, during the first six months of living with Coronavirus Disease 2019 in Brazil and other parts of the world.

If there is a greater possible risk, particularly with dental procedures associated with aerosols; on the other hand, we have the oral cavity as a “gateway” for the manifestation of several health problems and a unique region in the diagnosis of deviations or alterations of normality in the human organism.

In this context, there is a growing demand for individuals with complaints in the orofacial region, symptomatic or asymptomatic for COVID-19. Oral symptoms are prominent before fever and cough occur [1,2].

Coping with COVID-19 leads to a universe that is still not well known, both in the context of the disease itself, the possibility of virus mutation, viral load and individual immune response, as well as in the context of the resources available for the care of the affected patient and repercussions under general organic conditions. There are knowledge gaps about this infectious disease.

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As an aggravating factor, infections by other types of opportunistic microorganisms, especially fungi, have been observed, which need to be considered in rehabilitation therapies to help patients.

The fungal co-infections associated with global COVID-19 might be missed or misdiagnosed. Although there are few publications, COVID-19 patients, especially severely ill or immunocompromised, have a higher probability of suffering from invasive mycoses. *Aspergillus* and *Candida* infections in COVID-19 patients will require early detection by a comprehensive diagnostic intervention to ensure effective treatments [3].

The oral microbiome-organisms residing in the oral cavity and their collective genome-are critical components of health and disease. *Candida* species were the most frequent. The low-abundance genera may represent environmental fungi present in the oral cavity and could simply be spores inhaled from the air or material ingested with food [4].

Part of the natural micro-organisms (microbiota) present in the body, especially in the organs of the gastrointestinal tract, including the mouth, when its balance is affected by some problem, such as low resistance, the path opens up for the proliferation of fungi. The main manifestation of candidiasis are white, pasty-looking patches

on the tongue and inside the cheeks, which can spread to other areas, including the throat, the gums.

Some oral manifestations have been observed in patients with COVID-19. However, there is still a question about whether these lesions are due to coronavirus infection or secondary manifestations resulting from the patient's systemic condition. Due to the use of intensified therapeutic methods possibly aggravated by SARS-CoV-2, an increase in cases with oropharyngeal symptoms/conditions, dental-oral problems associated with soft tissues, saliva production (dry mouth) as side effects, could be predicted, even after recovering from COVID-19 [5].

Since oral mucosa could be the first area infected with SARS-CoV-2, it could be hypothesised that oral mucosa lesions could be the first COVID-19 signs to arise, if they were to be considered COVID-19 signs. If studies will confirm this hypothesis, the dental practitioners would be the first to identify suspect SARS-CoV-2-positive patients and could send them to get tested and treated appropriately [6].

Emphasis should be placed on oral conditions and manifestations, especially in a time of pandemic. This with effective protective equipment also for oral health professionals. Investigations with greater methodological rigor are necessary, but the oral condition has not been effectively documented, since the beginning of the pandemic; aspect that must be reversed over time.

The participation of the dental surgeon can bring benefits for early diagnosis, symptom relief and improvements in fluid and food intake, which are so important for human immunity and quality of life.

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