

# Considerations on oral manifestations of COVID-19

To the Editor,

Since the first confirmed cases in the end of 2019 in the city of Wuhan, Hubei province in China, coronavirus disease 2019 (COVID-19) has spread around the world, totaling, until 25th July 2020, A total of 15,785,641 confirmed cases and 640,016 deaths.<sup>1</sup> Due to the fast dissemination of the disease and the growing rates of hospitalizations and mortality, the novel COVID-19 pandemic has become a global emergency and a challenge to public health.<sup>2</sup>

COVID-19 is an acute respiratory disease, sometime severe, caused by the virus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The most common symptoms are fever, dyspnea, cough, myalgia, and anorexia.<sup>3</sup> In the severe cases, a pulmonary impairment with increase in the respiratory frequency (>30 times/min.), decrease in O<sub>2</sub> saturation (<93% in the environmental air) and PaO<sub>2</sub>/FiO<sub>2</sub> (<300 mm Hg)<sup>4</sup> are observed. The critical cases include severe acute respiratory syndrome, RNAmia, acute cardiac lesion and multiple organ failure.<sup>5</sup>

However, due to the great number of cases of the disease, a broad variety of signs and very unlikely symptoms are possible to be related. Among these signs and symptoms, the appearance of oral lesions has been calling the researchers' attention.

There are still no estimates of the percentage of patients with COVID-19 who present oral lesions, once the data found in the literature are limited to few case reports.<sup>6-14</sup> Due to the similarity of oral lesions to skin lesions, it is believed that their prevalence is very close. According to Kaya et al,<sup>15</sup> skin lesions are present in 1.8% to 20.4% of patients with COVID-19.

Oral lesions due to COVID-19 occurred in both genders, not showing predilection. Among the reported cases, the mean age was of approximately 52 years of age (±15 years). The observed clinical manifestations were quite heterogeneous, varying not only the type of lesion but also the location.<sup>6-14</sup>

The presence of ulcerated lesions was the most common finding in patients with COVID-19. In most cases, those ulcers presented a herpetiformis aspect, similar to the one observed in some viral infections.<sup>7,9-11,14</sup> Erosion,<sup>10,13</sup> petechial,<sup>8,10</sup> macules,<sup>14</sup> and blisters<sup>11</sup> are also among the described oral lesions.

Palate<sup>7,8,10,11,14</sup> and the tongue<sup>6,7,9,14</sup> were the most frequent locations, followed by gums<sup>10-12</sup> and by lips.<sup>10,11,14</sup> Pain was referred by 75% of the patients<sup>7-9,11,12,14</sup> and 25% of them reported taste alterations.<sup>6,8,11</sup>

In 42% of the reported cases, skin lesions were found.<sup>9-11,13,14</sup> The main signs and symptoms include fever,<sup>6-8,10-14</sup> asthenia,<sup>8-11,13</sup> dyspnea,<sup>6,7,13,14</sup> hyposmia,<sup>6,8,10,11</sup> and cough.<sup>8,13,14</sup>

Topical or systemic use corticosteroid therapy are the treatment option in most reported cases.<sup>7,10,11,13,14</sup> Mouthwashes

with chlorhexidine or tetracycline also were employed to prevent secondary infections.<sup>6,7,11,12</sup> Regardless the treatment employed, there was reduction of the oral lesion within mean time of 7 days.<sup>7,8,10-12,14</sup>

The etiology of oral lesions in patients with COVID-19 is still uncertain, thus, seems to be multi-factor. The appearance of such lesions may be related to the direct or indirect action of SARS-CoV-2 over the oral mucosa cells, to the hypersensitivity of drugs used in the treatment of COVID-19 or to the downgrading of the general state of health of the patient due to the disease or to the long period of hospitalization.

If one considers that the respiratory tract is the main door of entrance of SARS-COV-2, it is very likely that oral mucosa cells are one of the first cells to be infected by the virus. In addition, according to Xu et al<sup>16</sup> there is high expression of ACE2 receptors in the oral mucosa cells, enabling the infection of those cells.

Oral manifestations due to hypersensitivity reactions to drugs are not uncommon. In case of COVID-19, the cytokines storm and the unregulated Th17 immune response associated to the disease may increase the possibility of such reaction.<sup>13</sup>

According to Amorim dos Santos et al,<sup>6</sup> the downgrading in the general state of health of patients with COVID-19 predispose the appearance of oral lesions, mainly the ones related to opportunist infections, such as candidiasis and herpes. The authors state that the period of hospitalization and the procedures performed throughout it also increase the risk of oral lesions, reinforcing the importance of oral care and hygiene during the hospitalization.

The role of oral lesions in the diagnosis of COVID-19 is controversial. According to Chaux-Bodard,<sup>9</sup> the appearance of irregular ulcers in the oral cavity may be an early symptom of COVID-19. However, oral lesions, besides being very little specific, are, in most cases, concomitant to the classic signs and symptoms of COVID-19.<sup>8,10-12,14</sup>

On the other hand, olfactory alterations (hyposmia or anosmia), and taste alterations (dysgeusia or ageusia) are important findings for the diagnosis of the disease. Giacomelli et al<sup>17</sup> observed that 33.9% of the patients with COVID-19 presented, at least, one taste or olfactory alteration and 18.6% presented both, being in 20.3% of the patients these alterations occurred before hospitalization.


Therefore, taste alterations may be considered the most relevant and early oral manifestation of COVID-19.

More robust epidemiological studies are lacking regarding oral manifestation of patients with COVID-19, indicating what moment this issue was neglected. Dentistry evaluation and oral health care,

especially in the cases of prolonged hospitalization, may contribute to the patient's recovery.

#### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.


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