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Case Report

Oral manifestations in a patient with a history of asymptomatic COVID-19: Case report

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ABSTRACT

The pandemic situation has led to public health measures that have forced patients with and without the SARS-CoV-2 virus to remain isolated and take steps to prevent the spread. Many of these patients have been unable to attend the control of medical-dental services, which in many cases complicates their situation. This study reports on the oral manifestations of an asymptomatic COVID-19 patient treated interdisciplinary by teleconsultation due to the sudden appearance of lesions in the oral mucosa. Lesions are diagnosed, therapeutic measures are taken, and improvement is shown. This case shows that the problems that arise in the oral mucosa in patients with suspected or confirmed SARS-CoV-2 infection can be monitored through interdisciplinary teleconsultation during the pandemic with the support of information technology currently available worldwide. It also decreases the risk of transmission of SARS-CoV-2 between patients and health professionals.

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Introduction

SARS-CoV-2 is a respiratory coronavirus, zoonotic disease having both bats and pangolins as the most probable origin and intermediate host (Association 2020; Chan et al. 2020). COVID-19 is believed to be spread through close person-to-person contact (about 2 m), a distance at which the respiratory droplets from an infected person either symptomatic or asymptomatic that coughs, sneezes, or speaks can spread to other people who do not have adequate barriers. Another route of transmission occurs indirectly when saliva droplets fall on other surfaces, such as the ground and objects made of different materials, and people come into contact with them (Kwok et al., 2015). Their mortality is independent of their immune status (Mehta et al., 2020); the virus is resistant to standard defenses that do not appear to respond efficiently to inflammatory invasion and cytokine storm (Guo et al., 2020). Lymphocytopenia and T-cell over-activation with reduction of an effective humoral/cellular immune response have been reported in COVID-19 patients (Dziedzic and Wojtyczka, 2020; Xu et al., 2020). Dysfunctions such as anosmia and ageusia have been found as inflammation-induced symptoms of COVID-19 (Petrescu et al., 2020).

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, and saliva production (dry mouth) as side effects could be predicted, even after recovering from COVID-19. Candida albicans is a normal inhabitant in many mouths; diagnostic confirmation of infection is often based on a successful response (i.e., resolution of lesions) to antifungal medications. This form of diagnostic confirmation can be further enhanced by culturing the pathogen, preparing a fungal smear, or even by an incisional biopsy (Zegarelli 1993).

Immunoinflammatory processes have been associated with hyperpigmentation of melanin from the oral mucosa (Chandran et al., 2016). Different factors produced during inflammation, such as prostaglandins, leukotrienes, cytokines, and inflammatory mediators, may play a role in this response and increased melanogenesis (Taylor et al., 2009; Lambert et al., 2019). Inflammation mediators, such as histamine and arachidonic acid metabolites, trigger melanogenesis (Mackintosh 2001) and inflammatory cytokines such as TNF-α and IL-1α induce the secretion of melanogenic agents (SCF, HGF, bFGF, endothelin) by keratinocytes (Feller et al., 2014). Together, these agents explain the melanin pigmentation that is sometimes seen in association with inflammatory conditions of the

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Physiological melanin pigmentation of the oral mucosa occurs most frequently in the gingiva and does not transgress the mucogingival junction (Meleti et al., 2008). Pigmentation is more extensive in the anterior part of the mouth than in the posterior part and on the labial/labial surfaces (Feller et al., 2014). The objective of this brief article was to report a relevant case of oral manifestations in an asymptomatic patient with COVID-19.

Figure 1. A, B, C, and D were photos taken at the first dental teleconsultation of a 40-year-old woman. E, F, and G are the photos from the second teleconsultation twenty days later. In (A) multiple petechiae are observed in the mucosa of the lower lip in an area of 3 x 1 cm. Image (D) shows scattered petechiae on the upper part of the face. In (F) remission of the lesions of the lip present in (A) due to the possible suspension of ibuprofen is observed. Image (B) shows a tongue with whitish areas of a more intense color in the posterior area of the tongue and slightly diffuse in the anterior part suggesting a diagnosis of mild C. albicans. Image (G) shows a significant decrease in the lesion on the tongue after two weeks of treatment with nystatin and oral hygiene. Image (C) shows an aphthous ulcerative lesion at the level of the attached gum of the first lower left premolar. In the upper part of the lesion, melanin pigmentation are observed that compromise the attached and papillary gingiva of the canine and the first premolar. The attached and papillary gum between the two premolars does not have this pigmentation. Dark brown pigmentation due to possible melanin hyperpigmentation is visible in the attached gingiva of the anterior teeth (B)/(F). In (H) a photo of the patient is presented 6 months before the dental teleconsultation showing that she had no pigmentation.
Case report

A 40-year-old female patient who works as assistant manager in a bank in New York (USA) attends the teleconsultation (Cali- Colombia) accompanied by her husband and manifests the presence of reddish plaques on the lower lip and the appearance of dark brown pigmentation in the gum of 8 days of evolution. In the teleconsultation, the patient presented a photo of the lower lip (Figure 1A). She is asked for authorization to observe the injury through the mobile phone and the husband is asked to operate the camera and take photographs of different points of the mouth. These photos were sent immediately by WhatsApp. The photographic material shows a whitish area is seen on the back of the tongue, apparently accompanied by bacterial plaque in the middle third of the tongue (Figure 1B), and the lesions at the level of the attached gingiva of the first lower premolar on the left side (Figure 1C). Petechiae were observed on the upper part of the face (Figure 1D). A well-defined brown band was observed in the attached gingiva which did not transgress the mucogingival junction and partially affected the interpapillary gingiva (Figure 1E, F, G). During the anamnesis the patient indicated that she had been taking the following medications: ibuprofen which was taken occasionally for headache, vitamin D2 (1 pill every week), and azithromycin which she took in 2 instances for five days (3 weeks and 1 week prior to the dental teleconsultation) prescribed by her primary care doctor through telehealth, since she had lymphadenopathy at the neck level, in addition to having tested positive for the antibodies (SARS-CoV 2 AB IGG Positive) three weeks before the dental teleconsultation and her husband was diagnosed with COVID-19 six weeks before.

The patient states that her husband, with whom she cohabits, is a health care worker who had acquired the infection in the hospital by working with patients with Covid-19 at the height of the pandemic in the first half of 2020 in New York. He was tested multiple times presenting positive RT-PCR tests (Testing was performed using the Cobas 8800 SARS-CoV-2 test) and positive antibodies for COVID-19 (testing was performed using the Chemiluminescent Immunoassay). The patient reports that her husband was symptomatic with a fever greater than 38 °C and he was on disability for 52 days.

After reviewing the lesions present in the oral mucosa (petechiae on the lower lip, canker sores on the lateral edge of the tongue and attached gingiva of tooth 34, whitish spots on the dorsum of the tongue with greater concentration in the posterior ventral area, melanin pigmentation in the gingiva bonded to previous teeth), she was asked about the time of appearance, whether she had pain, discomfort when eating, alcohol consumption, if she smoked or did not smoke, if she had a dry feeling in the mouth, or changes in smell or taste of food. The patient stated that the lesions were painless, except for the aphthous ulcer presented in the gum; that she never had smoked, nor consumed alcoholic beverages; she had not had a loss or decrease in the sense of smell and taste, but has had dry mouth. She declares that she is an atopic person and complains that in the health service she is always prescribed analgesics and antibiotics. With the information collected, a presumptive diagnosis of mild oral candidiasis infection was made at the level of the posterior tongue and she was not asked to do a skin scraping or biopsy following the recommendations to treat patients during the COVID-19 pandemic (Guo et al., 2020). The lesion on the lower lip, characterized by the presence of painless petechiae, was left under observation to see the evolution. It was recommended to frequently consume water or unsweetened liquids, especially during food intake. For presumptive diagnosis of oral candidiasis, Nystatin Oral Suspension was prescribed with a dose of 3 ml (300,000 international units) every 6 h. Oral hygiene control with a brush and toothpaste was also indicated, rinses with chlorhexidine (Chlorhexidine gluconate 0.12%) and more frequent brush changes; she was instructed to wash the toothbrush by immersing the brush head in a sodium hypochlorite solution (1:100 dilution of 5% sodium hypochlorite) for 30 min, then rinse with water and let the brush dry. The patient was contacted again by dental teleconsultation after 20 days; the oral cavity was verified by telephone and a recovery of the lesions of the lips was observed (Figure 1B). She did not present aphthous ulcers and the whitish color of the tongue was significantly reduced (Figure 1F). The recent photo, showing the melanin pigmentation in the attached gingiva of the anterior teeth, is compared with a photo taken 6 months before (Figure 1E, H). This comparison shows that the patient did not have the pigmentation previously. It was explained to her that the pigmentation is related to her Afro-descendant origin where this pigmentation is frequent and that the inflammatory process in response SARS-CoV-2 could cause the proliferation of melanocytes in that part of the body. It was left under observation for the next control.

Discussion

This is one of the first reports of oral clinical manifestations of an asymptomatic patient with COVID-19 evaluated by teleconsultation between the cities of New York and Cali. The presence of orofacial lesions and opportunistic infections were found, possibly as a result of inflammatory processes, frequent use of antibiotics or alterations in the immune response.

Oral candida infection has been reported to almost always involve a locally or systemically compromised host (Zegarella, 1993). Taking into account that C. albicans is part of the oral microbiome and that there were favorable events for its pathological development, such as the decrease in salivation manifested in the patient by the sensation of dry mouth, in addition to the frequent use of antibiotics and a mild predisposing factor such as the female sex (Zegarella, 1993) and the successful response to nystatin treatment, we can clinically confirm candida infection (Figure 1B, G). Recent literature has reported few cases of oral manifestations of patients with COVID-19, but it is still unknown if it is the result of direct action of the virus or a product of systemic deterioration that increases the probability of opportunistic injuries (Carreras-Presas et al., 2020; Ciccarese et al., 2020; dos Santos et al., 2020). The presence of petechiae at the cutaneous level and at the level of the oral mucosa could be related to thrombocytopenia problems because of SARS-CoV-2 infection (Ciccarese et al., 2020). Although the patient did not undergo blood tests to verify platelet levels, she was taking ibuprofen which may influence the inhibition of platelet function.

The hyperpigmentation of the gums in the anterior teeth due to the aesthetic problem that it represents for the patient is the one that causes most concern. The patient is fair-skinned and her grandfather on the paternal line is of African descent, making it possible for hereditary predisposition in the color of the attached gum. Dark-skinned people are prone to developing post-inflammatory pigmentation in the oral cavity (Tamizí and Taheri, 1996; Rosebush et al., 2019). The color of the skin and probably of any pigmented part of the oral mucosa is genetically determined by the number and size of the melanosomes and the type of melanin it produces. Environmental factors only have a modified influence on skin color (Feller et al., 2014).

The response of hyperpigmentation of the gum attached by melanin in an asymptomatic COVID-19 patient may provide clinical evidence for the hypothesis of the antioxidant action of the melanin molecule, produced in this case in an endogenous way, and inducing the production of antioxidant enzymes, regulating
the apoptosis or cell death and stimulating the immune system (Boga et al., 2012).

The presence of cervical-facial lymphadenopathy, oral candidiasis, petechiae, and xerostomia in the patient have been reported in other studies reporting oral manifestations associated with human immunodeficiency virus (Grando et al., 2002), therefore, it is possible that advances with HIV can be applied to this new virus.

At the last follow-up appointment the patient stated: “I feel happy because the lesions on the lip and tongue disappeared with the treatment, and I will be reviewing the evolution of the gum pigmentation until the next control appointment.”

Conclusion

In conclusion, we can affirm that the problems that arise in the oral mucosa in patients with suspected or confirmed SARS-CoV-2 infection can be monitored through interdisciplinary teleconsultation during the pandemic with the support of information technologies available to many people worldwide, as demonstrated in this case with an asymptomatic patient with COVID-19. This teleconsultation or telemedicine approach prevents the spread of the virus among patients and healthcare professionals.

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Ethical approval and informed consent

The study was conducted in accordance with ethical principles (Declaration of Helsinki), and written informed consent was obtained from the patient. A copy of the written consent is available for review by the Editor of this journal.

Conflict of interest

None declared.

CRediT authorship contribution statement

Jairo Corchuelo: Conceptualization, Data curation, Formal analysis, Methodology, Writing - original draft, Writing - original draft. Francisco Chavier Ulloa: Formal analysis, Validation, Writing - review & editing.

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