



Oral ulcer in SARS-CoV-2 infection: a case report

Lucie Rapp^{1,2,3,4^}, Thomas Gémar^{4,5}, Marie-Hélène Lacoste-Ferré⁵

¹Dental Faculty and Hospital of Toulouse – Toulouse Institute of Oral Medicine and Science, Centre Hospitalier Universitaire de Toulouse, Toulouse, France; ²CERPOP, UMR1295 (Maintain Aging Research Team), Université P. Sabatier, Toulouse, France; ³Cancer Ageing and Rejuvenation (CARE) Graduate School, Toulouse, France; ⁴Department of Geriatric Medicine, Clinique des Minimes, Toulouse, France; ⁵Department of Geriatric Medicine, CHU Toulouse Purpan, Toulouse, France

Contributions: (I) Conception and design: L Rapp; (II) Administrative support: L Rapp; (III) Provision of study materials or patients: L Rapp; (IV) Collection and assembly of data: L Rapp; (V) Data analysis and interpretation: L Rapp; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Lucie Rapp, DMD. Dental Faculty and Hospital of Toulouse – Toulouse Institute of Oral Medicine and Science, Centre Hospitalier Universitaire de Toulouse, 3 Chemin des maraichers, 31400 Toulouse, France; CERPOP, UMR1295 (Maintain Aging Research Team), Université P. Sabatier, Toulouse, France; Cancer Ageing and Rejuvenation (CARE) Graduate School, Toulouse, France; Department of Geriatric Medicine, Clinique des Minimes, Toulouse, France. Email: rapp.l@chu-toulouse.fr.

Background: The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) at the end of 2019 caused the global pandemic. Oral and dermatological manifestations of coronavirus disease 2019 (COVID-19) such as xerostomia, aphthous-like lesions, ulcers, tongue depapillation, necrotizing gingivitis, and taste disorders, including the loss of taste and salivary gland infections are being reported. This study aims to describe a case of oral ulcers following COVID-19 infection.

Case Description: We present the case of a 95-year-old male patient hospitalized in follow-up care and rehabilitation unit, of Minimes Geriatric Clinic, Toulouse, France. He had an alteration in his general health in the context of COVID-19 infection detected by reverse transcription polymerase chain reaction (RT-PCR). Six days after the admission, the patient complained of a strong burning sensation of the mouth, especially on the tongue and the lips' mucosa. Intraoral examination revealed painful erosive areas on the lateral edges of the tongue and the mucous side of the lower lip. The proposed treatment to reduce the burning sensation was based on general analgesics (morphine sulfate), mouthwash with sodium bicarbonate, the application of a lidocaine-based oral anesthetic and healing gel and a comfort-oriented diet. Thirteen days later, the patient reported a gradual improvement.

Conclusions: A diverse range of oral manifestations has been observed in patients with a history of COVID-19 infection. These oral ulcers significantly impact the quality of life of the individual, causing intense pain, stress, and difficulties in eating, with repercussions on nutritional status, especially in older individuals. Our case underscores the importance of oral examinations and the role of dentists in the management of patients with SARS-CoV-2.

Keywords: Case report; coronavirus disease 2019 (COVID-19); ulcer; oral health; geriatrics

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[^] ORCID: 0000-0003-0908-694X.

Introduction

The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) at the end of 2019 marked the onset of the global pandemic declared by the World Health Organization in March 2020 (1). The most common clinical symptoms include fever, tiredness, headache, sore throat, dyspnea, myalgia, dry cough, abdominal pain, vomiting, and diarrhea. In addition to these primary manifestations, some oral symptoms have also been reported, such as xerostomia, aphthous-like lesions, ulcers, tongue depapillation, necrotizing gingivitis, and taste disorders, including the loss of taste and salivary gland infections (2-4).

Understanding the mechanisms of virus dissemination has contributed to improvements in diagnostic and screening techniques (5). However, given its significant mutability, the widespread adoption of mass vaccination remains the most effective option for controlling contagion (6). We present this article in accordance with the CARE reporting checklist (available at <https://acr.amegroups.com/article/view/10.21037/acr-23-158/rc>).

Case presentation

A 95-year-old male patient was hospitalized in follow-up

care and rehabilitation unit, of Minimes Geriatric Clinic, Toulouse, France. He had an alteration in his general health in the context of coronavirus disease 2019 (COVID-19) infection detected by reverse transcription polymerase chain reaction (RT-PCR). The medical history revealed chronic renal and cardiac insufficiencies. The patient had been vaccinated against COVID-19 six months prior.

Upon arrival in the department, after 7 days from the onset of infection, the patient presented an altered general condition with fever, superinfected pneumonia with severe cough, temporal disorientation and memory disorders. Blood analysis showed hemoglobin 9.7 g/dL, leukocytes 7.7 g/L, lymphocytes 75 g/L, platelets 170 g/L, natraemia 134 mmol/L, kalemia 4.1 mmol/L, total protein 53 g/L, C-reactive protein (CRP) 83 mg/L. The treatment administered upon arrival was: antibiotics (clavulanic acid and amoxicillin 3 g/day), corticosteroids (dexamethasone 6 mg/day), and nasal oxygen therapy.

Six days after the admission, the patient complained of a strong burning sensation of the mouth, especially on the tongue and the lips' mucosa.

Intraoral examination revealed painful erosive areas on the lateral edges of the tongue and the mucous side of the lower lip (refer to *Figures 1,2*). The lesions had a whitish appearance with a pseudomembrane and an irregular red inflammatory periphery. The lesions were extremely painful and sensitive to touch, leading to difficulties in speaking, eating, and drinking, which affected the patient's quality of life. Apart from these lesions, the patient had no other oral or dental pathologies, wore no dentures, and maintained good oral hygiene.

The proposed treatment to reduce the burning sensation was based on general analgesics (morphine sulfate), mouthwash with sodium bicarbonate, and the application of a lidocaine-based oral anesthetic and healing gel.

In collaboration with the dietitian, a comfort-oriented diet was proposed to the patient: a mixed oral diet and avoidance of acidic foods.

Thirteen days later, the patient reported a gradual improvement (*Figure 3,4*).

Twenty-two days later, the patient noted a significant improvement, and the intraoral examination revealed a clear improvement of the lesions.

Twenty-five days later, given the absence of local and general symptoms, it was considered for the patient to return home with follow-up appointments scheduled at the day hospital.

Highlight box

Key findings

- We present the case of a 95-year-old male patient who developed tongue and lip ulcers after a coronavirus disease 2019 (COVID-19) infection.

What is known and what is new?

- A diverse range of oral manifestations has been observed in patients with a history of COVID-19 infection. These oral ulcers significantly impact the quality of life of the individual, causing intense pain, stress, and difficulties in eating, with repercussions on nutritional status, especially in older individuals.
- Here we describe a special case of oral ulceration in geriatric practice and how we treat these lesions.

What is the implication, and what should change now?

- This case report highlights the impact of the COVID-19 virus on the activity of dental surgeon.
- Firstly, there is a need to establish safe conditions of care for both the patient and the practitioner. Additionally, it underscores the significance of oral examinations and the role of dentists in the management of patients with severe acute respiratory syndrome coronavirus 2.



Figure 1 Clinical picture showing the oral lesion on the lateral edges of the tongue 6 days after admission.



Figure 3 Clinical picture showing the oral lesion on the lateral edges of the tongue after 13 days of treatment.



Figure 2 Clinical picture showing the oral lesion on the mucous side of the lower lip 6 days after admission.



Figure 4 Clinical picture showing the oral lesion on the mucous side of the lower lip after 13 days of treatment.

Ethical statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

Discussion

A wide array of oral manifestations has been identified in patients with a history of COVID-19 infection. Among them, oral ulcers significantly impact the subject's quality of life, causing intense pain, stress, difficulties in eating, and having repercussions on nutritional status.

According to Amorim Dos Santos *et al.* (7), erosive oral lesions typically develop 7 to 24 days after the onset of symptoms (lesion, pain, burning or tingling sensation) and are reported to disappear (within 6 days to 2 weeks) or regress in size with time. Iranmanesh *et al.* (2) reported that the most common sites of involvement, in descending order, are the tongue (38%), labial mucosa (26%), palate (22%), gingiva (8%), buccal mucosa (5%), oropharynx (4%), and tonsil (1%). Oral lesions are symptomatic (painful, burning sensation, or pruritus) in 68% of cases. Both women and men are affected, with severity increasing with age and the severity of the disease. The main known predisposing factors are a lack of oral hygiene, opportunistic infections, trauma, immunosuppression, vascular issues, and hyperinflammatory reactions secondary to COVID-19 (2,7,8). The new coronavirus uses the salivary glands as a reservoir and saliva plays a part in spreading the disease (9). The formation of lingual ulcers can be attributed to the dimensional changes occurring in tongue epithelial cells as a consequence of COVID-19. This virus can bind to receptors on the epithelial cells located at the posterior region of the tongue (10).

Recent studies on oral mucosa lesions associated with COVID-19 indicate a correlation with organic damage and potential complications such as thrombocytopenia, anticoagulant therapy, disseminated intravascular coagulation, and systemic inflammation. This suggests that in the context of COVID-19, the oral cavity may exhibit primary or secondary alterations linked to vascular-hematologic damage (11).

In a recent study, Colizza *et al.* (12) reported on the association between the COVID-19 vaccine and oral manifestations. Particularly, oral ulcers may appear 1 to 3 days after its administration. Our differential diagnosis considered ulceration concomitant with COVID-19 infection and other infectious ulcerations (13): bacterial (syphilis, tuberculosis), viral [cytomegalovirus, human immunodeficiency virus (HIV)], mycotic, parasitic, autoimmune bullous diseases triggered by COVID-19, traumatic and malignant ulcerations. But also, ulcers provoked by drugs. For the latter, the introduction of the drugs 6 days before the onset of symptoms cannot explain these ulcerations.

The treatment we provided was effective in alleviating pain and facilitating the healing of the lesions. Depending on the severity and extent of the lesions, it may be advisable to consider alternative treatments, including antibiotics, antiseptic rinses (such as chlorhexidine 0.12%, alcohol-

free mouth rinses, and H₂O₂ 1%), and antifungal agents (fluconazole 200 mg tablets for one week) to prevent secondary infections (14,15).

Conclusions

This case report illustrates the possible link between COVID-19 and mouth ulcers.

However, caution must be exercised, and further studies are needed to confirm this hypothesis. This underscores the impact of the COVID-19 virus on the activity of dental surgeons. Firstly, there is a need to establish safe care conditions for both the patient and the practitioner (16). Additionally, it emphasizes the significance of oral examinations and the role of dentists in the management of patients with SARS-CoV-2.

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Footnote

Reporting Checklist: The authors have completed the CARE reporting checklist. Available at <https://acr.amegroups.com/article/view/10.21037/acr-23-158/rc>

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Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <https://acr.amegroups.com/article/view/10.21037/acr-23-158/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

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