Content available at: https://www.ipinnovative.com/open-access-journals

The Journal of Dental Panacea

Journal homepage: https://www.jdentalpanacea.org/

Original Research Article

Oral findings of 42 cases of COVID-19 in Bangladesh: A first perspective

Arafat Kabir[1], Fazle Khuda[2]*, AHM Noor[3], Anubhava Vardhan Sharma[2], Anand Krishnan[4], Zahida Parveen[5]

[1]Dept. of Periodontology & Oral Pathology, Pioneer Dental College and Hospital, Dhaka, Bangladesh.
[2]Dept. of Periodontology Faculty of Dentistry, Lincoln University College, Malaysia.
[3]Private Practitioner, Lucky Dental, Dhaka, Bangladesh.
[4]Dept. of Oral Diagnosis & Surgical Sciences, Faculty of Dentistry, Lincoln University College, Malaysia.
[5]Consultant Paediatric Dentist, Kolkata, West Bengal, India.

Abstract

Background: Coronavirus disease 2019 (COVID-19) has a huge range of clinical manifestations including oral features. Early diagnosis is an essential key to limit the outbreak of the virus, thus oral manifestations should not be ignored since they can also be a mode of transmission.
Aim & Objective: The aim of this research is to report the oral findings of patients diagnosed with COVID-19.
Materials and Methods: This observational study included Forty-two clinically confirmed COVID-19 patients, and systemic symptoms, and oral findings were recorded.
Results: Of the 42 COVID-19 patients, 57.1% of the patients were men, and 42.9% were women, with a mean age was 36.5 years. Thirty-five patients (83.3%) developed oral manifestations. Most common oral findings included dysgeusia (32 patients; 76.2%), xerostomia (13 patients; 31%), burning sensation (11 patients; 26.2%), dysphagia (10 patients; 23.8%), and ulcer (4 patients; 9.5%). Hyposmia, fatigue, sore throat, fever, cough, shortness of breath, and nasal congestion were recorded as common systemic symptoms.
Conclusion: The study findings demonstrated the importance of oral findings in the diagnosis of COVID-19 patients.

Keywords: COVID-19, Oral manifestation, Bangladesh, Erythematous patches, Oral lesion

Received: 20-02-2025; **Accepted:** 27-03-2025; **Available Online**: 23-04-2025

1. Introduction

A cluster of cases of pneumonia of unknown etiology was reported in Wuhan, Hubei province, China, in early December 2019.[1] The pathogen was identified as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and the disease was named Corona Virus Disease 2019 (COVID-19),[2] and subsequently declared a pandemic by the World Health Organization (WHO).[3] Since SARS-CoV-2 is found in saliva during infection, the virus may also spread through the salivary glands. One as a component of the gastrointestinal tract, the oral cavity is likewise abundant in ACE2 receptors, particularly in the tongue's dorsum and salivary glands. Most of the symptoms occurring in the oral cavity are linked to the compromised immune system and/or sensitive oral mucosa.[4]

By July 24, 2022, 17:00 GMT+6, the COVID-19 outbreak had involved 230 countries with 56,73,12,625 confirmed cases, and 63,78,748 deaths worldwide, as reported by the WHO. The first three cases of COVID-19 infection were reported in Bangladesh on March 08, 2020, by the nation's Institute of Epidemiology, Disease Control and Research (IEDCR). A total of 20,01,775 confirmed cases including 19,35,963 recoveries and 29,266 deaths had been confirmed by the Directorate General of Health Services (DGHS), Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh, as of 8:00 am IST, July 24, 2022.

*Corresponding author: Fazle Khuda
Email: Hillol70@yahoo.com

DOI: https://10.18231/j.jdp.2025.011

COVID-19 has a huge range of clinical features, and the diagnosis is mostly based on clinical findings. The most common clinical features of patients suffering from COVID-19 are fever, cough, fatigue, difficulty breathing, muscle pain, tiredness, and abnormal chest CT.[3] Headache, sputum production, dyspnea, diarrhea, stomach pain, dizziness, nausea, and vomiting are regarded as minor symptoms. Although the major signs and symptoms of COVID-19 have been reported widely, the intraoral findings of COVID-19 have not been fully elucidated.[5,6] An understanding of the oral features of COVID-19-positive patients by dental surgeons may facilitate the diagnosis and prevention of transmission of the disease. Therefore, we performed a survey of the prevalence of oral manifestations in 42 confirmed cases of SARS-CoV-2 infection in Dhaka, Bangladesh.

2. Materials and Methods

This observational study included a total of 107 patients with real time polymerase chain reaction (RT-PCR) proven COVID-19 were recruited from June 26, 2022, to July 15, 2022, at Upazila Health Complex Hospital, Keraniganj, Dhaka, Bangladesh. Patients who subsequently died due to COVID-19, severe cases, and non-respondents were excluded from the study. After evaluation, we examined 42 COVID-19-positive patients using a simple questionnaire including questions about general symptoms, changes in the oral cavity, the presence or absence of ulcers and vesicles, pain, taste disorders, masticatory dysfunctions, swallowing difficulty, dry mouth, burning sensation, and erythematous patch following the guidance recommended by the WHO and Centers for Disease Control and Prevention (CDC). All statistical analysis were carried out using IBM SPSS data editor version 23.0 (IBM, USA).

3. Results

The mean (IQR, interquartile range) age of the 42 patients included in the study was 36.5 (28-45) years (7.1% of the patients were >60 years old), 57.1% of the patients were men, and 42.9% were women. Six patients (14.3%) had a history of systemic diseases. Out of the 42 patients, 35 patients (83.3%) developed oral manifestations. The onset of oral manifestations began 3–7 days after testing COVID-19-positive. The most common oral findings of COVID-19 were dysgeusia (32 patients; 76.2%), xerostomia (13 patients; 31%), burning sensation (11 patients; 26.1%), dysphagia (10 patients; 23.8%), and ulcer (4 patients; 9.5%). (**Table 1**) Ulcers were small, shallow lesions with red edges, found on the buccal mucosa, and tongue. All the ulcers developed after the onset of COVID-19. On intraoral examination, one patient developed erythematous patches on the hard palate (**Figure 1 A**), and vesicles on the labial mucosa. No history of pain, gum bleeding, discoloration of mucosa was recorded. In addition to oral manifestations, common general symptoms were hyposmia (33 patients; 78.5%), fatigue (27 patients; 64.3%), sore throat (21 patients; 50%), fever (16 patients; 38%), cough (12 patients; 28.5%), shortness of breath (7 patients; 16.7%), and nasal congestion (6 patients; 14.3%). A total of 14.2% of patients had a temperature over 38.1°C. Less common features included headache, nausea, diarrhea. One patient developed skin rashes over the left side of the chest and abdomen. (**Figure 1 B**)

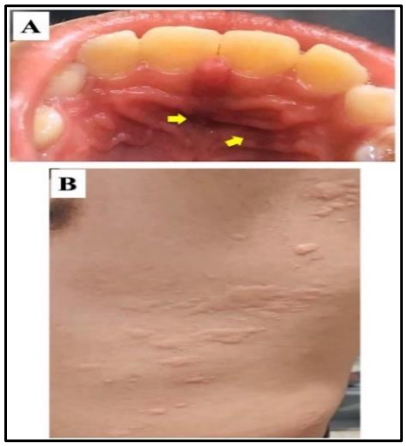

Figure 1: (**A**): COVID-19 patient presenting erythematous patches (yellow arrow) on the hard palate, centrally located, associated with a small nodule, measuring approximately 0.5 cm in diameter on the incisive papilla; (**B**): Cutaneous manifestation of COVID-19 as urticarial lesions over the left side of the chest and abdomen.

Table 1: Characteristics of patients with oral findings of COVID-19 (N=42)

Patients	**No. (%)**
Age, y, median (IQR)	36.5 (28-45)
Gender	
Male	24 (57.1)
Female	18 (42.9)
Specimen	
Nasopharyngeal swab	31 (73.8)
Oropharyngeal swab	5 (11.9)
Both	6 (14.2)
Days from illness onset (IQR)	5 (3-7)
General Symptoms	

Hyposmia	33 (78.5)
Fatigue	27 (64.2)
Sore throat	21 (50.0)
Fever	16 (38.1)
Cough	12 (28.5)
Shortness of breath	7 (16.6)
Headache	8 (19.0)
Nasal congestion	6 (14.3)
Nausea	5 (11.9)
Runny nose	3 (7.1)
Diarrhea	2 (4.7)
Skin rash	1 (2.3)
Oral manifestations	35 (83.3)
Dysgeusia	32 (76.2)
Xerostomia	13 (31.0)
Burning sensation	11 (26.2)
Dysphagia	10 (23.8)
Ulcer	4 (9.5)
Erythematous patch	1 (2.3)
Vesicle	1 (2.3)
Difficulty in mastication	1 (2.3)
Pain	0 (0)
Mucosal discoloration	0 (0)
White lesion	0 (0)

4. Discussion

The oral cavity was immediately identified as a potentially significant infection axis that could cause more inflammation in the tissues around it.[7,8] Even in those who are asymptomatic, the production of ACE2 and transmembrane serine protease in salivary glands and oral mucosal epithelia, which are linked to a proven SARS-CoV-2 infection, may contribute to the virus's spread through saliva.[9] Numerous investigations have also documented oral manifestations in COVID-19 individuals, assessing taste problems or concentrating on other oral illnesses such mucosal lesions, xerostomia, halitosis, and parotiditis. The novel COVID-19 pandemic has become a global emergency and a public health problem because of the disease's rapid spread and rising hospitalization and fatality rates.

In this observational survey involving COVID-19 patients, a structured questionnaire was administered despite limitations related to the infectiousness of the disease and emergency contingencies. The results study showed a correlation between oral symptoms and COVID-19. Oral findings of COVID-19 appear to be common, with most patients experiencing taste dysfunction, xerostomia, dysphagia, burning sensation, and ulcer. Among the oral findings, taste alterations were the most frequent (76.2%), and have been repeatedly noted as an initial or subsequent symptom in COVID-19-positive patients. A previous study also reported that taste dysfunction is a highly suggestive symptom of infection.[10] This may be due to the angiotensin-converting enzyme-2 (ACE-2) receptor, which is used by SARS-CoV-2 to penetrate the cells of the oral cavity mucosa.[11] In the current study, dry mouth was reported as the second most common oral findings (31%). Although dry mouth was found frequently, but whether it is caused by COVID-19 infection or emotional stress is not yet known. Several patients also experienced burning sensation, and difficulty in swallowing. Oral lesions such as an irregular ulcer were reported in 4 COVID-19-positive patients at the buccal mucosa, and tongue. As oral ulcers are also a possible symptom of a viral infection, more studies need to be performed to elucidate the involvement of oral ulcers in COVID-19. Erythematous patches were observed on the hard palate with a soft nodular swelling on the incisive papilla. In addition to oral findings, we found urticarial lesions over the left side of the chest and abdomen similarly reported by Henry et al.[12] However, many oral issues in COVID-19 patients are not directly caused by SARS-CoV-2 but result from treatment or co-infections.[13] Iatrogenic complications, such as lesions from prolonged intubation and invasive procedures, and drug reactions causing oral lesions, fall into this category. Additionally, opportunistic oral infections, like candidiasis and Herpes simplex, are common in COVID-19 patients due to their weakened condition.[14,15] The results may not be as broadly applicable as they may be because the study did not include individuals who passed away, had severe conditions, or did not reply. It's possible that the 42 individuals in the small sample don't accurately reflect the larger COVID-19 group. Due to the short study period (June 26–July 15, 2022), the variability of symptoms across time may have been impacted. A bigger and more varied patient

sample should be included in future research to increase the findings' generalizability. Longitudinal research could investigate how COVID-19 affects dental health and other systemic symptoms over time.

5. Conclusion

In conclusion, taste dysfunction along with xerostomia, burning sensation, dysphagia, and oral ulcer, are the most frequent oral manifestations of COVID-19. Understanding the oral findings of COVID-19 could help in the diagnosis and treatment of COVID-19. To the best of our knowledge, this is the first report on the oral findings in a sample of 42 COVID-19 positive patients in the South-East Asia region. Major gaps in our knowledge of oral lesions associated with COVID-19 need fulfillment by further investigations on infected patients to ascertain the abovementioned oral findings. SARS-CoV-2 entrance is facilitated by receptors in the oral cavity, which may account for COVID-19 patients' oral symptoms like as xerostomia and taste impairment. It's unclear what causes oral symptoms like dry mouth and mucosal sores in COVID-19 patients; it could be the virus or stress from the sickness. The virus or secondary infections like candidiasis in immunocompromised people can exacerbate oral ulcers and lesions. Future research should assess long-term impacts on oral health, cover a wider range of demographics, and expand patient samples.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Hui DS, Azhar EI, Madani TA, Ntoumi F, Kock R, Dar O, et al. The continuing 2019-nCoV epidemic threat of novel Coronaviruses to global health-the latest 2019 novel coronavirus outbreak in Wuhan, China. *Int J Infect Dis.* 2020;91:262–6.
2. World Health Organization. Novel coronavirus (2019-nCoV) situation report -22-data as reported by February 11, 2022. 2022. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200211-sitrep-22-ncov.pdf? sfvrsn=fb6d49b1_2.
3. Wang Z, Yang B, Li Q, Wen Lu, Zhang R. Clinical features of 69 cases with Corona- virus disease 2019 in Wuhan, China. *Clin Infect Dis.* 2020;71(15):769–77.
4. Paradowska-Stolarz AM. Oral manifestations of Covid-19: Brief Review. *Dent Med Prob.* 2021;58(1):123–6.
5. Huang C, Wang Y, Li X, Ren Li, Zhao J, Hu Y. Clinical features of patients infected with 2019 novel Coronavirus in Wuhan, China. *Lancet*. 2020;395(10223):497–506.
6. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J. Clinical characteristics of 138 hospitalized patients with 2019 novel corona-infected pneumonia in Wuhan, China. *JAMA* 2020;323(11):1061-9.
7. Mariz B, Brandão TB, Ribeiro ACP, Lopes MA, Santos-Silva AR. New insights for the pathogenesis of COVID-19-related dysgeusia. *J Dent Res*. 2020;99(10):1206
8. Wang C, Wu H, Ding X, Ji H, Jiao P, Song H. Does infection of 2019 novel coronavirus cause acute and/or chronic sialadenitis?. *Med Hypotheses*. 2020;140:109789.
9. Huang N, Pérez P, Kato T, Mikami Y, Okuda K, Gilmore RC et al. SARS-CoV-2 infection of the oral cavity and saliva. *Nat Med.* 2021;27(5):892–903.
10. Paderno A, Scheiber A, Grammatica A, Raffetti E, Tomasoni M, Gualtieri T, et al. Smell and taste alterations in Covid- 19: a cross-sectional analysis of different cohorts. *Int Forum Aller Rhinol*. 2020;10(8):955–62.
11. Xu H, Zhong L, Deng J, Peng J, Dan H, Zeng X et al. High Expression of ACEreceptor of 2019-nCoV on the epithelial cells of oral mucosa. *Int J Oral Sci.* 2020;12(1):8.
12. Henry D, Ackerman M, Sancelme E, Finon A, Esteve E. Urticarial eruption in COVID-19 infection. *J Eur Acad Dermatol*. 2020;34(6):e224–45.
13. Aragoneses J, Suárez A, Algar J, Rodríguez C, López-Valverde N, Aragoneses JM. Oral Manifestations of COVID-19: Updated Systematic Review With Meta-Analysis. *Front Med.* 2020;8:726753.
14. Kämmerer T, Walch J, Flaig M, French LE. COVID-19-associated herpetic gingivostomatitis. *Clin Exp Dermatol*. 2021;46(1):174–6.
15. Kitakawa D, Oliveira FE, Neves de Castro P, Carvalho L. Short report - Herpes simplex lesion in the lip semimucosa in a COVID-19 patient. *Eur Rev Med Pharmacol Sci.* 2020;24(17):9151–3.

Cite this article: Kabir A, Khuda F, Noor AHM, Sharma AV, Krishnan A, Parveen Z. Oral findings of 42 cases of COVID-19 in Bangladesh: A first perspective. *J Dent Panacea*. 2025;7(1):42-45.