

Assessment of the oral manifestations of covid 19: Covid Tongue - A Randomised Control Trial

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Abstract

Introduction: From late 2019, coronavirus has spread exponentially not only in China but throughout the world, affecting and devastating the mankind. Symptomatic to asymptomatic, virus can present itself in wide range of manifestation. Apart from systemic manifestation, COVID-19 has been lately found in the saliva of the infected patients, causing a major alert in dental professionals. In India, where COVID-19, has truly focused on the clinical and medical services, a big part of the population lack appropriate oral hygiene cleanliness, thus making oral cavity an optimal site for SARS-CoV-2 to present its clinical manifestations.

Aim: the main aim of the study is to evaluate the oral manifestations including covid tongue as an indicator of the diseases in covid positive or suspected patients.

Material and Methodology: a randomized controlled trial was done on 20 subjects visiting the dental OPD for regular oral hygiene checkup. Before enrollment of the

subjects in the study a rapid antigen test (RAT) was done for all patients. Covid positive patients with mild symptoms were selected and enrolled in the study. A complete oral examination of the study patients was done following proper protection measures and evaluation of oral manifestations of covid-19 was done.

Results: Out of 20 patients, only 1 (5%) patient complained of appearance of lesion on the palate within 10-14 days of the appearance of the symptoms, while 95% had symptoms after 14 days. 2 (10%) patients presented lesion on the oral mucosa which were unnoticed by them while 17 (85%) had lesions on the tongue with mean and standard deviation of 2.700 ± 0.733 .

Conclusion: However, the oral manifestations of covid-19 are usually underreported and lack of awareness of these manifestations can potentially contribute to adverse outcomes affecting the quality of life. Thus, dentist plays a pivotal role in evaluating the oral manifestation

accompanying novel coronavirus which can be used as an indicator in positive or suspected patients.

Keywords: Covid-19, Covid-Tongue, Diagnosis, Rapid Antigen Test, Symptoms.

Introduction

World Health Organization in March 2020, declared COVID-19, a pandemic viral diseases, which affected ten millions of people causing a global health crisis. The disease was caused by severe acute respiratory syndrome coronavirus-2, causing viral pneumonia.¹ Most of the symptoms, included fever, sore throat, dry cough, myalgias and nasal decongestion. Septic shock, respiratory failures and multiple organ failure were characteristics of severe covid. Atypical manifestations were reported to be the only and first manifestation of the disease. Palate and tongue were the most common locations, followed by gingival and lips. Taste alterations and pain was reported in around 75% of the cases. Apart from the most common manifestations, vesiculo-bullous lesion, ulcerative lesions, macular lesions and sialadenitis of the parotid glands were also detected.²

A strong link between covid 19 and oral manifestations of the diseases may be seen, but usually remains undetected due to lack of oral examinations during hospital admissions in covid patients. The etiology of the oral lesion is usually uncertain but can be multifactorial.³ A direct or indirect action of COVID-19 on the oral mucosa and inhabitation of virus in the plaque, hypersensitivity of drug used are the main causative factors for down-regulating the general health of the patients.⁴ Therefore, pointing the significance of dental specialist in complete oral examination to comprehend the pathobiology and alterations in the oral cavity of the covid patients.

Chaux-Bodard (2020) was the first to describe the association of mucosa with that of covid in patients who complained of an irregular ulcer on the dorsal surface of

the tongue.⁵ The report was followed various lesion including non-specific nodules, severe geographic tongue, non-specific nodules, white plaques, petechiae, pustules, desquamative gingivitis, angina bullous with unclear direct virus reaction. Various histo-pathological studies of skin dermatoses and oral mucosal lesion associated with covid were reported in literature.⁶ Thus the main of the article is to evaluate the association of covid 19 with various oral manifestations, making them as an indicator of the diseases.

Material and Methodology

A randomized controlled trial was done on 20 subjects visiting the dental OPD of the Swami Devi Dayal Dental College and General Hospital for regular oral hygiene checkup. Subjects with few pre-existing lesions, including any systemic and/or local conditions which were previously diagnosed and known by the patients, as well as subjects with any traumatic ulcers were excluded from the study. The study was conducted from 15 May 2021 to 15 June 2021 in the oral medicine and radiology department of the college. Before any oral examination, proper covid protocols were followed and a rapid antigen test (RAT) was conducted on all the subjects. Covid positive patients without symptoms or with mild were included in the study. A pre-rinse using 0.2% chlorhexidine followed by complete oral examination including both the hard and soft tissue examination was done. Specific considerations were given to soft tissue examination. Oral mucosa, tongue, gingiva, palate (both hard and soft), and floor of the mouth were completely examined following proper illumination and isolation methods. No lesion, if found was punctured or touched using any instrument or hands.

The following data were collected and analyzed using frequencies and mean and standard deviations. The data included demographic data (age and gender), general

symptoms of covid, presence of taste disorder (ageusia, dysguesia and hypoguesia), day of appearance of the lesion after the beginning of the symptoms, and location of the symptom.

Data Analysis: the obtained data was segregated and transferred into Microsoft excel sheet. The data was analyzed using SPSS version 20.0, in frequencies and mean ± standard deviation.

Results

Out of total 20 positive covid patients, a maximum of 60% patients were aged ranging between 30-40 years with mean and standard deviation of 33.650±8.725 (table 1). On evaluation of symptoms, 60% of patients with no symptoms, 50% presented no taste alteration. While among 40% of patients who had mild symptoms 5%, 15% and 30% of them had ageusia, dysguesia and hypoguesia.

Age (In Years)	Frequencies (N)	Percentages (%)	Mean ± Sd
<20	-	-	33.650±8.725
20-30	5	25	
30-40	12	60	
>40	3	15	
Total	20	100	

Symptoms	Frequencies (N)	Percentages (%)	Mean ± Sd
No	12	60	1.400±0.503
Mild	8	40	
Total	20	100	

Disorder	Frequencies (N)	Percentages (%)	Mean ± Sd
No	10	50	

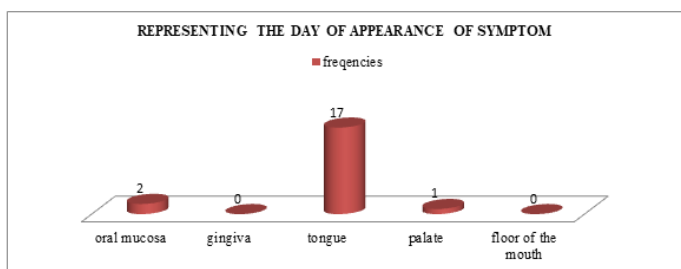
Alteration	Frequencies (N)	Percentages (%)	Mean ± Sd
Aguesia (Absence)	1	5	2.250±1.372
Dysguesia (Altered Taste)	3	15	
Hypoguesia (Decreased Taste)	6	30	
Total	20	100	

Out of 20 patients, only 1 (5%) patient complained of appearance of lesion on the palate within 10-14 days of the appearance of the symptoms, while 95% had symptoms after 14 days. 2 (10%) patients presented lesion on the oral mucosa which were unnoticed by them while 17 (85%) had lesions on the tongue with mean and standard deviation of 2.700±0.733.

Day of Appearance	Frequencies (N)	Percentages (%)	Mean ± Sd
First 5 Days	-	-	3.950±0.224
5-10	-	-	
10-14	1	5	
After 14 Days	19	95	
Total	20	100	

Location	Frequencies (N)	Percentages (%)	Mean ± Sd
Oral Mucosa	2	10	2.700±0.733
Gingiva	-	-	

Tongue	17	85
Palate	1	5
Floor Of The Mouth	-	-
Total	20	100



Discussion

Sign and symptom recognition is critical for early detection, immediate treatment and better prognosis of covid-19 patients. Dental surgeon can play an important part not only in prevention of transmission but also help in recognition and referral of the affected patients. Essentially, novel corona virus uses angiotensin converting enzyme receptors to access cells of the lower respiratory tract. In its path to the destination, SARS covid infects nasal and oral mucosal cells which play a major role in taste and smell dysfunction, which can be early in the cause of the disease. These can also play a potential in development of various lesions. Two possible mechanisms have been explained in the development of the lesions

1. Directly via the effect of the replicating virus, where the lesion can be covid-19 specific and
2. Indirectly via physical and psychological stresses associated with covid-19.
3. Secondary to drug treatment.^{7,8}

Halboub E et al in 2020, presented a review where painful ulceration was the most common orofacial manifestations in patients diseased with novel coronavirus.⁴ Several other authors including **Hedou⁹ et**

al, Soares¹⁰ et al, Chau⁵ et al, reported studies with oral ulcerative lesion among patients with covid 19. In our study, only three patients were found to possess oral lesions, two on the buccal mucosa and one on the palate. Interestingly, **Chau et al** reported oral ulcer as one of the earliest sign of covid-19 which often goes unnoticed by the patient as well as the physician.⁵ Moreover, the shape, site and pattern of ulcers in the previously mentioned studies indicated viral infections, which were contradicted by serological tests confirming covid association. In any cases reported, because of the absence of clear temporality along with the small sample size with unclear heterogenous picture, it is still not clear whether the lesions are covid specific and/or related to the stress.

Being the first kind of its study and with small sample size, more large scale observational investigations are needed for better understanding and comprehend of the pathogenesis of the lesion in patient with the diseases.

In addition, accessible proof has not been established efficient and safe pharmacological agents against COVID-19 yet, and the potential ones are identified with a few antagonistic responses, including oral ulcers.^{11,12} Likewise, intense contamination of COVID-19, along with related remedial measures, might actually contribute to adverse outcomes concerning oral wellbeing, likely prompting to various opportunistic fungal infections, repetitive oral herpes simplex infection (HSV-1) disease, unspecific oral ulcerations, fixed drug reactions, dysgeusia, xerostomia related to decreased salivary flow, ulcerations and gum disease because of the debilitated immune response and additionally susceptible oral mucosa.¹³

Conclusion

The present study was conducted in the department of the oral medicine and radiology of Swami Devi Dayal Dental College during the pandemic of covid-19. The study mainly emphasized on the clinical characteristics of oral

manifestation in covid patients with possible mechanism. In our study, a maximum number of patients were found to possess lesion over the tongue. The oral symptoms usually appeared after the general symptoms of fever and weakness, but can be the only and the initial symptom of COVID-19. Thus, a cautious clinical intraoral examination should be performed on covid-19 positive patients to detect changes as an indicator of the diseases in covid positive or suspected patients.

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