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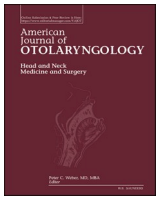

Oral lesions in Covid 19 positive patients

Vural Fidan [a,*], Handan Koyuncu [b], Okan Akin [c]

[a] Department of Otorhinolaryngology, Eskisehir City Hospital, Eskisehir, Turkey
[b] Department of Otorhinolaryngology, Yunus Emre Hospital, Eskisehir, Turkey
[c] Department of Otorhinolaryngology, Ortadogu Hospital, Ankara, Turkey

1. Introduction

Coronavirus disease 2019 (Covid 19) which causes pandemics all over the world, primarily causes pneumonia by infiltrating the respiratory tract [1]. The first stop of viruses that infect the respiratory tract is the oral cavity [2]. Few reports have retailed the oral appearances of COVID-19 [2–5]. Many systemic diseases such as nutritional deficiencies, autoimmune disorders, or human immunodeficiency virus infection can present with oral lesions [6,7].

Prevalent oral lesions contain aphthous lesions, erythema, and lichen planus [8]. Identification and diagnosis need conducting an entire oral investigation. Information of characteristics such as placement, structure and color are useful in confirming the diagnosis [9].

In this study, we tried to identify possible oral lesions for the early diagnosis of Covid-19 which we still have limited information.

2. Methods

Seventy-four Covid 19 patients (age range 19–78 years(mean ± SD age, 45,6 ± 12.8)) who presented to our clinic between April 2020 and October 2020 were included in this prospective, observational study. This study was approved by the Local Ethical Committee. Informed consent was obtained from all subjects.

At study entry, all subjects were examined in detail. Also routine blood analyses, real-time reverse transcriptase–polymerase chain reaction (PCR) test of nasopharyngeal swab and chest X-rays were performed in all participants.

All participants who had received hormone therapy and/or steroid therapy in the one month prior to the study or those who were taking any drugs that might affect oral lesion were also excluded from the study. We excluded the subjects whom have oral lesions prior Covid diagnosis.

The PCR trials were accomplished on nasopharyngeal swabs adhering a previously reported procedure [10].

Statistical investigations were accomplished by handling the SPSS software, version 21.0 (SPSS Inc., Chicage, IL, USA) for Windows. Unqualified variables are exhibited as percentages and constant variables are exhibited as mean ± SD.

Relationships of constant variables in the group were ascertained with Wilcoxon rank-sum tests. Relations between two constant variables were measured with Spearman rank correlation coefficients. Unqualified variables were measured with likelihood ratio χ 2 tests. A value of $P < 0.01$ was determined as statistically important.

3. Results

In total, seventy four patients who diagnosed Covid 19 were enrolled to the study (mean ± SD age 49.3 ± 7.2 years; 49 (66.2%) males, 25 (33.8%) females). Demographic distribution and comparision of Covid 19 patients were shown in Table 1. Table 2 shows the classification of oral lesions and distribution oral lesion areas. Aphthous-like ulcer was the most common oral lesion (n: 27). Respectively, other findings were erythema (n: 19) and lichen planus (n: 12). The most common location of lesions was tongue (n: 23). Respectively, other lesion areas were buccal mucosa (n: 20), gingiva (n: 11) and palate (n: 4).

4. Discussion

Many systemic viral infections such as human immune deficiency virus have oral lesions and progression of systemic viral infections is associated with range of oral manifestations [11]. Oral lesions were found to have diagnostic and prognostic values.

Aphthous-like ulcer is most prevalent oral mucosal lesion. The etiology is frequently multifactorial [12]. Erythema is a T-cell mediated immune condition and it is most prevalently associated with infections in a young to middle aged persons. Erythema is predominantly seen in boys [13].

Lichen planus is an immune mediated T-cell response with an

* Corresponding author at: Department of Otorhinolaryngology, Cavdarlar Street, Eskisehir 26080, Turkey.
E-mail address: vuralfidan@gmail.com (V. Fidan).

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Table 1
Demographic distribution and comparision of Covid 19 patients.

Gender	Patients with oral lesions (n/%)	Patients without oral lesions (n/%)	Total (n/%)	p
Male	38/65.5	11/68.8	49/66.2	0.249
Female	20/34.5	5/31.2	25/33.8	
Total	58/100	16/100	74/100	
Age (Mean ± Standard Deviation)/(min–max)	52.8 ± 6.9/31–68	49.3 ± 5.8/28–67	51.4 ± 6.3/28–68	0.117

Table 2
Classification of oral lesions and distribution of lesion areas.

	Aphthous-like ulcer	Erythema	Lichen planus	Total (n/%)
Tongue	12	8	3	23/39.7
Buccal mucosa	9	7	4	20/34.5
Gingiva	4	3	4	11/18.9
Palate	2	1	1	4/6.9
Total (n/%)	27/46.6	19/32.8	12/20.6	58/100

approximated prevalence of 0.22 to 5% and most frequently affecting middle aged women and typically affecting the buccal mucosa, tongue, lips, gingiva [14].

Oral lesion prevalence in non-Covid subjects varies between 51.4 and 81.3%.[3,5,10] In our study, the frequency of oral lesions in covid patients is 78.4%.

In the literature, the most prevalent oral lesions in non-Covid subjects were coated tongue (51.4%), leukoplakia (13.8%), traumatic oral lesions in 9.2% [15,16]. In our study, the most prevalent oral lesions in Covid subjects were aphthous-like ulcer (36.5%), erythema (25.7%), lichen planus (16.2%).

In this study we found oral lesions in fifty-eight of seventy-four Covid 19 patients. There is limited reports about oral lesions in patients with Covid 19. There are investigations present that Covid 19 impair to respiratory and other tissues could be associated to the dispersion of angiotensin converting enzyme 2 (ACE2) sensors in body [17]. Hence, cells with ACE2 sensor allocation may enhance entertainer cells for the Covid 19 and additionally cause inflaming responses in associated tissues, such as the oral mucosa [18]. Nearby, accessible affirmation has not constituted an effective drug against COVID-19 up to this time [19,20].

Oral mucosa lesions could be the consequence of many agents, such as stress, insufficiency of oral hygiene or systemic infections [21,22]. Local antiseptics such as hydrogen peroxide based suspensions advised to lessen the viral burden [23].

The oral circumstances confronted by this survey and other published studies fortifies the theory which they are enthusiastically implicative of secondary lesions occurring from the impairment of systemic vigour or appropriate to therapies for Covid-19 [22]. In spite of estimating our analysis of affiliated terms, the otorhinolaryngologist's significance as part of the medical team in evaluating patients with Covid-19, should be foregrounded. Oral investigation should be standard protocol of patients with Covid 19. Additionally surveys with larger groups are required to ascertain whether the Covid 19 is the occasion or the factor that increases probability of oral lesion development.

Declaration of competing interest

The authors whose names are listed immediately below certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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