

ORIGINAL ARTICLE

Prevalence of Oral Mucosal Lesions in Patients with Dermatological Diseases Attending Tertiary Care Hospital in Central India

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Abstract:

Background: The oral cavity is a unique environment where systemic maladies may be amplified by the oral mucosa. Sometimes, oral lesions are the first indication of a systemic problem. Oral mucosal lesions may be the initial feature or the only clinical sign of mucocutaneous diseases commonly observed in a dermatologic practice. **Aim and Objectives:** To assess the frequency of the oral manifestations in patients who suffer from dermatologic diseases, emphasizing the aspects referring to their, sex and age of the patients. **Material and Methods:** A cross sectional hospital-based study was carried out focusing on patients with skin lesions, for data gathering only patients included in the research were clinically examined aiming at identifying oral and cutaneous alterations. Information was recorded in individual clinical cards, as well as personal information, health conditions, family diseases and current and previous diseases. The structured interview was done in the local language containing questions regarding socio-demographics (gender, age, education and occupation) general and oral health related characteristics and lifestyle. **Results:** In our study, the prevalence rate of oral mucosal lesions in patients with dermatological diseases is relatively low (94/489). Our study results showed that there is a positive correlation of oral manifestations with their respective dermatological diseases **Conclusion:** Oral mucosal lesions in skin diseases deserve special attention,

Documenting the frequency of oral mucosal lesions in dermatological diseases may alert the dental surgeons and gives scope for early diagnosis and progress for such diseases and a multidisciplinary approach

Keywords: Dermatological diseases, skin, oral Manifestations, Mucocutaneous Lesions

Introduction:

The oral cavity is a unique environment where systemic maladies may be amplified by the oral mucosa. Sometimes, oral lesions are the first indication of a systemic problem. Oral Mucosal Lesions (OML) may be the initial feature or the only clinical sign of mucocutaneous diseases, a group of mainly chronic diseases, commonly observed in a dermatologic practice. Dermatologic diseases are represented not only by numerous primary diseases that affect the skin but also by the common cutaneous manifestations of more profound diseases, either visceral or systemic, that may involve the mucosa of the body, including the oral mucosa. Currently, dermatoses constitute an area of great scientific and odontological interest, considering that oral lesions can precede cutaneous marks for long periods of time, being, sometimes, the only signs of the disease. In this context, the

most expressive pathologies are Lichen Planus (LP), Lupus Erythematosus (LE), Erythema Multiforme (EM), Pemphigus Vulgaris (PV) and the group of the pemphigoid lesions [1, 2]. LP is an autoimmune disease affects skin and mucosae that manifests in the oral cavity with high frequency. These lesions are characterized by Wickham streaks and may present themselves under various clinical forms, mainly the reticular and erosive one [2-4]. LE is an autoimmune disease that, classically, can be subdivided into Systemic Lupus Erythematosus (SLE) and Cutaneous Lupus Erythematosus (CLE). The involvement of the oral mucosa may occur in both form and the possibility of manifesting itself in a more aggressive way requires more attention and early diagnosis. EM is an ulcerative and bullous disorder of uncertain etiopathogenesis, characterized by cutaneous eruption followed or not by oral involvement that may, occasionally involve the mouth in an isolated manner. PV is an autoimmune pathology characterized by the formation of intraepithelial bullae, on the skin and mucosae that are easy to tear with a minor trauma, developing into painful ulcerations easily inflamed. The term pemphigoid refers to an autoimmune bullous disease that may affect the skin and mucosae, especially the oral and the ocular ones. Among them the cicatricial pemphigoid lesions, with more frequent oral lesions, and the bullous pemphigoid that affects mainly the skin [5]. The objective of this study was to assess the frequency of the oral manifestations in patients who suffer from dermatologic diseases, emphasizing the aspects referring to gender and age of the patients.

Material and Methods:

A cross sectional hospital-based study was conducted among patients with skin lesions, attending an outpatient dermatologic clinic at

tertiary care hospital in central India. The study was carried out over a period of one year. The patients with OML along with skin diseases were invited to participate in the study. A total of 1500 patients with both the lesions were examined during the study period. Out of which 489 patients had given written consent to participate in the study and the rest of 1011 patients were refused to participate in the study, reason being fear to undergo biopsy for asymptomatic lesions and time consuming examination. Confidentiality of the patients was maintained during and after the clinical examination of the study subjects.

All the participants were informed about their oral conditions, and health education was given to all the study subjects. The patients, who were needed dental services referred to the dental hospital of the same institute for further investigation and management. Before start of the study an ethical clearance was obtained from the concerned Institutional Ethics Committee of the hospital. After the clinical examination, the information was recorded in individual clinical cards, health conditions, family diseases, current and previous diseases.

The structured interview was done in the local language containing questions regarding socio-demographics (gender, age, education, occupation and place of residence during the last 5 years), health and oral health related characteristics and lifestyle. The findings were recorded in Standard format. The results of the study were analyzed by SPSS software version 17.0 presented as descriptive statistics. Correlation of oral manifestations with their respective dermatological disease was statistically analysed by Pearson's correlation test. ($P < 0.05$ was considered as statistically significant).

Results:

A total of 489 patients with a skin disease diagnosis were participated in the study. The mean age was 40.58 ± 15.9 years (range 9-84), 39.04% were females and 60.6% were males. Males were more frequently employed than females (77.1% versus 19.0%, $p < 0.001$), whereas use of smoking, was more reported in males than females ($p < 0.05$) (Table 1).

Frequencies of Skin Disease Categories

Out of 489 patients examined, 94 patients with Oral mucosal lesions along with skin lesions were observed. Of the 94 patients with oral lesions, Psoriasis was seen in 20.6% (6 males and 14 females), fungal infection 20.6% (12 males and 8 females), Vericella Zoster 1 8.5% (10 males and 8 females), followed by herpes infection 10.3%,

Erythema mutliforMEA 9.5%, lichen planus 8.2%, Pemphigus 3.09% and Pemphigoid 2.06% (Table 2).

The percentage of oral mucosal lesions in patients with various dermatological lesions are EM (100%), Vericella Zoster (69.2%), Ectodermal dysplasia (50%), herpes infection (27.7%), Pemphigous was (25%), LE (25%), Pemphigoid (10.5%), psoriasis (9.9%) and lichen planus (7.1%) were shown with oral manifestations respectively (Table 3).

Correlation of oral manifestations with their respective dermatological disease showed r-value 0.456, which is strong positive correlation under Pearson's correlation analysis and is statistically significant at the 0.001 level (two-tailed) (Table 4).

Table 1: Socio-demographic and Behavioural Distribution of Patients with Skin Disease by Gender (n = 489)

Variables	Female N (%)	Male N (%)	Total N (%)
Age	191 (39.1)	298 (60.9)	489 (100.0)
Occupation			
Employed	35 (18.3)	230 (77.2)	265 (54.2)
Unemployed	156 (81.7)	68 (22.8)	224 (45.8)
Education			
Lower education (till primary school)	106 (55.2)	138 (46.3)	244 (49.9)
Higher education	85 (44.5)	160 (53.7)	245 (50.1)
Residence			
Rural	102 (53.4)	156 (52.3)	258 (52.8)
Urban	89 (46.6)	142 (47.7)	231 (47.2)
Smoking tobacco and chewing *			
No	184 (96.3)	187 (62.8)	371 (75.9)
Yes	07 (03.7)	111 (37.2)	118 (24.1)

$p < 0.05$ * $p < 0.001$. Socio-demographic and behavioural distribution of patients with skin disease by gender

Table 2: Various Dermatological Lesions with Oral Mucosal Lesions and the Gender Wise Distribution in the Study Population

Lesions	Number of Persons N (%)	Male N (%)	Female N (%)
Fungal Infection	20 (21.3)	12 (60.0)	08 (40.0)
Erythema multiforme	09 (9.6)	04 (44.4)	05 (55.6)
Herpes infection	10 (10.6)	04 (40.0)	06 (60.0)
Lichen planus	08 (8.5)	03 (37.5)	05 (62.5)
Lupus erythematosus	02 (2.1)	02 (100.0)	0
Pemphigoid	02 (2.1)	02 (100.0)	0
Psoriasis	20 (21.3)	06 (30.0)	14 (70.0)
Vericella zoster	18 (19.1)	10 (55.5)	08 (44.4)
Pemphigus	03 (3.2)	01 (33.3)	02 (66.7)
Ectodermal dysplasia	02 (2.1)	02 (100.0)	0
Total	94 (100.0)	46 (49.6%)	48 (50.4)

Table 3: Percentage of Oral Mucosal Lesions with Various Dermatological Lesions

Lesions	Patients with Skin Manifestations	Patients with Skin and Oral Manifestations	Percentage (%)
Fungal Infection	61	20	32.80
Erythema multiforme	09	09	100.0
Herpes infection	37	10	27.02
Lichen planus	112	08	07.14
Lupus erythematosus	08	02	25.0
Pemphigoid	19	02	10.53
Psoriasis	201	20	09.95
Vericella zoster	26	18	69.23
Pemphigus	12	03	25.0
Ectodermal dysplasia	04	02	50.0
Total	489	94	19.22

Table 4: Distribution of the Study Population Based on the Oral Manifestations

Population with or without Oral Mucosal Lesions with Respective Dermatological lesion	Frequency	Percent	Cumulative percent	Significant (two-tailed)	Pearson's correlation Analysis (r-value)
Patients with Cutaneous Manifestations	489	100	100	0.001	0.456*
Patients with Skin and Oral Manifestations	94	19.2	100	0.001	0.456*

*Correlation is significant at the 0.01 level (two-tailed)

Discussion:

Mucocutaneous lesions of skin and oral mucosa commonly manifest as vesicular and/or ulcerative lesions. Various etiological factors contribute to the development of these lesions and encompass autoimmune/immune mediated, infectious, neoplastic, hematologic, reactive, nutritional and idiopathic causes [6, 7].

Dermatologic diseases are represented not only by numerous primary diseases that affect the skin but also by the common cutaneous manifestations of more profound diseases, either visceral or systemic, that may involve the mucosa of the body, including the oral mucosa. Currently, dermatoses constitute an area of great scientific and odontological interest, considering that oral lesions can precede cutaneous marks for long periods of time, being, sometimes, the only signs of the disease. In this context, the most expressive pathologies are LP, LE, EM, PV and the group of the pemphigoid lesions [8]. Dermatology may include a great variety of diseases, which affect the oral tissues and those were predominantly autoimmune diseases. Considering the information on autoimmune disease by the National Institute of Health the autoimmune disorders affect 5-7% of

the population with prevalence as high as 20% in the United States [9].

It is observed that in cases of EM accompanied by mucosal involvement, prodromal symptoms are common. Usually, it is unclear whether these symptoms are part of EM or part of the infectious illness that may have led to the EM. The clinical manifestation of EM may vary from one patient to another [10]. Dental abnormalities have been associated with 80% of cases [11]. In the present study, LE out of 8 patients, 2 patients showed oral findings. These results are similar with the studies conducted by Roy *et al.* [12].

In our study, patients with psoriasis did not shown any significant oral manifestations. The study conducted by Costa *et al.* [13] shown that patients with psoriasis did not present any type of oral lesions. It is also observed that two types of lesions were found to be statistically more prevalent in the patients with psoriasis than in the control group, namely Fissured Tongue (FT) and Geographic Tongue (GT) [13, 14]. The occurrence of oral lesions of psoriasis is a very uncommon event and has been a subject of controversy [15-17]. Besides a lack of consensus in regard to a clinical

description of what would constitute an oral psoriatic lesion, there are no established histologic criteria by which such a lesion can be conclusively diagnosed. It has been proposed that the diagnosis of oral psoriasis should only be made when the clinical course of the oral lesions runs parallel to that of the skin and is supported by histologic examination [18, 19].

Correlation of oral manifestations with their respective dermatological disease showed r-value 0.456, which is strong positive correlation under Pearson's correlation analysis and was statistically significant at $p < 0.001$ level (two-tailed). Similarly the study conducted by Arvind *et al.* [20] in their study showed that SLE (100%), discoid LE (100%), ectodermal dysplasia (100%), pemphigus (100%), Stevens Johnson syndrome (85.7%), psoriasis (17.3%), LP (16.6%), pemphigoid (12.5%) and pigmentation (8.4%). This could be due to the involvement of oral cavity depending on the duration of lesion, patient's age gender, immune responses and samples included in the study.

Conclusion:

In our study, the prevalence rate of oral mucosal lesions in patients with dermatological diseases was relatively low. Our study results showed that there is a positive correlation of oral manifestations with their respective dermatological diseases. Most of the time, oral manifestations may be found as an initial symptom in patients with dermatological lesions. In this context, dental surgeons have a possibility to observe disease at the preliminary stage. The oral mucosal lesions in skin diseases deserve special attention, considering that some are life-threatening, while others have great impact on individuals and society in terms of pain, discomfort and social as well as functional limitations. Hence, multidisciplinary approach reinforces the treatment standards as well as better prognosis of the disease.

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