

# Oral Manifestations of Patients Diagnosed with Dermatological Diseases: A Cross-Sectional Study in Al-Ahsa, Eastern Province, Saudi Arabia

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## ABSTRACT

**Background:** It is not unusual for oral manifestations to occur in dermatological diseases. The aim of this study was to observe and evaluate oral manifestations in patients diagnosed with dermatological diseases.

**Methods:** A cross-sectional study based on a convenient sampling technique was conducted among patients with dermatological conditions who visited the polyclinic of King Faisal University Polyclinic of Al-Ahsa, Saudi Arabia from Sep-Nov 2021.

**Results:** Sixty-one percent were females, 50% were aged >30 years, 77% had higher education, 61% were unemployed, 82% were non-smokers, and 20% had some medical conditions. 14.5% suffered from immune-mediated skin disease, 25.3% had eczema, 21.7% showed dermatitis infections, 3.6% had Genodermatosis, 9.6% were with psoriasis and other keratinizing disorders, and 25.3% had miscellaneous skin conditions. 85.5% of skin patients did not have any oral manifestations; oral lesions were of perioral dermatitis (1.2%), melanotic macule (1.2%), fissured tongue (2.4%), oral lichen planus (2.4%), mucocele (2.4%), and one case of each with geographic tongue, herpes labialis, and hairy tongue.

**Practical Implications** This study highlights the importance of integration of oral health into general health for management of oral diseases associated with other body diseases.

**Conclusion:** The majority of the patients in this study sample with skin diseases did not show any oral manifestations. More females and aged patients had more skin conditions.

**Keywords:** Prevalence, Oral manifestations, Dermatological conditions, Cross-sectional study

## INTRODUCTION

A wide number of dermatological conditions can affect the oral cavity and it is not unusual for oral manifestations to occur in dermatological diseases since the skin and mucus membrane share common features histologically.<sup>1</sup> Skin diseases are found in more than 50% of the adult population and account for 14% of primary health care visits. In Saudi Arabia, the prevalence of skin diseases varies in different regions<sup>3</sup> and the prevalence of oral mucosal lesions (OMLs) also varies significantly across different regions and countries.<sup>4,5</sup> Oral mucosal lesions in skin diseases can be life-threatening and also affect the quality of life in terms of pain, discomfort, and social and functional limitations.<sup>6</sup> Very often dermatological conditions involving the oral cavity are misdiagnosed and proper attention and care are not given.<sup>1</sup> Early detection and diagnosis of these manifestations may play a major role in diagnosis as well as to enhance the overall health since primary prevention of disease is seen as a vital part in the modern practice of dentistry and medicine. The oral cavity lesions are ranked as one of the most common ten malignancies in Saudi Arabia.<sup>7</sup> Oral disease pattern is changing because of increasing awareness, changing lifestyle pattern, and seeking oral health care.<sup>8</sup> Epidemiological studies can provide important information for understanding the prevalence, distribution, and risk factors of OMLs in the population.<sup>5</sup> In Saudi Arabia, few studies have been conducted on oral mucosal lesions related to dermatological conditions. The aim of this study was to assess the status of oral lesions in patients diagnosed with dermatological diseases attending a polyclinic in King Faisal University, Al-Ahsa region, Saudi Arabia.

## METHODOLOGY

A cross-sectional hospital-based study was conducted on patients with dermatological conditions attending the department of dermatology, King Faisal University Polyclinic, Al-Ahsa, Eastern region, Saudi Arabia, who visited the polyclinic from Sep-Nov

2021. After obtaining their verbal consent, the patient's interview was performed to obtain personal information including gender (male/female), age ( $\leq 15$  years/16-30 years/31-45 years/  $\geq 46$  years), educational status ( $\leq$  higher secondary/  $\geq$  bachelor) and employment status (unemployed/employed), smoking status (no/past/current), medical, and dermatological conditions. Oral examination was performed to record the oral manifestations of dermatological conditions. Clinical oral examination was standardized by training and calibration of the dental interns (study investigators) with the oral pathologist of the KFU dental clinic complex and observing the oral mucosal lesions by visual detection<sup>9</sup>. Data analysis was done using the SPSS statistics version 20.0. Descriptive data was measured in terms of frequency and percentage for the observed categorical variables. The significance level was set at  $p \leq 0.05$ . Ethical approval was obtained from the Ethical Committee of the College of Dentistry King Faisal University vide letter # kfu/CoD/R/0014/2019.

## RESULTS

General information of dermatological patients are shown in table 1. Eighty-three patients participated in the study. 61% were females, 50% were aged >30 years, 77% had higher education, 61% unemployed, 18% were smokers and 12% smoked more than 5 cigarettes a day. Only 20% had some medical conditions, and highest number was with anemia (7.2%), followed by DM (4.8%), hypertension (3.6%), inflammatory bowel disease (1.2%), Vit-D deficiency (1.2%) and Hypothyroidism (1.2%).

**Dermatological Conditions:** Table 1 revealed that patients with immune-mediated skin disorders were 14.5%, eczema and related conditions were 25.3%, dermatitis infections were 21.7%, genodermatoses were 3.6%, psoriasis and other keratinizing disorders were 9.6%, and miscellaneous cases were 25.3%. The distribution of skin conditions was more prevalent among females as compared to males; patients in the age group of 31-45 had more skin problems as compared to other age groups. Patients with low education and unemployed had more skin problems. Current smokers were 15.6% in this study sample and all had one of the noted dermatological conditions, higher number of non-

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smokers exhibited dermatitis and Eczema related conditions. All anemic patients had one of the skin conditions. (Table 2)

**Oral Lesions (manifestations):** Intra-oral examinations revealed that 85.5% of patients with skin diseases had no oral manifestations. The small percentage that had oral lesions were of perioral dermatitis (1.2%), melanotic macule (1.2%), fissured tongue (2.4%), oral lichen planus (2.4%), mucocoele (2.4%) and one case of each with geographic tongue, herpes labialis, and hairy tongue (Table 3).

Table 1. Demographics, Medical and Dermatological Conditions of Study Population

Gender	
Male	32 (38.6%)
Female	51 (61.4%)
Age (Mean±SD)	
≤15 years	8 (9.6%)
16-30 years	33 (39.8%)
31-45 years	22 (26.5%)
≥46 years	20 (24.1%)
Education status	
Lower (≤Higher Secondary)	19 (22.9%)

Higher (Bachelor and above)	64 (77.1%)
Employment status	
Unemployed	32 (38.6%)
Employed	51 (61.4%)
Smoking Status	
Never	68 (82.0%)
Past	2 (2.4%)
Current (≤5 times/day)	3 (3.6%)
(>5 times/day)	10 (12.0%)
Medical Condition	
Anemia	6 (7.2%)
Diabetes Mellitus	4 (4.8%)
Hypertension	3 (3.6%)
Inflammatory bowel diseases	1 (1.2%)
Vit D deficiency	1 (1.2%)
Hypothyroidism	1 (1.2%)
Dermatological conditions	
Immune-mediated skin disorders	12 (14.5)
Eczema and related conditions	21 (25.3)
Dermatitis infections	18 (21.7)
Genodermatoses	3 (3.6)
Psoriasis and other keratinizing disorders	8 (9.6)
Miscellaneous	21 (25.3)

Table 2. Status of Dermatological Conditions with respect to Demographic and Medical Variables

Demographic and Medical Variables	Dermatological condition					
	Immune-mediated skin disorders N=12	Dermatitis / Eczema and related conditions (N=21)	Dermatitis infections N=18	Genodermatoses N=3	Psoriasis and other keratinizing disorders (n=8)	Miscellaneous N=21
Gender						
Male (n=32)	3 (9.4%)	7 (21.9%)	8 (25.0%)	0 (0.0%)	2 (6.3%)	12 (37.5%)
Female (n=51)	9 (17.6%)	14 (27.5%)	10 (19.6%)	3 (5.9%)	6 (11.8%)	9 (17.6%)
Age Groups						
≤15 years (n=8)	1 (12.5%)	2 (25%)	1 (12.5%)	0 (0%)	1 (12.5%)	3 (37.5%)
16-30 years (n=33)	2 (6.1%)	7 (21.2%)	5 (15.2%)	2 (6.1%)	5 (15.2%)	12 (36.4%)
31-45 years (n=22)	5 (22.7%)	5 (22.7%)	7 (31.8%)	1 (4.5%)	0 (0.0%)	4 (18.2%)
>46 years (n=20)	4 (20.0%)	7 (35.0%)	5 (25.0%)	0 (0.0%)	2 (10.0%)	2 (10.0%)
Education status						
≤Higher Secondary (n=19)	4 (21.1%)	6 (31.6%)	4 (21.1%)	0 (0.0%)	1 (5.3%)	4 (21.1%)
≥Bachelor (n=64)	8 (12.5%)	15 (23.4%)	14 (21.9%)	3 (4.7%)	7 (10.9%)	17 (26.6%)
Employment Status						
Employed (n=32)	4 (12.5%)	7 (21.9%)	9 (28.1%)	1 (3.1%)	3 (9.4%)	8 (25.0%)
Unemployed (n=51)	8 (15.7%)	14 (27.5%)	9 (17.6%)	2 (3.9%)	5 (9.8%)	13 (25.5%)
Smoking Status						
Never (n=68)	11 (16.2%)	19 (27.9%)	11 (16.2%)	3 (4.4%)	7 (10.3%)	17 (25.0%)
Past (n=2)	0 (0.0%)	0 (0.0%)	1 (50%)	0 (0.0%)	1 (50.0%)	0 (0.0%)
Current	1 (33.3%)	0 (0.0%)	1 (33.3%)	0 (0.0%)	0 (0.0%)	1 (33.3%)
≤5 time/day (n=3)	0 (0.0%)	2 (20.0%)	5 (50.0%)	0 (0.0%)	0 (0.0%)	3 (30.0%)
>5 times/day (n=10)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Medical Conditions						
Anemia (n=6)	2 (33.3%)	1 (16.7%)	1 (16.7%)	0 (0.0%)	1 (16.7%)	1 (16.7%)
Diabetes Mellitus (n=4)	0 (0.0%)	1 (25.0%)	2 (50.0%)	0 (0.0%)	0 (0.0%)	1 (25.0%)
Hypertension (n=3)	0 (0.0%)	0 (0.0%)	1 (33.3%)	0 (0.0%)	1 (33.3%)	1 (33.3%)
Inflam Bowel diseases (n=1)	1 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Vit D Deficiency (n=1)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
Hypothyroidism (n=1)	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

\*Chi-Squared Test, p≥0.087

Table 3: Status of Dermatological conditions and Oral manifestations

Dermatological condition	Oral Manifestations									
	None	Perioral dermatitis	Melanotic macule	Fissured tongue	Oral lichen planus	Mucocoele	Geographic tongue	Herpes labialis	Hairy tongue	Dry mouth
Immune mediated skin disorders (n=12)	10 (83.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (8.3%)	0 (0.0%)	0 (0.0%)	1 (8.3%)	0 (0.0%)	0 (0.0%)
Dermatitis / Eczema and related conditions (n=21)	16 (76.2%)	1 (4.8%)	0 (0.0%)	2 (9.5%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (4.8%)
Dermatitisinfections (n=18)	16 (88.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (5.6%)	0 (0.0%)	1 (5.6%)	0 (0.0%)
Genodermatosis (n=3)	2 (66.7%)	0 (0.0%)	1 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Psoriasis and other keratinizing disorders (n=8)	8 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Miscellaneous (n=21)	19 (90.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (4.8%)	1 (4.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total (n=83)	71 (85.5%)	1 (1.2%)	1 (1.2%)	2 (2.4%)	2 (2.4%)	2 (2.4%)	1 (1.2%)	1 (1.2%)	1 (1.2%)	1 (1.2%)

Chi-square test p = 0.09 (Distribution of lesions is not significantly different)

## DISCUSSION

Patients having skin diseases involving oral mucosa present with different types of oral signs and symptoms, viz, oral pain, soreness, burning, xerostomia, bleeding, swelling, change of color, ulcers, erosions, crusting, and fissuring<sup>1</sup>. In the present study conducted over a period of two months, 83 patients with skin diseases were observed with immune-mediated skin disorders (14.5%), dermatitis and Eczema related conditions (25.3%), dermatitis infections (21.7%), Genodermatosis (3.6%), Psoriasis and other keratinizing disorders (9.6%) and viral or fungal infections/ pigmentary disorders and allergic rashes (25.3%). These findings are comparable with another study<sup>10</sup> that reported dermatitis/ eczema (19.6%) followed by acne (13.8%), viral infection (13.5%), and psoriasis (3.4%). In a study by Kumar et al.,<sup>11</sup> prevalence of oral Genodermatosis was reported as a rare condition that is coherent with this study. A study by Almohideb et al.<sup>12</sup> has shown dermatitis (24%) as the most common skin disease in Saudi Arabia that is very close to its prevalence (21.7%) noted in this study. Roy et al.<sup>9</sup> have reported 150 patients having various disorders with oral manifestations. The main oral manifestations were aphthous ulcers (28.57%) and pemphigus vulgaris (26.60%) followed by SLE (17.02%), oral candidiasis (16.07%), lichen planus (12.77%). In this study prevalence of Psoriasis was found to be higher (9.6%) as compared to 5.3%<sup>13</sup> where men were more affected than women and the age of onset was under 30 years, which is inconsistent with this study where females were 3 times more affected, however the age of onset of disease was the same. Rahamathulla et al.<sup>14</sup> has reported an overall prevalence of skin disorders (23.6%) among a sample of 118 patients. Allergic dermatoses 11.3%, eczema 11.8%, Lichen planus 6(5%), allergic rashes 3.3% and psoriasis 2.5% were recorded. In this study, the prevalence of eczema, psoriasis, and dermatosis was comparatively higher.

Oral mucosal lesions were noted according to the WHO Guide to Epidemiology and Diagnosis of Oral Mucosal Diseases and Conditions.<sup>15</sup> In this study sample, the prevalence of oral manifestations was noted only in 15% of patients with skin diseases. Prevalence of perioral dermatitis, melanotic macule, geographic tongue, hairy tongue, herpes labialis, and dry mouth were 1.2% each, fissured tongue, oral lichen planus, and mucocele were 2.4% each. In comparison, a study<sup>16</sup> has shown a prevalence of fissured tongue as 21.1%, lichen planus (2.3%), geographic tongue (2.2%), geographic tongue (1.1%) and mucocele (0.9%). In a study by Al-Maweri et al.<sup>17</sup> the most frequently observed lesions were fissured tongue, followed by hairy tongue and white lesions. The prevalence of xerostomia and its consequences are rising due to the increasing aging population, the effects of some systemic diseases, medical management, and commonly prescribed medications that reduce saliva production. In a recent study,<sup>18</sup> only one case of xerostomia was noted in a patient with dermatitis. Chandra et al.<sup>19</sup> has reported association of tobacco with the presence of oral lesions. This study sample presented 16% patients with current smoking status. The prevalence of oral lesions in 15% participants of this study closely correspond to another study<sup>20</sup>.

## CONCLUSION

In the present study, a small number of patients with skin disease had oral lesions. The oral cavity is affected by many systemic disorders, and a wide range of oral mucosal involvement that provides an early indication of an underlying disease may remain undiagnosed by physicians, dentists, and dermatologists.

**Conflict of Interest:** Declared as None

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