

Prevalence of Oral Mucosal Lesions and Their Association with Severity of Psoriasis among Psoriatic Patients Referred To Dermatology Clinic: A Cross-Sectional Study in Kashan/Iran

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Abstract

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BACKGROUND: Psoriasis is a common inflammatory papulosquamous disease of the skin with unknown aetiology that may be associated with the abnormal T-cell function.

AIM: This study was aimed to determine the prevalence of oral mucosal lesions and their associations with severity of psoriasis in psoriatic patients attending the dermatologic clinic of Shahid Beheshti Teaching Hospital at Kashan, Iran.

METHODS: In this cross-sectional descriptive analytic study, all consecutive patients with psoriasis who referred to the dermatologic clinic at the Shahid Beheshti Hospital of Kashan University of Medical Sciences in Kashan City/ Iran were enrolled. All patients were examined for the presence of oral lesions, and the clinical and epidemiological features of the disease were recorded in a questionnaire for each patient. A biopsy was taken from atypical suspected patients with oral lesions by an expert dermatologist. Data were analysed using the Statistical Package for Social Science (Version 18). Descriptive statistics tests; Cross tabulation and Chi-square with Fisher's exact test were used.

RESULTS: Of total 177 psoriatic patients, 62 cases (35%) of patients were male, and 115 cases (65%) were female. Mean age of patients was 31.71 years. The oral lesion was seen in 83 cases (46.9%). Fissure tongue (28.2%) and geographic tongue (4.5%) were the most common oral lesions. The prevalence of oral lesions in patients with psoriasis significantly was associated with age, history of oral lesions, and with the onset of the oral lesions ($P < 0.05$). The most common form of psoriasis was chronic plaque form (Psoriasis Vulgaris) observed in 147 cases (83.1). The majority of patients (67.2%) were suffering from a mild form of the disease. Psoriasis Area and Severity Index (PASI) score of most patients was mild.

CONCLUSIONS: The prevalence of oral lesions such as Fissure tongue and geographic tongue is higher in psoriatic patients suggests further studies for approving the clinical importance of these apparently nonspecific lesions as possible predictors or markers of the severity of the cases suspected to Psoriasis disease.

Introduction

Psoriasis is a common chronic, genetically determined, scaly, an inflammatory papulosquamous immune-mediated disease of the skin with unknown aetiology, but it is known that there is a defect in the proliferation and differentiation of keratinocytes associated with inflammatory cell infiltration particularly consisting T-lymphocytes, macrophages

and neutrophils [1-3]. Other contributing factors as environmental causative agents of the disease are included trauma, infections such as staphylococci, streptococci, HIV and candida species, medications, stresses, cigarette smoking and alcohol [4]. Although nail and joint involvements are well documented, the oral manifestations of the disease were still a subject of controversy [5-7].

Psoriasis is clinically classified into two main groups: pustular and non-pustular lesions. Non-

pustular psoriasis is included: Psoriasis Vulgaris (early and late onset) Guttate psoriasis Erythrodermic psoriasis, Palmoplantar psoriasis, Psoriatic arthritis (PsA), and Inverse psoriasis. Pustular psoriasis is composed of Generalized pustular psoriasis (von Zumbusch type), Impetigo herpetiformis, and Localized pustular psoriasis which included Palmoplantar pustular psoriasis (Barber type) and Acrodermatitis continua of Hallopeau [8].

The most common manifestations of the disease is a chronic desquamative plaque which involves the extensor surface of elbows, knees, and scalp [1, 8]. Additionally, nail involvement is usually seen in 20-25% of patients, and psoriatic arthritis occurs in 5-8% of the patients [1, 2, 9].

The prevalence of Psoriasis has been estimated approximately 2-3% around the world. It has two peaks of onset; first between 16 to 22 years old and then in late of 57 to 60 years and affects both sexes equally [10, 11]. Furthermore, Siblings and children of psoriatic parents are at increased risk of developing the disease [1].

Although mucosal involvements are rare, they are related to pustular, plaque-type and erythrodermic skin involvements. Also, various lesions have been described including white, yellowish, grey or translucent plaques, annular forms or diffuse areas of erythema and geographic tongue [12, 13]. Although there is controversy about the occurrence of psoriatic lesions on oral mucous membranes, the results of a recent review showed that the prevalence of fissured tongue was ranging from 9.8% to 47.5% and geographic tongue occurred between 5.6% and 18.1% of patients with psoriatic disease [2].

The results of other studies have suggested an increase in the prevalence of oral lesions specially fissured tongue (FT) and geographic tongue (GT) among psoriatic patients [13-16]. Furthermore, it has shown that patients with tongue lesions also had a nail and genital involvement and it seems GT (not FT), is more common in early onset psoriasis and maybe an indicator of disease severity [15]. Nonspecific tongue lesions have also reported frequently in psoriatic patients. Additionally, it has also been estimated that the presence of either GT or FT can be characterised as a sign for psoriasis and statistically there has been a relationship between the frequencies of each of these two types of lesions with the presence of cutaneous psoriasis [14, 16].

The purpose of this study was to identify the prevalence of oral lesions and to detect possible associations between psoriasis severity and oral lesions in patients with psoriasis who referred to the dermatologic clinic at the Shahid Beheshti teaching Hospital of Kashan City in Iran.

Material and Methods

In this cross-sectional descriptive analytic study, all consecutive patients with psoriasis who referred to the dermatologic clinic at the Shahid Beheshti Hospital of Kashan University of Medical Sciences in Kashan City/Iran were enrolled. This study was according to the Declaration of Helsinki and approved by ethic committee of research deputy of Kashan University of Medical Sciences, and the written consent forms were signed by all participants.

All recruited psoriatic patients were examined by a dermatologist for various oral lesions such as white, yellowish, gray or translucent plaques, annular forms, or diffuse areas of erythema, GT, FT and benign migratory glossitis (BMG) etc., time of onset and history of the lesions, and biopsy was taken in cases with atypical oral lesions.

A questionnaire including demographic characteristics, the clinical and epidemiological features of the disease was completed for each patient. Furthermore, the degree of erythema, thickness, scaling of and extension of involved area in different parts of the body of patients were calculated based on Psoriasis Area and Severity Index (PASI) score and recorded in the medical records of the patients by physician. Collected data were analysed using the Statistical Package for the Social Sciences (SPSS) version 18.0 (SPSS Inc., Chicago, IL, USA). The association between studied variables was calculated using descriptive statistics tests such as Chi-squared test and Fisher's exact test, and $P < 0.05$ was considered statistically significant.

Results

In total, 177 psoriasis patients were enrolled, of these, 62 (35%) were men and 115 (65%) women. The mean age of the patients was 31.71 years, and most of the patients were in age group of 21-30 years. The mean duration of the disease was 7.54 years. Most patients were suffering from the mild form of the disease which observed in 119 (67.2%) of the patients. Other demographic characteristics of the patients have shown in Table 1. Of total 177 patients, 83 patients (46.9%) had oral lesions, and 94 patients (53.1%) had no history of oral lesions. In 166 patients (93.8%), the onset of oral lesions was at the beginning of the disease and in 11 patients (6.2%) at the late phase of the disease.

The most common type of oral lesion was fissured tongue in 50 patients (28.4%). The prevalence of oral lesions in patients based on the distribution of gender has shown in Table 2 ($P = 0.215$).

Table 1: The prevalence of demographic characteristics among studied population

Variables	No.	%
Age (year)		
< 20	46	26
21-30	57	32.2
31-40	29	16.4
41-50	20	11.3
>50	25	14.1
Duration of the disease		
<1	34	19.2
1-5	55	31.1
5-10	46	26
>10	42	23.7
PASI score		
Mild	119	67.2
Moderate	26	14.7
Severe	32	18.1

In 167 patients (94.4%), joints were not involved, and 10 patients (5.6%) had joint involvement ($P = 0.106$). Furthermore, 133 patients (57.1%) had nail involvement ($P = 0.898$). Topical therapy was the most common type of treatment used in 131 patients (74%), whereas systemic treatment was the lowest type of therapeutic approach used in 7 patients (7.4%).

Table 2: The prevalence of oral lesions based on sex distribution in the studied population

Oral Lesion	Male (No.)	Female (No.%)	Total (No.%)
No Lesion	29 (30.9)	65 (69.1)	94 (52.1)
Fissure Tongue	23 (46)	27 (54)	50 (28.4)
Geographical Tongue	3 (37.5)	5 (62.5)	8 (5.4)
White Plaque	2 (33.3)	4 (66.7)	6 (3.4)
Yellow Plaque	1 (33.3)	2 (66.7)	3 (1.7)
White Plaque and Fissure Tongue	1 (33.3)	2 (66.7)	3 (1.7)
Geographical Tongue and Fissure Tongue	0 (0)	3 (100)	3 (1.7)
Erythematous Plaque	1 (50)	1 (50)	2 (1.1)
White Plaque and Geographical Tongue	0 (0)	2 (100)	2 (1.1)
Erythematous Plaque and Fissure Tongue	0 (0)	2 (100)	2 (1.1)
Fissure Tongue and Aphthous	1 (50)	1 (50)	2 (1.1)
Gray Plaque and Fissure Tongue	0 (0)	1 (100)	1 (0.6)
Geographical Tongue and Erythematous Plaque	1 (100)	0 (0)	1 (0.6)
Total	62 (35)	115 (65)	177 (100)

Chronic plaque-type psoriasis (Vulgaris) in 147 (83.1%) of the patients was the most common type of psoriasis disease among the studied population followed by Palmoplantar psoriasis(3.4%), Psoriatic nails (2.8%), Guttate psoriasis (1.7%), Inverse psoriasis (0.6%), Inverse psoriasis& Chronic plaque-type psoriasis (2.3%), Chronic plaque-type psoriasis& Psoriatic nails (2.3%), Chronic plaque-type psoriasis& Psoriatic arthritis (1.2%), Generalized pustular psoriasis (1.1%), Localized pustular psoriasis (0.6%), Chronic plaque-type psoriasis & Palmoplantar psoriasis(0.6%), and Chronic plaque-type psoriasis& Other form of Psoriasis(0.6%).

Oral lesions were observed in 83 (46.9%) of the patients, and chronic plaque-type psoriasis was the most common type of the psoriatic disease seen in 69 patients (83.1%) with oral lesions, and 78 (83%) of patients without oral lesions.

The prevalence of oral lesions among psoriatic patients based on PASI score has demonstrated in Table 3.

Table 3: The prevalence of oral lesions among psoriatic patients based on PASI Score

Oral Lesion	PASI Score			Total No. %
	Mild No. %	Moderate No. %	Severe No. %	
No Lesion	63 67.7%	14 15.1%	16 17.2%	93 100%
White Plaque	3 50%	1 16.7%	2 33.3%	6 100%
Yellow Plaque	2 66.7%	0 0%	1 33.3%	3 100%
Geographical Tongue	5 62.5%	1 12.5%	2 25%	8 100%
Fissure Tongue	34 68%	8 16%	8 16%	50 100%
Erythematous Plaque	2 100%	0 0%	0 0%	2 100%
White Plaque and Geographical Tongue	2 100%	0 0%	0 0%	2 100%
White Plaque and Fissure Tongue	3 100%	0 0%	0 0%	3 100%
Gray Plaque and Fissure Tongue	0 0%	0 0%	1 100%	1 100%
Geographical Tongue and Fissure Tongue	2 75%	1 25%	0 0%	3 100%
Geographical Tongue and Erythematous Plaque	0 0%	1 100%	0 0%	1 100%
Fissure Tongue and Erythematous Plaque	1 50%	0 0%	1 50%	2 100%
Erythematous Plaque and Aphthous	2 100%	0 0%	0 0%	2 100%
Total	119 67.2%	26 14.7%	32 18.1%	177 100%

Discussion

Although psoriasis is a common skin disorder, reviewing the literature reveals that the oral mucosa involvement among psoriatic patients is relatively rare, and remains a controversial subject [3, 5, 9, 17, 18]. The present study investigated the prevalence of oral lesions and also a probable association between severities of psoriasis in psoriatic patients. Our results showed no significant correlation between the prevalence of lesion in psoriatic patients and sex ($P = 0.215$), drug consumption, joint ($P = 0.106$) and nail involvement ($P = 0.898$), family history ($P = 0.234$), duration of the disease ($P = 0.139$) and PASI score ($P = 0.927$). Whereas, the prevalence of oral mucosa lesion in psoriatic patients had a significant correlation with age ($P = 0.047$), previous history of oral lesions, and the onset of the psoriasis ($P < 0.05$).

The prevalence of oral lesions in this study was 46.9% within the range reported by Azmi et al., and less than reported by Griffiths et al. and Pérez et al. [3, 6, 9]. We found no significant relationship between the presences of oral lesions in psoriatic patients with sex. The Similar result was reported by Taheri et al. [18]. Likewise, Taheri et al., the average age of our patients was 31.71, and most of the patients were in age group of 21-30 years, but this result was dissimilar with the result reported by Pérez et al. [6, 18].

Fissured tongue is a developmental anomaly of the tongue dorsum most often associated with

geographic tongue and is also increased in psoriasis [2, 19, 20]. The results of a literature review showed that the prevalence of fissured tongue was ranging from 9.8% to 47.5% and of the geographic tongue was between 5.6% and 18.1% [2]. Likewise, in our study, the most common type of oral lesions was FG (28.4%), GT geographic tongue (4.5%) and both lesions (1.7%) which showed these two lesions were the most frequent oral lesions in psoriatic patients. The 28.4% prevalence of FG in our study was less than reported by Danesh Pazhooh et al. (33%), and Hernandez-Pérez et al. (47.5%), but higher than the results of Zargari (8.2%) [6, 13-15]. These results were different from reported by the textbook of dermatology [21]. The difference in the prevalence of these lesions in our study and other studies can be indicated the higher prevalence of these lesions among psoriatic patients [15, 20].

Additionally, it has shown that psoriasis correlates with HLA CW6 whereas, GT is related to HLA B15, DR7 and FT are associated with HLA-DRB1 which probably indicated the higher prevalence of oral lesions in psoriatic patients could be related to the disease itself [9, 21].

Our study showed that chronic plaque-type psoriasis was the most common type of psoriasis (83%) in which oral lesions had the highest prevalence (83.1%). A similar study conducted by Germi et al. on psoriatic patients (FT: 22.6%, GT: 9.1%), revealed that FT and GT could be suggested as an oral manifestation of plaque-type psoriasis [21].

Another study by Tomb et al. also showed that there was a strong correlation between psoriasis and fissured geographic tongue [23]. Danesh Pazhooh et al. in their investigation reported that 32% of patients with psoriasis and GT had severe psoriasis, which can be indicated a correlation between this lesion and severity of the disease. Furthermore, we similarly found that nonspecific oral lesions were frequently observed in psoriatic patients [9, 13, 23].

Additionally, our study revealed that in 93.8% of the psoriatic patients, the onset of oral lesions was at the early stage of disease while in 6.2%, it occurred at the end of the disease and there was also a significant correlation between the prevalence of oral lesions in psoriatic patients and onset of disease.

Likewise, in Zargari et al. study, the Geographic tongue was observed in 7% of patients with early psoriasis and 1% of patients with late psoriasis. They concluded that the incidence of geographic tongue in early psoriasis might be indicated the severity of the disease [15]. Most of our patients with various oral lesions (67.6%) suffered from a mild form of psoriasis, and we found no significant relationship between the incidence of oral lesions and PASI Score. By our results, Azmi MG et al. stated, although the prevalence of FT and GT was relatively higher among patients with severe psoriasis

assessed by PASI scores, the difference was not significant in less severe cases [3]. In the present study, joint involvement was observed in 6.5% of patients, in which, 2.4% had concomitant oral lesions. Our result showed no meaningful correlation between the presence of oral lesions in psoriasis and joint involvement. In contrary, Keshavarz et al. demonstrated facial involvement (55%) associated with geographic tongue (24%) and psoriatic arthritis (13%). The authors concluded that there is a significant relation between the facial lesion and increasing severity of the disease [24].

Nail involvement in this study was 24.9% and had no significant relationship with the presence of oral lesions in psoriatic patients. A similar result was reported by Zargar et al. (15).

The most common treatment was topical therapy (74%), and systemic therapy (4%) was the least therapeutic method used for treatment. We found no significant correlation between the prevalence of oral lesions in psoriatic patients and drug consumption. Also, Azmi MG et al. demonstrated that method of disease management such as medicated vs non-medicated for psoriasis couldn't influence the prevalence of FT and GT [3].

In conclusion, the prevalence of oral lesions such as Fissure tongue and geographic tongue is higher in psoriatic patients suggests further studies for approving the clinical importance of these apparently nonspecific lesions as possible predictors or markers of the severity of the cases suspected to Psoriasis disease. The HLA-typing study is recommended to approve the correlation between Fissure tongue and psoriasis. Also, further studies to identify the relationship between the presence of oral lesions in psoriatic patients with other variables such as nail and joint involvement, cigarette smoking and other systemic diseases are recommended.

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