Prevalence of Oral Manifestations in Patients with Psoriasis

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Abstract

Background: Psoriasis is a chronic immune-mediated scaly inflammatory disease that initially affects the skin and secondarily the joints and is caused by an interplay between genetic and various environmental risk factors. About 1-3% of the population is affected globally. It has a biphasic age distribution with peaks in the 3rd and 6th decades of life in males and 10 years prior in cases of females. The oral involvement of psoriasis is infrequent; however, some non-specific lesions are frequently associated with psoriasis patients. **Aims:** The aim of the study was to assess the prevalence of different types of oral manifestations in patients with psoriasis. **Methods:** The current study was conducted on patients attending the outpatient department of dermatology at the medical college and hospital during a period of 2 months between October 2023 to November 2023. A total of 20 psoriasis subjects within the age group of 10 to 75 years visited the OPD and had their name enrolled for this study; among them, 8 were males and 12 were females. The patients who were primarily diagnosed clinically with psoriasis were examined for the presence or absence of oral manifestations. All the data were recorded and analyzed using the Chi-square test. **Results:** A statistical significance between the gender and oral manifestations showed that females had an increased prevalence of oral lesions as compared to males. Oral manifestations were seen in the majority of cases between 25-45 years of age.Specific mucosal lesions clinically suggestive of oral psoriasis were not found in any of the patients examined however nonspecific oral abnormalities were observed in 60% of the patients like periodontitis (45%), fissured tongue (25%), oral melanosis (20%), leukoedema, actinic cheilitis (15 %), angular cheilitis (10 %), petechiae, geographic tongue and desquamative gingivitis (5 %). **Limitations:** The limitation of this study was that the sample size was small and the study was done for a 2-month duration has yielded a result that might not depict the true statistical significance of the data collected. A large sample size is required to detect specific oral psoriasis. A biopsy can yield additional information regarding oral lesions in patients with psoriasis. **Conclusion:** The current study provides information regarding the prevalence of different oral mucosal lesions in psoriasis patients & their relation with age and gender, which were statistically significant. Despite psoriasis being a common dermatological disease, our understanding regarding its specific oral lesions is limited because of its asymptomatic nature.

Key words: Psoriasis, Oral Manifestations, Oral Lesions, Prevalence, Dermatological Disease, Chronic Inflammatory Disease, Oral Psoriasis, Oral Health, Geographic Tongue, Periodontitis, Fissured Tongue.

Introduction:

Psoriasis is a chronic immune-mediated scaly inflammatory disease that initially affects the skin and secondarily the joints. It is known to be caused by the interplay between genetic and various environmental risk factors. An increased activity of T cells leading to exaggerated keratinocyte proliferation in the underlying skin is seen in psoriasis. Munro's microabscesses are a hallmark of psoriasis, which are characterized by the presence of polymorphonuclear leukocytes specifically in the epidermal layer of the skin.About 1-3% of the population is affected globally [1-3]. It has a biphasic age of distribution with peaks at 30 –39 years and 60–69 years in males and 10 years prior in the case of females[4]. Both genders are equally affected. Various types of psoriasis include plaque, flexural, guttate, pustular, or erythrodermic psoriasis. The characteristic lesion shows a well-marginated, erythematous plaque with a silvery-white surface scalemostly affecting the extensor surfaces of the body (i.e., knees, elbows, and buttocks),and less frequentlyinvolving palms and scalp.

Even though psoriasisisa common skin lesion, there is limited knowledge regardingauthentic oral manifestations of this disorder. Only a few cases have been reported with definitive histopathological diagnoses so far. Oral lesions in psoriasis were first reported by Schulz in 1898, and later, in 1903, Oppenheim provided the evidence of oral psoriasis, by confirmingclinically diagnosed oral lesions along with histopathology[5]. “Van der Wall and Pindborg (1986) described four types of clinical manifestations of oral psoriasis: A well-defined, gray to yellowish-white lesions, round to oval shaped lesions, which are independent of cutaneous psoriasis; white, lacy, circinate, elevated lesions on mucosa and tongue, which are congruent with cutaneous lesions; fiery-red erythematous oral lesions associated with acute exacerbation of psoriasis and benign migratory glossitis (BMG)[2]”.

Generally, oral lesions are categorized into two types: the first type includes specific oral psoriatic lesions, having histopathological features concomitant with cutaneous lesions and the second type includes nonspecific lesions, which have an increased tendency to occur in psoriasis patients as compared to healthy individuals, such as fissured tongue and geographic tongue. Recently, periodontitis has been shown to have an increased prevalence in these patients; it can be due to the similarity in their pathogenic mechanisms[5].Bruce et al. suggested that the infrequentoccurrence of oral psoriasis is due to its momentary course, an increased epidermal turnover rate,and the asymptomatic and nonspecific features of these lesions[6]. Many a time, the specific manifestation of psoriasis is missed during routine oral examination; hence, this study was undertaken to assess both the specific and nonspecific oral manifestations in patients diagnosed clinically with psoriasis.

Methodology

This study was conducted on OPD patients of the Department of Dermatology in a medical college and hospital during 2-month period between October 2023 to November 2023. During those 2 months, a total of 20 psoriasis subjects were diagnosed clinically within the age group of 10 to 75 years, of which 8 were males and 12 were females. All patients who were primarily diagnosed clinically with psoriasis were assessed by a diagnostician for the presence or absence of any kind of oral lesions. Psoriasis patients between the age group of 10 to 75 years of either gender, willing to participate in this study, were included. Those patients on antibiotic therapy for the past 2 months or using an antiseptic mouthwash, patients with removable partial dentures, pregnant women, and those with a history of any other dermatological conditions were excluded.

All patients satisfying the inclusion and exclusion criteria were enrolled in this study. Ethical approval was acquired from the ethical committee of the institution (IRRB/GDCH/2023/SS-01-03). A signed informed consent was obtained from individuals who expressed their willingness to participate in this study. Relevant patient data regarding their demographic details, socioeconomic history, past history, and family history were obtained prior to the detailed oral examination. Following this, a complete oral examination of the patient was carried out, and photographs of the lesions were collected and entered in the proforma. All the data procured was analyzed statistically using IBM, SAS, SPSS, version 26.0 software.

Results:

A total of20 patients with psoriasis were examined in this study, of which 8 (40%) were males, and 12 (60%) were females. The mean age was 43.15 ± 15.79 years. Data was analyzed using the Chi-square test. The level of significance was set at $p \leq 0.05$ at 95% confidence interval. Table 1 shows the association between gender and oral lesions in psoriasis patients. It indicates that females show an increased prevalence of oral lesions compared to males, which is statistically significant with a p-value = 0.00. A statistical significance in regard to age and oral manifestations was seen in this study. The patients between the age of 25-45 years had multiple lesions compared to other age groups, as depicted in Table 2.

Specific oral lesions of psoriasis were not seen clinically in any of the patients but nonspecific oral lesions were seen in 12 (60%) of patients which include periodontitis (45%), fissured tongue (25%), oral melanosis (20%), leukoedema, actinic cheilitis (15 %), angular cheilitis (10 %), petechiae, geographic tongue and desquamative gingivitis (5%). The site-specific involvement of nonspecific oral lesions showed the highest prevalence for gingival disease (50%), followed by lesions on the buccal mucosa (40%), tongue lesions (30%), and lip lesions (25%) as depicted in Graph 1. Most of the tongue-associated lesions were fissured tongue with prevalence (25%), followed by the geographic tongue (5%) as depicted in Graph 2. The common lip lesions associated

with these patients included actinic cheilitis (15%), followed by angular cheilitis (10%), as depicted in Graph 3. The prevalence of gingival diseases was highest with periodontitis (45%), followed by desquamative gingivitis (5%) as depicted in Graph 4. The buccal mucosa showed surface lesions like melanosis (20%), followed by leukoedema (15%), and petechiae (5%) as depicted in Graph 5.

Discussion:

Psoriasis is a chronic dermatological disorder distinguished by the presence of small, sharply delineated, dry papules, each covered by a delicate silvery scale. In 1903, Oppenheim provided evidence of oral psoriasis by confirming clinically diagnosed oral lesions with histopathology[5]. The disagreement and differences in the oral manifestations of psoriasis make it hard to diagnose. Furthermore, oral psoriasis might go unnoticed by medical professionals due to its lack of symptoms, coupled with a remarkable acceleration in cell turnover rate, from the normal turnover duration of 28 days to 3-7 days in affected areas[7,1]. Specific mucosal lesions clinically suggestive of oral psoriasis were not found in this study. The nonspecific oral lesions were noticed in 60% of the cases, which is similar to the study conducted by Altemir et al (2022) and Hernandez F et al (2008), which showed that the prevalence of oral lesions in psoriasis patients was between 55- 75%[8,9]. The current study showed a statistical significance (p =0.00*) between gender and age compared with the presence or absence of oral manifestations in psoriasis.

The most prevalent oral findings noticed in this study were periodontitis and fissured/scrotaltongue. In this study, the periodontitis prevalence rate was found to be 45% of cases which is similar to previous studies by Mendes VS et al 2018 and Costa A. et al 2023[10,11] Observational studies conducted by Ungprasert Pet al (2017), Zhang X et al (2022),and NijakowskiK et al (2022)showed a positive correlation between periodontitis and psoriasis[12-14].

The fissured tongue (also referred to as lingua plicata or scrotal tongue)is a disorder manifested by the presence of grooves oriented anteroposteriorly on the dorsum of the tongue with lateral extensions. The prevalence rate for fissured tongue was observed as 25% cases, which is almost similar to the prevalence rate of the study by Salam R et al in 2020,Talaee et al 2017,with a prevalence of 32.5% and 28.2% respectively.The other prevalent oral lesions noticed in this study wereoral melanosis (20%), leukoedema, actinic cheilitis (15 %), angular cheilitis (10 %), petechiae, geographic tongue, and desquamative gingivitis (5 %),and all the findingsare similar to the prevalence rates in previous studies.[9,14-17]

Limitations

The small sample size was a drawback of this study, which impacted the interpretation of findings. A large sample size is required to interpret more specific and nonspecific

lesions of oral psoriasis. Biopsy of the lesions can yield additional information regarding oral lesions in subjects with psoriasis.

Conclusion

The current study provides information regarding the prevalence of different oral mucosal lesions in psoriasis patients & their relation with age and gender, which were statistically significant. Despite psoriasis being a common dermatological disease, our understanding regarding its authentic oral lesions is limited because of its asymptomatic nature. Knowledge regarding the prevalence of oral lesions concomitant with mucocutaneous disorders can make other specialties aware of the need to examine the oral cavity to attain appropriate and early diagnosis.

References:

1. Mohammad RS, Alzubaidee AF, Qurtas DS. Prevalence of Oral Lesions in Patients with Psoriasis. Diyala Journal of Medicine. 2020 Dec 15;19(2):192-9.
2. Ferris WJ, Mikula S, Brown R, Farquharson A. Oral psoriasis of the tongue: a case report. Cureus. 2019 Dec;11(12)e6318.
3. Uribe-Herranz M, Lian LH, Hooper KM, Milora KA, Jensen LE. IL-1R1 signaling facilitates Munro's microabscess formation in psoriasiform imiquimod-induced skin inflammation. J Invest Dermatol. 2013 Jun;133(6):1541-9.
4. Raharja A, Mahil SK, Barker JN. Psoriasis: a brief overview. Clin Med (Lond). 2021 May;21(3):170-173. 2021-0257.
5. Picciani BLS, Teixeira-Souza T, Curty ÁA, Izahias LMS, Pessoa TM, Carneiro S et al,Unraveling oral psoriasis and its relationship withgeographic tongue: A literature review. World J Dermatol 2016 May 2; 5(2): 84-92.
6. Ehsani A, Mortazavi H, Nourmohamadpure P, Azizpour A, JanesarHoseinie M, et al. Oral Manifestations in Patients with Psoriasis: A Cross-Sectional Study. J Skin Stem Cell. 2018;5(1-2):e83956.
7. Dogra S, Yadav S. Psoriasis in India: prevalence and pattern. Indian J Dermatol Venereol Leprol. 2010 Nov-Dec;76(6):595-601.
8. Altemir A, Mele-Ninot G,Lazaro-Simo AI, Iglesias-Sancho M, Quintana-Codina M, Arandes J, Carrera-Morodo M,Alleras-Redonnet M. Oral Lesions in patients with Psoriasis: Prevalence and Association with Its Clinical and Epidemiological Characteristics. 2022 May;113(5):459-466.
9. Hernandez-Perez F, Jaimes-Aveldanez A, Urquizo-Ruvalcaba ML, Diaz-Barcelot M, Irigoyen-Camacho ME, Vega-Memije ME, Mosqueda-Taylor A. Prevalence of oral lesions in patients with psoriasis. Med Oral Patol Oral Cir Bucal. 2008 Nov 1;13(11):E703-8.
10. Mendes VS, Cota LOM, Costa AA, Oliveira AMSD, Costa FO. Periodontitis as another comorbidity associated with psoriasis: A case-control study. J Periodontol. 2019;90:358–366.

11. Costa A, Costa F. Periodontitis and the Impact of Oral Health on the Quality of Life of Psoriatic Individuals: A Case-Control Study – Commentary. J Dermatol & Skin Sci. 2023;5(1):14-19.
12. Ungprasert P, Wijarnpreecha K, Wetter DA. Periodontitis and risk of psoriasis: a systematic review and meta-analysis. J Eur Acad Dermatology Venereol . 2017 May; 31(5): 85762.
13. Zhang X, Gu H, Xie S, et al. Periodontitis in patients with psoriasis: A systematic review and meta-analysis. Oral Dis. 2022 Jan 1; 28(1): 33-43.
14. Nijakowski, K.; Gruszczynski, D.; Kolasinska, J.; Kopała, D.; Surdacka, A. Periodontal Disease in Patients with Psoriasis: A Systematic Review. Int. J. Environ. Res. Public Health 2022, 19, 11302.
15. Talaee R, Hajheydari Z, Moghaddam AY, Moraveji SA, Ravandi BF. 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. Open Access Macedonian Journal of Medical Sciences. 2017 Dec; 5(7): 978-982.
16. Jha AK. Oral Mucosal Lesions in Psoriasis Patients: A Hospital Based Study. Asian J. Med. Res. 2019;8(2):DT05- DT07.
17. Hassan SA, Bhateja S. Psoriasis of oral cavity- A review. IP Indian J Clin Exp Dermatol 2020;6(2):113-116.

Tables:

Table 1: Association between gender and presence/absence of oral manifestations in psoriasis patients

Gender	Oral lesions		Total	X^2-value	p-value
	Absent	Present			
Male	3	5	8	22.038	0.000*
Female	5	7	12		
Total	8	12	20		

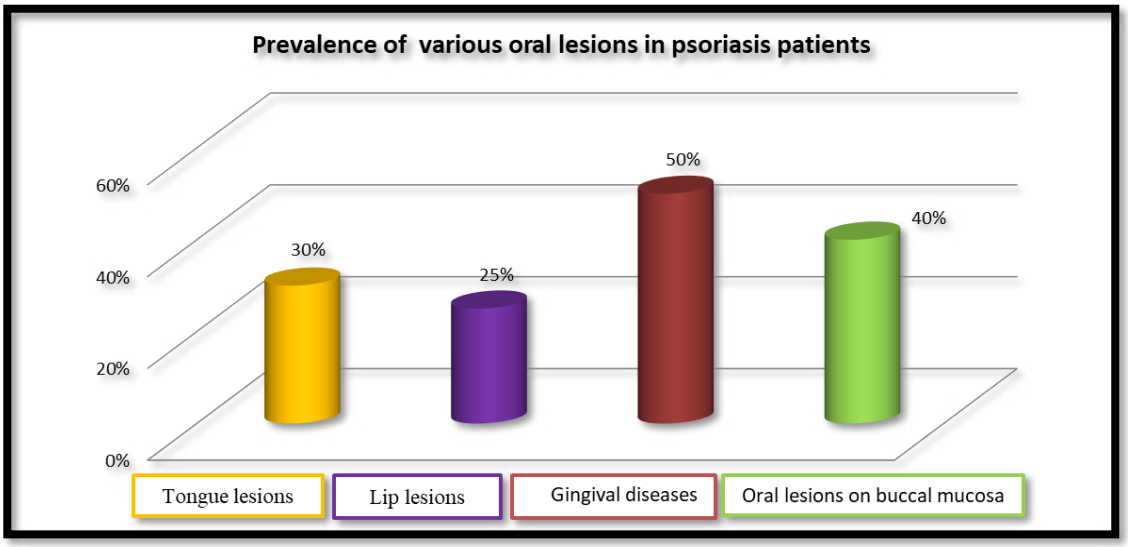
*p<0.05 is considered as statistically significant

Table 2: Association between age and presence/absence of oral manifestations in psoriasispatients.

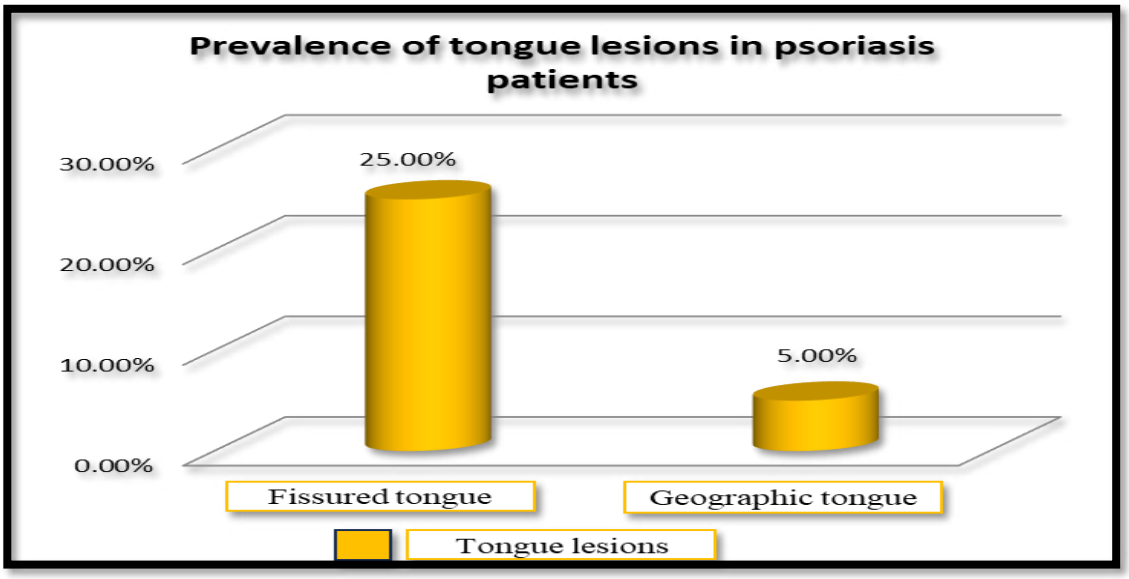
Age	Oral lesions		Total	X^2-value	p-value
	Absent	Present			
<25	3	0	3	28.722	0.000*
25-45	3	6	9		
46-65	2	4	6		
>65	0	2	2		
Total	8	12	20		

*p<0.05 is considered as statistically significant

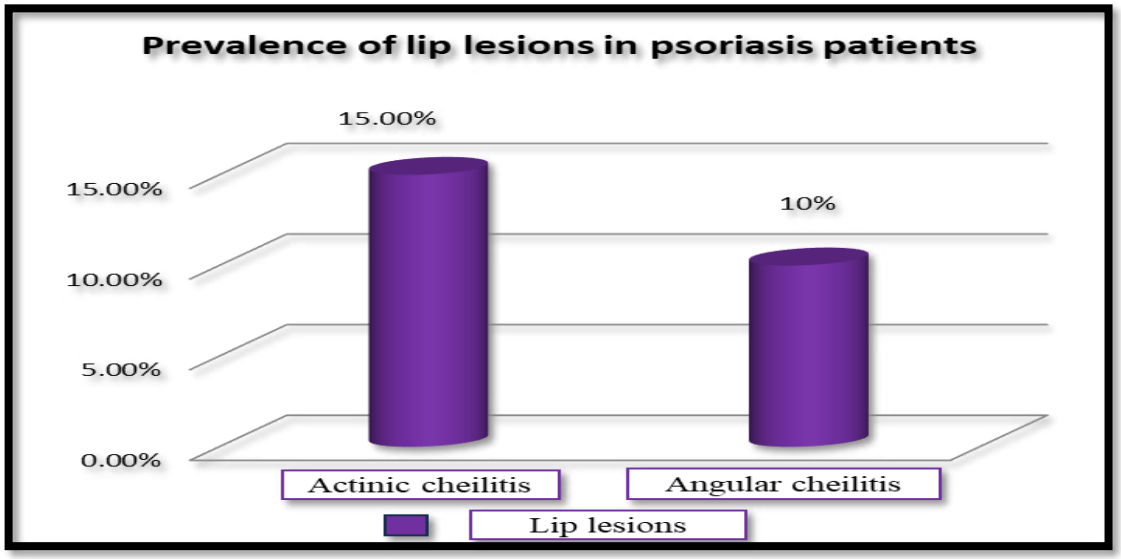
Graph 1.



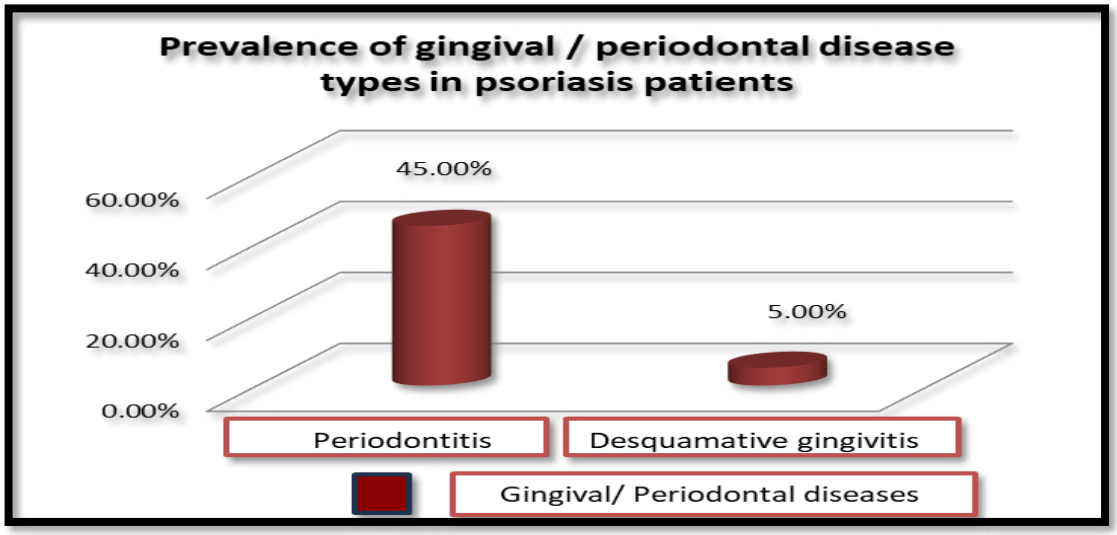
Graph 2.



Graph 3



Graph 4



Graph 5