Tuijin Jishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. 45 No. 3 (2024)

# Association of Concurrent Oral Diseases in Patients with Oral Lichen Planus- A Retrospective Analysis

**[1]Dr.Dhanya.M , [2]Dr.Uma Maheswari TN ,[3]*Dr Dhanvanth.M***

*[1]Post Graduate Resident*

*Department of Oral Medicine and Radiology And Special Care Dentistry Saveetha Dental College And Hospitals*

*Saveetha Institute of Medical and Technical Sciences*

*Saveetha UniversityChennai-600077 Tamilnadu,India*

*ORCID ID-0000-0003-2511-0321*

*[2]Professor and Head Department of Oral Medicine And Radiology*

*Saveetha Dental College And Hospitals Saveetha Institute of Medical and Technical Sciences*

*Saveetha University Chennai-600077 Tamilnadu,India*

*ORCID ID-0000-0002-2366-2336*

*[3]Senior Lecturer Department of Oral Medicine and Radiology Priyadarshini*

*Dental College and Hospital Tiruvallur Tamil Nadu,India*

***Abstract***

**Background:** Oral lichen planus (OLP) is a chronic inflammatory autoimmune disease characterized by its potential for malignant transformation and its impact on the oral mucosa. This study aims to elucidate the association between OLP and concurrent oral diseases, highlighting the need for effective management strategies for affected patients.

**Materials and Methodology:** A retrospective analysis was conducted involving 344 confirmed cases of OLP treated at a dental institution in Chennai, India, from 2019 to 2024. Data were extracted using electronic recording devices, and statistical analysis was performed using IBM SPSS software version 26.0 to assess the prevalence of OLP and its associations with other oral mucosal diseases.

**Results:** The study identified several concurrent oral mucosal lesions associated with OLP. Oral candidiasis was the most prevalent condition, affecting 64% of the patients, followed by oral leukoplakia (20%) and anemic stomatitis (11%). The patient population exhibited a significant female predilection, with 72% being female. The chief complaint was a burning sensation in the oral cavity, reported by the majority of participants.

**Conclusion:** This analysis underscores the significant association between OLP and various concurrent oral diseases, particularly oral candidiasis. The findings emphasize the necessity for comprehensive management strategies tailored to the individual needs of patients with OLP. Ongoing research is essential to further explore these associations and improve diagnostic and treatment approaches.

**Keywords:** Oral diseases, Oral lichen planus, OLP, Association

## 1. Introduction

This study presents a comprehensive retrospective analysis aimed at elucidating the association between oral lichen planus (OLP) and concurrent oral diseases. OLP is recognized as a chronic inflammatory autoimmune disease that affects the oral mucosa and is considered a potentially malignant disorder [1,2,]. The study highlights that the worldwide prevalence of OLP is approximately 0.89% in the general population, with a slightly lower prevalence of 0.49% reported in the Indian population. Understanding these associations is crucial for clinicians to develop effective management strategies for patients suffering from OLP [3].

Oral lichen planus (OLP) presents as a complex interplay of immune dysregulation and epithelial alteration. It is characterized by distinctive clinical features, including white, lacy striations known as Wickham's striae, red patches, and ulcerative lesions that can cause significant discomfort and pain [4]. The pathogenesis of OLP is not entirely understood; however, it is hypothesized to involve an autoimmune mechanism where T-lymphocytes infiltrate the epithelial layer, leading to cell apoptosis and the characteristic presentation of the disease [5].

Clinically, OLP can manifest in several forms, including reticular, erosive, and plaque-like variants. The reticular form is often asymptomatic and can be identified during routine examinations, while the erosive form is associated with significant symptoms, including burning sensations and difficulty in eating and speaking [6].

Several factors have been implicated in the exacerbation of OLP, including psychological stress, certain medications (such as nonsteroidal anti-inflammatory drugs), and potential viral associations, particularly with hepatitis C virus (HCV) [7]. Diagnosis is primarily clinical, supported by histopathological examination, which typically reveals a band-like infiltrate of lymphocytes at the epithelial-connective tissue interface, along with liquefactive degeneration of the basal cell layer [8].

Management of OLP focuses on symptom relief and may involve the use of topical corticosteroids, immunosuppressive agents, and occasionally systemic therapies for more severe cases [9,10]. Given its chronic nature and potential for malignant transformation, ongoing monitoring and a multidisciplinary approach involving dental and medical professionals are essential for effective management. This study aims to assess the concurrent associated Comorbidities of Oral lichen planus.

## 2.Materials and Methodology

- Study Design- A retrospective analysis was conducted to assess the prevalence of oral lichen planus and its association with other oral mucosal diseases.

- Data Collection- Data were extracted through an electronic recording device, focusing on confirmed cases of oral lichen planus treated at a dental institution in

Chennai, India. This involved reviewing patient records from 2019 to 2024.

- Sample Size- The total sample size included 344 patients, ensuring a robust dataset for analysis.

- Statistical Analysis: The retrieved data were organized into an Excel sheet and subsequently analyzed using IBM SPSS software version 26.0, allowing for comprehensive statistical evaluation.

## 3. Results

Associated Oral Mucosal Lesions- The study identified several oral mucosal lesions associated with OLP:

-Oral Candidiasis: The most prevalent condition, affecting 64% of the patients.

-Anemic Stomatitis: Found in 11% of the cases.

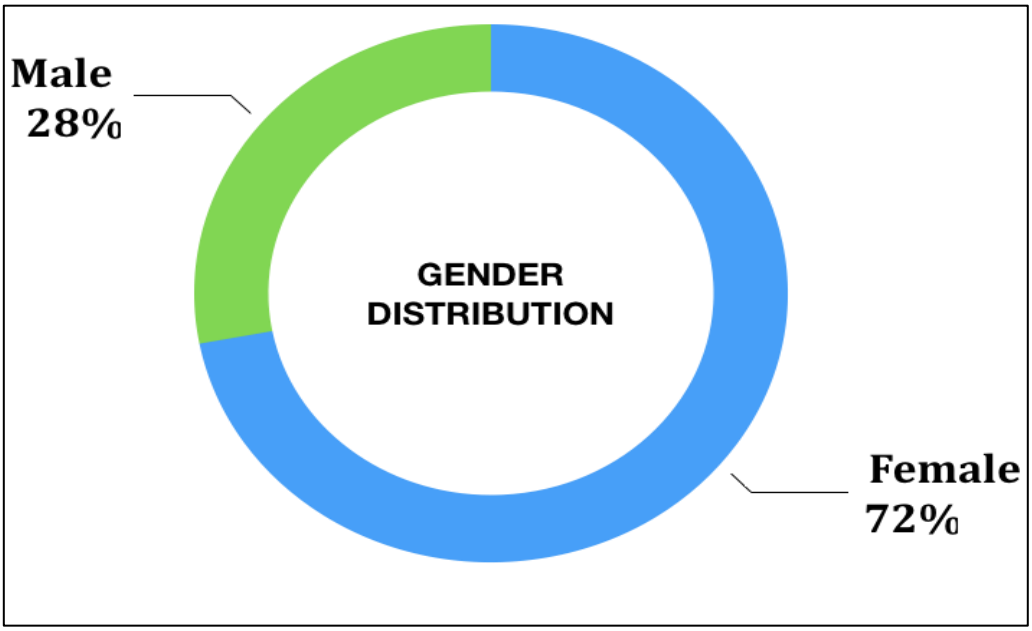
-Oral Leukoplakia: Present in 20% of the patients.

-Gender Distribution: The study population exhibited a significant female predilection, with 72% of the patients being female, indicating a potential gender-related susceptibility to OLP.

**Common Symptoms**: The chief complaint among patients was a burning sensation in the oral cavity, which was reported by a majority of the participants, yielding a P-value of 0.192.

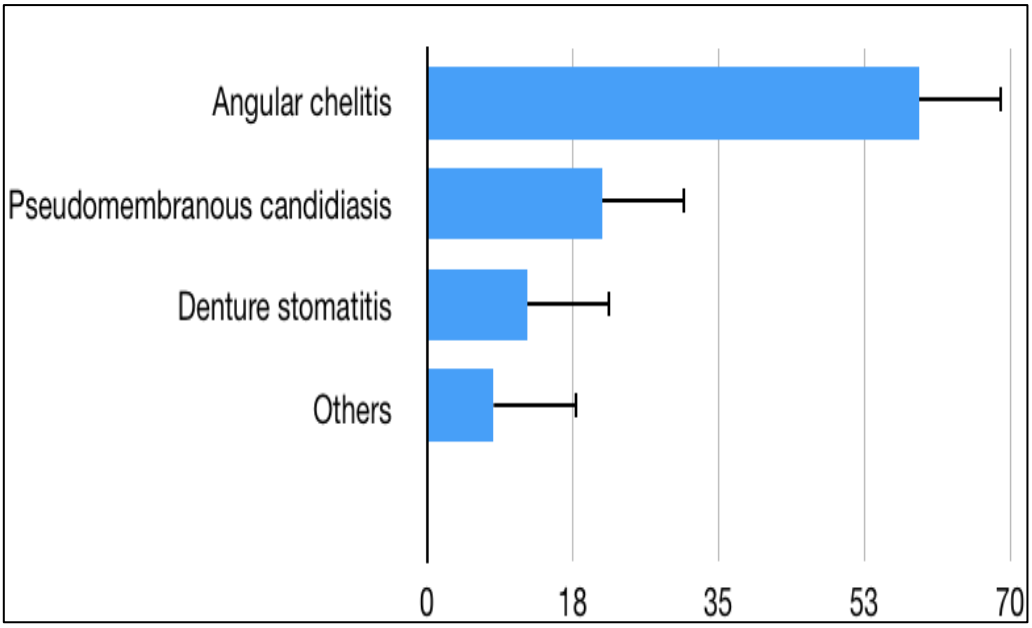
**Forms of Candidiasis:** Among the different forms of candidiasis observed, angular cheilitis was the most common, accounting for 59% of candidiasis cases.

**GRAPH 1**



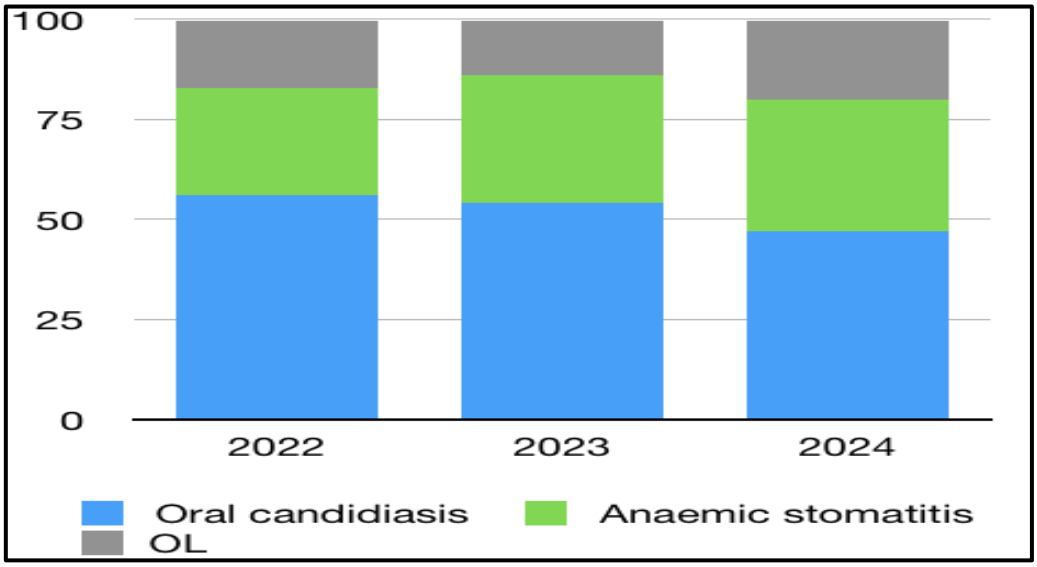

**Graph 1 depicts the gender distribution**

**GRAPH 2**



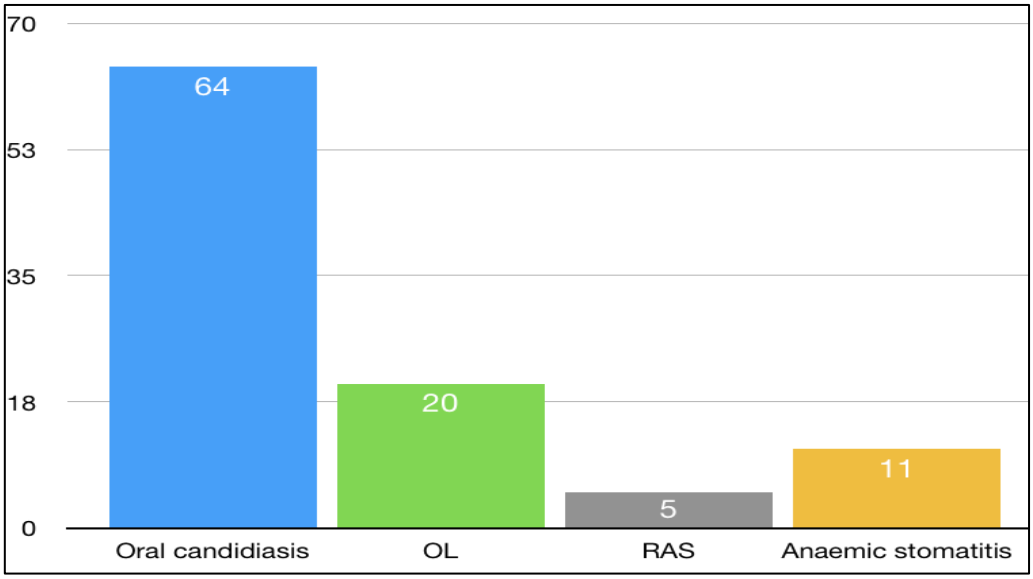

**Graph 2 depicts the associated types of oral Candidiasis**

**GRAPH 3**




**Graph 3 depicts the point prevalence of the associated oral conditions with that of each year (2022-204).**

**GRAPH 4**




**Graph 4 depicts the prevalent oral oral mucosal lesions along with oral lichen planus**

**5. Discussion**

The findings of this study underscore the significant association between oral lichen planus and various oral mucosal diseases, particularly oral candidiasis. This highlights the need for clinicians to be vigilant in monitoring for these concurrent conditions in patients diagnosed with OLP. Previous studies, such as those conducted by Ingafou et al. and Santhosh et al., have assessed the prevalence of individual forms of OLP and their associations with patient habits and steroid management. These studies support the findings of the current analysis, reinforcing the multifactorial nature of OLP [14,15]

The results of this study reveal a substantial association between oral lichen planus (OLP) and various concurrent oral mucosal diseases. The high prevalence of oral candidiasis (64%) among patients with OLP indicates a critical need for healthcare providers to monitor for this condition in affected individuals. This association may be due to

the immunosuppressive effects of OLP, which can predispose patients to opportunistic infections such as candidiasis [16,17]. Other studies have shown that patients with OLP often experience a higher incidence of systemic diseases, further complicating their clinical management [18,19].

The study's findings indicate a notable female predilection (72%) among the patient population. This observation aligns with previous research suggesting that hormonal factors, stress, and immune responses may differ between genders, potentially influencing the prevalence of OLP [20,21]. Understanding these gender differences can help tailor treatment approaches and patient education efforts.

The presence of oral candidiasis and other associated conditions can significantly impact the quality of life of patients with OLP. Symptoms such as burning sensations and discomfort can lead to difficulties in eating, speaking, and maintaining oral hygiene Therefore, clinicians should adopt a multidisciplinary approach to manage both OLP and its associated oral diseases effectively. [22,23].This includes regular screenings for candidiasis and other mucosal lesions, as well as appropriate antifungal treatments when necessary [24,25].

One notable limitation of the current study is the lack of evaluation regarding the malignant transformation of OLP. This gap suggests the need for future research to explore the potential progression of OLP to oral squamous cell carcinoma. Future studies could focus on comparing clinical parameters among different ethnicities and populations to enhance understanding of the disease's epidemiology and associations. Investigating the impact of lifestyle factors, dietary habits, and genetic predispositions may also provide deeper insights.

## 6. Future prospects

This retrospective analysis provides valuable insights into the associations between oral lichen planus and concurrent oral diseases, emphasizing the importance of recognizing and managing these associations. The findings underscore the necessity for comprehensive management strategies tailored to the individual needs of patients with OLP, considering the prevalent oral conditions identified in the study.

Further Continued research is essential to further explore the implications of these associations, improve diagnostic accuracy, and develop targeted treatment approaches for oral lichen planus and its associated conditions.

## References

1. van der Meij, E. H., et al. (2003). Oral lichen planus: A review. Journal of Oral Pathology & Medicine.

2. Gonzalez-Moles, M. A., et al. (2008). Oral lichen planus: A review. Oral Diseases.

3. Kumar, S., et al. (2014). Oral lichen planus and hepatitis C virus: A review. Journal of Oral Pathology & Medicine.

4. Gorsky, M., et al. (2002). Oral lichen planus: A clinical and histopathological study. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics.

5. Dhanya M, Umamaheswari TN, Eswaramoorthy R. In Vitro Evaluation of Light-Induced Cytotoxic Property: Synergistic Effects of Anthocyanin/Curcumin as a Photosensitizer. Cureus. 2023 Nov;15(11).

6. González-Moles, M. Á., Warnakulasuriya, S., González-Ruiz, I., González-Ruiz, L., Ayén, Á., Lenouvel, D., Ruiz-Ávila, I., & Ramos-García, P. (2021). Worldwide prevalence of oral lichen planus: A systematic review and meta-analysis. Oral Diseases, 27(4), 813-828. https://doi.org/10.1111/odi.13323

7. Nagi R, Muthukrishnan A, Rakesh N. Effectiveness of photodynamic therapy (PDT) in the management of symptomatic oral lichen planus-A systematic review. Journal of Oral Biology and Craniofacial Research. 2023 Mar 1;13(2):353-9

8. Dhanya M, Umamaheswari TN, Eswaramoorthy R. In Vitro Exploration of Dark Cytotoxicity of Anthocyanin-Curcumin Combination, A Herbal Photosensitizer. Cureus. 2024 Mar;16(3).

9. Sugerman, P. B., & Savage, N. W. (2002). Oral lichen planus: Causes, diagnosis, and management. Australian

Dental Journal, 47, 290-297.

10. Andreasen, J. O. (1968). Oral lichen planus. 1. A clinical evaluation of 115 cases. Oral Surgery, Oral Medicine, Oral Pathology, 25, 31-42.

11. McCartan, B. E., & Healy, C. M. (2008). The reported prevalence of oral lichen planus: A review and critique. Journal of Oral Pathology & Medicine, 37, 447-453. https://doi.org/10.1111/j.1600-0714.2008.00662.x

12. Mollaoglu, N. (2000). Oral lichen planus: A review. The British Journal of Oral & Maxillofacial Surgery, 38(4), 370-377.

13. Varghese, S. S. (2016). Epidemiology of oral lichen planus: A cohort of south Indian population: A retrospective study. Journal of Cancer Prevention

14. T santhosh. (n.d.). Prevalence of erosive lichen planus: A retrospective study. European Journal of Molecular and Clinical Medicine

15. Ingafou, M., et al. (2015). Epidemiology of oral lichen planus. British Journal of Oral and Maxillofacial Surgery

16. Carbone, M., et al. (2016). Oral lichen planus: A retrospective study. Journal of Oral Pathology & Medicine

17. Friedman, J., et al. (2016). Genetic factors in oral lichen planus. Journal of Dental Research.

18. Gorsky, M., et al. (2002). Quality of life in patients with oral lichen planus. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics.

19. Gonzalez-Moles, M. A., et al. (2008). Malignant transformation of oral lichen planus: A systematic review. Oral Oncology

20. Hegarty, A., et al. (2010). The role of gender in oral lichen planus. Journal of Oral Pathology & Medicine.

21. Bacigalupo, L., et al. (2018). Gender differences in oral lichen planus. Oral Diseases

22. Khan, S. N., et al. (2017). Oral lichen planus: Symptoms and treatment. American Journal of Clinical Dermatology.

23. Kumar, S., et al. (2019). Ethnic variations in oral lichen planus. International Journal of Oral Health Sciences.

24. López-Jornet, P., et al. (2015). Oral candidiasis and oral lichen planus. Journal of Oral Pathology & Medicine.

25. Mignogna, M. D., et al. (2004). Oral lichen planus: A review of the literature. Oral Diseases