



ANALYSIS OF ORAL LICHENPLANUS AND ITS MALIGNANT POTENTIAL

**Dr. Chandra Shekhar
Linganna**

Beena*

***Corresponding Author**

ABSTRACT

Oral lichenplanus(OLP) is one of the most common autoimmune oral mucosal condition occurring bilaterally on the buccal mucosa, gingival, tongue etc, associated with burning sensation, its nature of behavior seems to be benign but various studies have confirmed transformation of benign OLP to malignancy over a period, hence this study was conducted to analyze the data available in the literature to know the percentage of malignant transformation, demographic status, sex, site and about the associated habits.

KEYWORDS : Oral Lichenplanus, Oral lichenoid lesion, Malignant transformation.

INTRODUCTION

Oral lichen planus(OLP), was first described by Hallopeau in 1910¹, since then there was lot of arguments and discussions regarding its potential for malignancy in oral mucous membrane.

According to World health organization(WHO), OLP has been considered as potentially malignant disorder and the patients have to be under regular observation.²

To consider OLP has a potential malignant disorder, only based on the histopathologic criteria give by WHO in the year 1978³.

Oral lichenoid lesion was the term given by van der Meij and van der Waal, in 2003⁴.

OLL and epithelial dysplasia were considered as an exclusion criteria in the diagnosis of OLP.⁵

The aim of this study was to review the literature, since 1995 for malignant transformation OLP and OLL cases and also to review the reported cases of malignancy with respect to sex, site and type of lesion and their association with usage of tobacco and alcohol.

METHODOLOGY

A MEDLINE data base search was performed for the literature from 1995 to 2016, using the term 'Oral lichenplanus and malignant transformation'.

Total of forty studies which were found in English language were considered for the study, case reports were excluded from the study. Study was conducted in two stages:

In the first stage demographic data, year of study, total number of cases with malignant transformation, mean follow up duration in years and diagnostic criteria used was considered.

In the second stage number of malignant transformed cases in each study with sex, site, type of lesion, dysplastic lesions and association of tobacco and alcohol was considered and the data analysis.

RESULTS

OLP and OLL were considered as two different entities in only two studies and total of 1658 cases of OLP and 242 cases of OLL were found.

Out of 16058 cases of OLP 248 cases were found malignant, and out of 242 OLL cases 8 were reported malignant.

The mean range of malignant transformation of OLP cases was 0-6.5%.

On computation of the data the average malignant transformation

rate was 1.26%. (Table 1)

The OLP was clinically classified based on appearance as Red Lichenplanus (Atrophic, Erosive, Bullous).

The OLP was clinically classified based on appearance as White Lichenplanus (Papular, Reticular, Plaque).

The OLP was clinically classified based on appearance as Mixed Lichenplanus (Red and White mix).

On analyzing the data the red lichen planus had greater malignant transformation rate of (48.01%), when compared to White (39.01%) and Mixed (15.11%).

The malignant transformation of OLP was higher in females(60%) when compared to male counterparts.

On analyzing the data the most common site for malignant transformation was Tongue(50.30%), followed by Buccal mucosa (43.01%), Gingiva(8.80%), Palate (4.62%), Alveolar mucosa(2.93%), floor of the mouth (2.38%), Lip(1.82%), Vestibule(0.62%) respectively.

Risk factors such as tobacco and alcohol consumption was considered in only 28 studies, results of these studies showed 29.63% tobacco association and 17.92% alcohol consumption.

DISCUSSION

Initially the OLP was considered to be a benign lesion but in recent past malignancy has been diagnosed in previously undiagnosed OLP lesion, many studies have been reported the malignant transformation of benign OLP.^{4,6}

On analyzing the literature, there were lots of debates stating OLP was more vulnerable to carcinogens and transformed into carcinoma.⁴⁷

Many cases with dysplastic changes in lesions OLP, could have been any other Red and White lesions mimicking OLP clinically and histologically.⁴⁸

"Lichenoid dysplasia" term given by Eisenberg and Krutchkoff, is a potential precancerous lesion which was overlooked as OLP.^{4,48} hence the term epithelial dysplasia was introduced by van der Meij and van der Waal in 2003, in the diagnostic criteria of OLP.⁵

In the whole literature only 26 studies insisted on the importance of proper initial diagnosis based on diagnostic criteria.

The range 0-0.65 which is obtained in this study can be due to

diagnostic criterias used, mean follow up of duration and the total number of cases.

In one one of the study by Rode etal, malignancy ratio was zero, even after follow up period of 19 years⁸, similarly three other studies reported zero malignancy lesions but there was no follow up period.^{31,41,43}

Usually malignancy rates were more as the follow up duration increased by decade but in a study by Lanfranchi et al,in 2003 repored 24cases out of 719 cases of OLP as malignancy,at a rate of 6.5% with a follow up of 1.7years.¹⁷,this calls for evaluation of demographic prevalence and risk factors assessment.

As only two studies have used OLP and OLL⁶⁷ as two different entities, it is difficult to compare rate of malignancy between the two.

The OLP prevalence rate is higher in females compared to males.^{51,52} The erythematous lichenplanus has higher potential for malignancy compared to white and mixed type of OLP, but in two retrospective studieswhite and mixed types of OLP had higher rate of malignancy.^{12,14,23}

OLP is most commonly seen clinically on buccal mucosa bilaterally followed by tongue^{16,18,22,24,28,29,33,53} but malignant transformation of OLP was more commonly associated with tongue lesions.

Smokers are at risk of malignant transformation when compared to non smokers.⁵⁵

Contrary to it literature studies showed risk of malignancy was less with subjects exposed tobacco and alcohol and its mandatory to inform the subjects with OLP and its sequel to oral cancer.³⁰

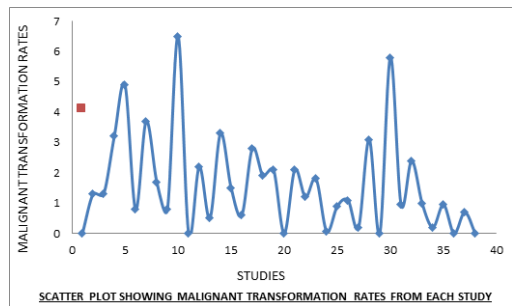
CONCLUSION

From the results of the study it confirs that the intial diagnosis of OLP and OLL with strict guidelines/ diagnostic criteria along with molecular and genetic analysis should become mandatory as well as long term follow up case studies are need of the hour.

Author	Country	Year	Diagnostic Criteria	No. of Cases	No. of Malignant Cases	Malignant Transformation Rate	Mean Follow-up Years
M. Rode et al ⁸	Slovenia	1994	Clinically and Histologically Proven OLP	75	nil	0	19
Gorsky M et al ⁹	Israel	1996	Clinically and Histologically Proven OLP	157	2	1.3	1.5
Markopoulou et al ¹⁰	Greece	1997	Clinically and Histologically Proven OLP	326	4	1.3	4.8
Silverman S Jr et al ¹¹	USA	1997	Clinically and Histologically Proven OLP	95	3	3.2	6.1
Lo Muzio L et al ¹²	Italy	1998	Clinically and Histologically Proven OLP	263	14	4.9	5.7
Rajenthiran R et al ¹³	UK	1999	Krutchkoff et al Criteria	832	7	0.8	11
Mignogna MD et al ¹⁴	Italy	2001	Clinically and Histologically Proven OLP	502	24	3.7	NA
Chanana-Wu N et al ¹⁵	USA	2001	Clinically and Histologically Proven OLP	229	4	1.7	NA
Eisen D ¹⁶	USA	2002	Clinically and Histologically Proven OLP	723	6	0.8	4.5
Lanfranchi et al ¹⁷	Argentina	2003	Clinically and Histologically Proven OLP	719	32	6.5	1.7
van der Meij EH et al ¹⁸	Holland	2003	WHO 1978	179 OLP, 111OLL	nil in OLP, 3 OLL	0 in OLP, 0.65 in OLL	2.7
S. Gandolfo et al ¹⁹	Italy	2004	Krutchkoff et al Criteria	402	9	2.2	4.9
Röström PO et al ²⁰	Sweden	2004	Clinically and Histologically Proven OLP	1028	5	0.5	6.8
Sura Ali Ahmed Fouad Al-Bayati ²¹	Baghdad	2005	Clinically and Histologically Proven OLP	123	4	3.3	NA
Ronald Laejeenderker et al ²²	Holland	2005	Clinically and Histologically Proven OLP	200	3	1.5	4.3

Jing-Ling Xue et al ²³	China	2005	WHO 2003	674	4	0.6	NA
Bornstein MM et al ²⁴	Switzerland	2006	WHO 1978	145	4	2.8	3.7
Ingafou M et al ²⁵	UK	2006	Clinically and Histologically Proven OLP	690	13	1.9	7
Hsue SS et al ²⁶	Taiwan	2007	NA	143	3	2.1	1.2
Van der Meij et al ²⁷	Holland	2007	WHO 2003	185 OLP, 125OLL	Nil in OLP, 4 OLL	0 OLP, 3.2 OLL	3.3
Zhang JH et al ²⁸	China	2007		724	15	2.1	1.8
Kesic L et al ²⁹	Serbia	2009	Clinically and Histologically Proven OLP	163	2	1.2	NA
Carbone M et al ³⁰	Italy	2009	WHO 2003	808	15	1.8	3.9
Atessa Pakfetrat et al ³¹	Iran	2009	Clinically and Histologically Proven OLP	420	3	0.07	NA
A. Bermejo-Fencal et al ³²	Spain	2009	WHO 1978	550	5	0.9	2
Fang M et al ³³	China	2009		2119	23	1.1	1.3
Kobkan Thongprasom et al ³⁴	Thai	2010	Clinically and Histologically Proven OLP	533	1	0.2	1.5
Eulalia Torrente-Castells et al ³⁵	Spain	2010	WHO 2003	65	2	3.1	1.5
Mónica Ghislaine et al ³⁶	Brazil	2010	Clinically and Histologically Proven OLP	110	nil	0	NA
Dana Kaplan et al ³⁷	Israel	2011	WHO 2003	171	10	5.8	4.3
Zheng-Yu Shen et al ³⁸	China	2011	WHO 1978	518	5	0.96	3.3
Bombecari GP et al ³⁹	Italy	2011	WHO 2003	327	8	2.4	6.8
Elena Bardellini et al ⁴⁰	Italy	2013	WHO 2003	204	2	0.98	4.1
Birsay Günarü ⁴¹	Turkey	2013	WHO 2003	370	1	0.2	NA
Serban Tovaru et al ⁴²	Romania	2013	WHO 2003	633	6	0.95	NA
Anita D. Munde et al ⁴³	India	2013	WHO 2003	128	nil	0	NA
Richter et al ⁴⁴	Croatia	2014	WHO 1978	563	4	0.7	7.6
Vladimira Radochova et al ⁴⁵	Czech Republic	2014	WHO 2003	171	nil	0	NA

TABLE 1: SUMMARY OF 38 STUDIES NA - NOT AVAILABLE



REFERENCES

- Hallopeau H, de Sucdl. Wilson gingival avec ne'oplasie voisine dans la region maxillaire. Bull Soc Fr Dermatol Syphiligr 1910;17:32.
- Warnakulariuya S, Johnson N, Van der Waal I. Nomenclature and classification of potentially malignant disorders of the oral mucosa. Journal of oral pathology & medicine 2007;36(10):575-80.
- Kramer IR, Lucas RB, Pindborg JJ, Sobin LH. Definition of leukoplakia and related lesions: an aid to studies on oral precancer. Oral Surg Oral Med Oral Pathol 1978;46(4):518-39.
- Krutchkoff DJ, Eisenberg E. Lichenoid dysplasia: a distinct histopathologic entity. Oral surgery, oral medicine, oral pathology 1985;60(3):308-15.
- Van der Meij E, Van der Waal I. Lack of clinicopathologic correlation in the diagnosis of oral lichen planus based on the presently available diagnostic criteria and suggestions for modifications. Journal of oral pathology & medicine 2003;32(9):507-12.
- Van der Meij E, Mast H, van der Waal I. The possible premalignant character of oral lichen planus and oral lichenoid lesions: a prospective five-year follow-up study of 192 patients. Oral Oncology 2007;43(8):742-48.
- van der Meij EH, Schepman KP, van der Waal I. The possible premalignant character of oral lichen planus and oral lichenoid lesions: a prospective study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;96(2):164-71.
- Rode M, Kansky AA, Kogoj-Rode M. Reticular form of oral lichen planus. A 19-year observation period in 75 patients from Slovenia. Acta Dermatoven APA 2000;9(4).
- Gorsky M, Raviv M, Moskona D, Laufer M, Bodner L. Clinical characteristics and treatment of patients with oral lichen planus in Israel. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1996;82(6):644-9.
- Markopoulos AK, Antoniadis D, Papanayotou P, Trigonidis G. Malignant potential of

- oral lichen planus; a follow-up study of 326 patients. *Oral Oncol* 1997;33(4):263-9.
11. Silverman S, Jr, Bahl S. Oral lichen planus update: clinical characteristics, treatment responses, and malignant transformation. *Am J Dent* 1997;10(6):259-63.
 12. Lo Muzio L, Mignogna M, Favia G, et al. The possible association between oral lichen planus and oral squamous cell carcinoma: a clinical evaluation on 14 cases and a review of the literature. *Oral oncology* 1998;34(4):239-46.
 13. Rajenthiran R, McLean NR, Kelly CG, Reed MF, Nolan A. Malignant transformation of oral lichen planus. *Eur J Surg Oncol* 1999;25(5):520-3.
 14. Mignogna MD, Lo Muzio L, Lo Russo L, et al. Clinical guidelines in early detection of oral squamous cell carcinoma arising in oral lichen planus: a 5-year experience. *Oral Oncol* 2001;37(3):262-7.
 15. Chainani-Wu N, Silverman S, Jr, Lozada-Nur F, Mayer P, Watson JJ. Oral lichen planus: patient profile, disease progression and treatment responses. *J Am Dent Assoc* 2001;132(7):901-9.
 16. Eisen D. The clinical features, malignant potential, and systemic associations of oral lichen planus: a study of 723 patients. *J Am Acad Dermatol* 2002;46(2):207-14.
 17. Lanfranchi-Tizeira HE, Aguas SC, Sano SM. Malignant transformation of atypical oral lichen planus: a review of 32 cases. *Med Oral* 2003;8(1):2-9.
 18. Gandolfo S, Richiardi L, Carrozzo M, et al. Risk of oral squamous cell carcinoma in 402 patients with oral lichen planus: a follow-up study in an Italian population. *Oral Oncol* 2004;40(1):77-83.
 19. Rodstrom PO, Jontell M, Mattsson U, Holmberg E. Cancer and oral lichen planus in a Swedish population. *Oral Oncol* 2004;40(2):131-8.
 20. Al-Bayati S. Oral Lichen planus: A clinical study of 123 patients attending an Oral Medicine Clinic, Baghdad University, Iraq. *Gulf Medical Journal*. 2012; 1 (1):10-14. *Gulf Medical Journal* 2012;1(1):10-14.
 21. Laeijendecker R, van Joost T, Kuizinga MC, Tank B, Neumann HA. Premalignant nature of oral lichen planus. *Acta Derm Venereol* 2005;85(6):516-20.
 22. Xue JL, Fan MW, Wang SZ, et al. A clinical study of 674 patients with oral lichen planus in China. *J Oral Pathol Med* 2005;34(8):467-72.
 23. Bornstein MM, Kalas L, Lemp S, et al. Oral lichen planus and malignant transformation: a retrospective follow-up study of clinical and histopathologic data. *Quintessence Int* 2006;37(4):261-71.
 24. Ingafou M, Leao JC, Porter SR, Scully C. Oral lichen planus: a retrospective study of 690 British patients. *Oral Dis* 2006;12(5):463-8.
 25. Hsue SS, Wang WC, Chen CH, et al. Malignant transformation in 1458 patients with potentially malignant oral mucosal disorders: a follow-up study based in a Taiwanese hospital. *J Oral Pathol Med* 2007;36(1):25-9.
 26. Zhang JH, Zhou ZT. [Oral lichen planus: a retrospective study of 724 Chinese patients]. *Zhonghua Kou Qiang Yi Xue Za Zhi* 2007;42(11):669-71.
 27. Kesic L, Obradovic R, Mihailovic D, et al. Incidence and treatment outcome of oral lichen planus in southeast Serbia in a 10-year period (1997-2007). *Vojnosanit Pregl* 2009;66(6):435-9.
 28. Carbone M, Arduino PG, Carrozzo M, et al. Course of oral lichen planus: a retrospective study of 808 northern Italian patients. *Oral Dis* 2009;15(3):235-43.
 29. Pakfetrat A, Javadzadeh-Bolouri A, Basir-Shabestari S, Falaki F. Oral Lichen Planus: a retrospective study of 420 Iranian patients. *Med Oral Patol Oral Cir Bucal* 2009;14(7):E315-8.
 30. Bermejo-Fenoll A, Sanchez-Siles M, Lopez-Jornet P, Camacho-Alonso F, Salazar-Sanchez N. Premalignant nature of oral lichen planus. A retrospective study of 550 oral lichen planus patients from south-eastern Spain. *Oral Oncol* 2009;45(8):e54-6.
 31. Fang M, Zhang W, Chen Y, He Z. Malignant transformation of oral lichen planus: a retrospective study of 23 cases. *Quintessence Int* 2009;40(3):235-42.
 32. Thongprasom K, Youngnak-Piboonratanakit P, Pongsiriwet S, et al. A multicenter study of oral lichen planus in Thai patients. *J Investig Clin Dent* 2010;1(1):29-36.
 33. Torrente-Castells E, Figueiredo R, Berini-Ayres L, Gay-Escoda C. Clinical features of oral lichen planus. A retrospective study of 65 cases. *Med Oral Patol Oral Cir Bucal* 2010;15(5):e685-90.
 34. Alves MGO, Almeida JD, Balducci I, Cabral LAG. Oral lichen planus: A retrospective study of 110 Brazilian patients. *BMC research notes* 2010;3(1):157.
 35. Kaplan I, Ventura-Sharabi Y, Gal G, Calderon S, Anavi Y. The dynamics of oral lichen planus: a retrospective clinicopathological study. *Head Neck Pathol* 2012;6(2):178-83.
 36. Shen ZY, Liu W, Feng JQ, Zhou HW, Zhou ZT. Squamous cell carcinoma development in previously diagnosed oral lichen planus: de novo or transformation? *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2011;112(5):592-6.
 37. Bombeccari GP, Guzzi G, Tettamanti M, et al. Oral lichen planus and malignant transformation: a longitudinal cohort study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2011;112(3):328-34.
 38. Bardellini E, Amadori F, Flocchini P, Bonadeo S, Majorana A. Clinicopathological features and malignant transformation of oral lichen planus: a 12-years retrospective study. *Acta Odontol Scand* 2013;71(3-4):834-40.
 39. Gumru B. A retrospective study of 370 patients with oral lichen planus in Turkey. *Med Oral Patol Oral Cir Bucal* 2013;18(3):e427-32.
 40. Tovar S, Parlatescu I, Gheorghie C, et al. Oral lichen planus: a retrospective study of 633 patients from Bucharest, Romania. *Med Oral Patol Oral Cir Bucal* 2013;18(2):e201-6.
 41. Munde AD, Karle RR, Wankhede PK, Shaikh SS, Kulkurni M. Demographic and clinical profile of oral lichen planus: A retrospective study. *Contemp Clin Dent* 2013;4(2):181-5.
 42. Budimir V, Richter I, Andabak-Rogulj A, et al. Oral lichen planus - retrospective study of 563 Croatian patients. *Med Oral Patol Oral Cir Bucal* 2014;19(3):e255-60.
 43. Radochová V, Dřížhal I, Slezák R. A retrospective study of 171 patients with oral lichen planus in the East Bohemia-Czech Republic—single center experience. 1989.
 44. Holmstrup P, Thorn J, Rindum J, Pindborg J. Malignant development of lichen planus-affected oral mucosa. *Journal of Oral Pathology & Medicine* 1988;17(5):219-25.
 45. Katz RW, Brahim JS, Travis WD. Oral squamous cell carcinoma arising in a patient with long-standing lichen planus. A case report. *Oral Surg Oral Med Oral Pathol* 1990;70(3):282-5.
 46. Pogrel MA, Weldon LL. Carcinoma arising in erosive lichen planus in the midline of the dorsum of the tongue. *Oral Surg Oral Med Oral Pathol* 1983;55(1):62-6.
 47. Lind PO, Stromme Koppang H, Aas E. Malignant transformation in oral lichen planus. *Int J Oral Surg* 1985;14(6):509-16.
 48. Lovas JG, Harsanyi BB, ElGeneidy AK. Oral lichenoid dysplasia: a clinicopathologic analysis. *Oral Surg Oral Med Oral Pathol* 1989;68(1):57-63.
 49. Eisenberg E, Krutchkoff DJ. Lichenoid lesions of oral mucosa. Diagnostic criteria and their importance in the alleged relationship to oral cancer. *Oral Surg Oral Med Oral Pathol* 1992;73(6):699-704.
 50. Krutchkoff DJ, Eisenberg E, Anderson C. Dysplasia of oral mucosa: a unified approach to proper evaluation. *Mod Pathol* 1991;4(1):113-9.
 51. McCartan B, Healy C. The reported prevalence of oral lichen planus: a review and critique. *Journal of oral pathology & medicine* 2008;37(8):447-53.
 52. Scully C, Beyli M, Ferreiro MC, et al. Update on oral lichen planus: etiopathogenesis and management. *Critical Reviews in Oral Biology & Medicine* 1998;9(1):86-122.
 53. Murti PR, Daftary DK, Bhonsle RB, et al. Malignant potential of oral lichen planus: observations in 722 patients from India. *J Oral Pathol* 1986;15(2):71-7.
 54. Thorn JJ, Holmstrup P, Rindum J, Pindborg JJ. Course of various clinical forms of oral lichen planus. A prospective follow-up study of 611 patients. *J Oral Pathol* 1988;17(5):213-8.
 55. Neville BW, Day TA. Oral cancer and precancerous lesions. *CA Cancer J Clin* 2002;52(4):195-215.