Journal of Research in Medical and Dental Science
2018, Volume 6, Issue 1, Page No: 274-278

Available Online at: www.jrmds.in
eISSN No. 2347-2367: pISSN No. 2347-2545

Histopathological Findings in Oral Lichen Planus: A Three-Year Report from Western Iran

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DOI: 10.24896/jrmds.20186145

ABSTRACT

Oral lichen planus (OLP) is a chronic inflammatory disease with unknown etiology that is more prevalent in women. This study aimed to evaluate the prevalence of histopathological findings in OLP patients. During 2013 and 2015 in a retrospective study, one-hundred and three OLP patients were enrolled into the current study. The histopathological findings observed at the epithelial level and in the connective tissue were then analyzed and compared. We divided the patients into two age group (<50 years and ≥50 years). The mean age at diagnosis of the patients was 46.7 years that 41 patients (39.8%) were males. Out of 91 patients reported lesion sites, the most common site was right cheek (38.5%). The prevalence of reactive epithelial atypia (70.9%), epithelial hyperplasia (55.3%), focal parakeratosis (51.5%), neutrophils in the epithelium (50.5%), plasma cells in the connective tissue (40.8%), erosion fibrin deposit in the epithelium (18.4%), dysplasia (15.5%) and fibrous tissue hyperplasia (6.8%) were 70.9%, 55.3%, 51.5%, 50.5%, 40.8%, 18.4% and 15.5%, respectively. There was a significant difference between the incidence of erosion fibrin deposit in the epithelium and gender. Also, there was a significant difference between age groups with the incidence of dysplasia. In conclusion, the results showed that histopathological findings in OLP patients can effect on pathogenesis and progression of this disease and risk of malignancy in the patients. Therefore, it is better that the clinicians pay attention to these findings, especially dysplasia in future therapeutic strategies of the patients.631853

Keywords: Oral Lichen Planus, Histological Findings, Prevalence

HOW TO CITE THIS ARTICLE: Hamid Reza Mozaffari, Seyedghasem Mirbahari, Masoud Sadeghi, Histopathological Findings in Oral Lichen Planus: A Three-Year Report from Western Iran, J Res Med Dent Sci, 2018, 6 (1): 274-278, DOI: 10.24896/jrmds.20186145

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Received: 14/10/2017
Accepted: 12/01/2018

INTRODUCTION

Oral lichen planus (OLP) is a chronic inflammatory disease with the prevalence of 1-2% in the world [1,2,3] and unknown etiology that its incidence is more in women [1,4] with a mean age of onset in the 4th and 5th decade [4]. OLP is seen clinically as reticular, papular, plaque-like, erosive, atrophic (erythematous) or bullous types [5]. It can be seen in an atypical location such as the palate or unilateral presentation [6]. Dental materials such as dental amalgam [7], resinous dental materials and composite restorations [8] are reported to cause a high incidence of OLP. The follow-up studies of OLP showed the malignant transformation is up to 5.3% and spontaneous remission occurs in 40% OLP [6]. A proper understanding of the pathogenesis of the disease becomes important for providing the right treatment [9] that a lot of studies have reported histopathological findings can effect on this pathogenesis. Therefore, the aim of this study was

to evaluate the prevalence of histopathological findings in OLP patients.

MATERIALS AND METHODS

During 2013 and 2015 in a three-year period and a retrospective study that was approved by the Ethics Committee of Kermanshah University of Medical Sciences, Kermanshah, Iran, 103 patients diagnosed clinically as the first or second and third impression with OLP referred to Private Clinics, Kermanshah, Iran. The biopsy specimen of every patient was sent to Razi Laboratory and received in formalin for pathological diagnosis that all patients had OLP. Age, sex, lesion site and histological findings were recorded for all patients, except for 12 patients about biopsy site. The histopathological findings were observed at the epithelial level and in the connective tissue and then analyzed and compared. Also, we divided the patients into two age groups (<50 years and ≥50 years). The statistical analysis was done by IBM SPSS 22.0 statistic software (SPSS *Inc*., Armonk, NY, *USA*). T-test was used for analysis between the variables. P-value (2-taild) <0.05 were considered statistically significant.

RESULTS

The mean age ± SD at diagnosis was 46.7±11.2 years (range, 15-72 years), that 41 patients (39.8%) were males (**Table 1**). The reticular form was the most common clinical appearance (around 70%). The first clinical impression in 86 patients (83.5%), the second impression in 15 patients (14.6%) and third impression in 2 patients (1.9%) were OLP.

Table 1: The baseline characteristics (n=103)

Variables	Value
Age (years), Mean ± SD	46.7±11.2
Range	15-72
Sex, n (%)	
Male	41(39.8)
Female	62(60.2)

The prevalence of lesion sites in 91 OLP patients have been shown in **Figure 1** that we lost lesion site for twelve patients. The most common site was right cheek (38.5%), followed by tongue (16.5%), upper gingiva (14.3%), left cheek (11.7%), upper jaw (7.7%), lower lip (6.6%) and upper lip (3.3%). Based on another division, buccal mucosa (cheek and jaw) was 57.9%, labial mucosa (lip) was 9.9%, tongue is 16.5% and gingiva was (14.3%).

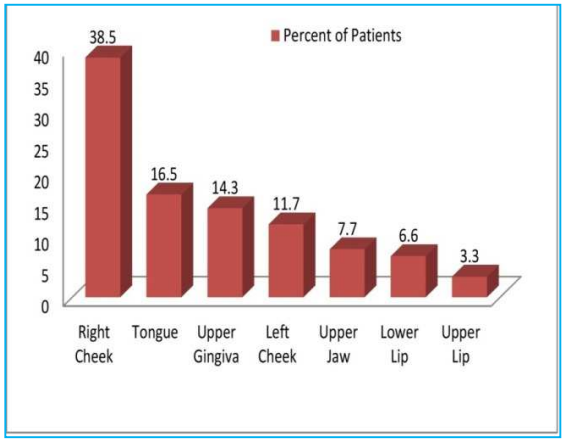

Figure 1: The prevalence of lesion sites in patients of oral lichen planus (n=91), twelve patients had no information

Table 2: The prevalence of histological findings in oral lichen planus patients (n=103)

Histological findings/ Clinical form	N (%)
Erosion fibrin deposit in the epithelium	
Positive	19(18.4)
Negative	84(81.6)
Neutrophils in the epithelium	
Positive	52(50.5)
Negative	51(49.5)
Plasma cells in the connective tissue	
Positive	42(40.8)
Negative	61(59.2)
Fibrous tissue hyperplasia	
Positive	7(6.8)
Negative	96(93.2)
Epithelial hyperplasia (*pseudo epiteliomatous)*	
Positive	57(55.3)
Negative	46(44.7)
Reactive epithelial atypia	
Positive	73(70.9)
Negative	30(29.1)
Dysplasia	
Positive	16(15.5)
Negative	87(84.5)
Focal parakeratosis	
Positive	53(51.5)
Negative	50(48.5)

Table 2 shows the prevalence of histological findings in all OLP patients. *Reactive epithelial atypia (70.9%),* epithelial hyperplasia (55.3%), *focal parakeratosis (51.5%),* neutrophils in the epithelium (50.5%), plasma cells in the connective tissue (40.8%), erosion fibrin deposit in the epithelium (18.4%), dysplasia (15.5%) and *fibrous tissue hyperplasia (6.8%),* had the highest

prevalence, respectively. Out of 16 patients with dysplasia, 100% were low grade.

The comparison of the prevalence of histological findings between male and female has been shown in **Table 3**. There was no significant difference between two genders with the incidence of histological findings, except just for erosion fibrin deposit in the epithelium that this histological finding in female was more than male (P=0.015).

Table 3: The comparison of the prevalence of histological findings based gender (n=103)

Histological findings/ Clinical form	Male (n=41)	Female (n=62)	P-value
Erosion fibrin deposit in the epithelium	3(7.3%)	16(25.8%)	0.015
Neutrophils in the epithelium	19(46.3%)	33(53.2%)	0.315
Plasma cells in the connective tissue	17(41.5%)	25(40.3%)	0.535
Fibrous tissue hyperplasia	1(2.4%)	6(9.7%)	0.152
Epithelial hyperplasia (*pseudo epiteliomatous)*	24(58.5%)	33(53.2%)	0.372
Reactive epithelial atypia	30(73.2%)	43(69.4%)	0.425
Dysplasia	6(14.6%)	10(16.1%)	0.534
Focal parakeratosis	21(51.2%)	32(51.6%)	0.564

The comparison of the prevalence of histological findings between two age groups has been shown in **Table 4**. There was no significant difference between two age groups with the incidence of histological findings, except just for dysplasia that this histological finding in age group≥50 years was more than >50 years (P=0.004).

Table 4: The comparison of the prevalence of histological findings based age group (n=103)

Histological findings/ Clinical form	Age<50 yrs (n=66)	Age≥50 yrs (n=37)	P-value
Erosion fibrin deposit in the epithelium	14(21.2%)	5(13.5%)	0.245
Neutrophils in the epithelium	36(54.5%)	16(43.2%)	0.185
Plasma cells in the connective tissue	28(42.4%)	14(37.8%)	0.405
Fibrous tissue hyperplasia	6(9.1%)	1(2.7%)	0.209
Epithelial hyperplasia (*pseudo epiteliomatous)*	36(54.5%)	21(56.8%)	0.497
Reactive epithelial atypia	50(75.8%)	23(62.2%)	0.110
Dysplasia	5(7.6%)	11(29.7%)	0.004
Focal parakeratosis	34(51.5%)	19(51.4%)	0.575

DISCUSSION

This study reported that the mean age at diagnosis was 46.7 years (range, 15-72 years) that the most patients were females and the most common lesion site was buccal mucosa, followed by labial mucosa, tongue and gingiva. Also, *reactive epithelial atypia,* epithelial hyperplasia, *focal parakeratosis,* neutrophils in the epithelium and plasma cells in the connective tissue had the most prevalence in the OLP patients, respectively. Erosion fibrin deposit in the epithelium was significantly higher in female than male and dysplasia was significantly higher in age group≥50 years than <50 years.

OLP occurs more frequently in females [10-12] and manifests between 50-60 years of age [10,11] This disease can develop at any age, such that the age range of our sample varies from 28 to 82 years old [13]. Werneck et al. [14] checked a total of 21 OLP patients at risk for oral cancer development that 66.6% were female and the mean age of 58.8 years. Our study showed that the age range could include the patients with lower ages and the mean age was lower than 50 years (60.1% patients had age <50 years). Therefore, our area showed that more prevalence of OLP in younger ages compared with a number of studies.

The most frequent clinical form is reticular [11, 14] present in 78% of the cases, and the most common location is the buccal mucosa, present in 70% of the patients [11]. The most common lesions site of OLP is in the buccal mucosa, with the next most common location being the tongue [10,5]. Other analysis [11] concluded that the buccal mucosa was the most common location in 70% of the cases, followed by the tongue in 16% of the cases–the other locations being less common. Werneck *et al*. [14] showed that the buccal mucosa was the most affected site, followed by the tongue and the gingiva. This findings are in agreement with other literatures [1,15-17] and also this study and our previous study [12] confirmed these results.

Focusing on the histological findings, Fernández-González et al. [11] showed that there was no epithelial dysplasia, atypia (4%), epithelial hyperplasia (54%), hyperkeratosis (66%), neutrophils in the epithelium (8%), and plasma cells in the connective tissue (26%) in OLP patients. The existence of fibrin deposition at the

mucosal submucosal interface and within vessels and the presence of colloid bodies are highly sensitive for a diagnosis of OLP [18]. Histopathological findings which are different from OLP include the predominant formation of lymphoid follicles chiefly consisting of plasma cells and neutrophils [19].

Although there is an inflammatory process, etiology and pathogenesis of OLP are not fully understood yet. Yamamoto *et al*., [20] reported that both lymphocyte and neutrophil functions were impaired. One research [21] suggested that OLP seemed to be associated with functional changes of salivary neutrophils involved in, reflecting the different pathophysiological mechanisms of the disease. Pereira *et al*., [22] reported the most erosive OLP lesions (80.0%) exhibited epithelial atrophy. In contrast, in reticular lesions, hyperplasia was identified 52.9% cases and atrophy 47.0%. Lanfranchi-Tizeira *et al*. [23] reported that out of 719 OLP patients, 31.7% were typical forms and 68.3% atypical forms that 6.51% patients were known to have developed malignant changes. In these cases, the lesions had been diagnosed as atypical lichen planus at the outset. Therefore, the results support a premalignant potential for atypical lichen planus. Some cell alterations which suggest malignancy present in OLP may also be found in epithelial dysplasia [5, 24]. Out of 15 patients reported [14], histopathological examination revealed nine cases of epithelial dysplasia; eight cases had mild epithelial dysplasia and one case had moderate epithelial dysplasia, whereas out of 21 patients, cytopathological examination revealed epithelial dysplasia in eleven patients; ten patients had mild epithelial dysplasia and one case had moderate epithelial dysplasia and no severe epithelial dysplasia in both examinations. Dysplasia in older ages was significantly higher than younger ages in our study.

CONCLUSIONS

The results showed that histopathological findings in OLP patients can effect on pathogenesis and progression of this disease and risk of malignancy in the patients. Therefore, it is better that the clinicians pay attention to these findings, especially dysplasia in future therapeutic strategies of the patients.

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