Lichen Planus Or Lichenoid Dysplasia : Is It Premalignant !

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Citation

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Abstract

Is Oral Lichen planus (OLP) an inherently premalignant condition? The question about premalignant potential of OLP has been mired by controversy. OLP and other lichenoid dysplysia of oral mucosa occur commonly, and yet they are poorly understood. Furthermore, the role of Histochemical markers, Quantitative cytology and Morphometry as prognostic tools in evaluation of OLP has been proved beyond doubt. In the present study nuclear and cytoplasmic volume of basal cells, Spinous cell maximum diameter in OLP, normal mucosa and oral carcinoma are measured on Hematoxylin and Eosin stained sections using image analysis software. All the parameters were seen to be increased. Nuclear volume is almost three times that of normal mucosa in OLP and six times that of normal mucosa in oral sq cell carcinoma. Spinous cell maximum diameter has also increased from normal mucosa to OLP to oral sq cell carcinoma.Statistically significant differences were noted and the results obtained may have a value in predicting their behavior.

INTRODUCTION

Oral lichen planus was first described by “Erasmus Wilson” in 1869[1]. Considerable controversy exists in the literature as to whether OLP (oral lichen planus) has inherent predilection to become malignant[2]. Moreover, it has been suggested that reported cases of OLP developing into oral cancer were infact not OLP but rather dysplastic lesions with lichenoid features[3]. It has also been suggested epithelial dysplasia with lichenoid features is a distinct histopathologic entity with a true malignant predisposition[2]. Furthermore, this condition needs to be diagnosed with a strict Clinico-pathologic criterion, which might reduce or possibly eliminate confusion about possible premalignant character of OLP and OLL (oral lichenoid lesions)[4]. Role of Histochemical markers[3], Quantitative cytology[5] and Morphometry[6,7] as prognostic tools in evaluation of OLP has been proved beyond doubt.

OBJECTIVES OF THE STUDY

Measurement and Comparison of nuclear and cytoplasmic volume of basal cells in OLP, normal mucosa, and oral carcinoma. Comparison of Spinous cell maximum diameter in OLP, normal mucosa and oral carcinoma.

NEED OF THE STUDY

OLP has been considered a premalignant condition requiring a recall program and proper follow up, which require substantial economic resources and is a potential problem in developing nations like ours. Further more, treatment options varies if patient has OLP or dysplastic lesion. In case of misdiagnosis; if same treatment (i.e treatment for OLP) is used for lichenoid dysplastic lesion it may cause progression of incipient precancerous lesion which could have been treated differently.

MATERIALS AND METHODS

Normal epithelium was obtained from patients undergoing extraction for impacted third molar with no sign of inflammation or any other pathology. Cases of OLP, and oral carcinoma were retrieved from Department files. Diagnosis of all OLP cases were done on the basis of proposed modified W.H.O criterion for OLP and OLL[4]. Confounding factors such as smoking were taken into consideration while diagnosing[8]. Morphometric analysis was done using image analysis software; Nuclear and cytoplasmic volume of Basal cells were measured and compared. Spinous cell maximum Diameter calculated and compared[6]. Cellular and Nuclear area and Diameter were measured from representative field using image analysis software. Total of ten cells were analyzed from each field. All the values were noted and statistically analyzed. Cells that were clumped together or not clear were not taken into consideration. Unfolded cells with clear outline were only selected for the study.

RESULTS

Figure 1

	microns	Normal mucosa	Oral lichen planus	Oral Sq Cell CA.
	A_N	32.28	67.84	94.03
Basal cells	V_N	138.67	442.96	684.75
	A_C	96.37	160.18	196.46
	V_C	710.73	1522.56	2068.73
Spinous cells	D_{MAX}	16.46	19.35	25.08

V_N: Nuclear Volume, V_C: Cellular Volume, A_N: Nuclear Area, A_C: Cellular Area,

$S.D_{MAX}$: Spinous cell maximum Diameter.

The Kruskal-Wallis test was used for comparing the differences between various groups; statistically significant differences were seen among various groups. All the parameters were seen to be increased.

Nuclear volume is almost three times that of normal mucosa in OLP and six times that of normal mucosa in oral sq cell carcinoma. Spinous cell maximum diameter has also increased from normal mucosa to OLP to oral sq cell carcinoma.

From the above results and by comparing them with each other, enlargement of cell dimension can be noticed. Thus these parameters may used to predict their behavior.

DISCUSSION

Considerable controversy exists in the literature as to whether oral lichen planus has an inherent predilection to become malignant. While some experts believe in an innate malignant capacity for OLP, others claim that only OLP-like lesions with dysplasia— referred to as lichenoid dysplasia, or LD—are potentially cancerous.

Eisenberg and Krutchkoff suggested that some lesions diagnosed as lichen planus might have, in fact, been epithelial dysplasias with a clinical lichenoid appearance. In 1985, they applied the term “lichenoid dysplasia” to lesions that could be clinically mistaken for OLP but have histological features of dysplasia. They proposed that epithelial dysplasia with lichenoid features (that is, LD) is a distinct histopathologic entity with a true malignant predisposition. They attributed the similarity in the clinical appearance of OLP and LD to the lichenoid inflammatory infiltrates elicited by a cell-mediated immune response to multiple antigens.

However, if the clinical diagnosis is not verified by histological examination, or if the incipient dysplastic changes in the presence of lichenoid features are not recognized or are overlooked, a misdiagnosis could result. Eisenberg argued that this initial misdiagnosis could explain why a benign condition such as OLP is considered by some to be premalignant[2].

The implication of this premise is that patients with lichenoid dysplasia represent a risk group, which can be identified by the appropriate use of available diagnostic methods and, as such, can be distinguished from patients with OLP with no dysplasia-related increased risk of development of oral cancer[3].

Quantitative cytology can detect both cytoplasmic and nuclear changes in oral lichen-

planus, suggests that this technique may be of potential value for the repeated assessment of dysplastic changes within oral lichen planus lesions[5]. Cytomorphometric analysis of exfoliated normal buccal mucosal cells showed N/C ratio to be around 0.1609[14]. Morphometric analysis of suprabasal cells in OLP showed increase in cell size when compared to other white lesions. This criterion can be used to differentiate OLP from lesions carrying a greater risk of malignant change[6]. Nuclear and cellular volumes may serve as potential discriminators between benign lesions and premalignant lichen planus. Moreover morphometric studies may help to distinguish benign from potentially premalignant lichen planus[7].

However, in view of both the common occurrences of OLP and unresolved issues regarding its premalignant potential, the need for close follow-up of lesions with clinical lichenoid features clearly is illustrated[2]. OLP patients should have regular follow-up examinations from two to four times annually[3].

In the present study enlargement of cell dimension is noticed in basal as well as spinous layer. Thus the parameters studied may have a value in predicting their behavior.

CONCLUSION

It can be concluded from this study that the accuracy and objectivity of morphometric methods may be applied usefully to discriminate between purely benign, potentially premalignant and malignant lesions of the oral cavity. The present study also focuses on the application of strict, well-defined diagnostic criterion for OLP. OLP patients with risk of malignant transformation of the lesion can be identified with current diagnostic methods as long as they are followed

properly. Confounding variables such as smoking, which may have prognostic implications, should be taken into consideration. However, in view of both the common occurrences of OLP and unresolved premalignant potential, the need for close follow-up of lesions with clinical lichenoid features is warranted. Furthermore, relevance of Histochemical markers as prognostic tool in predicting the premalignant behavior of OLP needs more studies. Any histological findings showing dysplastic changes will make diagnosis as lichenoid dysplasia than oral lichen planus.

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