ORIGINAL ARTICLE

AGREEMENT IN CLINICAL AND HISTOPATHOLOGY DIAGNOSIS OF ORAL WHITE LESIONS

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ABSTRACT

The aim of the study was to analyze agreement in clinical and histopathology diagnosis of oral white lesions. A cross sectional study was undertaken at the department of Oral and Maxillofacial Surgery at Punjab Dental Hospital, Lahore from November 2016 to May 2017. A total of 85 patients with oral white lesions were diagnosed clinically and further confirmed histopathologically. Clinical and histopathological diagnoses were compared. Standard deviation as well as mean were analysed for quantitative variables, whereas frequency and percentages were analysed for qualitative variables. Among 85 patients 45 (52.9%) were males and 40 (47.1%) were females with an average age of 36.21±16.40 years. Buccal mucosa was involved in major part of cases (51.8%) next to lip (16.5%), tongue (15.3%), alveolus (9.4%), floor of the mouth (4.7%) and palate (2.4%). According to the agreement in diagnosis 85.5% patients have agreement and 14.1% have no agreement. The difference between clinical diagnosis with histopathological diagnosis was significant (<p 0.05) and agreement rate was 85.88% between the diagnosis. The results of this study confirmed that oral white lesions are capable of showing highly variable histopathological features and therefore biopsy followed by histopathological examination of all oral white lesions must be done in order to confirm the diagnosis.

Key Words: *Agreement, Oral white lesion, Diagnosis.*

INTRODUCTION

A large number of stimuli act on the oral cavity each day which may result in production of different types of oral lesions.[1] These lesions may be white, red, black or blue in color.[2] There are countless systemic conditions that present in the oral cavity before anywhere else in the body, these conditions may include blood disorders, vitamin deficiencies, autoimmune disorders and certain syndromes. [1,2] It is therefore responsibility of the oral examiner to consider the systemic conditions of the patient while assessing oral lesions.[2]

Oral white lesions are not uncommon findings. Majority of these lesions appear white due to abnormal keratin deposits and saliva in the oral cavity.[3] Oral white lesions may be classified as benign, pre-malignant or malignant.[1,3] These lesions may be diagnosed by history, clinical examination and histopathological assessment.[2,3,4] The world wide incidence of oral cavity lesions raised to from 2.45% to 4.31% during a decade, precisely from 1994 to 2004.[4]

Although, most of these white lesions can be abolished by rubbing and are termed as "Non-keratotic" whereas some of these lesions withstand their abolishment by rubbing and are referred to as "Keratotic".[5] The word, "Leukoplakia" is applied to mention these hyperkeratotic white plaque or patch on the oral mucus membrane those cannot be abolished by rubbing and mostly it occurs between 4th to 7th decade of life and its prevalence is three times higher in men than women,[2,5] and it commonly effects 2% of population worldwide.[5]

Clinically the white keratotic lesions may have

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similar appearance but different stimuli and sometimes these lesions may give clinical picture of accurate diagnosis such as in case of candidial fungal infections and lichen planus. [8] Oral white mucosal lesions can be histopathologically divided into two types: they may be dysplatic or non-dysplastic.[9] Dysplastic lesions are those that show histopathological abnormality suggesting that the lesion has a pronounced expectance of malignant convergence.[8,9] Dysplasia's are greatly known for their malignant behavior to the extent of 5-18% . Prompt diagnosis by histopathological means, squamous cell carcinoma of oral cavity may result in elevation of survival rates, which are nearly 50% according to the current literature.[9]

The objective of this study is to impart a positive influence on the need to realize that biopsy followed by histopathological analysis is required for almost all of the white oral lesions. No such study is conducted in our region or hospital yet. This study will be sent to higher authorities for making a guideline for the treatment of white lesions of oral cavity.

PATIENTS AND METHODS

This was a cross sectional study[1] performed at Department of Oral and Maxillofacial Surgery, de'Montmorency College of Dentistry/ Punjab Dental Hospital, Lahore. The duration of study was six months from 20th November 2016 to 19th May 2017. Total of 85 patients were recruited in the study. All the patients were treated on out- patient basis. Patients with ≥ 12 years and above age having white lesion in oral cavity for the duration ≥ 14 days and ≤ 6 months were a part of this study. Patients with any medical emergency as myocardial infarction, cerebro vascular accidents, angina pectoris, road traffic accidents, pregnant females and oral white lesions that were present since birth and greater than 4 cm in size were excluded from the study.

The study was sent for approval to ethical committee of de'Montmorency College of Dentistry and informed consent was taken from the patients in the understandable language by them, before their inclusion in the study. All the patients presented to the Oral & Maxillofacial Surgery department with white lesion of the mouth were subjected to complete history and clinical examination of oral cavity & maxillofacial region. Routine baseline investigations were advised and concerned radiographs were taken. All the patients were examined and treated by the same oral and maxillofacial surgeon.

All patients were given local anesthesia.[2,8] Local infiltration of lignocaine anesthesia (2%) with adrenaline 1:100,000 for hemostasis was used at the incision site under strict aseptic measures. Excisional biopsy was done for lesion less than 2cm,and incisional biopsy was done for lesions greater than 2cm. All biopsy specimens were fixed in 10% formalin and sent for histopathological report to the histopathologist. After achieving the adequate haemostasis the incision was closed using 3-0 vicryl suture. All patients were given postoperative antibiotics and analgesics for 5 days. Oral hygiene measures were taken using 0.2% chlorhexidine mouthwash .[1,4,5,6]

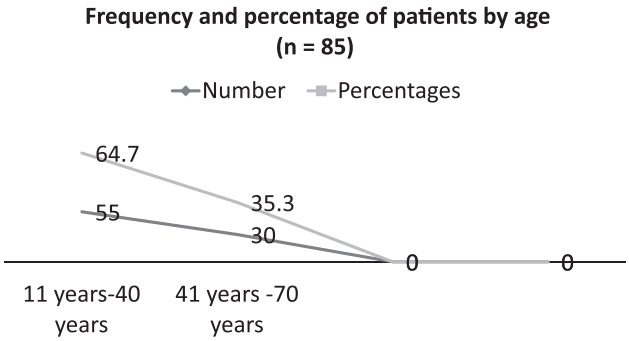
All the data was entered and analyzed on SPSS version 17 software (SPSS, Inc.,Chicago, IL, USA). Continuous / Quantitative variables such as age of patient were presented in mean ± standard deviation. Categorical / qualitative variables such as agreement and gender of the patient, site of lesions, clinical and histopathological diagnosis were computed in the terms of frequency and percentages.

Kappa statistics was calculated to determine the strength of agreement between clinical and histopathological diagnosis of oral white lesions. Data was stratified for gender, age and site of lesion to neutralize effect modifiers. Post-stratification, Chi-square test was used to scrutnize the significance with P value ≤ 0.05 considered as significant.[1,6,8]

RESULTS

Total 85 patients with oral white lesions were a part of this study. There were 45 (52.9%) males and 40 (47.1%) females respectively. Male to female ratio was 1.1:1 (Table 1).

Regarding age groups, there were 55 patients (64.7%) in age group 11-40 years and 30 patients (35.3%) in age group 41-70 years. The mean ± SD age was 36.21±16.40 years (Fig.01). According to lesions, 44 patients (51.8%) have buccal mucosa lesions, 14 patients (16.5%) have lip lesions, 13 patients (15.3%) have tongue lesions, 8 patients (9.4%) have alveolous



Mean ± SD = 36.21± 16.40 Key SD Standard deviation

Fig 1: Frequency and percentage of patients by age (n = 85)

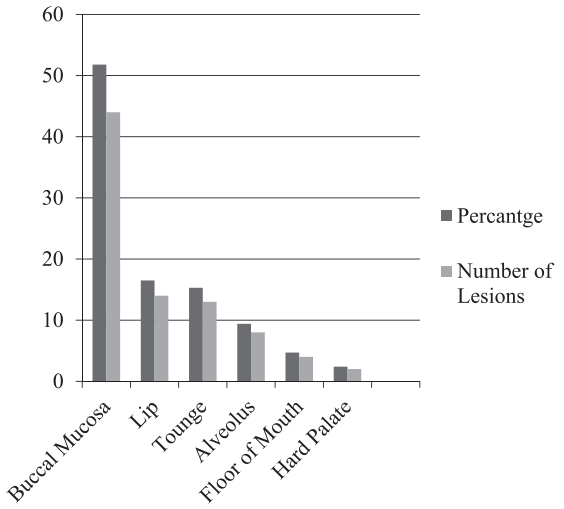


Fig 2: Frequency and percentage of oral white lesions by site (n = 85)

TABLE 1: FREQUENCY AND PERCENTAGE OF PATIENTS BY GENDER (N = 85)

Gender	No.	%
Male	45	52.9
Female	40	47.1
Male to Female Ratio	1.1:1	

TABLE 2: FREQUENCY AND PERCENTAGE OF PATIENTS BY AGREEMENT (N = 85)

Agreement	No.	%
Yes	73	85.9
No	12	14.1

TABLE 3: CROSS TABULATION OF CLINICAL DIAGNOSIS WITH HISTOPATHOLOGICAL DIAGNOSIS

Clinical diagnosis	Histopathological diagnosis										Total
	1	2	3	4	5	6	7	8	9	10	
Oral submucous fibrosis	11	0	0	1	0	0	0	0	0	0	12
Aphthous stomatis	0	6	1	0	0	1	0	0	0	0	8
Lichen planus	0	0	16	0	0	0	0	0	0	0	16
Squamous cell carcinoma	0	0	1	16	0	0	0	0	0	0	17
Candidiasis	0	0	0	1	7	0	0	0	0	0	8
Traumatic ulcer	0	0	1	1	0	12	0	0	0	0	14
White coated tongue	0	0	0	0	1	0	0	0	0	0	1
Tobacco pouch keratosis	0	0	0	3	0	0	1	0	0	0	4
Epithelial hyperkeratosis	0	0	0	0	0	0	0	1	0	0	1
Lupus erythromatosis	0	0	1	0	0	0	0	0	1	0	2
Nicotinic stomatitis	0	0	0	0	0	0	0	0	0	2	2
Total	11	6	20	22	8	13	1	1	1	2	85

KAPPA TEST

	Value	Asymp. Std. Error	Approx. Sig.
Measure of agreement	.833	.044	.000

Key for Histopathological diagnosis
1 Oral submucous fibrosis 2 Aphthous stomatis 3 Lichen planus
4 Squamous cell carcinoma 5 Candidiasis 6 Traumatic ulcer
7 Tobacco pouch keratosis 8 Epithelial hyperkeratosis 9 Lupus erythromatosis
10 Nicotinic stomatitis

lesions, 4 patients (4.7%) have floor of mouth lesions and 2 patients (2.4%) have lesions on the palate (Fig.02). According to agreement of patients, 73 patients (85.5%) have agreement and 12 patients (14.1%) have no agreement (Table 2).When the Kappa test was applied on clinical diagnosis with histopathological diagnosis, statistically the difference was significant (<p0.05) and agreement rate was 85.88% between the diagnosis (Table 3).

DISCUSSION

In this clinical as well as histopathological study of several oral cavity white lesions, an effort was made to evaluate the precision of clinical diagnosis. In this study of 85 patients, 41.6% of the lesions were diagnosed in patients with the ages of 11 to 40 years. In a study performed in India in 2005, whereas, Rai et al[10] described that usual age group was 21-30 years.[10] These data are striking as they oppose other reports. This might be due to living style (mainly smoking, which is significantlt more in India) or reflects mode of behavior of the sample.

The commonest site of oral white lesions in this study was the buccal mucosa. Buccal mucosa is also the most presented area for squamous cell carcinoma followed by the lip and tongue. This was validating the studies performed by Abidullah et al.[11] The contradiction in reference to lesion sub site may be due to the difference in causative factor (smoking, chewing tobacco or pan etc). The next anatomical subsites affected was lower lip, followed by tongue and alveolus.[11,12] While studing contributions from Forman et al[13] lesions were more constant in buccal mucosa and then alveolar ridge,[13] where as manuscripts Nagao et al[14]demonstrate highest percentage on lower lip and palate.[14] These anatomical subsites varied with respect to the type of lesion. In different parts of world,presentation of oral white lesions were highly influenced by environmental and personal bahavior, which are considered as significant risk factors.[13,15]

In our study most common lesion diagnosed clinically was squamous cell carcinoma (SCC) with the total count of 17, where as 16 were histopathologically proven as SCC while one was diagnosed to be lichen planus. Second most common lesion was lichen planus, clinically diagnosed lesions were 16 and all these were confirmed on histopathological diagnoses as well showing 100% agreement in clinical and histopathological diagnosis. Third most common lesion was traumatic ulcer; clinically diagnosed were 14 cases, where 12 were histopathologically proven to be traumatic ulcer where as one was well differentiated SCC and one was proven to be Lichen planus on histopathogical examination. Fourth most common lesion was oral submucus fibrosis, clinically diagnosed were 12 cases where as histopathologically proven were 11 cases where as one lesion was proven to be well differentiated SCC histopathologically.

Chattopadhyay et al[16] analysed in his reports that several subsites such as floor of mouth,tongue(including ventral and lateral border) as well as soft palate possessed a higher malignant potential. Several studies confirmed that genetic make up of lesions in low and intermediate risk zone was different from those of the high risk zone.[16] So statistically, malignant potential of certain anatomical sub sites was significantly higher than other sites. These subsites include lower lip, lateral border of tongue and buccal mucosa. Agreement in clinical and histopathological diagnosis was evaluated to be 85.88%, with the highest percentages of agreement in Oral Submucus Fibrosis and Lichen Planus. The association between lesion type and severity of dysplasia in this study was statistically significant (<p 0.05).

While promising, however, techniques such as tissue imprint cytology and molecular studies have gained a position as complementary methods, these have quite not succeeded in replacing traditional histopathology.[11,12,16] Although these advanced techniques will provide improved surveillance for the diagnostic and prognostic evaluation of many oral lesions.[16] Biopsy followed by histopathological examination still remains the gold standard and treatment of choice for oral white lesions.

CONCLUSION

Oral white lesions denote a wide range of histopathological variety from benign, dysplastic, carcinoma in situ and the malignant or invasive ones.

There was statistically notable association between clinical and histopathological diagnoses. Biopsy followed by histopathological examination still remains the monetary standard and treatment of choice for oral white lesions, for prompt treatment of lesions.

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4 **Huma Ijaz:** Data collection and data analysis.
5 **Khurram Jah Zafar:** Drafting of article and tabulation of results.
6 **Omer Sefvan Janjua:** Data collection and reviewing of manuscript.
7 **Muhammad Usman Akhtar:** Supervisor