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MORPHOLOGICAL CHARACTERISTICS OF ORAL LEUKOPLAKIA IN RIYADH REGION KSA

Dr. Taufeeg Saleeh Aloriny[1]*, Dr.Tareq Ali Alqahtani[2]

[1]*Consultant In Restoration Dentistry, Presidency of State Security Riyadh KSA, ORCID: 0009-0001-3090-6052, E-mail – drtaufeeg@hotmail.com

[2]General Practioner Dentistry, Presidency of State Security Riyadh KSA, ORCID: 0009-0009-6523-7299, E-mail – drto11@hotmail.com

***Corresponding Author: -** Dr. Taufeeg Saleeh Aloriny

*Consultant In Restoration Dentistry, Presidency of State Security Riyadh KSA, ORCID: 0009-0001-3090-6052, E-mail – drtaufeeg@hotmail.com

Abstract

Background: Oral Leukoplakia is a common pre-cancerous condition observed worldwide which often leaves physician in dilemma regarding its benign or malignant nature. Biopsy is the method followed to rule out its malignant nature which is invasive and painful. Patient has to wait for the histopathology report which is usually available after a week, and sometimes even a repeat biopsy is needed.

Methods: Here we did a detailed prospective study on morphological characteristics of 156 patients of oral leukoplakia and compared these with the biopsy outcome. Results were analysed statistically by chi square test using IBM SSPS 28 package and p values were calculated. P values less than 0.05 were taken to be significant.

Results: Smoking and tobacco chewing habits, age of patient, duration, location, margins, tenderness, texture, tendency to peel easily and Induration of Oral Leukoplakia were found to be statistically significant.

Conclusion: Complete morphological description of Oral Leukoplakia provides significant insight to its nature during its first encounter with physician with confirmatory results provided by the biopsy.

INTRODUCTION AND REVIEW OF LITERATURE

Leukoplakia is defined as a white patch or plaque that cannot be ascribed to any other clinical disease. World Health Organization defines Leukoplakia as "Clinical white patches that cannot be wiped off the mucosa and cannot be classified clinically or microscopically as another specific disease entity".[1] There are many white lesions over also mucosa. Also, most of lesions of oral mucosa are white in colour. So, physicians are often left in dilemma about their nature. Oral Leukoplakia is a relatively rare disease with an estimated prevalence of less than 1%.[2] Oral cancers are believed to be preceded by precancerous lesions, defined clinically based on visual examination (a white patch in the mouth), erythroplakia (a red patch in the mouth), and oral submucous fibrosis (irreversible fibrosis of the submucous tissue) as well as histopathologically based on the presence of dysplasia.[3-6] Histopathological confirmation should be sought in all cases of leukoplakia. Even leukoplakia that may show only dysplasia may still contain carcinomatous foci.[1] Despite the fact that diagnosis is possible by history and clinical examination, there are several knowledge gaps regarding the natural history of oral precancer and the clinical management of patients with precancer.[7,8] The rate of progression of oral leukoplakia to invasive oral cancer has varied widely in literature from 0% to

36%[3,9-12]. These existing lacunae in the scientific knowledge of the most common oral pre-cancerous lesion highlights the need of more scientific contribution to this area.

METHODS

Study Design

This was a prospective study. The study was conducted after ethical approval from Institutional Ethical Committee.

Inclusion Criteria

Patients of all ages and both sexes presenting to ENT and Dental Outpatient Departments who had white patches on oral cavity examination which could be peeled off by gentle pressure of Lack's tongue depressor and which could not be attributed to any other disease during 1st January 2021- 1st January 2023 at a Dental Department, Primary Health Care Riyadh KSA were included in this study.

Exclusion Criteria

Patients with known dermatological and auto immune conditions which present with white patches of oral cavity.

Study Procedure

Informed and written consent was taken from all the patients satisfying the inclusion criteria before enrolling them in the study. Detailed history was taken. Morphological characters namely location, colour, size, margins, border, texture, tenderness, induration, tendency to bleed on touch and whether it could be peeled easily with slight pressure of oral speculum and duration of lesion were noted. Basic blood investigations including CBC, PT, INR, HBsAg, HCV and HIV were sent. After availability of reports, Xylocaine sensitivity was done, the area of lesion and surrounding the lesion was anesthetised, A layer of mucosal lesion was gently peeled off with sharp edges of a glass slide till a healthy bleeding base was visible. It was uniformly spread over another glass slide to get a thin smear composed of a single layer of cells in thickness, dried and stained with eosin-haematoxylin and sent for histopathological examination.

Histopathological results regarding malignancy were compared separately with each morphological characteristic applying chi square test using IBM SSPS 28. The lesions showing any sign of dysplasia were considered malignant while non dysplastic lesions were considered benign. Variables with p value less than 0.05 were considered to be statistically significant. The results were compared with previous literature and conclusion drawn.

OBSERVATIONS

1. Sex Distribution

Sex Distribution	Benign	Malignant	Total
Male	61	27	88
Female	55	13	68
Total	116	40	156

Table 1.1: Sex Distribution in patients of Oral Leukoplakia. Male: Female Ratio= 1.3:

2. Age Distribution

Age distribution (Years)	Benign	Malignant	Total
0-9	0	0	0
10-19	0	0	0
20-29	7	0	7
30-39	9	2	11
40-49	62	5	67
50-59	27	5	32

60-69	10	16	26
>=70	1	12	13
Total	116	40	156

Table 1.2: Age Distribution of patients of oral Leukoplakia

3. Duration

Duration (Years)	Benign	Malignant	Total
<5	79	7	86
5-<10	26	10	36
>=10	11	23	34
Total	116	40	156

Table 1.3: Duration of Oral Leukoplakia

4. History of smoking/tobacco chewing

History of Smoking/Tobacco Chewing	Benign	Malignant	Total
Present	64	37	101
Absent	52	3	55
Total	116	40	156

Table 1.4: Relationship between Oral Leukoplakia and smoking and tobacco chewing. Odds ratio for presence of malignancy in smokers and tobacco chewers is 10

5. Presence of other clinical symptoms (Pain/ burning sensation/ irritation) in oral leukoplakia

Other Clinical symptoms	Benign	Malignant	Total
Present	28	16	44
Absent	88	24	112
Total	116	40	156

Table 1.5: Presence of other clinical symptoms in oral leukoplakia

6. Location

Location	Benign	Malignant	Total
Lips	2	0	2
Gingiva	4	2	6
Buccal mucosa	68	11	79
Hard palate	31	14	45
Anterior two thirds of tongue	2	7	9
Floor of mouth	8	2	10
Retromolar Trigone	1	4	5
Total	116	40	156

Table 1.6: Location of Oral Leukoplakia

7. Size

Size in centimetres	Benign	Malignant	Total
<2	6	0	6
2-4	54	12	66
>4	56	28	84
Total	116	40	156

Table 1.7: Size of Oral Leukoplakia

8. Margins

Nature	Benign	Malignant	Total
Regular	112	0	112
Irregular	4	40	44
Total	116	40	156

Table 1.8: Margins of Oral Leukoplakia

9. Texture

Nature	Benign	Malignant	Total
Smooth	87	26	113
Rough	29	14	43
Total	116	40	156

Table 1.9: Texture of Oral Leukoplakia

10. Tenderness

Nature	Benign	Malignant	Total
Tender	24	28	52
Non tender	92	12	104
Total	116	40	156

Table 1.10: Tenderness in Oral Leukoplakia

11. Induration

Nature	Benign	Malignant	Total
Indurated	12	26	38
Non indurated	104	14	118
Total	116	40	156

Table 1.11: Induration in Oral Leukoplakia

DISCUSSION

Study by other authors show that male and female are almost equally affected. It rarely occurs in first two decades of life. It is clear that only a minority of leukoplakias are premalignant, but the problem is to identify which are.[1] The clinical diagnosis relies on thorough history taking and oral examination.[2] Based on histological examination dysplasia is an indicator of malignant transformation[13,14]. While some studies suggested that up to 60 percent of leukoplakias regress or totally disappear if tobacco use is stopped. Leukoplakias induced by smokeless tobacco may resolve if the addict abstains this habbit[13,15,16] Most studies hold view that spontaneous regression of leukoplakia is exceedingly rare. Surgical and non-surgical treatments have not been shown to be effective in preventing possible future malignant transformation[2,17] Each leukoplakia should be biopsied irrespective of its characterstics.[2,3] Compared to general population, there is higher incidence of oral cancer in those having Oral Leukoplakia (40.8 folds increased risk). In a study of 4886 leukoplakias, 42.5% had a history of smoking, 65.5% diagnosed by Dental Clinicians. They found 68.8 % risk of malignant transformation in leukoplakia of tongue.[3] We compared final histopathological outcome with various epidemiological and morphological characters of Oral Leukoplakia and drew various generalisations. However, biopsy must be performed in every case of leukoplakia.

CONCLUSION

The 12 Point Criteria

1. Oral Leukoplakia cannot be easily peeled just by slight pressure of blunt tongue depressor.
2. Most of the Oral Leukoplakia are benign in nature (75%). But a significant percentage is malignant (25%).

3. Most of the Oral Leukoplakia whether benign or malignant bears no symptom other than the presence of a whitish patch. However, presence of other clinical symptoms favours presence of malignancy.
4. The is no sex predilection. However, probability of finding an Oral Leukoplakia is slightly more in males. Chances of malignancy are still higher in males
5. Incidence of Oral Leukoplakia is highest in age group of 41-50. There are negligible cases in first two decades of life. Malignant lesions start outnumbering the benign lesions as age increases.
6. Probability of malignant conversion increases with Oral Leukoplakia of longer duration.
7. Smoking and tobacco chewing strongly favours malignancy with strong association statistically significant causal relationship. (Odds ratio 10)
8. Buccal mucosa is the most commonly involved site. Leukoplakia of Retromolar trigone and anterior two thirds of tongue carry high malignant potential.
9. There is no statistically significant association between size of lesion and malignancy.
10. Benign lesions tend to have regular margins. Malignant lesions always have irregular margins.
11. Presence of induration and tenderness is more specific to malignant lesions. This association is statistically significant.
12. Presence of rough texture slightly favours malignancy but there is a weak statistical association.

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