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Original Article

"A CROSS-SECTIONAL STUDY ON CLINICO-PATHOLOGICAL EVALUATION OF ORAL CAVITY LESIONS"

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Introduction: In India, oral cancer is one of the leading cancer today. Its incidence is 12.6 per 1,00,000 population. The premalignant lesion is a disease or syndrome if left untreated have significantly increased risk to develop cancer. **Aim and Objective of the study:** The objective of this study is to evaluate clinicopathological spectrum of oral cavity lesions at our tertiary care hospital. **Materials and Methods:** A detailed history-taking including age, sex, complaints and duration of symptoms, site, side etc. and with thorough clinical examination relevant investigations for consistency, diagnosis, benign or malignant was done and appropriate management has been done for these patients. All relevant investigations were done. Biopsy were taken, detailed histopathological features were noted. The tissue sections were stained with H and E stain. **Results:** We evaluated all the subjects for oral cavity lesions with diagnostic biopsy and subjected for HPE. Among these subjects 21.9% had non-neoplastic lesion, 18.8% had benign lesion, 10.7% had pre-malignant and 48.4% had malignant lesions. The most common pre-malignant lesion was leucoplakia (64.2%), followed by oral lichen planus (16.6%), oral sub mucous fibrosis (11.9%), actinic cheilitis (7.14%) respectively and none had eryhthoplakia. Out of 48.4% malignant lesions 94.7% of the subjects had squamous cell carcinoma followed by other cancers. The most common site of oral cavity lesions was buccal mucosa (41.8%) followed by tounge (17.3%) and lower gingivobuccal region (17%). We also evaluated tobacco habits among these subjects, we found that 76.7% had only tobacco chewing habits, 3.06% had both smoking and tobacco chewing habits, 14.2% had tobacco chewing and 5.86% had no habbits. **Discussion and Conclusion:** In our study, we observed various premalignant oral lesions which include leukoplakia, oral submucous fibrosis, lichen planus, actinic cheilitis and erythroplakia. Oral leukoplakia was most common lesion in the present study. Buccal mucosa was the most common site. Tobacco chewing habit was common risk factor observed. Early detection of premalignant oral lesion is of utmost importance to prevent further progress to oral cancer. This study reported that the most common oral cavity lesion was malignancy with a well-differentiated squamous cell carcinoma variant. Buccal mucosa involvement was the most common in oral cavity lesions and malignant lesions.

Key-words: pre-malignant lesions, malignant lesions, leucoplakia, squamous cell carcinoma, tobacco chewing and smoking.

INTRODUCTION

Oral cancer is the sixth most common cancer with varying prevalence around the world. Oral squamous cell carcinoma (OSCC) is the most common cancer of the oral cavity and accounts for 95% of all oral cavity cancer instances. As per World Health Report 2018, the disease burden has risen to 18.1 million new cases and 9.6 million deaths in 2018. One in 5 men and one in 6 women worldwide develop cancer during their lifetime. The incidence rate is 7.4% in 100, 000 population, with a mortality rate accounting for 6.7 % in 100, 000 population.[1-2]

In India, oral cancer is one of the leading cancer today. Its incidence is 12.6 per 1,00,000 population. The premalignant lesion is a disease or syndrome if left untreated have significantly increased risk to develop cancer. However, in 2005 WHO workshop, it was decided to use the term "Potentially Malignant Disorders," on it conveys that not all disorders defined under this term may transform into cancer.

Local oral examination, application of toluidine blue to suspected lesion, cytological study, and tissue biopsy are used to investigate these cases. Oral lesion biopsy is usually indicated to rule out causes of white patches. It also helps to determine the detailed histologic examination to grade the presence of any epithelial dysplasia. The sites of a leukoplakia lesion that are preferentially biopsied are the areas that show induration, redness, erosive or ulcerated areas. These areas are more likely to show any dysplasia than homogenous white areas.[3-5]

Majority of the cancers that occur in the oral cavity are oral squamous cell carcinomas (OSCC) arising from the squamous epithelial lining of buccal mucosa, tongue, the floor of mouth, palate and lip. We have taken up this study to present the cliniopathological spectrum of oral cavity lesions.

AIM AND OBJECTIVES OF THE STUDY: The objective of this study is to evaluate clinicopathological spectrum of oral cavity lesions at our tertiary care hospital.

MATERIALS AND METHODS

Source of data: This study was conducted at Dept. of ENT in collaboration with Dept. of Pathology at Prasad Institute of Medical Sciences, Lucknow from September 2020 toJune 2022.

Study population: We included the subjects in the age group of >1 year and <80 years presenting with oral lesions to OPD of ENT, Surgery and Dentistry at our hospital.

Study Design: It is a cross-sectional observational study.

Inclusion criteria: We included the subjects presented to our OPD with oral lesions who has undergone diagnostic biopsy.

Exclusion Criteria: We excluded the patients with non-diagnostic biopsy, those with incomplete information.

Sample Size: Sample size was calculated using the formula $n = Z^2 \times p \times q / e^2$ with 10% non-response rate we included a total of 392 subjects presenting with oral lesions.

Data Collection: A detailed history-taking including age, sex, complaints and duration of symptoms, site, side etc. and with thorough clinical examination relevant investigations for consistency, diagnosis, benign or malignant was done and appropriate management has been done for these patients. All relevant investigations were done. Biopsy were taken, detailed histopathological features were noted. The tissue sections were stained with H and E stain.

Statistical Analysis: All the data was entered into Microsoft excel sheet and SPSS version 17 was used. Descriptive statistics were presented as frequency, percentage, mean, standard deviation using tables.

RESULTS:

We included a total of 392 subjects based on inclusion and exclusion criteria in the age group >1 year and <80 years, who presented oral lesions to our OPD.

Table 1: Baseline Characteristics of Subjects

VARIABLES	Number 392	Percentage
GENDER		
Male	303	77.2
Female	89	22.7
AGE GROUP		
1 – 10 yrs.	6	1.53
11 – 20 yrs.	26	6.63
21 – 30 yrs.	24	6.12
31 – 40 yrs.	84	21.4
41 – 50 yrs.	124	31.6
51 – 60 yrs.	88	22.44
>61yrs	50	12.7

It is evident from the table 1 77.2% were males and 22.7% were females and majority of the subjects (31.6%) belong to the age group of 41-50 years followed by 51-60 years.

Table 2: Shows Distribution of Oral Cavity lesions based on FNAC and HPE

Type of Oral Cavity lesion	Number of Subjects	Percentage
Non-neoplastic	86	21.9
Benign	74	18.8
Pre-malignant	42	10.7
Malignant	190	48.4

It is evident from the above table that 21.9% had non-neoplastic lesion, 18.8% had benign lesion, 10.7% had pre-malignant and 48.4 % had malignant lesions.

Table 3: Shows Distribution of Pre-malignant oral cavity lesions

Type of Oral Cavity lesion	Number of Subjects	Percentage
Leucoplakia	27	64.2
Oral lichen planus	07	16.6
Oral sub mucous fibrosis	05	11.9

Actinic Cheilitis	03	7.14
Erythroplakia	00	0

It is evident from the above table that the most common pre-malignant lesion was leucoplakia (64.2%), followed by oral lichen planus (16.6%), oral sub mucous fibrosis (11.9%), actinic cheilitis (7.14%) respectively and none had eryhthoplakia.

Table 4: Shows type and frequency of oral cavity cancer

Type of Oral Cavity cancer	Number of Subjects	Percentage
Squamous cell carcinoma	180	94.7
Well differentiated	132	73.3
Moderately differentiated	36	20
Poorly differentiated	12	6.6
Mucoepidermoid carcinoma	0	0
Basal cell carcinoma	1	0.52
Sarcoma	2	1.05
Carcinosarcoma	2	1.05
Small round cell tumour	1	0.52
Adenoid cystic carcinoma	1	0.52
Verrucous carcinoma	2	1.05
Melanoma	1	0.52

It is evident from the above table that 94.7% of the subjects had squamous cell carcinoma followed by other cancers as mentioned in the table.

Table 5: Site wise distribution of oral cavity lesions

Site	Number of Subjects	Percentage
Buccal mucosa	163	41.8
Floor of the mouth	14	3.57
Lower Gingivobuccal region	67	17
Hard palate	15	3.82
Upper Gingivobuccal region	6	1.5
Lower lip	16	4.08
Retromolar trigone	18	4.59
Soft palate	19	4.84
Tounge	68	17.3
Upper lip	06	1.53

It is evident from the above table that the most common site of oral cavity lesions was buccal mucosa (41.8%) followed by tounge (17.3%) and lower gingivobuccal region (17%).

Table 6: Shows tobacco habits in subjects with oral cavity lesions

Site	Number of Subjects	Percentage
Only tobacco chewing	301	76.7
Smoking + tobacco chewing	12	3.06
Alcohol + tobacco chewing	56	14.2
None	23	5.86

It is evident that 76.7% had only tobacco chewing habits, followed by alcohol + tobacco chewing.

DISCUSSION

In our cross-sectional study, we included a total of 392 subjects based on inclusion and exclusion criteria presenting to our OPD with oral cavity lesions, out of which 77.2% were males and 22.7% were females and majority of the subjects (31.6%) belong to the age group of 41-60 years. The study by Mehrotra R et al, in 2006 showed maximum number of cases were in 6th decade. The male predominance was noted by Dietrich T, et al. Present study showed male predominance with 65.78% while in female 34.21%.[6-7]

We evaluated all the subjects for oral cavity lesions with diagnostic biopsy and subjected for HPE. Among these subjects 21.9% had non-neoplastic lesion, 18.8% had benign lesion, 10.7% had pre-malignant and 48.4% had malignant lesions. The most common pre-malignant lesion was leucoplakia (64.2%), followed by oral lichen planus (16.6%), oral sub mucous fibrosis (11.9%), actinic cheilitis (7.14%) respectively and none had eryhthoplakia.

Leucoplakia defined by the WHO working group as keratotic white patch or plaque that cannot be scrubbed off and cannot be characterized clinically or pathologically as any other disease. The leucoplakia remains the most common premalignant lesion having prevalence of 2.6% globally. The striking variation is noted in different areas. In India, its prevalence is maximum in Gujarat (11.7%) while 0.2% in Bihar. The various etiological factors implicated are tobacco, alcohol, chronic irritation, human papilloma virus infection, ultraviolet radiation, hot spicy foods etc. It has the strongest association with the use of tobacco in various forms like chewing tobacco (as in paan, paan masala, gutka, zarda), heavy smokers etc. There is risk factor leads to hyperplastic or dysplastic squamous epithelial lesions which progress to carcinoma in situ to invasive squamous cell carcinoma. [8-11] On clinical examination, various types of leucoplakia were described as homogenous and non-homogenous. They appear as flat, thin, nodular, proliferative verrucous types. Lesions are mostly unifocal but can be multifocal. These lesions can be found in any part of oral mucosa with most frequent site is buccal mucosa. Out of 48.4% malignant lesions 94.7% of the subjects had squamous cell carcinoma followed by other cancers as mentioned in the table.

The most common site of oral cavity lesions was buccal mucosa (41.8%) followed by tounge (17.3%) and lower gingivobuccal region (17%). We also evaluated tobacco habits among these subjects, we found that 76.7% had only tobacco chewing habits, 3.06% had both smoking and tobacco chewing habits, 14.2% had tobacco chewing and 5.86% had no habbits. Early stages of malignant lesions can also mimic benign lesions leading to incorrect diagnosis and treatment. In order to treat the patient, establishment of diagnosis is a must. Globally, about 40% of men smoke as compared with nearly 9% of women. Compared to males, the use of tobacco products and alcohol is less in females, but a rising trend is seen recently.

Factors considered to be associated with oral cancer are tobacco smoking, alcoholic consumption, betel quid chewing, poor oral health, and human papillomavirus infection. Distinct cultural practices such as betel-quid chewing and varying tobacco and alcohol use patterns among Asian Populations are considered to be predisposing factors for alarming

increasing incidence rates. Alcohol can act as a local and systemic risk factor by increasing the oral mucosa's permeability, dissolving lipid components of the epithelium, causing epithelial atrophy and interference in DNA synthesis and repair; it has genotoxicity and mutagenic effects and also affects the liver's ability to clear chemical carcinogens.[12-16]

CONCLUSION

In our study, we observed various premalignant oral lesions which include leukoplakia, oral submucous fibrosis, lichen planus, actinic cheilitis and erythroplakia. Oral leukoplakia was most common lesion in the present study. Buccal mucosa was the most common site. Tobacco chewing habit was common risk factor observed. Early detection of premalignant oral lesion is of utmost importance to prevent further progress to oral cancer. This study reported that the most common oral cavity lesion was malignancy with a well-differentiated squamous cell carcinoma variant. Buccal mucosa involvement was the most common in oral cavity lesions and malignant lesions.

REFERENCES

1. GLOBOCAN. Latest global cancer data: Cancer burden rises to 18.1 million new cases and 9.6 million cancer deaths in 2018 [Internet]. Lyon (France): World Health Organization; 2018 [cited 2020 August 20]. Available from: https://www.who.int/cancer/PRGlobocanFinal.pdf.
2. Global Cancer Observatory. WHO South-East Asia region (SEARO) GLOBOCAN 2018 [Internet]. Lyon (France): International Agency for Research on Cancer, World Health Organization; 2020 [cited 2020 August 20].
3. Elango JK, Gangadharan P, Sumithra S, Kuriakose MA. Trends of head and neck cancers in urban and rural India. Asian Pacific J Cancer Prevention. 2006;7(1):108-12.
4. Sankaranarayanan R, Ramadas K, Thomas G, Muwonge R, Thara S, Mathew B, et al. Effect of screening on oral cancer mortality in Kerala, India: a cluster randomized controlled trial. Lancet. 2005;365(9475):1927-33.
5. Warnakulasuriya S, Johnson NW, Waal VDI. Nomenclature and classification of potentially malignant disorders of the oral mucosa. J Oral Pathol Med. 2007;36:575-80.
6. Mehrotra R, Gupta A, Singh M, Ibrahim R. Application of cytology and molecular biology in diagnosing premalignant and malignant oral lesions. Molecular Cancer. 2006;5(11):476-98.
7. Dietrich T, Reichart PA, Scheifelea C. Clinical risk factors of oral leucoplakia in a representative sample of the US population. Oral Oncol. 2004;40:158-63.
8. Mishra M, Mohanty J, SenguptaS, Tripathy S. Epidemiological and clinicopathological study of oral leucoplakia. Ind J Dermatol Venerol Leprosy. 2005;71(3):161-5.
9. Sharma P, Saxena S, Aggarwal P. Trends in the epidemiology of oral squamous cell carcinoma in western UP: an institutional study. Ind J Dent Res. 2010;21(3):316-9.
10. Mehta FS, Pindborg JJ, Gupta PC, Daftary DK. Epidemiologic and histologic study of oral cancer and leucoplakia among 50,915 villagers in India. Cancer. 1969;24:832-49.
11. Khandekar SP, Bagdey PS, Tiwari RR. Oral cancer and some epidemiological factors: A hospital based study. Indian J Community Med. 2006;31:157-9.

12. Kosam S, Kujur P. Pattern of oral cavity lesion: a retrospective study of 350 cases. Int J Sci Stud. 2016;4(3):65-9.
13. World Health Organization. WHO 10 facts on gender and tobacco [Internet]. Geneve (Switzerland): Department of Gender, Women and Health, World Health Organization; 2010 [cited 2020 September 3].
14. Reidy J, McHugh E, Stassen LF. A review of the relationship between alcohol and oral cancer. Surgeon. 2011;9(5):278-83.
15. Wahi PN, Kapur VL, Luthra UK, Srivastava MC. Submucous fibrosis of the oral cavity. 2. Studies on epidemiology. Bull World Health Organ. 1966;35(5):793-9.
16. 18. Prasan D. Clinico-pathological study of oral cancers. IOSR J Dent Med Sci. 2015;14(6):35-8