

Clinico-histopathological study of premalignant lesions of oral cavity-A prospective observational study

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Abstract

Introduction: Oral cavity can be considered as a gateway into the digestive system. The mucous membrane of the oral cavity has been looked upon as mirroring the general health¹. **Aims and objectives:** 1. To study the incidence of premalignant lesions of oral cavity. 2. To study the etiology of premalignant lesions of oral cavity. 3. To study the histopathological changes of premalignant lesions of oral cavity. **Material and method:** The study was conducted in the Department of Otorhinolaryngology and Head and Neck Surgery at Gajra Raja Medical College and Jayarogya Group of Hospitals, Gwalior, M.P, India. For 18 months duration from January 2019 to August 2020. **Observation and results:** Oral submucous fibrosis was the most common clinical presentation, buccal mucosa was the commonest site for oral cavity lesions, and Hyperplasia was the commonest clinical presentation. Betel nut chewing is the commonest habit associated with PML.

Keywords: OSMF, Leucoplakia, Premalignant oral lesions.

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Introduction

A premalignant lesion is like a smoldering volcano, if not taken care of can erupt with disastrous consequences; Oral cavity can be considered as a gateway into the digestive system. The mucous membrane of the oral cavity has been looked upon as mirroring the general health[1]. Various conditions of oral mucosa can be caused by local (bacterial or viral), systemic diseases (metabolic or immunologic), drug related reactions, or lifestyle factors such as consumption of tobacco, betel quid or alcohol seen more common in low socioeconomic sections of society. Discomfort or pain interferes with mastication, swallowing, and speech, and they can produce symptoms such as halitosis, xerostomia, or oral dysesthesia, leading to interference in daily social activities. World Health Organization (WHO) has defined premalignant disorders as the risk of malignancy being present in a lesion at the time of initial diagnosis or at a future date[2].

WHO also classified PMDs into two subgroups:-

- Precancerous lesion:** a benign lesion with morphologically altered tissue, which has a greater than normal risk of transforming into malignancy.
- Precancerous condition:** a disease or patients' habit that does not necessarily alter the clinical appearance of local tissues but is associated with a greater than normal risk of precancerous lesion or cancer development in that tissue. A major challenge for early diagnosis of the at-risk tissue is the limited ability to differentiate oral premalignant lesions at high risk of progressing into invasive SCC from those at low risk[3].

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Thus, the prevention of oral cancer and its associated morbidity and mortality, hinges upon the Early detection of oral precancerous lesions, allowing for histological evaluation.

Aims and objectives

- To study the incidence of premalignant lesions of oral cavity.
- To study the etiology of premalignant lesions of oral cavity.
- To study the histopathological changes of premalignant lesions of oral cavity.

Material and methods

The study was conducted in the Department of Otorhinolaryngology and Head and Neck Surgery at Gajra Raja Medical College and Jayarogya Group of Hospitals, Gwalior, M.P, India.

Duration of study: 18 months duration from January 2019 to August 2020.

Inclusion Criteria: 150 Patients of all age, sex, and different socio-economic status were selected in the study.

Exclusion criteria: Patients who were not willing for biopsy or swab test and patients with congenital lesions like Fordyce spot were excluded from the study.

Methods

History: A detailed history was taken on the following points:

Complaints

- Ulcer
- Restricted mouth opening
- Discolouration
- Pain on mastication
- Burning sensation in mouth

Personal history

Patient's history regarding bidi/cigarette smoking, pan masala/tobacco chewing, alcohol along with the duration and frequency of intake was noted.

Medical history

History of tuberculosis, diabetes mellitus, syphilis, HIV/AIDS, any other illness was noted.

Complete ENT Examination was done.

Histopathological examination

From the cases presenting with suspected oral lesions were sent for biopsy with its histopathological examination. The tissue received from lesion was directly collected into 10% formalin saline solution which was used as fixative.

Observation and results

- Provisional diagnosis:** 79 cases are of Oral submucous fibrosis, 32 cases of leukoplakia, 07 cases each of squamous papilloma and pyogenic granuloma. There were 05 cases each of squamous cell carcinoma, verrucous hyperplasia and erythroplakia. 03 cases were of lichen planus. 02 were of nicotina stomatitis, pseudoepitheliomatous hyperplasia and benign hyperplasia each. 1 patient had tubercular ulcer. (Table 1)

Table 1: Provisional diagnosis

Provisional diagnosis	No. of cases	Percentage
Oral submucous fibrosis	79	52.67%
Leukoplakia	32	12.67%
Squamous papilloma	07	4.67%
Pyogenic granuloma	07	4.67%
Squamous cell carcinoma	05	3.33%
Erythroplakia	05	3.33%
Verrucous hyperplasia	05	3.33%
Lichen planus	03	02%
Nicotina stomatitis	02	1.33%
Pseudoepitheliomatous hyperplasia	02	1.33%
Benign hyperplasia	02	1.33%
Tubercular ulcer	01	1.33%
Total	150	100%

- Site of the lesion:** buccal mucosa was the commonest site for oral cavity lesions as 90/150, followed by lateral border of the tongue 18/150, hard palate and retromolar trigone 12 each, lips 06 and gingiva 03. Floor of mouth was the site of lesion in 7 patients and 2 patients had alveolar lesion.
- Histopathological findings:** Hyperplasia was seen in 55 patients, keratinised squamous epithelium with chronic granulation with fibrosis seen in 07, lymphocyte infiltration and basal layer changes in 03 patients each, koilocytes were seen in 08 patients, acanthosis was seen in 40 patients, hyperkeratosis visualised in 130 patients. (Table 2)

Table 2: Histopathological findings

Histopathological findings	No. of cases
Hyperplasia	55
Keratinised squamous epithelium with chronic granulation with fibrosis	07
Lymphocyte infiltration	03
Basal layer changes	03
Koilocytosis	08
Acanthosis	40
Hyperkeratosis	130
Papillomatosis	07
Mild dysplasia	24
Moderate dysplasia	12
Severe dysplasia	05
Nuclear atypia	88
Parakeratosis	42
Atrophic epithelium	84
Presence of collagen fibre with hyalinization	79
Loss of keratin	79
Papillary projections	05
Hyperchromatic and pleomorphic nuclei with mitosis and focal ulceration	05
Granuloma formation with caseous Necrosis and lymphocyte infiltration	01

- Age distribution:** Out of the 150 cases of premalignant lesions selected for study, mean age was 39.64 years
- Sex distribution:** In our study oral premalignant lesions were more common in males (71.33%) compared to females (28.67%). The male to female ratio was found to be 2.49: 1.
- Habits:** In our study, out of total 150 patients, 53.33% were betel chewers, 7.33% patients were smokers, 28.67% were habituated to smokeless tobacco in the form of pan/ gutkha, and 2.67% were both smokers and habituated to tobacco.



Fig 1: Oral submucous fibrosis

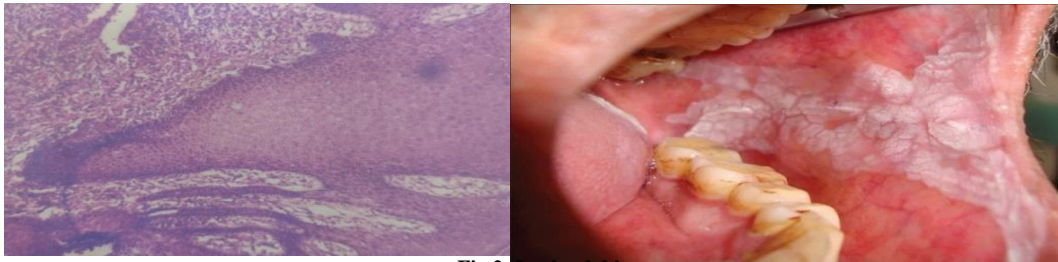


Fig 2: Leukoplakia

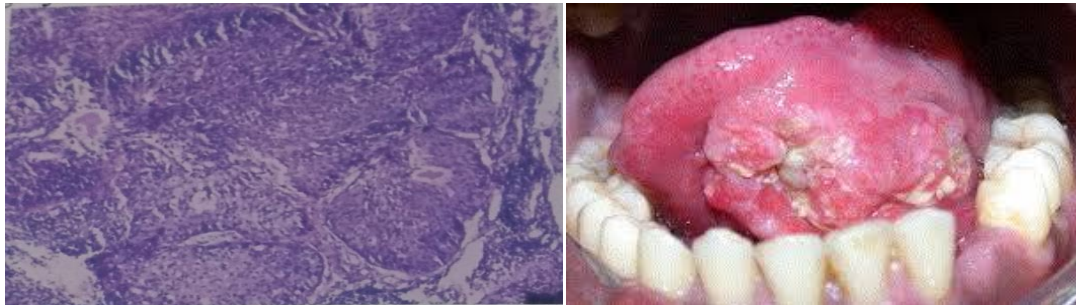


Fig 3: squamous cell carcinoma

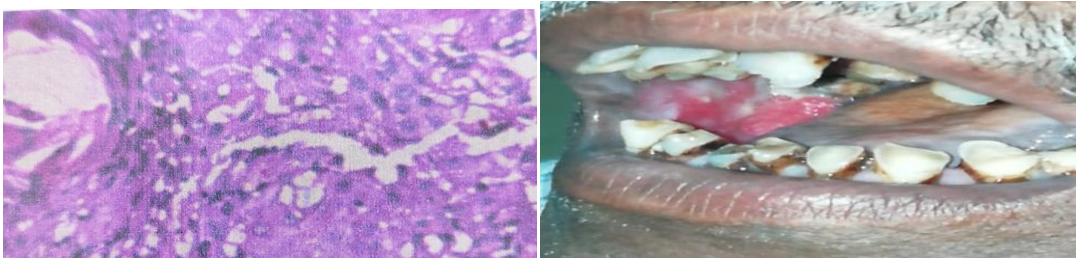


Fig 4 Erythroplakia

Discussion

This study was conducted on 150 patients with premalignant lesions of oral cavity studied for a period of 18 months from January 2019 to August 2020, in Department of ENT & Head and Neck Surgery, Jayarogya Group of Hospitals, Gwalior, M.P, India.

Age distribution: Mean age in our study is 39.64 years. Maximum numbers of patients were in the age range of 21-40 years (50%), followed by 41-60 years (37.33%) and 61-80 years (8.67%). The youngest patient and oldest patient in our study were 18 years and 73 years respectively.

Rajender Singh et al (2014)[4] in their study reports that majority of the patients presented in the age group between 20-40 years.

Narasannavar A et al (2014)[5] reported in their study that maximum patients were in the age group of 20-30 years of age (46.1%).

Sex distribution: In our study, it was seen that oral premalignant lesions were more common in males (71.33%) compared to females (28.67%). The male to female ratio was found to be 2.49 : 1. Dietrich T et al (2004)[6] observed male to female ratio as 2.24: 1 (male 69.2 % and 30.8 %).

P Priyanka et al (2011)[7] reported male to female ratio as 2.44: 1 (male 71% and female 29%).

Habits: In our study, out of total 150 patients, 53.33% were betel chewers, 7.33% patients were smokers, 28.67% were habituated to smokeless tobacco in the form of pan/ gutkha, 2.67% were both smokers and habituated to tobacco, 04% of patients were alcoholics, 02% were habituated to alcohol as well as tobacco either in the form of smoking or chewing. Only 2% did not have any habit. Smoking and alcohol consumption were seen only in males. In study done by Iypeet al[8] 56.4% of patients were habituated to either tobacco chewing, smoking or alcohol.

In the study of Khandekar SP et al[9]71.3% of patients were habituated to tobacco. 63.3% were habituated to tobacco in the form of cigarettes or beedis.

Site of the lesion: In our study, amongst the premalignant lesions, buccal mucosa was the commonest site involved in 90 cases followed by tongue in 18 cases. Mishra M et al (2005)[10]observed that most common site involved was buccal mucosa (52.26%).Lee JJ et al, (2006)[11]stated that in their study also that buccal mucosa site was the most common (65.7 %).

Histopathology:In the present study amongst the 150 cases of premalignant lesions, 79 cases were clinically diagnosed as oral submucous fibrosis, 32 cases were clinically diagnosed as leukoplakia and 5 as erythroplakia. Allegra E (2009)[12] in his study revealed that 15/45 (33.4%) were benign lesions (hyperkeratosis, hyperparakeratosis, papillomatosis) and 30/45 (66.6%) were precancerous or cancerous lesions, 8 (26.6%) of the latter were mild dysplasia, 5 (16.6%) moderate dysplasia, 6 (29.0%) severe dysplasia, 4 (13.3%) in situ carcinomas and 7 (23.3%) invasive carcinomas.Liu W et al (2010)[13], retrospectively reviewed a total of 218 patients with clinical and histopathologic diagnosis of OL. Out of 218 cases, 180 (82.6%) OL cases were low-risk dysplastic lesions and 38 (17.4%) OL cases were high-risk dysplastic lesions.

Conclusion

The incidence of oral premalignant lesions remains high due to the popularity of paan/ tobacco chewing and smoking addiction in this region. A detailed clinical work up with histology can help in diagnosing more than 95% of oral cavity premalignant lesions and thus potentially reducing morbidity and mortality subsequent to malignant transformation. The current histological gold standard is the presence of epithelial dysplasia on a tissue biopsy using WHO criteria.Significant number of oral cancers present initially with precancerous lesions. Therefore in high incidence areas in the presence of predisposing factors clinicians and pathologists alike should exercise a high degree of clinical suspicion. The public should be made aware of the high risk of oral malignancy in oral lesions induced by tobacco, gutkha and different habits. More community based interventions should be implemented.Patients should be evaluated with vigilance and meticulously screened in order to identify the disease in early stage, which is perhaps the only way to ensure a better prognosis.

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Conflict of Interest:Nil

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