

# Oral Cancer in Established Potentially Malignant Disorders-A Retrospective Study

S.Blessy, Dr.S.Gheena.

Savitha Dental College and Hospitals

## INTRODUCTION:

There are several OPMDs that precede the development of OSCC. Those most commonly encountered are erythroplakia and leukoplakia.<sup>[1]</sup> Oral sub mucous fibrosis is also encountered in Southeast Asia.<sup>[2]</sup> The malignant potential of lichen planus remains controversial and in any case, the reported transformation rates are low (0.2–1%). The incidence and prevalence of OPMDs have not been reported widely, and in selected populations, the rates vary considerably.<sup>[3]</sup> Incidence rates of OPMD have largely been obtained in the Indian subcontinent, and have ranged between 0.6/1,000 and 30.2/1,000<sup>[11,12]</sup>. In Japan, age-adjusted rates for leukoplakia are 0.7/1,000 and 4.1/1,000 for females and males, respectively.<sup>[4]</sup> OPMD prevalence has been reported to be as low as 0.2% and as high as 11.3% with multiple estimates falling in between these extremes.<sup>[14-18]</sup> The worldwide prevalence of leukoplakia has been estimated at 2%.<sup>[19]</sup> Although the worldwide prevalence is unknown for other types of OPMD, erythroplakia prevalence among populations in Malaysia and India is estimated at 0.02%.<sup>[20-22]</sup> and OSMF prevalence in Sri Lanka is 0.004%.<sup>[23]</sup> Wide data ranges likely reflect variability in study design and importantly, more recent data derived from specific populations will be crucial in planning public health screening policy.

## EPIDEMIOLOGY:

Anyone can develop cancer, however the risk of being diagnosed with cancer increases with age.<sup>[5]</sup> Longer people live the more likely it is for a sporadic mutation to occur in their genome, leading to genetic alterations that may lead to a malignant phenotype.<sup>[6]</sup> Among the genders, PMDs have traditionally shown a predilection for males. But recent studies show a 1:1 male to female ratio.<sup>[7]</sup> This could be due to the increased habitual use of tobacco and alcohol among women. Average age of population affected with PMDs is 50-69yrs, occurring about five years earlier than oral cancer.<sup>[8]</sup> However recent studies show that 15% of PMDs affect the younger age group of 30 years. This may be due to the fact that various extrinsic and intrinsic etiological factors are now more prevalent in today's younger population.<sup>[9]</sup> Most common sites for PMDs in India are buccal mucosa followed by tongue, palate and floor of the mouth. Location of PMDs differs from distribution of OSCC, for which the tongue, alveolar ridge and floor of mouth are the most common sites.<sup>[10]</sup>

## CLASSIFICATION OF POTENTIALLY MALIGNANT DISORDERS:

Potentially malignant disorders (PMD) of oral cavity were classified

As 'lesions' and 'conditions' by WHO in 1978. It was considered that in 'lesions', the cancer would correspond with the site of PMD.

### Group I<sup>[11-13]</sup>

#### 1))Habit related

- a)Tobacco associated lesions
  - #Leukoplakia
  - #Tobacco pouch keratosis
  - #Stomatitis palatine nicotini
- b)Betel nut associated
  - #Oral sub mucous fibrosis
- c)Sanguinaria-associated keratosis

#### 2)Non-habit related

- #Actinic cheilosis
- #Chronic candidiasis<sup>[15]</sup>

### Group II<sup>[17-19]</sup>

*Ia:Chronic inflammation caused by internal derangement*

- 1) Lichen planus<sup>[16]</sup>
- 2) Discoid lupus erythematosus

*Ib)Chronic inflammation caused by external factors*

- 1) Chronic mucosal trauma<sup>[20]</sup>
- 2) Lichenoid reactions<sup>[21]</sup>
- 3) Poor oral hygiene<sup>[22]</sup>
- 4) Chronic infections<sup>[23,24]</sup>
  - #Chronic bacterial infection
  - #Chronic viral infection
  - #Chronic fungal infection
- 5) Other pathologies associated with prolonged untreated chronic inflammation of the oral cavity

### Group III

- 1) Inherited cancer syndrome<sup>[25]</sup>
  - #Xeroderma pigmentosum
  - # Ataxia telangiectasia
  - #Bloom syndrome
  - # Fanconi's anemia
  - #Li Fraumeni syndrome
- 2. Dyskeratosis congenita
- 3. Epidermolysis bullosa
- 4. White sponge nevus
- 5. Darier's disease
- 6. Hailey-Hailey disease

**Group IV**

1. Immunosuppression  
#AIDS<sup>[26]</sup>  
# Immunosuppression therapy (for malignancy or organ transplant)
2. Alcohol consumption and abuse
3. Nutritional deficiency  
#Sideropenic dysphagia  
#Deficiency of micronutrients

**CAUSATIVE FACTORS OF POTENTIALLY MALIGNANT DISORDERS:**

1. Tobacco in any form (smoking or chewing)
2. Alcohol regardless of beverage type and drinking pattern
3. Virus infection – HPV, EBV, HBV, HIV, HSV.
4. Bacterial infection – treponema pallidum.
5. Fungal infection – candidiasis
6. Electro-galvanic reaction between unlike restorative metals.
7. Ultraviolet radiation from sunlight – associated with lip lesions.
8. Chronic inflammation or irritation from sharp teeth or chronic cheek-bite (tissue modifiers rather than true carcinogens).

**B. Intrinsic Factors**

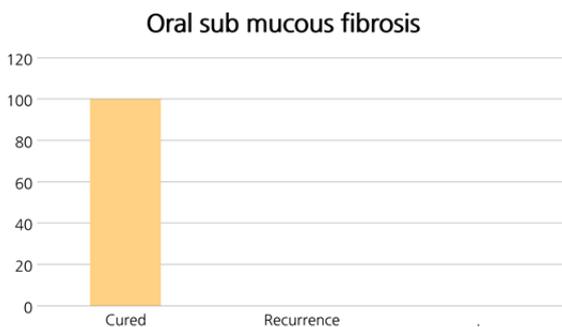
1. Genetic (5% are hereditary).
2. Immunosuppression – organ transplant, HIV.
3. Malnutrition – iron (anemia), vitamin A, B, C deficiency.

**REASON:**

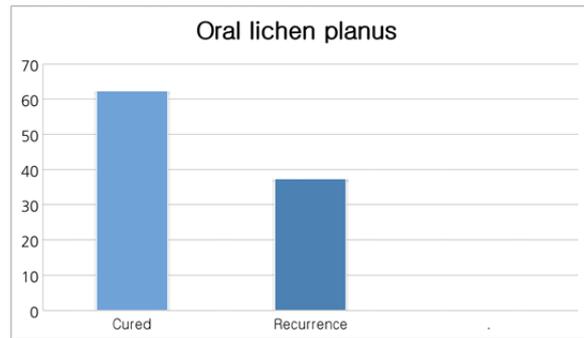
We have set out to check for the recurrence of lesions in patients who have ceased their habits. We took samples from the medical records from the Oral medicine, Oral surgery, Oral pathology clinic in Saveetha Dental College and Hospitals for a duration of one year (2014). Patients who had potentially malignant disorders and who were successful in cessation of their habits were included in the study. The study outlines whether the lesions had regressed or progressed and documents the epidemiological data restricted to the hospital based outpatient population.

**RESULTS:**

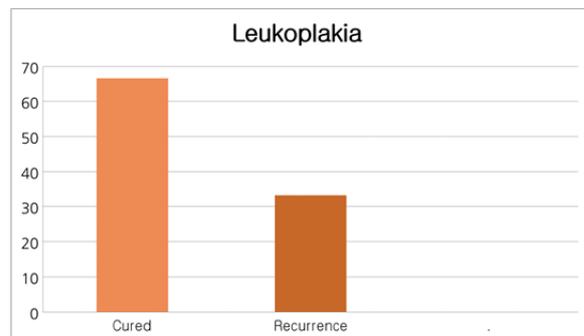
**Oral sub mucous fibrosis:** 17 patients  
Cured: 100%



**Lichen Planus:** 16 patients  
Cured: 62.5% Recurrence: 37.5%



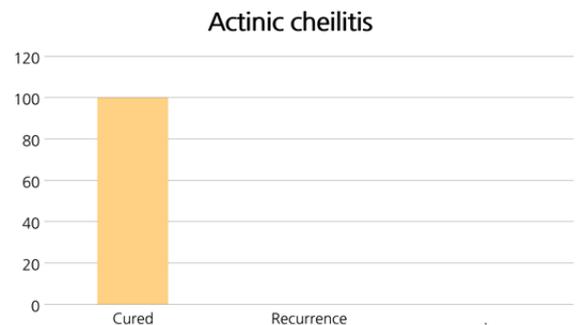
**Leukoplakia:** 3 patients  
Cured: 66.6%  
Recurrence: 33.3%



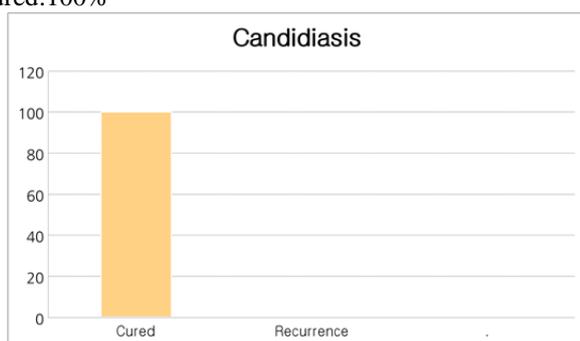
**Smoker's Palate:** 2 patients  
Cured: 50%  
Recurrence: 50%



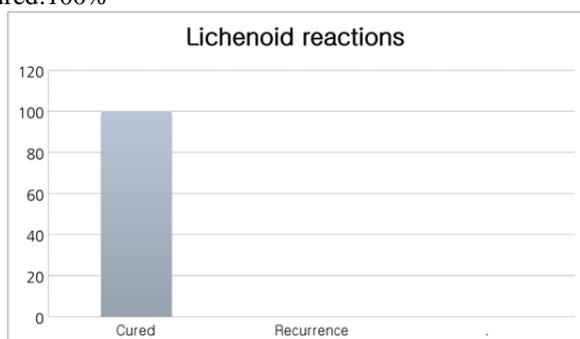
**Actinic cheilitis:** 2 patients  
Cured: 100%



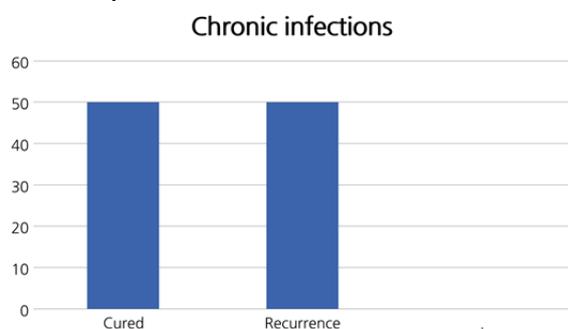
**Candidiasis:**2 patients  
Cured:100%



**Lichenoid reactions:**2 patients  
Cured:100%



**Chronic infections(periodontitis):**4 patients  
Cured:2 patients  
Recurrence:2patients



#### DISCUSSION:

From the classification of oral potentially malignant disorders we were not able to collect cases under group III & IV. Leukoplakia is the most common potentially malignant disorder of the oral mucosa. The prevalence is approximately 1% while the annual malignant transformation ranges from 2% to 3%. At present, there are no reliable clinicopathological or molecular predicting factors of malignant transformation that can be used in an individual patient and such event can not truly be prevented. Furthermore, follow-up programs are of questionable value in this respect. Cessation of smoking habits may result in regression or even disappearance of the leukoplakia and will diminish the risk of cancer development either at the site of the leukoplakia or elsewhere in the mouth or the upper aerodigestive tract.

The debate on the allegedly potentially malignant character of oral lichen planus is going on already for several decades. At present, there is a tendency to accept its potentially malignant behaviour, the annual malignant transformation rate amounting less than 0.5%. As in leukoplakia, there are no reliable predicting factors of malignant transformation that can be used in an individual patient and such event can not truly be prevented either. Follow-up visits, e.g twice a year, may be of some value.

It is probably beyond the scope of most dentists to manage patients with these lesions in their own office. Timely referral to a specialist seems most appropriate, indeed.<sup>[28]</sup>

In our study, oral sub mucous fibrosis is the most common oral potentially malignant disorder. After cessation of habits, the regression rate of OSMF is considerably high when compared to other oral potentially malignant disorders. Oral lichen planus and leukoplakia is the second most common potentially malignant disorders of the oral mucosa. The regression rate of the two disorders after cessation of habits are almost similar. Smoker's palate has 50% regression rate after the cessation of habits. Actinic cheilitis, Lichenoid reactions, candidiasis and chronic infections like periodontitis are the least common potentially malignant disorders of the oral mucosa. Their regression rate is considerably high when compared to that of oral lichen planus and leukoplakia

#### CONCLUSION:

We have set out to check for the recurrence of lesions of potentially malignant disorders in patients who have ceased their habits. The study population was retrieved from the medical records from a dental hospital for a duration of one year. Our study found OSMF to have the highest cure rate after the cessation of habits. Oral lichen planus and leukoplakia had a variable recurrence rate approximating 30-34% recurrence. The number of patients with actinic cheilitis, smoker's palate, candidiasis, lichenoid reaction, chronic infections in our study was low. The limitation of our study is that records of only one year from one particular dental hospital has been taken. Data from a large population has to be collected across many hospitals in a specific region to find out the recurrence rate of potentially malignant disorders in that particular region. Our study is a small step in that direction.

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