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## RESEARCH ARTICLE

### ORAL LEUKOPLAKIA"-THE EVOLUTION OF ITS DEFINITIONS

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#### ABSTRACT

Oral leukoplakia is the most common precancerous lesion of the oral mucosa. This lesion often takes the form of white patch or plaque. The term leukoplakia means a white patch derived from Greek word "leucos" meaning white and "plakos" meaning patch<sup>2</sup>. Historically many pathologist and clinicians used the term leukoplakia synonymously with microscopic alterations, primarily that of carcinoma or epithelial dysplasia. Leukoplakia is commonly found in India that is why we constantly evolve the definition so as to accurately identify this lesion, cause of its potentially malignant nature, as timely diagnosis could prevent malignant transformation. Hence an attempt has been made to update the knowledge about the evolution of its definition.

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## INTRODUCTION

Oral leukoplakia is the most common precancerous lesion of the oral mucosa. This lesion often takes the form of white patch or plaque (Warnakulasuriya *et al.*, 2007). A white appearance of the oral mucosa may be carried by a variety of factors such as

- The oral epithelium may be stimulated to an increased production of keratin.

- An abnormal thickening of stratum spinosum.
- Intra and extracellular accumulation of fluid in epithelium may also result in clinical whitening.
- Necrosis of oral epithelium which may also be perceived as a white lesion, as a result of exposure to toxic chemicals.
- Microbes particularly fungi can produce whitish pseudo membranes consisting of sloughed epithelial cells, fungal mycelium and neutrophils which are loosely attached to the oral mucosa (Odell).

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The term leukoplakia means a white patch derived from Greek word "leucos" meaning white and "plakos" meaning patch (Odell).

Historically many pathologist and clinicians used the term leukoplakia synonymously with microscopic alterations, primarily that of carcinoma or epithelial dysplasia (Ongole and Praveen, 2009). Leukoplakia was coined in 1861 by Rakintansky who described it as a white lesion of the urinary tract (Petrou *et al.*, 2013). With the advancement of time the definition of leukoplakia has changed as follows:

At a WHO meeting of investigation on oral precancerous condition at Copen Hagen in 1967, leukoplakia was defined "as a raised white patch of the oral mucosa measuring 5mm or more which cannot be attributed to any other diagnosable disease (Prabhu, 1992)". Mehta F.S *et al* in 1971 defined leukoplakia "as a raised white patch of the oral mucosa measuring 5mm or more which cannot be attributed to any other diagnosable disease (Reichart *et al.*, 1987)". In 1978 this definition was revised by the WHO collaboration centre for oral precancerous lesion as "a clinical white patch of the oral mucosa that cannot be characterized clinically or pathologically or any other disease (Khan *et al.*, 1994)". In an International conference at Malmo in 1984, the definition of leukoplakia was modified as "a white patch or plaque that cannot be characterized clinically or pathologically as any other disease and not associated with any physical or chemical causative agent except the use of tobacco (Mehta and Hamner, 1993)". Axell *et al* in 1996 defined leukoplakia as "predominantly white lesion of the oral mucosa that cannot be characterized as any other definable lesion, some oral leukoplakia will transform into cancer". This definition is most commonly accepted in the western world (Axéll *et al.*, 1996).

- The definition of leukoplakia has often been confusing and controversial.
- Currently the WHO definition and definitions given by Axell are widely used (Ongole and Praveen, 2009).
- In 1997 Pindborg *et al* defined leuokoplakia as "a predominantly white lesion of the oral mucosa that cannot be characterized as any other definable lesion (Ongole and Praveen, 2009)".

Warnakulsuriya *et al* in 2007 defined "the term leukoplakia should be used to recognise white plaques of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer (Warnakulasuriya *et al.*, 2007)". Van der Waal in 2012 defined leukoplakia as "A predominantly white lesion or plaque of questionable behavior having excluded, clinically and histopathologically, any other definable white disease or disorder (Brouns *et al.*, 2012)". It is currently observed that various other factors could also contribute to the pathology, and hence they have obsolete the term "tobacco" from the definition. The aetiology of oral leukoplakia is considered multifactorial, but smoking is appreciated to be frequently involved factor. Alcohol is assumed to be an independent risk factor but definitive data are still lacking. There are conflicting studies related to the possible risk of human papilloma virus infection. As oral leukoplakia can mimic a large variety of lesions, in such cases a probable causal factor is suspected such as mechanical trauma and dental restoration. In the earlier days they considered tobacco as the only causative agent for leukoplakia.

Above 80% of the patients were found to be smokers or using smokeless forms of it. In the majority of persons, cessation triggers shrinkage or disappearance of the lesion, normally within the first year after stopping. Although the synergistic effect of alcohol with smoking in the development of oral cancer is beyond suspicion, there is no clear evidence that alcohol is involved in the development of leukoplakia, but it does seem to have some influence. Sanguinaria (Bloodroot) is a herbal extract which is an ingredient in some toothpastes and mouthwashes, the use of which is strongly associated with development of leukoplakia, usually in the buccal sulcus. Leukoplakia of this type has been termed "sanguinaria associated keratosis". Leukoplakia of the lower lip is most commonly caused to the ultraviolet radiation.

## Conclusion

Leukoplakia is commonly found in India that is why we constantly evolve the definition so as to accurately identify the cause and its potentially malignant nature, as timely diagnosis could prevent malignant transformation.

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