Oral Leukoplakia: A Review

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***Abstract*: Leukoplakia is the most common potentially malignant lesion of the oral cavity and can be categorized according to its clinical appearance as homogeneous or nonhomogenous. Tobacco and areca nut use, either alone or in combination are the most common risk factors for oral leukoplakia, but some oral leukoplakias are idiopathic. Although it is considered a potentially malignant disorder the overall malignant progression of oral Leukoplakia is of the order of 5% and even more. Leukoplakia has evolved as a clinico-pathologic concept over many years, with the current clinical designation being accepted worldwide. In this article the basic pathology has been described along with clinical features and treatment.**

***Keywords*: Oral Leukoplakia, potentially malignant disorder, oral cavity**

Introduction:

The World Health Organization (1978) has defined oral Leukoplakia as a white patch or plaque which cannot be otherwise characterize pathologically or clinically as any other disease [1]. Leukoplakia is the most common potentially malignant lesion of the oral cavity [2][3]. Oral Leukoplakia are different from other predominantly white lesions that include frictional keratosis and somatitis nicotina, which do not possess malignant potential [4][5][6][7]. In 2012 Van der Waal proposed a new definition which stated that Oral Leukoplakia is a, "A predominantly white lesion or plaque of questionable behavior having excluded, Clinically and histopathologically, any other definable white disease or disorder" [8]

Classification:
Clinical classification
Three main types of oral leukoplakia are described clinically:

1. Homogeneous oral leukoplakia
- Most common type
- Consists of uniformly white plaques
- Occurs mainly on buccal mucosa
- Low transformation potential.

2. Nonhomogeneous leukoplakia
- Speckled leukoplakia
  - o Less common
  - o More serious
  - o Consists of white flecks or fine nodules on an atrophic erythematous base
  - o Stronger malignant potential than homogeneous leukoplakia
  - o Regarded as a combination of or a transition between leukoplakia and erythroplasia.
- Nodular leukoplakia
  - o Small aggregated hemispherical red or white surface alterations or excrescences
  - o May show a red background or substrate
  - o Stronger risk of dysplasia or malignant potential than in homogeneous leukoplakia.

3. Proliferative verrucous leukoplakia
- Least common type of oral leukoplakia
- High risk of intervening dysplasia and carcinoma developing
- Progressive and multifocal in nature
- High rate of recurrence and histologic progression toward carcinoma [6].

Epidemology:
Oral leukoplakia may affect about 0.5% of the world population, although it is likely to vary with gender, geography and ethnicity. The prevalence of oral Leukoplakia is found to increase with age. It is found more commonly in among older and elderly men. Statistics show that less than 1% of effected men are below the age of 30 and it increases to about 8% in male patients older than 70 years of age and to about 2% in females of ages 70 and above[9]. Smoking is considered the major risk factor for developing oral Leukoplakia and dysplastic lesions are more prone to malignant lesions[10]. Oral Leukoplakia is located in the floor of the mouth, soft palate and also the tongue. These areas are considered to be of high malignancy while those on toher areas maybe considered as low malignancy[11][12]

Etiology:
The etiology is multifactorial and many are idiopathic [6]. The most commonly associated risk factor is the use of tobacco in either smoked or smokeless forms. Alcohol consumption is also an independent factor [13]. In cases of proliferative verrucous leukoplakia, the usual risk factors regarding etiology and risk of malignant transformation, including gender, tobacco habits, and alcohol consumption, do not apply [11]. High-frequency allelic loss and high-risk allelic profiles have been noted in an attempt to account for high-risk progression to dysplasia and malignant transformation. [14][15]

Histopathological features:
Basic microscopic characteristics of oral leukoplakia include hyperkeratosis of ortho- or parakeratotic type and acanthosis of the epithelium, with various degrees of chronic inflammatory infiltrates in lamina propria. Also, various degrees of epithelial dysplasia may occur. Some of the most important microscopic characteristics of dysplasia are: loss of polarity of basal cells, increased nuclear cytoplasmic ratio, irregular epithelial stratification, increased number of abnormal mitotic figures and their presence in the superficial epithelium, cellular and nuclear pleomorphism, keratinization of single cell groups [17] .

Clinical appearance:
Oral leukoplakia is classified in two main types: homogeneous type which appears as a flat white lesion and non-homogeneous type which includes speckled, nodular and verrucous Leukoplakia [16]. The homogeneous leukoplakia is a uniform, thin white area altering or not with normal mucosa. The speckled type is whitish red lesion with a predominantly white surface [6] . The nodular type has small polyploidy outgrowths on its surface [6]. Proliferative verrrucous leukoplakia is a subtype of verrucous leukoplakia characterized by an aggressive evolution, a multifocal appearance, resistance to treatment, higher degree of recurrence and a high rate of malignant transformation [16]

Differential diagnosis:
Almost all oral white patches are usually the result of keratosis[17]. Leukoplakia cannot be rubbed off the mucosa, distinguishing it readily from white patches such as pseudomembraneous candidiasis, where a white layer can be removed to reveal an erythematous, sometimes bleeding surface underneath. The white color associated with leukoedema disappears when the mucosa is stretched [19]. A frictional keratosis will generally be adjacent to a sharp surface such as a broken tooth or rough area on a denture and will disappear when the causative factor is removed. Other causes of white patches generally require pathologic examination of a biopsy specimen to distinguish with certainty from Leukoplakia[20] .

Treatment:
As oral leukoplakia is potentially malignant, and as some leukoplakias will unpredictably progress to carcinoma, ideally all oral leukoplakias should be treated. [18]The main objective in oral leukoplakia's management of care is to detect and to prevent malignant transformation. The treatment is based on the degree of dysplasia. [19]. Surgical excision is recommended when dealing with two or three accessible circumscribed lesions [20] .

Conclusion:
Leukoplakia maintains a major and increasingly better understood role in oral mucosal pathology which began to be better clarified subsequent to development of a uniformly agreed upon definition of the term. There is no satisfactory treatment for Leukoplakia so far. It must be assumed that generally leukoplakia should be removed preferably totally, if possible and patients should be regularly Monitored for any relevant mucosal change, and instructed to avoid the major risk factors of oral epithelial dysplasia, especially tobacco usage and alcohol consumption.

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