General Study on Various Lesions Included in Oral Potentially Malignant Disorders (OPMDS)

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Received: 26-Sep-2022, Manuscript No. OHDM-22-18676; **Editor assigned:** 29-Sep-2022, Pre QC No. OHDM-22-18676 (PQ); **Reviewed:** 13-Oct-2022, QC No. OHDM-22-18676; **Revised:** 20-Oct-2022, Manuscript No. OHDM-22-18676 (R); **Published:** 27-Oct-2022, DOI: 10.35248/2247-2452.22.21.1022.

Description

A number of diseases and syndromes known as "Oral Potentially Malignant Disorders" (OPMDs) are defined by an elevated risk for Malignant Transformation (MT) into oral squamous cell carcinoma. The most prevalent OPMDs are leukoplakia and erythroplakia, while oral lichen planus has received particular attention due to its premalignant characteristics. It is widely acknowledged that the most reliable indications of MT risk at this time are the histological characteristics of a specific lesion, particularly the presence and degree of epithelial dysplasia. However, histopathological analysis by itself is insufficient to accurately determine the risk of MT, additional factors, including clinical and molecular parameters, must be included. This is because the clinical features of OPMDs can differ significantly within a single histopathologically defined entity, which may be crucial to the likelihood that the condition will progress to malignancy. These differences can act as MT prognostic indicators and help clinicians decide whether to pursue additional interventions and follow-up care.

The World Health Organization currently describes leukoplakia as a white plaque of doubtful risk, having excluded other known diseases or conditions that carry no risk. It is merely a clinical word, and histological definitions range from atrophy to dysplasia to hyperplasia. This definition excludes all frictional conditions, including persistent cheek biting and benign alveolar ridge keratoses. Leukoplakia has two primary clinical variants: homogeneous leukoplakia, which has a low risk of MT, and nonhomogeneous leukoplakia, which has a higher risk of MT. Further subcategorization of the latter includes nodular leukoplakia, verrucous leukoplakia, and proliferative verrucous leukoplakia. Speckled leukoplakia is red and white but mostly white. Leukoplakias can have epithelial dysplasia, carcinoma *in situ*, or invasive SCC with a frequency of anywhere between 8.6% and 60.0%. In 13.6% to 36.4% of instances, MT of epithelial dysplasia or carcinoma *in situ* occurs, and the annual MT rate for total leukoplakia has been reported to range from 1% to 3%. It is widely acknowledged that, compared to homogeneous lesions, nonhomogeneous leukoplakia carry a 4- to 7-fold with increased risk of developing Metastatic Tumors. Erythroleukoplakia, which has an erythematous component, appears to carry a higher risk for MT.

This is consistent with the pure red lesions' high malignant potential (erythroplakia), which, although having a modest prevalence of between 0.01% and 0.2%, is linked to a very high MT rate that, according to some research, is about 55%-65%. Furthermore, more than 90% of erythroplakias at the first biopsy had epithelial dysplasia, carcinoma *in situ* , or invasive SCC. Additionally, Proliferative Verrucous Leukoplakia (PVL), a distinct entity with multiple verruciform white plaques showing an unceasing tendency to expand and recur and a propensity to affect nonsmokers and especially women in their 50's and 60's, has been linked to an MT rate that may eventually approach 100%. Optical diagnostic tools have recently been employed to clarify the clinical characteristics of OPMD and to offer some understanding of the underlying cellular and molecular alterations taking place in these lesions. Light-based tools with different wavelengths have been investigated, and they appear to have potential for helping clinicians spot and better see OPMD and oral cancer. This technique can also be used by surgeons to evaluate the tumor margins during surgical resection. In order to achieve a margin clearance of 5 mm or more to account for fixation shrinkage of the formalin-fixed resected specimens, surgeons typically remove 10 mm or more of the normal-appearing mucosal margins during surgical excision of malignancies.

In an effort to stop recurrence from marginal areas with occult alterations, surgeons have routinely used this clearance. Thus, the interpretation of surgical close and clear margins, which have been employed as indicators of tumor recurrence and survival, depends on the pathologists. Despite this, primary tumor recurrence is still high (up to 25%), which may be due to the inability to accurately foresee the molecular alterations that are already taking place in these margins. The malignant potential of oral leukoplakia and erythroplakia appears to be influenced by additional factors, such as place and size, in addition to the significance of clinical subtyping of OPMD. The largest percentages for MT have been connected with the lateral border of the tongue and the floor of the mouth (as high as 44% and 24%, respectively). Despite of the limited information that is currently available, it indicates that lesions that are larger (i.e., greater than 200 mm^2) are linked to a higher risk of MT (up to 5.4-fold).

Conclusion

Despite the MT rates for leukoplakia indicated above, it has long been known that so-called "benign hyperkeratosis" can develop into OSCC. In the United States, Silverman et al. reported that aggressive cancer developed in 37 out of 235 cases of "benign hyperkeratosis" as early as 1987. The Neth-

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erlands' Schepman et al. later reported that MT took place in 6 out of 20 (30%) cases of non-dysplastic leukoplakia. More recently, in 2007, Hsue et al. from Taiwan noted an MT rate of 3.6% in their cases, despite the fact that many of their patients also had submucous fibrosis from using betel quid. These studies by Holmstrup et al. in Denmark and Hsue et al. from Taiwan noted invasive carcinoma development rates of 2% and 11%, respectively, in patients with untreated and treated nondysplastic leukoplakia.