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Clinical Review and Management of Oral Potentially Malignant Disorders with Epithelial Dysplasia

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Abstract

Background: Oral potentially malignant disorders (OPMDs) comprise any disorders, tumors, in addition to any microscopic alterations that have a risk of malignant development of cancers of the mouth. When epithelial dysplasia is detected in an oral lesion, it is termed as a precancerous lesion. **Finding:** Several changes in the color or thickness of normal oral mucosa might be detected during the clinical diagnosis of the oral lesions. Leukoplakia of the oral cavity is a clinical name for one of the most predominant OPMDs of the oral mucosa. When comparing oral examination with naked eyes to planning to apply staining with special stain or using an image of optical fluorescence, the incidence of patients with oral epithelial dysplasia may rise, as well as the clearing of the lesion boundary. Increased size of more than 2cm², the presence of colored regions with a red hue, the presence of lichenoid process characteristics, and severe epithelial dysplasia are all considered risk factors. One-third of premalignant lesions may progress to cancer, whereas the other two-thirds may stay stable or regress without progressing to malignancy. **Conclusion:** It is critical to research the patients' unique characteristics, which include psychological, genetic, dietary, and dental problems. When epithelial dysplasia is present in an oral lesion, it is termed a precancerous lesion. Oral potential malignant diseases with epithelial dysplasia may or may not develop into carcinoma and may or may not be recurrent.

Keywords: Malignant Lesions, Premalignancy, Epithelial Dysplasia, Carcinoma, Risk Factors

Introduction

Many authors have not confirmed the link between oral epithelial dysplasia with an elevated chance of carcinoma progression and the clinical assessment of premalignant lesions, despite the fact that grading systems of epithelial dysplasia in the oral cavity can be considered as predictors for the malignant transformation of premalignant lesions (Speight, 2007; Van der Waal, 2009).

Several studies stated that high grades of epithelial dysplasia of oral mucosa are related to a high tendency for the progression of carcinoma, and the oral epithelial dysplasia grading system is considered a good predictor for cancer (Warnakulasuriya et al., 2011; Cowan et al., 2001; and Mehanna et al., 2009).

There are studies showed that the malignant transformation rate is not related to the grading of oral epithelial dysplasia (Arduino et al., 2009; Holmstrup et al., 2006).

The most crucial consideration in detecting the presence of oral epithelial dysplasia with premalignant lesions is to define the possibility of cancer development. While in previous years, many researchers studied and interpreted possible factors that are related to the malignant transformation rate of some cases of oral leukoplakia and they are not focused on the relation with epithelial dysplasia. The clinical risk factors were included in patients with oral leukoplakia like persistent leukoplakia, nonsmokers, and female patients, site and size of the lesions, homogeneity of the lesion surface, presence of candida, and dysplasia of the oral epithelium (Van der Waal, 2009).

Some authors showed different opinions about the risk factors and their relationship to malignant transformation, and they considered the oral epithelial dysplasia of leukoplakia lesions to not risk indicators, in addition to other variables such as smoking, alcohol use, age, gender, and others that were considered to be independent risk factors for malignant transformation (Liu et al., 2012; Dost et al., 2014).

In 2006, Holmstrup et al stated in their study that only the nonhomogeneous surface of oral leukoplakia factor and the increased size of the lesions were related to malignant transformation (Holmstrup et al., 2006).

Other researchers presented that leukoplakia lesions with nonhomogeneous surfaces have an increased malignant development and nonsmoking patients with lesions on the lateral surface of the tongue are highly predisposed to malignant transformation (Ho et al., 2012).

Several researchers have shown that oral leukoplakia lesions on the floor of the mouth and the lateral surface of the tongue have a high incidence of epithelial dysplasia and malignant transformation (Warnakulasuriya et al., 2011; Jeong et al., 2012; Ho et al., 2012; Dost et al., 2014).

In the South Asian areas, there is a higher incidence of cancer development of the lesions of oral leukoplakia on the buccal mucosa in general than in other areas due to the chewing of betel/areca nuts as a widespread habit in these countries (Shiu et al., 2000).

Discussion

Malignancy is a series of complex process, but not only changes in the epithelial cells. In terms of dysplasia of the oral mucosal epithelium and its relationship to the risk of carcinoma progression, several studies have concluded that the severity of oral epithelial dysplasia cannot be utilized as a predictor factor for the carcinoma (Holmstrup et al., 2006; Edwards, 2014; Mogedas-Vegara et al., 2015; Speight et al., 2018). While other authors state that the malignant transformation of premalignant disorders can be detected by studying the severity of epithelial dysplasia (Bouquot et al., 2006; Wang et al., 2014).

The lesion with a different histological grade of dysplasia may or may not progress to carcinoma, or may regress or remain stable without any changes (Edwards, 2014; Holmstrup et al., 2007).

The malignant transformation can occur as a result of the invasion of the connective tissue without any confirmation of dysplasia in the superficial oral epithelial mucosa (Edwards, 2014).

Many studies have shown that different components can be predisposed factors that result in malignant transformation in the lesion with dysplasia, such as hereditary changes or behavioral components (Garnis et al., 2009; Zhang et al., 2012), nutritional deficiencies (Güneri et al., 2005; Chainani et al., 2011), state of bad oral hygiene (Güneri et al., 2005; Rosenquist et al., 2005), presence of candida (Gorsky and Epstein, 2011; Khanal et al., 2018), inflammatory factors of the body (Sun et al., 2016; Sano et al., 2018), using of certain drugs which have

an effect on the functional processes of the epithelial cells and the immune response of the host or systemic diseases (Hirai et al., 2017; Zamoiski et al., 2017) and consumption of tobacco and alcohol (Hashibe et al., 2018) Therefore, the malignant changes that may be occurred within the epithelial cells and their neighboring areas lead to changes in connective tissue in addition to immunity disturbances that can be considered as critical predisposing factors in the etiology of malignancy (Raj et al., 2019).

It is more important to define and study which patients have precancerous conditions rather than to define and study the lesion itself, as carcinogenesis is a multistep process in which more than one etiology is shared in these malignant changes, and the transformative nature of the oral epithelial cells is also complicated and unpredictable. After defining and studying these different steps of the oral epithelial cells from the normal to malignant condition, this will help us define the status of patients with precancerous lesions in detail in addition to the correct pathway of management (Edwards, 2014; Speight et al., 2018; Rosenquist et al., 2005; Mello et al., 2018; Epstein et al., 2007; and Zhang et al., 2016).

The size and location of lesions can be defined according to the severity of oral epithelial dysplasia in potentially malignant disorders (Edwards, 2014; Speight et al., 2018; Epstein et al., 2007), as well as other clinical characteristics such as age (Speight et al., 2018), the state of the patients' general health, and aspects that can complicate the patients' follow-up. Advances in malignancy may occur in moderate dysplastic lesions or even non-dysplastic lesions, according to Speight et al. Therefore, any abnormality in the oral cavity should be followed up on so that the proper intervention can be established to prevent the malignant mutation (Gong et al, 2015).

These factors include the function of the risk of malignant transformation and the determination of effective treatments. These factors include the function of the host immune system, the microenvironment of the tissue and the patient's habits, and nutritional deficiencies. So, it is important to change the usual attention to the malignant transformation of the lesion toward studying the characteristic features of the patients, which include psychological, genetic, and nutritional conditions (Gong et al, 2015).

The term "high-risk patient" can be used to refer to patients with a family history of carcinogenesis, different systemic diseases, tobacco use and alcohol consumption, nutritional deficiencies, and poor oral hygiene who need to be examined with all these characteristics completely. Some biomarkers can be used to detect different grades of dysplasia within the lesion that help us in the evaluation of malignant transformation, such as (LOR, EGFR, and mTOR) with repeated follow-up of the patients.

The high-risk patients may have lesions with mild dysplasia that may be treated with treatment approaches for moderate or severe dysplastic lesions when compared to similar lesions which are presented in a "low-risk patient". To determine the appropriate treatments and controlling of oral potentially malignant disorders in the future, new approaches that depend on the molecular changes of epithelial cells should be established.

Conclusion

It is very important to study the characteristic features of the patients which are including psychological, genetic, nutritional, and oral conditions. The existence of oral epithelial dysplasia in the lesion is considered a precancerous lesion. The possibly malignant lesions with oral epithelial dysplasia may or may not progress to carcinoma or may regress or remains stable without any changes.

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