Oral Epithelial Dysplasia - Position Statement of the 2ⁿᵈ Living Legends of Oral and Maxillofacial Pathology Symposium

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Oral Epithelial Dysplasia (OED) is a disorder of the epithelium that represents an alteration in the differentiation and maturation of cells with a shift towards greater multiplication of cells and reduced differentiation. In line with the multistep process of cancer development OED may regress, remain stable, or progress to Squamous Cell Carcinoma (SCC) based on a combination of environmental, genetic, epigenetic and immune factors.

Presentation

OED is an identifiable histological alteration that is found in some Potentially Malignant Disorders (PMDs). The most common PMDs in relation to Epithelial Dysplasia (ED) are leukoplakia, erythroplakia, oral submucous fibrosis, and lichen planus.

Diagnosis

The criteria for the diagnosis of ED include a combination of cellular and architectural alterations of the epithelium. Abnormal variation in cell and nuclear size and shape, increased nuclear/cytoplasmic ratio, enlarged nuclei, hyperchromatic nuclei, increased and abnormal mitotic figures, increased number and size of nucleoli are the cytological changes. While , loss of polarity, disordered maturation from basal to squamous cells including dyskeratosis, increased cellular density, basal cell hyperplasia, and bulbous drop shaped rete pegs that may show secondary extensions are the tissue level or architectural changes seen in ED.

Grading

All currently available systems, grade ED into at least three tiers mostly based on the degree of involvement of the epithelium by immature cells and the degree of superficial maturation. They are all highly subjective and consequently not very reproducible. In the absence of a consensus for the best system, the WHO system with the mild, moderate, severe and carcinoma in situ grades is the most commonly followed.

Risk of Malignant Transformation

Oral SCC may either develop de novo without any prior clinical alteration or in relation with PMDs, which have an increased potential for malignant transformation, in comparison to the unaffected mucosa. The overall risk of transformation is inconsistent, with some PMDs such as erythroplakia and proliferative verrucous leukoplakia showing a high risk and others such as homogeneous leukoplakia and lichenplanus showing negligible risk.

OED represents a mixture of disturbance in maturation and proliferation in a potentially malignant disorder. Thus making it intuitive to consider that OED indicates progress towards malignancy. However, malignant transformation remains uncertain.

Need for a Malignant Transformation Marker

Uncertainty of risk of progression to SCC in identified PMDs hampers treatment choices. Overestimation of risk leads to unnecessary ablation of affected mucosa extending to the submucosa and involving wide margins. The treatment invariably leads to tissue loss and scar formation of varying severity depending on the method used. On the other hand, underestimation of risk and failure to treat leaves the patient at greater risk of SCC and its life-threatening consequences. Indiscriminate treatment of cases is not an acceptable option and identification of high-risk cases requires a dependable marker.

OED as a Maligant Transformation Marker

Considered by many as the gold standard for risk determination, the predictive value of OED, however, is not uniform and has many weaknesses, which include:

2. Lack of a uniformly accepted grading system and subjectivity of the assessment.

2. Prediction of malignant transformation risks not being uniform in all grades. (Significant correlation with severe ED and Carcinoma in situ only)

3. Purely histological evaluation of lesions, which, does not

take into account various clinical and biological factors viz. site, size and number of lesions, associated habits and infections and population-based factors which alter the transformation risk of individual lesions.

The position of this panel is that oral epithelial dysplasia does not denote an inevitable progression to SCC. The current OED grading is inadequate for treatment planning decisions especially in mild and moderate grades. The use of OED as a malignant transformation marker can be viable in the context of a comprehensive risk assessment scale based on a combination of histological and relevant clinical, epidemiological and biological factors. Grading systems that divide ED into high risk and low risk should be used to reduce grading ambiguity. Current management of cases should be based on a combination of histological and clinical assessment.