

Epidemiology and correlation of the clinicopathological features in oral epithelial dysplasia: analysis of 173 cases

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Abstract

Oral epithelial dysplasias (OEDs) are potentially malignant disorders characterized by diverse degrees of cellular atypia. The early and careful diagnosis has extreme importance, allowing prevention of the progression to the oral squamous cell carcinoma. This study aimed to determine the epidemiology and then correlate it with the clinicopathological features of OED. One hundred seventy-three cases of oral lesions retrieved from the files of a Service of Pathological Anatomy, covering a 38-year period, were submitted to descriptive statistical analysis through the Pearson χ^2 test. The majority of cases were from affected females (57.9%), with a peak of occurrence in the age group of 41 and 55 years (37.3%), white patients (64.8%), and those with lesions located on the gingiva/alveolar ridge (25.1%). The lesions predominantly presented with white color (56.8%) and were described as nodules (27.4%), with a rough surface (76.7%), an exophytic growth (79.1%), and a sessile base (95.6%). The majority of the lesions with degree of mild (34.6%) and moderate (34.9%) OED had clinical diagnosis of leukoplakia, whereas 33.3% of the lesions with degree of severe had clinical diagnosis of squamous cell carcinoma ($P < .05$). Tobacco use was the risk habit more related with OED (42.6%) ($P > .05$). The knowledge of OED epidemiology and clinical features provide a better understanding of the factors that possibly are associated with the malignant transformation of OED. Furthermore, these results contribute to supporting a prompt and accurate recognition of these lesions in clinical practice.

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1. Introduction

The term *potentially malignant disorders* (PMD) has been used to describe clinical presentations that may have a potential to become cancer [1–4]. These lesions show variable clinical presentation such as leukoplakia, erythroplakia, submucous fibrosis, actinic keratosis, palatal lesions in reverse smokers, lichen planus, discoid lupus

erythematosus, and hereditary disorders such as dyskeratosis congenita and epidermolysis bullosa [1,5–7]. The presence of epithelial dysplasia is generally accepted as one of the most important predictors of malignant development in lesions [1]. Nevertheless, it is recognized that, occasionally, nondysplastic lesions may turn into cancer, whereas not all dysplastic lesions become malignant neoplasms [2–4].

The histopathological feature of oral epithelial dysplasia (OED) is characterized when architectural disturbance is accompanied by cytological atypia with loss of normal maturation and stratification of keratinocytes [8,9]. Conventionally, dysplasia is divided into grades: mild, moderate, and severe [2]. The presence of moderate or severe dysplasia

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has been accepted to have the greatest likelihood for malignant transformation [5].

Oral erythroplakia shows the highest malignant transformation rates among all potentially malignant disorders of the oral mucosa. More than 90% of the cases already exhibit dysplasia, carcinoma in situ, or invasive carcinoma [10].

Estimates of the so-called malignant transformation rates of PMD in the literature vary enormously, from site to site within the mouth, from population to population, and from study to study. Schepman et al [11] and Silverman et al [12] reported a range from 1.4% to 7%. In 1995, Lumerman et al [13] reported that 6.6% to 36% of epithelial dysplasias may transform to oral squamous cell carcinoma. In a recent study [5], the malignant transformation rate of PMD was estimated to be from 1.9% to 5.4%. In accordance with cited studies, Ho et al [8] reported that the risk of transformation of OED to cancer has a range from 1.4% to 7.62% per year. The variation in rates from study to study is attributed to differences in follow-up times, study group selection, and tobacco habits [7].

Oral epithelial dysplasia, not associated with any specific clinical appearance, is a term assigned to the histopathological changes associated with increased risk of malignant transformation [5]. Oral epithelial dysplasia typically presents itself as a predominantly white, red, or mixed white and red mucosal lesion [14]. The accurate clinical diagnosis of these pathologies and also the epidemiological data knowledge have a huge value in giving directions to the microscopic study of cytological and architectural alterations. Thus, a precise histopathological diagnosis must be done, further making possible a better understanding of clinical factors that are commonly associated with potentially malignant disorders. The early diagnosis of these pathologies may prevent their transformation in squamous cells carcinoma, consequently implying a better prognosis.

There are little available data in the literature about the clinical features of OED. Thus, the aims of this study were to determine the epidemiology and the clinical pattern of OEDs and then correlate the clinicopathological features in the different grades of these lesions.

2. Materials and methods

A retrospective study of 173 cases of OED in which biopsy was performed that were obtained over a period of 38 years, from 1970 to 2008, was designed.

The histopathological features were classified into mild, moderate, and severe OED. All lesions were diagnosed by specialist oral pathologists and defined according to the criteria of classification of the World Health Organization [2].

Our sample was composed of all specimens histopathologically diagnosed as various degrees of OED, except those that showed intense inflammatory infiltrate.

The records of these cases were reviewed and analyzed. Information regarding the frequency, sex, age, race, biopsy

type, and clinical features were collected. In addition, site, color of the lesion, clinical diagnosis and presence of risk habits (tobacco and alcohol use) were correlated with the degree of OED.

The data were tabulated and analyzed statistically using the Statistical Package for the Social Sciences software version 17.0 (SPSS, Chicago, IL). The Pearson χ^2 test was used to compare differences between groups, which were regarded as significant when the *P* value was less than .05.

The study was approved by the Research Ethics Committee.

3. Results

One hundred seventy-three of 9621 oral soft and hard tissue lesions from the histopathology records of our service were confirmed histologically to be OED, giving an incidence rate of 1.79%. One hundred eight (62.4%) of the patients had lesions with histopathological features of mild OED, 50 (28.9%) were moderate, and 15 (8.7%) were severe.

Among the 173 cases of OED biopsies, there were 99 females (57.9%), 72 males (42.1%), and 2 unknown cases, with a female to male ratio of 1.37:1, with age ranging from 15 to 90 years old and peak of occurrence in the fifth and sixth decades of life. White patients were the most common ($n = 94$; 64.8%), and black patients ($n = 33$; 22.8%) were the second most frequent. This information was not available in 28 records.

Most of the lesions were described as nodules (27.4%), with a rough surface (76.7%), an exophytic growth (79.1%), and sessile base (95.6%) (Table 1).

The majority ($n = 90$; 59.2%) of cases were surgically excised, 62 (40.8%) were incisional biopsies, and 21 were unknown cases.

The alveolar ridge/gingiva (24.4%) and lower lip (23.8%) were the most commonly affected oral sites, followed by the palate (19.1%) and buccal mucosa (14.3%). Severe OED was more likely in lesions of the tongue (26.7%) or floor of the mouth (20%), whereas mild OED was more likely in lesions of the lower lip. There were no statistically significant associations between the site of lesion and degree of OED ($P > .05$) (Table 2).

Eighty-nine (56.8%) lesions presented with white color, whereas 27 (17%) were red and 20 (12.6%) presented with white and red. The white color was related with all degrees of OED, and the mixed white and red lesions were more related with severe OED (30.8%) (Table 3). There was no statistical significance ($P > .05$).

The majority of the lesions with degree of mild (34.6%) and moderate (34.9%) OED had clinical diagnosis of leukoplakia, whereas 33.3% of the lesions with degree of severe had clinical diagnosis of squamous cell carcinoma (Table 4). There were statistically significant associations between degrees of OED and the clinical diagnosis of lesions ($P < .05$).

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