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CANCERIZABLE ORAL INJURIES AND RISK BEHAVIORS

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Abstract: Leukoplakia is considered the most common and prevalent cancerous lesion in the oral mucosa, occurring preferentially in the male gender and age groups above 40 years of age. The etiology of this injury is not known, however, some factors are related to its pathogenesis, such as: smoking, alcohol, local chronic irritant modifiers (prostheses or poorly positioned teeth causing trauma), radiation UV light and microorganisms. Among the factors mentioned, one should pay attention to smoking, being strongly related as an etiological agent, because 80% of oral leukoplakia cases occur in smokers. The etiology of cancerous lesions is not well defined. Some risk factors such as alcohol and smoking or chewing tobacco play an important role in development of these lesions. The delay in the diagnosis made by the professional of health and the exposure of individuals to risk factors, such as smoking, alcoholism, genetic inheritance, viral infections, and excessive radiation exposure allow the malignant transformation, worsening the patient's prognosis. The present study aims to assess the prevalence of injuries potentially malignant in patients assisted in outpatient clinics belonging to a Hospital in Alfenas, MG.
Keywords: potentially malignant oral lesions, oral leukoplakia, cancerous oral lesion.

INTRODUCTION

Cancer is a malignant neoplasm that is a cause for concern, with the increase in new cases and population mortality is considered a global public health problem, causing emotional and physical reactions that interfere with the well-being and balance of the patient.

Potentially malignant lesions in the oral cavity are the first clinical evidence of cancer, which can be easily detected through visualization of the oral cavity made by the individual and presented to the dentist to reach an early diagnosis. However, only a small percentage of cases of oral carcinoma are diagnosed in the initial stage of the lesion, and it is common for patients with oral cancer to seek dental service when the disease is already in an advanced stage, leading to a late diagnosis, and consequently, a more complex and more aggressive therapeutic approaches (THOMSON et al, 2008).

Premalignant oral lesions may coexist with carcinoma, regardless of the degree of dysplasia as they remain in the oral cavity for a long period of time in potential progression due to the incipience of the population about this pathological lesion, and for not seeking the dentist routinely (SILVEIRA et al, 2009).

Early stage oral spinocellular carcinoma, the most common form prevalence of oral cancer, the clinical signs and symptoms are minimal, being therefore it is important for the physician, dentist, this pathology, for its timely diagnosis and timely treatment, due to the its major impact on a patient's health (OH & LASKIN, 2007).

The delay in the diagnosis made by the health professional and the exposure individuals to risk factors, such as smoking, alcoholism, inheritance genetics, viral infections and excessive exposure to solar radiation make possible the malignant transformation worsening the patient's prognosis (AGHA & MIROWSKI, 2010).

Therefore, the present study aims to assess the prevalence of potentially malignant lesions in patients assisted in outpatient clinics belonging to a Hospital in Alfenas, MG.

MATERIAL AND METHODS

This study was approved by the Human Research Ethics Committee of UNIFENAS, Doc. nº. 2,397,955. It consists of a descriptive, qualitative and quantitative study with patients assisted by the outpatient clinics

belonging to the HUAV – Hospital University Alzira Vellano of Alfenas, Minas Gerais.

A total of 200 adult patients (over 18 years old) of both sexes, smokers or not, were included in this study. Information regarding age, sex and risk factors were obtained through an interview with application of an investigative questionnaire. A detailed clinical examination of inspection was made by the researchers to detect lesions in the oral cavity. The informations about the presence, location and size of the oral lesions were obtained using the technique recommended by Oh & Laskin (2007) which consists of the following steps:

1. Application of 1% acetic acid in aqueous vehicle for 1 minute on the lesion, with the aid of a sterile cotton swab, to remove the cellular glycoprotein barrier and promote a slight dehydration of the mucosa, which appears whiter.
2. Application of 0.5% Toluidine Blue for another 1 minute also through sterile cotton swab.
3. New application of acetic acid for 1 minute, in order to remove excess of Toluidine Blue.

The amount of toluidine blue applied during the inspection examination is minimal, of local application, offering no risk to the research participant, since the absorption is insignificant. The benefits obtained with this research are related to the help in the identification of a lesion prior to the non-evolution to an oral cancer.

Positive cases were classified according to their clinical characteristics, according to painful symptoms and growth rate, and were instructed to seek specialized medical care.

RESULTS AND DISCUSSION

The clinical examination of the oral cavity is important for early diagnosis of premalignant lesions because it can avoid a possible outcome of oral cancer, resulting in a better prognosis for the patient (MAIA et al, 2013). Therefore, we performed a detailed clinical examination of the oral cavity of 200 patients in order to identify suspicious oral lesions. After the identification of lesions, the patients were submitted to the application of the technique recommended by Oh & Laskin (2007) as described in the previous section. This technique is an auxiliary method for the traditional physical examination, as well as for the monitoring, especially in patients exposed to risk factors for development of oral cancer (CEDEÑO-SUÁREZ et al, 2021). It is indicated for academics and professionals with a little clinical experience in the diagnosis of these lesions (FARAH & MCCULLOUGH, 2008).

Of the patients analyzed, 14 potentially malignant lesions were identified (See table 1). The use of toluidine blue is interesting since it has an affinity for the genetic material of altered epithelial cells, common in severe epithelial dysplasias, in situ or invasive carcinoma, promoting the appearance of a dark spot in the lesion, where these altered units are concentrated (CALANDRO et al, 2011). Its use is an auxiliary tool for early diagnosis considered to have high sensitivity (80%). In cases of malignant lesions or severe epithelial dysplasias, this percentage is even higher, while in mild and moderate dysplasias, the dye has been shown to be less sensitive (EPSTEIN et al, 2007).

Interesting data obtained in our work are summarized in Table 2. Of the participants, 16% are smokers and 11.5% were smokers. It is known that tobacco is a strong risk factor for oral cancer, especially squamous cell carcinoma, since it causes epigenetic changes in epithelial cells, inhibiting immune functions and causing oxidative stress, from its toxic components (JIANG et al. , 2019). In addition, we found that 29.5% of respondents drink alcohol at a certain frequency. The risk

Clinical Diagnosis	N	%
Leukoplakia	7	3,5%
Erythroplakia	6	2,5%
Actinic cheilitis	1	0,5%
Non-cancerous lesions		
Cold Sore	1	0,5%
Odontogenic Cyst	1	0,5%
Mucocele	1	0,5%

Table 1 - Absolute and percentage distribution of clinical diagnoses compatible with potentially malignant oral lesions.

Source: Author.

Variable	n	%
Gender		
Female	153	76,5%
Male	47	23,5%
Age		
Adults (18 a 59 years old)	150	75%
Elderly (> 60 years old)	50	25%
Smoking		
Yes	32	16%
No	168	84%
*Non-smoking	23	11,5%
Alcoholism		
Once a week	40	20%
Twice a week	17	8,5%
Three or more times a week	2	1%
No	131	65,5%
Use of dental prosthesis		
Yes	65	32,5%
No	135	67,5%
Use of orthodontic appliance		
Yes	13	6,5%
No	187	93,5%
Bites mouth often		
Yes	63	31,5%
No	137	68,5%

Visits to the dentist		
Semiannual	45	22,5%
Annual	70	35%
Every 2 years	11	5,5%
Only when pain or a dental problem	70	35%
Never went	4	2%
Brush Tooth		
Once a day	4	2%
Twice a day	41	20,5%
Three times or more a day	145	72,5%
Use of lipstick with sunscreen		
Yes	56	28%
No	144	72%
Use of sunscreen on the face		
Yes	68	34%
No	132	66%
Pathologies		
Diabetes Mellitus	30	15%
Arterial Hypertension	73	36,5%
Autoimune Diseases	9	4,5%
Hepatitis	6	3%
Sexually Transmitted Diseases	2	1%
Candidiasis	12	6%
Sexual Intercourse without condom		
Yes	114	57%
No	86	43%
Number of sexual partners		
One	150	75%
Two or more	9	4,5%
I'm not sexually active	41	20,5%

Table 2 - Percentage and absolute distribution of variables: gender, age group, smoking, alcoholism, prostheses and dental appliances, hygiene habits and care mouthparts, use of sunscreen, pre-existing diseases and sexuality.

Source: Author

of developing oral and pharyngeal cancer is potentiated by alcohol consumption, due to the synergistic multiplicative effect it promotes (GOLDSTEIN et al., 2010).

Regarding the use of sunscreen, more than half of the interviewees are not in the habit of putting sunscreen on their face daily. As for the use of lipstick or lip sunscreen, only 28% reported using it. Excessive exposure to sunlight associated with lack of appropriate protection is a known risk factor for potentially malignant lesions and oral cancer (FURTADO et al, 2019). One of the potentially malignant lesions resulting from prolonged exposure to solar radiation is actinic cheilitis, which preferentially affects the lower lip. Furthermore, tobacco is also a factor related to its etiopathogenesis (MAIA et al, 2016). In our study, we found one case of actinic cheilitis. This lesion mainly affects males, Caucasians and those who work in activities with intense sun exposure - such as agriculture and fishing - being rare in blacks, as they have a greater amount of melanin in the skin, which confers a protective effect (CINTRA et al. , 2013). In general, women prevent themselves more by using lipstick with lip balm (CINTRA et al, 2013).

Malignant transformation of actinic cheilitis can reach 17% of cases, causing slow-developing squamous cell carcinoma that produces late metastases. As preventive measures, the use of lip sunscreen and the use of caps and hats stand out (CINTRA et al, 2013). When the lesion is established, the treatment of choice is Vermilionectomy or W-plasty, however, currently there are a variety of treatments, including: carbon dioxide, 5-fluoracil, cryosurgery, electrocautery, Imiquimod and others (ROSSOE et al, 2011).

Among the pathologies presented by the patients, only two cases of sexually transmitted disease stand out. Currently, studies associate oral lesions with STIs, such as AIDS, syphilis, gonorrhea and condyloma acuminatum. Several studies point to an association between candidiasis and hairy leukoplakia in HIV patients, with between 60 and 80% of oral lesions in infected patients being found (GASPARIN et al, 2009). The Human Papilloma Virus (HPV) is the most sexually transmitted virus and is of great importance in the etiopathogenesis of cervical cancer, however, in the oral mucosa its mode of action is not completely understood (CASTRO et al, 2004). It is known that HPV-16 is the type most associated with oral mucosal carcinoma (MONTENEGRO et al, 2014). Tobacco and alcohol, when in combination with the virus in the oral cavity, are the factors that most often can develop a neoplasm or pre-neoplastic lesion (LEITE et al, 2021). Its transmission in the oral mucosa is currently correlated with sexual changes, being therefore sexually transmitted (MARTÍN-HERNÁN et al., 2013). Thus, this study draws attention to the large number of respondents who declared that they did not use condoms in their sexual relations. Such behavior is primarily responsible for individuals contracting sexually transmitted diseases, as mentioned earlier.

Other potentially malignant lesions were identified in this study, among which leukoplakia stands out. This potentially malignant lesion is the best known in the oral cavity (MOHAMMED and FAIROZEKHAN, 2017), and agrees with our finding as it was the most frequent. In a similar study, Silveira et al. (2009) also found leukoplakia (70.7%) as the most prevalent lesion among the cases analyzed. According to MOHAMED and FAIROZEKHAN (2017), 1% to 9% of patients with oral leukoplakia may develop invasive cancer in the lesion.

Figure 1. Leukoplakia in the Jugal Mucosa.

Source: Cruz Preta Ambulatory of the Alzira Vellano University Hospital.

Figure 2. Leukoplakia in the cheek mucosa after application of 0.5% Toluidine Blue.

Source: Cruz Preta Ambulatory of the Alzira Vellano University Hospital.

Overall, fewer cases of erythroplakia are reported in relation to the frequency of oral leukoplakia as shown in the work by HOSNI et al. (2009) , which is in agreement with the data obtained in this study. According to the work carried out by Silveira et al (2009), they found a prevalence of this lesion in 9.8% of the analyzed population, and despite the higher frequency of the lesion found, it agrees with our study, as it was also less common than leukoplakia. From a histological point of view, about 50% of these lesions already represent an invasive carcinoma; 40%, carcinoma in situ and only 9%, moderate epithelial dysplasia. Its treatment of choice is based on surgical removal of the lesion associated with strict clinical follow-up (FARAH et al, 2008). The most important risk factors for the development of erythroplakia are chewing tobacco and chronic alcoholism (LEITE et al, 2021).

Figure 3. Extensive erythroplakia on the hard palate.

Source: Cruz Preta Ambulatory of the Alzira Vellano University Hospital.

Figure 4. Application of 0.5% Toluidine Blue in actinic cheilitis.

Source: Cruz Preta Ambulatory of the Alzira Vellano University Hospital.

Figure 5. Herpes Simplex Labial after application of Toluidine Blue 0.5%.

Source: Cruz Preta Ambulatory of the Alzira Vellano University Hospital.

Figure 6. Mucocele after application of 0.5% Toluidine Blue.

Source: Cruz Preta Ambulatory of the Alzira Vellano University Hospital.

Table 3 highlights the absolute and percentage distribution of the variable anatomical location of the lesions diagnosed in the present study. As for the anatomical location of the lesions found, the most common was the palate, where 29.4% of the lesions were found (n=5), followed by the lower lip and cheek mucosa, both with a distribution of 23.5% (n=4) . The third most common location was the lateral border of the tongue, indicated (n=2) in 11.7% of cases. The gingiva and the alveolar ridge were the least frequent locations, both with a percentage distribution of 5.8% (n=1).

The most frequent anatomic locations of leukoplakia were cheek mucosa and tongue. Leukoplakia can affect any region of the

Localization	N	%
Alveolar ridge	1	5,8%
Jugal mucosa	4	23,5%
Tongue (side edge)	2	11,7%
Palate	5	29,4%
Lower lip	4	23,5%
Gum	1	5,8%

Table 3 – Absolute and percentage distribution of the variable anatomical location among the lesions found.

Source: Author.

Local	Leukoplakia	Erythroplakia	Actinic Queilitis	Herpes Simplex	Mucocele	Gingival cyst
Alveolar ridge	-	-	-	-	-	n=1 (100%)
Jugal mucosa	n=4 (57,14%)	-	-	-	-	-
Tongue (side edge)	n=3 (42,86%)	-	-	-	-	-
Palato	-	n=5 (83,33%)	-	-	-	-
Lower Lip	-	n=1 (16,67%)	n=1 (100%)	n=1 (100%)	n=1 (100%)	-
Gum	-	-	-	-	-	-

Table 4 - Absolute and percentage distribution of the anatomical location variable for each lesion found.

Source: Author.

oral cavity, such as lips, tongue, floor of the mouth and buccal mucosa, however, special care must be taken with lesions of the tongue and floor of the mouth, as they are areas of high incidence of oral cancer (RODRIGUES et al. al, 2000). Similarly, MOHAMMED and FAIROZEKHAN (2017) draw attention to the locations of this lesion on the tongue and floor of the mouth, as they increase the risk for malignancy. Regarding erythroplakia (n=6), the most affected site was the palate, where n=5 of these were located. Silveira et al (2009) also report the palate as the most frequent location of such lesions, corroborating the findings in this study.

FINAL CONSIDERATIONS

Based on the findings of this study, it is concluded that the risk factors for malignancy of the identified lesions are related to smoking, its association with alcohol and the lack of preventive measures such as the use of lip balm. Among the lesions identified, there was a predominance of leukoplakia, followed by erythroplakia and actinic cheilitis. Most of the lesions detected were located on the palate, followed by the buccal mucosa.

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