

## Oral cancer and the importance of the dental surgeon for early diagnosis

### Câncer bucal e a importância do cirurgião-dentista para o diagnóstico precoce

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## ABSTRACT

Between 2016 and 2017, more than 600 thousand new cases of cancer occurred in Brazil, with emphasis on oral cancer occupying the fifth place of incidence among men and seventh among women. Based on these data, the study aims to demonstrate the importance of dental surgeons in the early diagnosis of oral cancer, described, through the literature review, as characteristics of potentially fundamental cancerous oral lesions to be recognized and differentiated by these professionals. It is concluded that with the techniques of clinical examination and anamnesis, the dentist plays a fundamental role in the levels of primary and secondary prevention, in the detection of risky behavior and in the application of resources that enable the diagnosis of a malignant lesion at an early stage.

**Keywords:** oral cancer, early diagnosis, leukoplakia.

## RESUMO

Entre 2016 e 2017, ocorreram mais de 600 mil novos casos de câncer no Brasil, com destaque para o câncer bucal ocupando o quinto lugar de incidência entre os homens e o sétimo entre as mulheres. Com base nesses dados, o estudo visa demonstrar a importância dos cirurgiões-dentistas no diagnóstico precoce do câncer bucal, descrito, por meio da revisão de literatura, como características de lesões bucais potencialmente cancerígenas fundamentais a serem reconhecidas e diferenciadas por esses profissionais. Conclui-se que com as técnicas de exame clínico e anamnese, o cirurgião-dentista desempenha um papel fundamental nos níveis de prevenção primária e secundária, na detecção de comportamentos de risco e na aplicação de recursos que possibilitem o diagnóstico de uma lesão maligna em nível estágio inicial.

**Palavras-chave:** câncer bucal, diagnóstico precoce, leucoplasia

## 1 INTRODUCTION

The population habits and socioeconomic changes makes individuals more exposed to risk factors, such as the development of chronic-degenerative diseases, including cancer<sup>1</sup>. Cancer is currently the second leading cause of death in the world, accounting for 9.6 million deaths in 2018. The disease is a serious global public health situation with high incidence, which opposes medical preventions advices<sup>1-2</sup>.

Between 2016-2017, more than 600 thousand new cases of cancer occurred in Brazil, with emphasis on cancers that affect the head and neck region, mainly in the oral cavity, considered as the main affected

area<sup>3</sup>. Data from the National Cancer Institute<sup>1</sup> demonstrated that oral cancer ranks fifth among all types of cancer in men and seventh among women in Brazil.

Oral malignant neoplasm, known as oral cancer is a disease that affects the lips and the interior of the oral cavity, including the gums, cheek mucosa, hard palate, tongue and floor. It is a multifactorial and complex disease, which includes endogenous factors, such as genetic predisposition; exogenous environmental and behavioral factors, including tobacco use, alcohol consumption; exposure to solar radiation, as well as the consumption and / or exposure of carcinogenic chemicals and microorganisms, which from their integration can make the disease worse<sup>4</sup>. Among malignant neoplasms, squamous cell carcinoma (SCC) is considered the most common<sup>5</sup>.

The lack of early diagnosis indicates the cause of the increase in mortality rates. Therefore, dentistry has a fundamental role in the early diagnosis of oral cancer and not only in curative treatment<sup>5</sup>.

The dentist is the initial link in the detection of oral lesions, considering that it is part of his competence to perform a thorough examination of the oral cavity. Thus, the inspection of all oral structures, as well as the palpation of lymph nodes in the head and neck region, is characterized as a relevant medical evaluation resource. These techniques enable the discovery of oral cancer, so the expertise performed by the dentist can never be neglected<sup>7-8-9</sup>.

Professional awareness is essential for early diagnosis and the correct referral of the patient<sup>10</sup>. It is necessary to use survey and planning methods and instruments that aim to improve the perception and detection of the disease, in order to refer it to the appropriate assistance<sup>11</sup>.

The late diagnosis of oral cancer can result in an unfavorable prognosis, since, when it does not lead to death, it causes deformities and mutilations in the individual, in addition to increasing the treatment period, which generates a high social and economic cost<sup>12</sup>.

The intervention of the dental surgeon can also involve the levels of prevention, based on the creation and articulation of policies that aim to reduce exposure to risk factors, as well as aim to transmit knowledge to the population regarding prevention and early diagnosis<sup>10</sup>. Thus, prevention combined with a diagnosis and correct referral to a head and neck oncologist contributes to survival and a favorable prognosis for the patient<sup>13</sup>.

The fundamental role of the dentist in the early diagnosis and prevention of oral cancer is in the routine histopathological evaluation of his patients<sup>14</sup>. However, some professionals do not even know how to perform the physical examination while others do not believe in the need for oral inspection during the consultation to check for the existence of oral malignancy. This situation contradicts what is taught in universities of dental medicine<sup>10</sup>.

Therefore, the objective of the present study is to carry out a literature review presenting a sequence of cancerous lesions and the characteristics of the CPB, presenting the dentist the path of early diagnosis and prevention of oral cancer. When knowing how to differentiate between malignant and benign lesions, the professional becomes able not to make a late diagnosis and delay the start of cancer treatment, providing those who have been effectively diagnosed with a better prognosis<sup>5-14-22</sup>.

## 2 MATERIALS AND METHODS

Initially, an electronic search was carried out on the database in international medical and dental literature (Pubmed - National Library of Medicine US / SCIELO / GOOGLE SCHOLAR). The search was carried out in the database considering the last 10 years, being limited to the English language, and using the terms: "*ORAL CANCER AND DENTAL SURGEON AND EARLY DIAGNOSIS AND PREVENTION*". With these characteristics, 69 references were found. The titles and abstracts of the studies identified by the search strategies were evaluated by the reviewer and selected according to their relevance as scientific articles, books, master's dissertations, and doctoral theses.

Bibliographic research method was used to describe, analyze, interpret and establish relationships between the variables of a given subject, bringing together different ideas that seek to build a new theory or another way of presenting an already known subject.

The titles of the works found were read, being ignored those whose theme was different from the objective of the present study. Then the abstracts whose title was related to the subject of this work were read, being ignored those not related to the scope of this review. Finally, those that remained after such criteria were read in full. The works were located by combining the following descriptors: oral cancer; dental surgeon; early diagnosis; prevention.

### 2.1 ORAL CANCER

Cancer is a generic word used to denote malignancy. Neoplasia is a chronic degenerative disease and can be defined as the disordered multiplication of defective or atypical cells in which, for an unknown reason, the immune system cannot fully cure or cease its effects<sup>2</sup>. When cancer begins in epithelial cells, such as skin and mucous membranes, it is called carcinoma<sup>5-17</sup>.

Among the head and neck cancer category, the areas most affected by the disease are: lip and mouth, salivary glands, pharynx, larynx and thyroid<sup>18</sup>. Approximately 40% of cases correspond to cancer of the oral cavity, 15% cancer of the pharynx, 25% cancer of the larynx and 20% of the salivary and thyroid glands<sup>19</sup>. Despite this, studies indicate that the most frequent anatomical location is the tongue, although some articles consider the highest prevalence in the region of the oral floor or in both as the most prevalent<sup>20</sup>.

## 2.2 SQUAMOUS CELL CARCINOMA

Squamous cell carcinoma (SCC) is a malignant neoplasm that originates in the lining epithelium, corresponding to 92% of oral malignancies<sup>5</sup>. It has been the most prevalent oral cancer, changing a frequency of 90 to 96% of diagnosed cases<sup>2</sup>. SCC is observed mainly in the regions of the lips, tongue, mouth tissue, oropharynx and gums and can develop normal epithelial cells or from potentially malignant disorders, which are related to hyperplasia and as dysplasias<sup>5</sup>.

The reason for the appearance of these lesions is multifactorial and involves chemical, physical and/or biological phenomena that initially cause proliferative changes and then invasive changes<sup>18</sup>.

The clinical picture of SCC does not appear to have distinct characteristics, regardless of the patient's age. The most classic sign is a persistent ulcerated lesion, usually with hardening and peripheral infiltration, which may or may not be associated with reddish, whitish spots and vegetation. Such lesions occur more frequently on the tongue, more commonly on the posterior border<sup>21</sup>.

Therefore, the dentist has a fundamental role in the early detection and prevention of oral cancer, as well as of potentially malignant lesions. Professionals should know how to differentiate between malignant and benign lesions so as not to delay diagnosis and the start of treatment, providing a better prognosis for those who have actually been diagnosed<sup>5-14-22</sup>.

## 2.3 FREQUENT ORAL LESIONS (WITHOUT MALIGNANT POTENTIAL)

Squamous cell carcinoma in advanced cases has a very characteristic clinical appearance, which facilitates its diagnosis. However, in initial cases they can be mistakenly diagnosed and confused with other benign lesions, making diagnosis difficult and delaying the start of treatment<sup>5-18</sup>. Ulcer is the most common lesion found and manifests itself as a necrotic floor, which has a very characteristic hardening with high and irregular margins. In advanced stages it is possible to notice marked pain<sup>23</sup>. Another obstacle faced is when the lesion does not have suspicious clinical characteristics, which is normal in early lesions, which may lead the dentist to postpone the biopsy<sup>5-23</sup>.

In general, these lesions are leukoerythroplastic, with reddish-white patches with a considerably rough surface, and on palpation it is possible to feel a slight hardening of the area when compared to normal mucosa. These lesions are considered asymptomatic, so the importance of the dentist to observe small changes in the color of the mucosa, as well as recommend biopsy when the lesion does not improve within 15 days<sup>20-23</sup>.

Due to a large percentage of carcinomas being identified in the final stages, it is questioned whether the lesions are not identified by the dentist or if, for him, they do not suggest suspected malignancy<sup>24</sup>. This

is very important, since the professional must be able to identify the initial manifestation of the pathology<sup>25</sup>, or at least refer it to the stomatologist for an accurate diagnosis.

## 2.4 CANCERIZABLE ORAL LESIONS

Cancerizable oral lesions, is a term used to define lesions that have the potential to become cancer<sup>24</sup>. In 70% of oral cancer cases, lesions with malignant potential are previously present. In these lesions, the tissue is morphologically altered when compared to normal tissue<sup>26-27</sup>.

The main objective of adequately identifying these lesions is to prevent malignant transformation or to provide an early diagnosis of malignancy<sup>28</sup>. Lesions with malignant potential before becoming cancer undergo various histopathological stages<sup>24</sup>.

In the beginning, there is a change in the color of the mucosa and hyperkeratosis, usually reversible when the risk factors are suspended. When it does not occur, there may be the development of cellular changes that are called dysplasias, classified as mild, moderate and severe, which cause carcinoma in situ and, finally, an invasive cancer<sup>29</sup>.

As long as there is no disruption of the basal layer of the epithelium, the cells do not invade the blood and lymph vessels, and the tumor is considered initial or in situ. After the rupture and invasion of tumor cells in connective tissue and blood vessels, the condition is called invasive carcinoma<sup>24</sup>, which can be differentiated to a lesser and greater degree, depending on the invasion of vascularized connective tissue<sup>2</sup>.

The anatomical location of oral epithelial dysplasia is a relevant aspect of assessing the risk of malignant transformation. Lesions of the tongue and floor of the mouth have a much greater risk of malignant than lesions in other sites of the oral cavity<sup>24-30</sup>. The main potentially cancerable lesions are leukoplakia, erythroplasia, actinic cheilitis, and lichen planus, which is still widely discussed<sup>24</sup>.

## 2.5 LEUKOPLAKIA

Leukoplakia is defined as a white plaque or patch with an increased risk of malignancy. This lesion is considered premalignant, being the most common in the oral cavity, as well as the most common to affect individuals over 40 years of age and smokers<sup>31</sup>. The white color is related to the thickening of the keratin layer, which when moist appears to be white, or also to a thick layer that prevents the visualization of normal vascularization<sup>7</sup>.

Leukoplakia can be classified in two ways: homogeneous and non-homogeneous. The homogeneous are uniform, thin and consistent white plates, with shallow cracks in the keratin surface. Non-homogeneous ones, on the other hand, are white or reddish white plaques and can be nodular<sup>7-24</sup>.

Verrucous leukoplakia comprises yet another type of non-homogeneous. It has a uniform white appearance and its texture has the characteristics of homogeneous, this being, together with Leukoplakia with red components, the highest risk<sup>32</sup>. This verrucous form of leukoplakia must be treated aggressively as there is a high rate of malignancy<sup>24</sup>.

The most common site affected is the cheek mucosa, the vermillion of the lip and the gums. Those present on the lip, tongue and floor of the mouth, although less common, are the location of greater dysplastic development<sup>33-34</sup>.

Thus, in the clinical diagnosis, verification of tobacco use, compatible anatomical location, size and extent of the lesion is used. After these factors are eliminated and if the lesions persist for up to three weeks, it is necessary to perform a biopsy to discover or rule out any disorder<sup>35</sup>. If dysplasia is confirmed, treatment will depend on the size of the lesion. Minor injuries can respond positively to an end to harmful habits, such as smoking. Larger lesions require total surgical excision<sup>24</sup>.

## 2.6 ERYTHROPLASIA

Erythroplasia is a clinical term used to identify a red spot that cannot be diagnosed as another lesion<sup>36</sup>. Although less common than leukoplakia, both have a high potential for malignancy<sup>37-38</sup>.

The clinical appearance of the lesion corresponds to homogeneous circumscribed red plaques that are most commonly found on the floor of the mouth, on the palate and on the lateral border of the tongue, and may have a smooth and velvety surface as well as morphological characteristics with whitish spots<sup>2</sup>. In addition, it has no significant gender bias.

Thus, lesions observed with suspicion that do not regress should be investigated from the biopsy, and as in Leukoplakia, when they present severe dysplastic condition, they must be removed entirely. Monitoring the patient for long periods is necessary, since recurrence is common<sup>7-37</sup>. Erythroplakias have a greater potential for malignancy than leukoplakias, and many are already carcinomas in situ.

## 2.7 ACTINIC CHEILITIS

Actinic cheilitis is directly related to excessive exposure to the sun. This premalignant change is commonly found in the vermillion region of the lower lip and its incidence is higher in elderly men<sup>39</sup>.

Symptoms may include atrophy of the lip, dryness, red line, poorly demarcated, erosive or with keratotic plaques<sup>40</sup>. It is also observed that as the lesion progresses, areas with scales begin to cover the lip in the drier portions of the vermillion<sup>7</sup>. The appearance of ulcers suggests the progression of actinic cheilitis to an early-stage SCC, which is why these areas of hardening should be biopsied to exclude the possibility of a carcinoma<sup>24</sup>.



## 2.8 ORAL LICHEN PLANUS \*

It is not fully established that Lichen Planus (OLP) is considered a potentially cancerous lesion. Despite presenting in several clinical forms: reticular, atrophic, papular, bullous and erythematous, the erosive type is more significant, as it presents symptomatic lesions<sup>30</sup>. OLP is usually chronic, relapsing and difficult to treat. Thus, biopsy and lifelong monitoring are recommended<sup>41-42</sup>.

## 2.9 ETIOLOGY

The cause and origin of oral cancer is complex, multifactorial and genetic. However, there are some main factors such as exposure to solar radiation, alcohol, smoking, hereditary factor, exposure to cancer products, HPV, among others<sup>24</sup>. The development of cancer occurs from changes in genes called protooncogenes, these are activated and become oncogenes. Oncogenes are responsible for transforming normal cells into malignant cells, called tumor cells that grow disorderly and begin to multiply<sup>43</sup>. The risk factors that need to be identified, discussed and eliminated are:

### 1) Tobacco

Tobacco use is the main cause of lung, larynx, stomach, pharynx, bladder, pancreas and mouth cancer, and its incidence is associated with 90% of oral cancers in males and 60% related to females. This when not associated with the combined use of alcohol, which acts as a great synergism, increasing the risk by up to 20 times<sup>43</sup>.

Another important aspect that increases the risk of the appearance of cancer, is the practice of "inverted smoking", traditional in countries like India and South America. This practice consists of the consumption of handmade cigarettes, placing the lit tip inside of the mouth<sup>24</sup>.

It is worth mentioning that tobacco releases by-products, 43 of which are carcinogenic elements, which can cause dryness of the oral mucosa, increasing the keratin layer and facilitating the action of other carcinogenic elements<sup>13</sup>.

There are also industrialized cigarettes, as well as pipes, chewing tobacco and straw cigarettes, these chronically affect anatomical regions such as the lips, especially the lower part, the edges and back of the tongue, the labial commissure, the buccal floor and the buccal mucosa, causing epithelial cells divide and differentiate<sup>13-43</sup>.

Despite all the risks, the use of tobacco is still frequent in today's society, and it becomes a challenging topic to be treated in the dental office. Despite this, the dentist has an obligation to instruct his patients about the harm of smoking and especially to make it clear how tobacco can act in the mouth, in healing oral tissues, in inhibiting the oxidative action of saliva and in increasing keratin in the mucosa, which assists in camouflaging certain periodontal diseases<sup>13-44</sup>.



## 2) Alcohol

Alcohol consumption is also associated with the development of cancerous lesions in the oral cavity. These injuries can occur when alcohol is present in the bloodstream, which is absorbed into the tissues, acting in a malignant manner<sup>45</sup>. Alcohol acts as a solvent, which exposes the mucosa to several carcinogenic factors, decreasing the frequency of the body's defense action and causing cell injury<sup>13</sup>.

Currently, alcohol consumption has increased and the population has started drinking since adolescence. Therefore, it is necessary for the dentist to correctly take an anamnesis and talk to the patient in order to expose the risk of developing oral cancer with the use of alcohol<sup>45</sup>.

Many patients due to the prejudice still recurring in society, do not assume the consumption of alcohol before the dentist, which makes the process difficult, after all it is of great relevance to know the quantity, frequency and composition of the drink consumed by the patient<sup>44</sup>.

## 3) Sun exposure

Due to work in rural areas and informal jobs that are often related to functions on the city streets, the Brazilian population is constantly exposed to sunlight<sup>13-44</sup>. The concern arises, as there is evidence that sunlight is associated with an increase in cancer on the lips<sup>2</sup>.

Exposure to ultraviolet rays can cause severe cellular damage, in addition to the exaggerated exposure in continuous contact with the lower lip can trigger a carcinoma<sup>13</sup>.

Therefore, it is recommended that people who suffer from sun exposure constantly use sunscreens, lip balms, sunglasses and hats, and should always avoid the sun, especially between the hours of ten to seventeen hours<sup>13-46</sup>.

## 4) Heredity

Another relevant aspect about risk factors for the development of oral cancer is heredity. It can happen due to vertical transmission, that is, when the disease is transmitted from one generation to another, through an autosomal dominant inheritance<sup>47</sup>.

## 5) Diet

Currently, the lack of time of the Brazilian population has generated a high consumption of fast foods. As a result, healthy eating is left out, making room for foods with a high content of fat, sugars, salt and a small number of vitamins<sup>2</sup>. However, the relationship between diet and oral cancer is not clear.

It is evident that many systemic complications are directly linked to a poor and irregular diet, such as diabetes, cardiovascular problems, cholesterol and also several types of cancer, including oral cancer. Many epidemiological studies indicate that there is less occurrence of cancers originating in the mouth, when the individual has a diet rich in fresh fruits and vegetables. Vitamin A has been proven to protect against cancer of the oral cavity, and possibly vitamin E can decrease the risk of developing cancer<sup>43</sup>.

Therefore, the dentist must talk to his patient about his diet and, if necessary, refer him to a specialist doctor in order to reduce this risk factor for the development of cancer<sup>13</sup>.

#### **6) HPV**

Human papilloma virus (HPV) is considered a causative agent of cervical cancer and, currently, has considered its possible relationship with oral and oropharyngeal cancer<sup>48</sup>.

Studies show that HPV can cause oral malignancy, and when it is associated with the use of tobacco and alcohol, it increases the oncogenic action. Despite this and the improvement of HPV detection techniques in lesions of the oral mucosa, its direct involvement with oral carcinomas has not been properly proven<sup>49-50</sup>.

#### **7) Piercing**

In view of the growth of people who use piercings, the question arises as to whether they are a risk factor for oral cancer<sup>44</sup>. It is also not clear that the piercing placed in the mouth can lead to oral cancer.

Studies show that the presence of bacterial colonies was detected on the surface of the analyzed piercings, however these metallic objects cannot trigger cancer, only when associated with tobacco, alcohol, genetics and other factors<sup>13-51</sup>.

#### **8) Chronic trauma / Adequacy of the oral environment**

Chronic trauma present on the mucosa of the mouth, such as irritating, fractured and poorly adapted prostheses, should be removed, adapted and, if possible, replaced, as these may favor the action of other carcinogens<sup>13</sup>. It is important to clarify that trauma alone is not considered an etiological factor of oral cancer.

The adequacy of the oral environment is another important point and the dentist has a fundamental role in this regard. He must remove ectopic teeth, promoting prophylaxis and removal of tartar and cavities. When teeth are fractured, decayed or with residual roots, restoration or even extraction should be performed<sup>13-17</sup>.

Finally, daily oral hygiene should be encouraged, as well as the use of dental floss and mouthwash after brushing<sup>13</sup>.

### **2.10 EARLY DIAGNOSTIC EXAMINATION OF ORAL CANCER**

Despite the high incidence, studies indicate that dentists still have difficulties in diagnosing oral cancer<sup>24</sup>. The factors that may be related to the delay in detecting cancer lesions are: the absence of symptoms in patients; the level of the population's level of knowledge about the signs, symptoms and risk factors; the low number of diagnostic tests performed; the uncertain location of the lesions and the lack of educational activities aimed at reducing risk factors<sup>24-54</sup>.

The diagnosis must be made based on a thorough anamnesis, identifying risk factors such as the presence or absence of symptoms, delayed healing of mucosal lesions, smoking, drinking, oral HPV infection, long-term exposure to sunlight, old age, genetic diseases and lack of oral hygiene. All of these aspects must be considered together with early diagnosis<sup>24-36</sup>.

After the anamnesis, it is necessary to carry out a general physical examination and also an examination of the head and neck in search of signs, such as wounds and spots that have not yet healed<sup>18</sup>. Generally, the most common symptoms that the patient reports are the presence of wounds or white spots, swelling, ulceration lasting more than 15 days, pain, nodules, choking, bleeding, change in the color of the mucosa, difficulty in swallowing and voice changes<sup>44</sup>.

The main sites that need to be examined to diagnose lesions include the lips, the vestibule bottom, the cheek mucosa, the alveolar mucosa, the free gum and the inserted gum, the back and belly of the tongue, the floor of the mouth and the palate hard and soft<sup>24</sup>. Normally, on physical examination, an ulcerated lesion with irregular edges and dense texture appears. Therefore, digital palpation is performed to predict the thickness of the lesion<sup>18</sup>.

This intra-oral and extra-oral visual inspection is an effective and simple resource for discovering pre-clinical invasive cancers and lesions with malignant potential<sup>24-52</sup>.

It is also possible to make a diagnosis of oral cancer using exfoliative cytology, however this test may have a false-positive result, so anatomopathological examination should not be dispensed with. Exfoliative cytology is performed by scraping the surface of the edges of the lesion with an endocervical brush or a metal spatula and applying the material obtained is placed on a slide. These collected materials are forwarded together with the patient's and the lesion's clinical data for anatomopathological examination<sup>24</sup>.

Biopsy is an indispensable test for confirming the diagnosis. It consists of the removal of injured tissue and a fragment of tissue that is healthy so that the pathologist can examine and make a histopathological diagnosis. It is also possible to perform excisional biopsies that serve as a treatment for the lesions, as the entire injured fragment is removed and also referred to the pathologist for examination<sup>13</sup>.

The dentist should ask the patient about any symptom and how long it has been present, as well as the frequency, intensity, duration and whether there has been any change or regression of the lesion. It is important to emphasize that lesions with malignant potential or in an early stage are generally asymptomatic<sup>13</sup>.

Despite so many diagnostic possibilities, there are still a large number of patients who are diagnosed late, so it is important to identify lesions with malignant potential, in order to increase the chances of early diagnosis<sup>53</sup>.

For this to happen, the individual must visit a dental surgeon, but many patients take a long time, so it is necessary to guide them on oral self-examination, especially those who have a risk factor<sup>13</sup>.

## 2.11 SELF EXAM

If in the clinical examination there is no observation of any significant alteration and the patient has a risk factor, the dental surgeon should teach him didactically how to perform the mouth self-examination, as many patients take years to visit the dental office. Therefore, it is necessary to advise that if the patient is not a smoker, he / she should do the self-examination every six months, whereas smokers every three months<sup>24-54</sup>.

The patient should be instructed to perform the self-examination in front of a mirror and in a place that is well lit. Using his hands he should look for changes such as wounds, which run away from normal as superficial ulcers that are painless and may not have bleeding, red or white spots, discomfort in chewing, pain when speaking, weight loss and the presence of cervical lymphadenomegaly<sup>55</sup>.

It is worth mentioning that the patient should be instructed on what makes up the standard of normality, so that he does not confuse it with possible injuries. Physiological melanic pigmentation and alba line, for example, are easily confused factors, considering their similarity with serious injuries<sup>13</sup>.

## 2.12 THE ROLE OF THE DENTAL SURGEON IN THE PREVENTION AND EARLY DIAGNOSIS OF ORAL CANCER

The dental surgeon must act at a primary prevention level, identifying high-risk individuals and encouraging them to undergo periodic examinations annually, as well as combating the consumption of tobacco and alcohol and encouraging the individual to stop harmful habits<sup>56</sup>.

It must also work at a secondary level in search of early detection of cancerous lesions, since their detection and surveillance are directly related to a good prognosis<sup>54</sup>. All suspected cases should be referred to diagnostic centers, and cases with highly suspicious diagnosis or with histopathological confirmation, to treatment centers<sup>24</sup>.

## 3 DISCUSSION

Mouth cancer is the sixth most prevalent in the world. Research on oral cancer is increasingly committed to understanding the reason for the delay in the diagnosis of oral malignancy, because when diagnosed late, the quality of life of the patient decreases, mortality rates increase and the chances of cure are reduced<sup>24-54</sup>. This reality shows that, to reduce cases of oral cancer, it is necessary to consider the performance of the dentist<sup>54</sup>.

A study by Hoeltz<sup>24</sup> found that 87.1% of dental surgeons often perform the exam for early diagnosis of oral cancer during consultations, however 65.40% do not do this frequently. Similar results were found in a study by Alaizari<sup>60</sup>, alerting dentists to be unprepared, after all, one of the ways to diagnose cancer early is by examining the oral cavity, including the search for asymptomatic lesions.

The results found in the studies by Hoeltz<sup>24</sup> and Alaizari<sup>60</sup>, demonstrate the need to be inserted in clinical practice, oral pathology and stomatology as part of the professional's general training. Alaizari<sup>60</sup> also concludes that, recently graduated dental surgeons demonstrate better performance on the subject compared to those who graduated a long time ago.

Among the lesions with the highest incidence, leukoplakia, erythroplasia and actinic cheilitis<sup>38</sup> stand out, essential themes to be emphasized since graduation in dentistry, since a low prevalence of satisfactory knowledge among dentists about the types of most incident injuries has been identified, with values close to 60%<sup>62</sup>.

Among the most significant risk factors for the development of oral cancer are exposure to sunlight, consumption of tobacco and alcohol<sup>63</sup>. Results that are consistent with the studies by Tomo<sup>64</sup>, Oliveira<sup>65</sup> and Andrade<sup>66</sup>, regarding the knowledge of dentists about the risk factors of the disease.

The results of Neville<sup>7</sup> study, also showed that dentists are aware of the main risk factor for oral cancer, being the use of tobacco. Therefore, it is extremely important that he carries out awareness actions for smoking patients.

Regarding the degree of dental surgeon importance for early diagnosis of the disease, the studies by Hoeltz<sup>24</sup>, point out that the majority, 96.75% said it was very important, while 3.25% attributed the relationship to the important one. Very similar results were found in studies by Martins<sup>53</sup> however, the author adds that although the majority attribute it as very important, about 44.86% never gave information about prevention of oral cancer to their patients.

Studies by Andrade<sup>66</sup> confirms the professional educational deficiency.

This may be related to the lack of capacity, confidence and adequate training to transmit information about the disease and prevention messages such as tobacco and alcohol suspension<sup>67</sup>. Thus, it is necessary to emphasize the importance of the dentist in the process of advising the patient about risk factors, as well as in performing the self-examination, after all, its periodic performance can help the individual to notice early tissue changes and seek help.

When assessing the time between the detection of oral cancer until the beginning of treatment, it was found that the longest time was between the detection of the lesion and specialized care. Emphasizing the need to expand the knowledge of patients regarding risk factors, the agility to seek specialized care, as well as greater professional involvement in early diagnosis<sup>54</sup>.

#### **4 CONCLUSION**

This study concluded that dentists play a fundamental role in the prevention and diagnosis of oral cancer, mainly highlighting their performance at the levels of primary and secondary prevention, involving interventions that help in the recognition of individuals belonging to risk groups, as well as the use of resources that aim to diagnose suspicious injuries.

The absence of symptoms, the lack of professional knowledge, the lack of resources offered by health services combined with the lack of information from society are factors that may have a direct relationship with late diagnosis.

Given this, it is initially suggested the creation of healthy public policies that ensure the creation of strategies to reduce the morbidity and mortality of the disease. As well, the improvement of the dentist in continuing education courses, as well as reading of scientific articles and books, participation in congresses and lectures, always emphasizing his important role in the context of the disease and his responsibility in early diagnosis.

#### **AUTHORS' CONTRIBUTIONS**

G.C.L.A.C; D.G.M.F.; G.C.B .; F.S.P. contributed to the literature review, writing and review of the article and final approval of the publication to be published. A.L.A.B. contributed to the review of the article, translation, table creation and final approval of the version to be published. D.K. contributed to the review of the article and final approval of the version to be published. L.F.C.S.C.; T.M.L.M. contributed to the conceptualization of the work, review of the article, orientation of the work and final approval of the version to be published.

#### **CONFLICTS OF INTEREST**

The Authors declare that they have no competing interests.

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### FIGURE LEGENDS

Figure 1. A comparative between the natural disease cycle and the role of the dental surgeon in oral cancer diagnosis.

