

# ETIOLOGY, PREVENTION, DIAGNOSIS AND TREATMENT CARCINOMA SQUAMOUS CELL

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## ABSTRACT

Squamous cell carcinoma, also called squamous cell carcinoma or squamous cell carcinoma, is the most common histological type of malignant neoplasm, accounting for 90% of malignant neoplasms of the mouth and 38% of tumors of the head and neck. The diagnosis in the majority of the patients was in an advanced stage of the lesion (III or IV). The factors most associated with the development of oral SCC are: smoking, alcoholism and solar radiation, considering that these can complicate its course and prognosis. The risk factors related to the development of this neoplasia are multiple where they act together in oral carcinogenesis. The objective of the present study was to perform a literature review on the existing databases, addressing the etiology of the disease, ways to intervene in disease progression in order to emphasize the importance of the dentist to the early diagnosis of the lesion and to make the oral adequacy necessary before the patient to perform the therapeutic modalities. It was agreed that the carcinoma of ectasy cells of the buccal cavity sometimes assumes significant extensions and the realization of an early diagnosis is of fundamental importance. And also that in many cases the incisional biopsy followed by histopathological examination is essential for the patient to be guided to the appropriate treatment.

**KEYWORDS:** Oral cancer, carcinoma; early diagnosis.

## 1. INTRODUCTION

Precancerous lesions are defined as a morphologically altered tissue in which cancer is more likely to occur than in its apparently normal counterpart<sup>1,2</sup>.

Oral cancer is the most prevalent malignant neoplasm in individuals and has the highest mortality rate among head and neck cancers<sup>3,4,5,6,7,8</sup>.

In Brazil, oral cancer is one of the most commonly encountered diseases. Each year about 14,000 new cases are diagnosed. The most common oral cancer type is squamous cell carcinoma, characterized by the rupture of

the epithelium and the formation of an ulcer of consistency and hardened base, and rarely exhibits soft consistency. Cancers of the oral cavity include those involving the tongue (Figure 1), the lips, gingiva, salivary glands, tonsils and oropharynx<sup>25</sup>.



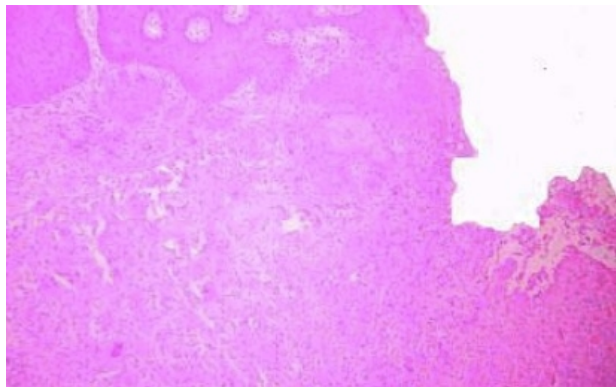
Figure 1. Carcinoma of squamous cell in tongue<sup>1</sup>.

Among these neoplasms, squamous cell carcinoma, also called squamous cell carcinoma or squamous cell carcinoma, is the most common histological type, accounting for 90% of malignant neoplasms of the mouth and 38% of tumors of the head and neck<sup>1,3,4,11,12,13</sup>.

Squamous cell carcinoma appears in the superficial epithelium and is histopathologically characterized by invasive islands and cords of malignant epithelial cells, which show differentiation towards a squamous morphology (Figure 2). The histopathological evaluation of the degree to which such tumors resemble their original tissue (squamous epithelium) and produce their normal product (keratin) is called a "graduation." The lesions are graded on a scale of three (grades I to III) or four (grades I to IV). The least differentiated tumors receive the highest numbers<sup>1,14,15</sup>.

When a tumor is much like its original tissue it appears to grow slightly slower and metastasize later, it is

called "low grade," "grade I," or "well-differentiated" squamous cell carcinoma. On the other hand, a more cellular pleomorphism tumor and nuclei with little or no production of keratin is difficult to identify as having originated in the epithelium.



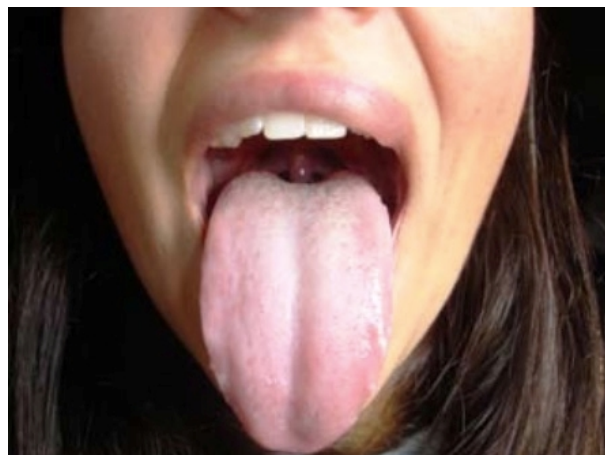
**Figure 2.** Anatomopathological image showing neoplastic cell proliferation<sup>1</sup>.

Such a form grows rapidly, metastasizes early, being called "high grade", "grade III / IV", "poorly differentiated" or "anaplastic". A tumor with a microscopic appearance between these two extremes is labeled as a "moderately differentiated"<sup>15,16</sup>.



**Figure 3.** Self exam. Internal view of Lower Lips<sup>16</sup>.

The etiology of oral squamous cell carcinoma is multifactorial, where extrinsic and intrinsic determinant risk factors act together in the process of oral carcinogenesis<sup>4,17</sup>. It is likely that more than one factor is required to produce the malignancy. Extrinsic factors include external agents such as smoking, alcoholism, syphilis, and prolonged exposure to ultraviolet radiation (lip vermilion cancer only). Intrinsic factors include systemic or general conditions, such as general malnutrition or iron deficiency anemia, human Papilloma virus (HPV), demographic variables (ethnicity, age and gender) and herpes virus<sup>1,3,4,5,7,8,11,14,17</sup>. Inheritance does not appear to play an important etiological role in oral carcinoma<sup>14</sup>.



**Figure 4.** Self exam. Inside view of the back of the tongue<sup>16</sup>.



**Figure 5.** Self exam. Traction of the Jugal Mucosa from the right<sup>16</sup>.



**Figure 6.** Self exam. Traction of the Jugal Mucosa from the left<sup>16</sup>.

Prevention should involve early diagnosis, and may be carried out through screening campaigns, preventive and diagnostic tests, such as self-examination (Figures 3,4,5,6,7,8,9,10) and exfoliative cytology Mucosa, and finally control of the risk factors associated with the onset and development of this neoplasm, such as smoking, alcoholism and prolonged exposure to ultraviolet radia-

tion<sup>1,4,6,8,12,16,18</sup>.



**Figure 7.** Self exam. Language border Left side<sup>16</sup>.



**Figure 8.** Self exam. Language border Right side<sup>16</sup>.



**Figure 9.** Self exam. View of the buccal floor and sublingual caruncle<sup>19</sup>.

One of the most important aspects about carcinoma is its early diagnosis, through careful examination of the mucosa of the buccal cavity and the upper aerodigestive pathways, allowing the determination of synchronous and metachronous lesions and with the aid of complementary

exams such as the biopsy of exams Complementary as the incisional biopsy (Figures 11,12,13) provided for the treatment, I imagine that some cases can be used exfoliative cytology<sup>18,19</sup>.



**Figure 10.** Self exam. Analysis of the Hard Palate and Soft Palate, tonsils and posterior region of the mouth<sup>16</sup>.



**Figure 11.** Incisional Biopsy<sup>19</sup>.



**Figure 12.** Removal of tissue<sup>19</sup>.

The late diagnosis of these lesions may result in an

unfavorable prognosis, presenting a lower survival rate, more aggressive therapies provoking mutilations and deformities in the individual, higher expenditures for the public service, reduced masticatory functions and phonation and lower quality of life<sup>1,5,11</sup>.



**Figure 13.** Tissue removed<sup>19</sup>.

There is an increase in the incidence of oral cancer in individuals with lower education levels, with occupations related to rural activity and precarious socioeconomic conditions, which could negatively reflect the (unsatisfactory) oral hygiene and lifestyle of the individuals involved (Higher consumption of tobacco and alcohol)<sup>9</sup>. According to INCA data, Brazil has a high incidence and prevalence of oral cancer, which occupies the fifth place as the most frequent in men and the twelfth in women<sup>20</sup>.

Regarding the anatomical location, lesions predominate in the tongue, being 18.75% in the lateral border region, 6.25% in the belly and lip region (21.5%)<sup>21</sup>.

Carcinoma may be present in a variety of forms, the most common of which is an ulcerated lesion, raised, sharp and hardened edges, with necrotic center and hardened base. It may also present superficial ulcerated lesion, endophytic lesions and nodular lesions<sup>4,13</sup>.

Squamous cell carcinoma has a varied clinical presentation, including exophytic (mass-forming), endophytic (with ulceration), leukoplakia (white plaque), erythroplastic (red plaque) or erythroleukoplakia<sup>14,15</sup>.

The prognosis of squamous cell carcinoma is associated with several factors such as the patient's age, systemic condition, location of the lesion, TNM tumor stage (classification of malignant tumors), degree of cell differentiation and socioeconomic conditions<sup>4,7</sup>.

The therapy to be implanted is usually surgical excision, radiotherapy and chemotherapy, which can be used concomitantly and/ or associated<sup>4,12</sup>.

The objective of the present article is to present a review of the literature in the existing databases on the most current in relation to squamous cell carcinoma and to emphasize the importance of the dental surgeon for

the early diagnosis of the lesion and to make the necessary oral adjustment Before the patient to perform the therapeutic modalities, in order to reduce the side effects, to improve the indices of cure and quality of life.

## 2. MATERIAL AND METHODS

A bibliographic search was carried out in the existing databases on what is most current on the subject. From that point on, what was collected was organized in an exploratory way related to the proposed theme. The materials to be used were of various natures (among books, articles, periodicals, monographs, dissertations, theses and scientific materials online), which were gathered through research on topics such as Squamous Cell Carcinoma and organized through the Content presented in order to aid in the guiding theme of the study.

## 3. DISCUSSION

Oral cancer is categorized between head and neck cancers, with the sixth position being the most common tumor in the world. In Brazil, it is the sixth type of cancer that has higher incidence, occupying the fourth position in the Northeast. This type of cancer affects more than 11,000 new Brazilians each year, is the most serious disease affecting the mouth, causing 4,891 deaths in 2010, 3,882 men and 1,009 women, and occupying the third place in the incidence/ mortality ratios among neoplasms<sup>10</sup>.

Squamous cell carcinoma is a malignant neoplasm that accounts for most mouth cancers, 90% of which are malignant neoplasms of the mouth and 38% of tumors of the head and neck, most of which are male and older 40 years old, and can also affect younger patients<sup>1,3,4,7,8,10,11,12,13,18,19</sup>.

After a survey, all the consulted professionals were unanimous to report that the male gender is the most affected by this neoplasm. However, the incidence of this pathology has increased in women in the last years, probably due to the disintegration among them of the smoking habit. However, everyone also agrees that the age group with the greatest disease is between the 6th and the 7th decade of life<sup>11</sup>.

The individual may have problems in talking, eating, severe weight loss and cervical lymphadenopathy. These changes, added to the facial modification and the emotional disturbances caused by the disease, significantly affect the quality of life of these people<sup>10</sup>.

The risk factors related to the development of this neoplasia are multiple where they act together in oral carcinogenesis. They are related to endogenous agents such as genetic predisposition, malnutrition and exogenous environmental and behavioral, such as poor hygiene, smoking, alcoholism, excessive exposure of ultraviolet radiation, carcinogenic chemicals and some mi-

croorganisms whose interaction may result in the manifestation of the disease<sup>1,2,3,4,5,7,8,11,12,13,16,20</sup>.

The use of tobacco can cause oxidative reactions in the tissues due to the high temperature at the tip of the cigarette causing a potentiation in the mucosa aggression, besides there are more than 60 carcinogenic substances in the smoke, mainly tar, benzopirenos and aromatic amines. The risk of developing oral cancer for smokers is dose-independent, that is, the higher the amount of cigarettes, the greater the risk<sup>4,16,17</sup>.

It is not yet confirmed how alcohol consumption alone can increase the risk for the development of oral cancer, but it is believed that excessive alcohol consumption facilitates the passage of various carcinogenic agents through cell membranes causing insults due to metabolic Of ethanol (acetaldehydes) and indirectly due to nutritional deficiencies secondary to their chronic consumption (cirrhosis of the liver)<sup>4,16,17</sup>.

Ultraviolet radiation can also be considered a risk factor for the development of carcinoma in the lips, where this risk will vary according to the intensity, time of exposure and amount of pigmentation present in the patient's skin, causing serious cellular damage in the epithelium As well as in the underlying connective tissue. Regarding diet, some foods are considered protective agents. This is due to modulation of the carcinogenic metabolism, alteration of cellular transformation and differentiation, inhibition of cell proliferation, oncogenic expression and the endogenous formation of carcinogens, immune function and mainly of the antioxidant activity that they possess<sup>17</sup>. Therefore, some nutritional deficiencies can cause epithelial changes leaving the buccal mucosa more vulnerable to the carcinogenic agents<sup>2,6,16,3</sup>.

In addition to the risk factors described above, we must take into account poor oral hygiene that may prove to be a risk factor for oral cancer. Being evaluated by gauging the loss of teeth or the state of the dentition and periodontal disease<sup>9</sup>.

During a study the researchers consulted agreed that this neoplasm is related to multiple factors that act together for the development of this disease. They also corroborate that smoking, alcoholism, excessive exposure to ultraviolet radiation, malnutrition, poor hygiene and the HPV virus are the main related etiologic agents. However, marijuana use may be considered a decisive etiologic factor for upper airway malignancies in young and adult and that the risk is increased in frequent drug users<sup>12</sup>.

The high potential to develop carcinoma, often regardless of the degree of epithelial dysplasia<sup>2</sup>.

Leukoplastic and erythroleukoplastic examples are probably early stage cases that have not yet produced mass or ulceration. An exophytic lesion typically has an irregular or papillary surface, and a color that may be normal, red or white, depending on the amount of kera-

tin produced. The surface is often ulcerated, and the tumor is hard to the touch. Endophytic carcinomas typically have a central area that is ulcerated, irregularly shaped and depressed, with a surrounding border "rolled" of normal, red or white mucosa<sup>14</sup>.

The best way to prevent carcinoma is to diagnose it early. After performing the early diagnosis of the disease, there are two types of prevention: primary and secondary. Primary prevention would be programs and measures to combat tobacco and alcohol consumption. On the other hand, the strategy of secondary prevention consists of making the diagnosis of the disease feasible in its initial stage, allowing a better prognosis<sup>4,5,22,23,24</sup>.

The best phrases for the early diagnosis of the disease are the pre-neoplastic phase or in incipient phases of disease progression, because in these phases the chances of cure approach 100%<sup>5</sup>.

During a survey, the authors consulted unanimously stated that early diagnosis remains the main prognostic factor for the treatment of oral cancer<sup>17</sup>. All have also reported that it is the responsibility of the dental surgeon to perform a thorough clinical examination of the oral cavity and oropharynx. This early diagnosis can be performed through screening campaigns, oral self-examination and control of risk factors associated with the development of the disease<sup>4</sup>.

Early diagnosis is made difficult by the fact that the initial lesions, usually oligosymptomatic, are not valued by the individual or by the health professionals, which suggests a lack of knowledge of the pathology, of the science in the search for professional care by the individual and/ or access and quality of health care, a factor linked to the absence of government programs aimed at prevention and a health system and aware<sup>25</sup>.

When the pathology is detected through the clinical examination, it is necessary for the definitive diagnosis to perform the incisional biopsy followed by histopathological examination, only then to define the prognosis and treatment for the patient<sup>4,11,18,19</sup>.

Tumor size and extent of metastatic expansion of oral squamous cell carcinoma are the best indicators of patient prognosis. The quantification of these clinical parameters is called "staging" of the disease, where the protocol used for most human cancers is individualized TNM (tumor - node - metastasis). Each system is used exclusively for a specific anatomical site and a particular type of tumor. Each specific system depends on three aspects: the size, in centimeters, of the tumor itself (T); The presence and type of lymph node expansion (N); The presence or absence of distant metastases (M)<sup>14</sup>.

The planning of the therapy to be implanted involves a multidisciplinary team, including medical surgeons, radiotherapists, oncologists, dentists, nurses, physiotherapists, psychologists, speech therapists among others. The choice of therapy used is related to the clinical

staging and degree of histopathological differentiation of the lesion. Surgical excision, radiotherapy and chemotherapy are examples of implanted therapies that can be addressed in concomitant and / or associated ways<sup>4,11,17</sup>.

Treatment of carcinoma is guided by clinical staging of the disease. The therapies of choice usually consist of surgical excision (with margin of safety) and radiotherapy, being used alone or in combination. The indication of chemotherapy for this type of lesion is usually a palliative choice, not aiming at the cure of the patient<sup>4,9,10</sup>.

The performance of the dental surgeon is indispensable in the antineoplastic treatment, both in the initial phase of diagnosis and during the therapy, giving conditions to the patient so that he can be submitted to the therapeutic modalities with better rates of cure, quality of life and preventing or reducing its side effects, Through the suitability of the buccal medium. The authors agree with this statement and reinforce the importance of the dental surgeon, not only in the initial phase of diagnosis, but also in the modalities of treatment and rehabilitation before the patient initiates radiotherapy and chemotherapy, reducing the probability of occurrences of stomatological alterations, decreasing Mutilations and deformities in the individual, allowing better quality of life for this patient<sup>1,11</sup>.

#### 4. CONCLUSION

After a comprehensive review of the literature on oral carcinogenesis, with emphasis on Squamous Cell Carcinoma and based on the items discussed throughout this work, it can be concluded that:

Squamous cell carcinoma is a malignant neoplasm that accounts for most mouth cancers, 90% of which are malignant neoplasms of the mouth and 38% of tumors of the head and neck, mostly affecting males between 6th and 7th decade of life.

It is the responsibility of the dental surgeon to guide the patient in relation to the risk factors associated with the development of the disease, such as genetic predisposition, malnutrition, poor hygiene, smoking, alcoholism, excessive exposure to ultraviolet radiation, carcinogenic chemicals and some microorganisms at risk of developing oral cancer.

Early diagnosis continues to be the main prognostic factor determining the treatment of oral cancer, making it essential for the dental surgeon to perform at primary and secondary prevention levels, ie, the professional should be able to prevent and diagnose oral cancer, making it possible to diagnose The disease in its initial stage, allowing a better prognosis.

Finally, in many cases, incisional biopsy followed by histopathological examination is essential for the patient to be guided to appropriate treatment.

#### REFERENCES

- [1] Albuquerque R, Esteves R, López-López J, Estrugo-Devesa A, Chimenos-Kustner E. Carcinoma Escamoso do Bordo Lingual. Caso Clínico. *Rev Port Estomatol Cir Maxilofac* 2008; 49(3):141-147.
- [2] Maia HCM, Pinto NAS, Pereira JS, Medeiros AMC, Silveira EJD, Miguel MCC. Potentially malignant oral lesions: clinicopathological correlations. *einstein*. 2016;14(1):35-40
- [3] Antunes AA, Antunes AP, Silva PV, Avelar RL, Santos TS. Câncer de língua: estudo retrospectivo de vinte anos. *Rev Bras Cir Pescoço*. 2007 jul- ago; 36(3):152-154.
- [4] Mimura MAM. Câncer Bucal [Fundamentação Teórica]. São Paulo: Unifesp; 2015. Especialização de Saúde da Família UNA- SUS.
- [5] Santos IV, Alves TDB, Falcão MML, Freitas VS. O papel do cirurgião dentista em relação ao câncer de boca. *Odontol Clín-Cient*. 2011 jul-set; 10(3): 207-210.
- [6] Vidal AKL et al. Prevenção e diagnóstico precoce do câncer de boca: uma medida simples e eficaz. *Odontologia Clín-Científ*. 2003 mai-ago; 2(2):109-114
- [7] Alves CCM, Gleber Netto FO, Sousa SF, Bernardes VF, Aguiar MCF. Carcinoma de Células escamosas de boca: Relação entre Graduação Histopatológica e Características Clínicas da Neoplasia. *Pesq Bras Odontoped Clin Integr*. 2011 out- dez; 11(4):485-489.
- [8] Lira AAB, Godoy GP, Gomes DQC, Pereira JV, Nonaka CFW, Pinto LP. Carcinoma de células escamosas indiferenciado em paciente jovem: relato de caso. *Int J Dent*. 2009 jul-set; 8(3):172-176.
- [9] Ribeiro GM, Pavan AJ. Revisão literária da incidência de casos de câncer bucal no estado do Paraná. *Revista Uningá Review*. 2015 out-dez; 24(3):101-105.
- [10] Aquino RCA, Lima MLLT, Menezes CRXM, Rodrigues M. Speech-language disorders and access to the speech therapists in cases of death from lip, oral cavity and oropharyngeal cancer: a retrospective study. *Rev. CEFAC*. 2016 Maio-Jun; 18(3):737-745.
- [11] Daniel FI, Granato R, Grandó LJ, Frabo SML. Carcinoma de células escamosas em rebordo alveolar inferior: diagnóstico e tratamento odontológico de suporte. *Bras Patol Med La*. 2006 ago; 42(4): 279-283.
- [12] Sassi LM, Oliveira BV, Pedrucci PAG, Ramo GHA, Stramandinoli RT, Gugelmin G, Salomão FS. Carcinoma espinocelular de boca em paciente jovem: relato de caso e avaliação dos fatores de risco. *Rev Sul-Bras de Odontol*. 2010 Mar; 7(1):105-109.
- [13] Tucci R, Borges FT, Castro PHS, Aburad A, Carvalhosa AA. Avaliação de 14 casos de carcinoma epidermoide de boca com diagnóstico tardio. *Rev Sul-Bras de Odontol*. 2010 jun; 7(2): 231-238.
- [14] Neville B, Damm DD, Allen CM, Bouquot, JE. *Patologia oral e maxillofacial*. Rio de Janeiro: Elsevier. 2009. 16-Prado BN, Passarelli DHC. Uma nova visão sobre a prevenção do câncer bucal no consultório odontológico. *Rev odontol Univ Cid São Paulo*. 2009 jan-abr; 21(1):79-85.
- [15] INCA. Estimativa 2016: incidência de câncer no Brasil. Rio de Janeiro, 11 set 2015. Disponível em: <http://www.inca.gov.br/estimativa/2016/estimativa-2016-v11.pdf>. Acesso em: 7 out. 2016.

- [16] Prado BN, Passarelli DHC. Uma nova visão sobre a prevenção do câncer bucal no consultório odontológico. *Rev odontol Univ Cid São Paulo*. 2009 jan-abr; 21(1):79-85.
- [17] Leite ACE, Guerra ENS, Melo NS. Fatores de risco relacionados com o desenvolvimento do câncer bucal: Revisão. *Rev de Clin Odontol*. 2005 jan-mar; 1(3):31-36.
- [18] Rapoport A, Kowalski LP, Herter NT, Brandão LG, Walder F. Rastreamento, Diagnóstico e tratamento do câncer de boca. *Soc Bras Cirur de Cab Pes*. 2001 mai; 1(1):1-13.
- [19] Carli JP, Trentin MS, Linden MSS, Bós AJG, Pedro REL, Silva SO. Carcinoma espinocelular bucal de grande extensão – protocolo diagnóstico. *Odonto*. 2010 fev- mar; 18(36): 67-71.
- [20] Silva SR, Juliano Y, Neil Novo NF, Weinfeld I. Comparative study of knowledge about oral cancer among undergraduate dental students. *einstein*. 2016;14(3):338-45.
- [21] Duarte NC. Perfil dos pacientes com câncer de boca do Núcleo de Cirurgia de Cabeça e Pescoço HU/UFSC e encaminhados para suporte odontológico no Núcleo de Odontologia Hospitalar HU/UFSC [Monografia]. Florianópolis: Universidade Estadual de Santa Catarina; 2016.
- [22] Avelar RL, Santos TS, Falcão PGCB, Antunes AA, Andrade ESS. Tumor de células granulares em língua: relato de caso. *Rev Cir Traumatol Buco-Maxilo-fac*. 2010 jan-mar; 10(1):39-42.
- [23] Brener S, Jeunon FA, Barbos AA, Grandinetti HAM. Carcinoma de células escamosas bucal: uma revisão de literatura entre o perfil do paciente, estadiamento clínico e tratamento proposto. *Rev Bras Cancerologia*. 2007 jun; 53(1):63-69.
- [24] Chaves RF, Rodrigues CRT, Brum SC, Barbosa CCD, Oliveira Junior NG. Oral Manifestations of Systemic Diseases Infection in Children. *JSCD*. 2014 jul-sep; 2(1):29-35.
- [25] Ferreira SMS *et al.* Caracterização do atraso no diagnóstico do câncer de boca e orofaringe em dois centros de referência. *Cad Saúde Colet*. 2016; 24 (2):178-184.