LUMEN ET VIRTUS

SQUAMOUS CELL CARCINOMA OF THE TONGUE FLOOR: LITERATURE REVIEW AND CASE REPORT

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ABSTRACT

Squamous cell carcinoma of the tongue, like other oral malignant tumors, is more frequent in males over the age of 45, however, this ratio (male/female) tends to be less and less pronounced and more documented in young adults. The tongue is the site preferentially affected by this type of neoplasia, accounting for about 50% of oral carcinomas. Squamous cell carcinoma can present itself in several clinical forms, namely: exophytic, endophytic, leukoplastic, erythroplastic or erythroleukoplastic. Patients should avoid exposure to the most common risk factors: tobacco and alcohol, but other factors can lead to the appearance of potentially malignant lesions: viral infections, oral lichen planus, iron deficiencies, immunosuppression, food at extreme temperatures and traumatizing agents. Squamous cell carcinoma is often preceded by premalignant lesions, clinically detectable, but mostly asymptomatic. These lesions present in the form of leukoplakia, erythroplakia or erythroleukoplakia and whenever they are identified, an incisional biopsy should be performed to obtain a definitive histopathological diagnosis.

Keywords: Squamous Cell Carcinoma. Tongue. Risk Factors. Premalignant Lesions. Diagnosis.

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INTRODUCTION

The term oral cancer encompasses a set of neoplasms that affect the oral cavity in its most varied etiologies and histopathological aspects. Squamous cell carcinoma (SCC) or squamous cell carcinoma of the mouth corresponds to between 90% and 95% of cases of oral cancer. For this reason, for many authors, the term oral cancer refers specifically to squamous cell carcinoma[12].

Social and environmental factors, as well as the increase in life expectancy, have contributed to the increase in chronic-degenerative diseases, as well as their different patterns of occurrence in different regions of the country[11].

Exposure to environmental risk factors related to the industrialization process, in addition to other factors related to social disparities, contribute to the epidemiological distribution of the various types of cancer in Brazil. Tobacco and alcohol, associated with genetic predisposition, have been reported in the literature[2].

The human papillomavirus (HPV) can also behave as another carcinogen for oral cavity cancer, as well as solar radiation for lip carcinomas. There is also evidence that eating habits with low nutritional standards associated with lifestyle may be supporting factors in the etiology of oral cancer[3].

Oral squamous cell carcinoma is a malignant neoplasm of epithelial origin and multifactorial cause, and smoking and alcoholism are considered the main risk factors. Its differential diagnosis can be made through clinical examination, however, the definitive diagnosis occurs through biopsy with histopathological analysis. Treatment can be surgical or chemotherapy and/or radiotherapy depending on each case[1].

Andreotti *et al.,* 2007, reported that workers in mechanical workshops are at risk for this type of tumor, regardless of age and alcohol and tobacco consumption, as well as painters, probably due to exposure to various products (vapors, acids and solvents) resulting from their work process.

The incidence of oral cancer has been increasing in recent decades, following the increase in tobacco and alcohol consumption, with a trend of increasing smokers throughout Latin America, especially among women. Oral cavity cancer is among the ten most frequent types of neoplasms in the Brazilian population, including oropharyngeal carcinomas. According to the National Cancer Institute (INCA), this type of carcinoma is the fifth most incident in men and the seventh most incident type of neoplasm in women[22].

The Ministry of Health (MS) estimated for Brazil in 2008 was 14,160 new cases of oral cavity cancer, 10,380 new cases in men and 3,780 in women. Information from the hospital cancer registry of the Cancer Hospital I (HCI) of the INCA, for the period from 1994

to 1998, shows that more than 70% of the patients treated with a diagnosis of oral cancer were in advanced stages, impairing the survival of these patients[23].

Considering mortality, oral cavity cancer ranks ninth among other malignant tumors, corresponding to 2.8% of cancer deaths in Brazil. These neoplasms are the fourth most common tumor among men and the sixth most common type among women[21].

The objective of this study is to describe a clinical case of the patient J. N. C, male, 56 years old, smoker for 30 years and alcoholic, who presented with a nodular lesion with a non-scratchable whitish surface.

LITERATURE REVIEW

The Ministry of Health defines cancer as a group of diseases characterized by the loss of control of cell division and the ability to invade organic structures. This continues to have a high incidence in Brazil, with 337,539 new cases recorded in 2015, of which 171,640 cases were in women (50.58%) and 165,895 (49.15%) in men, with 122,600 deaths[13].

Oral cancer affects about 7% of the world population, where Brazil ranks 4th in incidence in the world, and it is estimated that about 10% of malignant tumors in Brazilians are located in the mouth. It affects more men than women, both over the age of 60. However, according to Moore *et al.,* (2011) these data have changed in recent years due to changes in habits, with an increase in incidence also observed in younger people, under 45 years of age[4].

Squamous cell carcinoma, also called oral squamous cell carcinoma, squamous cell carcinoma represents the most frequent malignant neoplasm in the oral cavity and is a multifactorial disease with several elements involved in its occurrence[9].

Intrinsic factors such as genetic alterations, nutritional deficiencies and immunosuppression; Extrinsic factors such as solar radiation, tobacco, alcohol and some viruses have been pointed out among the agents related to its etiopathogenesis. Family genetic influences also play an important role in the development of head and neck carcinomas[8].

Smoking and alcohol represent the most significant factors in the etiology of oral cancer, with regard to the factors intrinsic to the literature, such as hormones, immunosuppression, nutritional deficiencies, and genetic mutations[5].

Oral cancer has a varied clinical presentation, including ulcerated, leukoplastic and leukoerythroplastic forms, with exophytic or endophytic growth, and may or may not develop metastases to regional or distant lymph nodes[7].

Squamous cell carcinoma occurs mainly on the tongue and lips, and can affect other sites such as the floor, jugal mucosa, gums, and palate. Among these anatomical sites, tongue carcinoma generally presents poor histological differentiation, advanced clinical stage, rapid evolution, and higher probability of development of distant metastasis, thus being a lesion with a poor prognosis when compared to squamous cell carcinoma of other oral anatomical sites[6].

Some studies point to factors that influence the prognosis and survival of patients with this neoplasm, highlighting: histological gradation of malignancy, size and location of the primary tumor, involvement of regional lymph nodes and presence of distant metastases reported that tumor thickness is the main parameter that influences the survival of patients with tongue cancer. Okada *et al.,* stated that the presence of metastasis in cervical lymph nodes is considered an indicator of poor prognosis in patients with this neoplasm[24].

Squamous cell carcinoma of the tongue, like other oral malignant tumors, is more frequent in males over 45 years of age, however, this ratio (male/female) tends to be less and less pronounced and more documented in young adults[28].

The tongue is the site preferentially affected by this type of neoplasm, accounting for about 50% of oral carcinomas. Squamous cell carcinoma can present in several clinical forms, namely: exophytic, endophytic, leukoplastic, erythroplastic or erythroleukoplastic[25].

Patients should avoid exposure to the most common risk factors: tobacco and alcohol, but other factors can lead to the appearance of potentially malignant lesions: viral infections, oral lichen planus, iron deficiencies, immunosuppression, food at extreme temperatures and traumatizing agents[27].

Squamous cell carcinoma is often preceded by premalignant lesions, clinically detectable, but mostly asymptomatic. These lesions present in the form of leukoplakia, erythroplakia or erythroleukoplakia and whenever they are identified, an incisional biopsy should be performed to obtain a definitive histopathological diagnosis[30].

The techniques for diagnosing and treating this disease have shown advances since cancer began to be investigated[26].

Surgery, as one of the main means of treatment, has helped patients with oral cancer, restoring health and increasing survival. However, this conduct can result in mutilating treatment, compromising the function of anatomical structures to varying degrees, causing facial asymmetries, speech or swallowing dysfunctions, and local neurological pain. This causes profound changes in social and family relationships, which may lead to psychological and social problems in the patient[29].

Prior to surgery, radiotherapy is also used in the treatment of cancer. According to Sonis *et al.,* (2001), the main objective of preoperative radiation in a neoplasm is to make the lesion operable, inducing sufficient marginal contraction to remove it and helping to reduce local recurrences in distant metastases. This treatment is more efficient in superficial neoplastic lesions, capable of offering greater exposure to radiation; Thus, deep invasive neoplasms are radioresistant[15].

Usually, it is applied in a fractional way to allow the recovery of adjacent normal tissues[17].

Radiotherapy treatment also has undesirable effects. Various normal tissues (skin, mucous membranes, bone marrow, lymphoid system) may exhibit early or late toxicity to radiotherapy and limit their dosage[18].

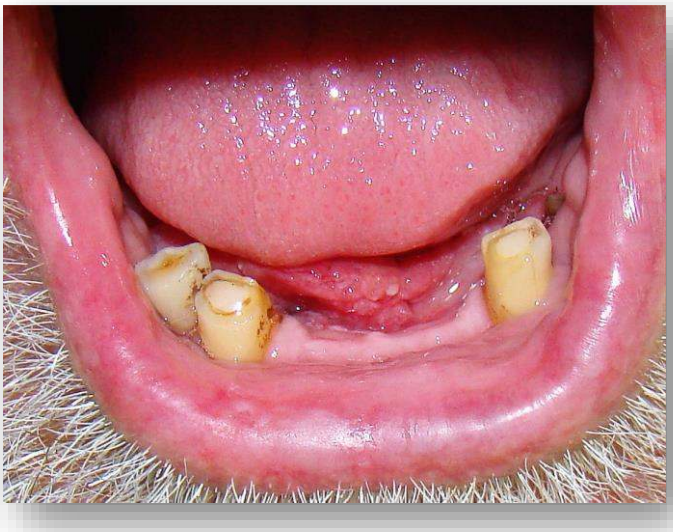
On other oral structures, such as salivary glands, oral mucosa, muscles and alveolar bone, this therapy can directly cause xerostomia, mucositis, osteoradionecrosis, dermatitis, trismus; Indirectly, it can cause extensive dental neck caries, decreased taste and infections, as well as medullary aplasia[19].

The dental surgeon plays an important role in the treatment of oral cancer, not only in the diagnosis of the lesion, but in the evaluation and dental treatment prior to the treatment of the carcinoma. This approach aims to minimize the side effects of cancer treatment, such as osteoradionecrosis[20].

CASE REPORT

Patient J.N.C.L D, a 63-year-old Caucasian male, presented to the stomatology clinic of Universidade Paulista with a main complaint of a whitish lesion on the floor of the tongue 5 months ago. During the anamnesis, the patient reported that the alteration was symptomatic, especially when feeding. The patient reported that she had been a smoker for more than 40 years and that she had quit 6 months ago. Intraoral physical examination showed an ulcerated lesion with an irregular surface, erythematous, in the left anterior region of the floor of the mouth (Figs 1 and 2). A panoramic X-ray was requested, where it was possible to verify that the alteration did not involve bone (Fig. 3).

Figures 1 and 2 - Intraoral aspect of the lesion. Note a nodular, ulcerated lesion with an irregular surface.



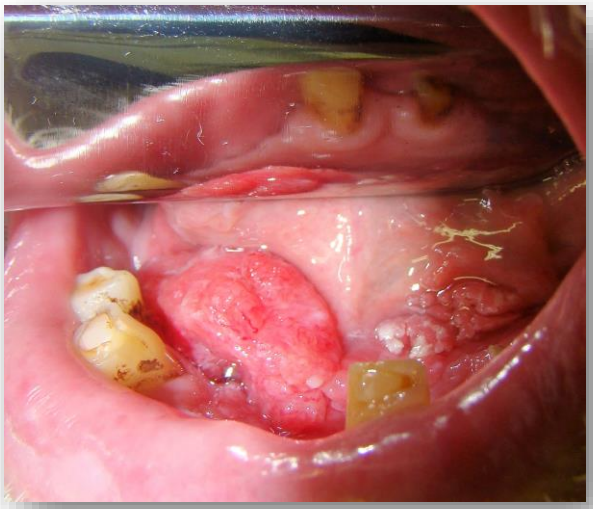


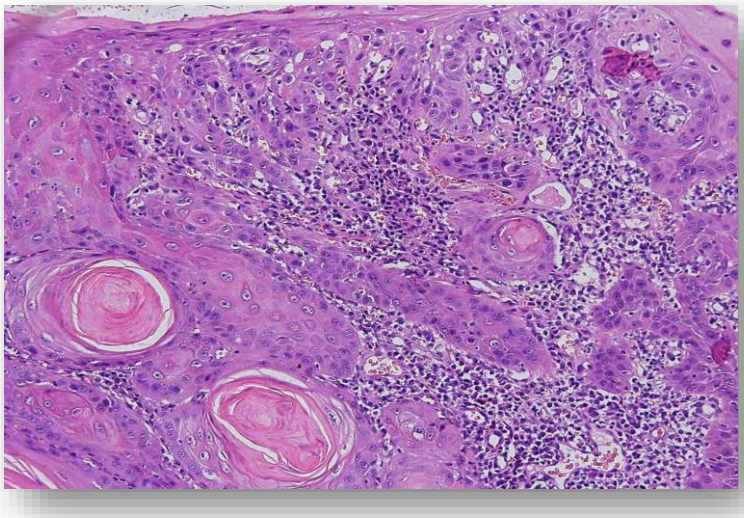
Figure 3 – Initial panoramic radiographic appearance of the patient (before surgical removal of the lesion).



With the diagnostic hypotheses of squamous cell carcinoma and fungal infection, the initial approach was to perform an incisional biopsy, obtaining an irregular, brown and soft fragment measuring 1.5 x 0.7 x 0.6 cm that was sent to the histopathological examination laboratory for macroscopic and microscopic analysis.

After microscopic analysis, it was possible to observe squamous mucosa exhibiting invasive epithelial neoplasia with an expansive growth pattern, composed of blocks of squamous cells with keratinization associated with the presence of moderate/accentuated lymphohistothiocytic inflammatory infiltrate in the chorion with foci of a foreign body-like gigantocellular reaction (Fig. 4).

Figure 4 - Microscopic appearance of the lesion. Epithelium containing anaplastic cells infiltrating the underlying connective is noted.



Tests with specific stains for fungi (Grocot and PAS) and Leishmania were negative. Based on the microscopic findings, it was possible to define the diagnosis as keratinizing squamous carcinoma, moderately differentiated and invasive. The patient was advised and referred to Araújo Jorge hospital where he underwent surgical removal as oncological therapy.

The patient is under clinical follow-up and, 3 months after surgery, the patient is recovering and undergoing a clinical examination, where no recurrence of the lesion is observed (Figs 5 and 6).

He is undergoing physiotherapy and his stomatognathic functions are reestablishing. A new panoramic X-ray was requested, where there were no changes (Fig 7).

Figures 5 and 6 – Intraoral appearance after carcinoma removal surgery. There is a change in the insertion and mobility of the language.



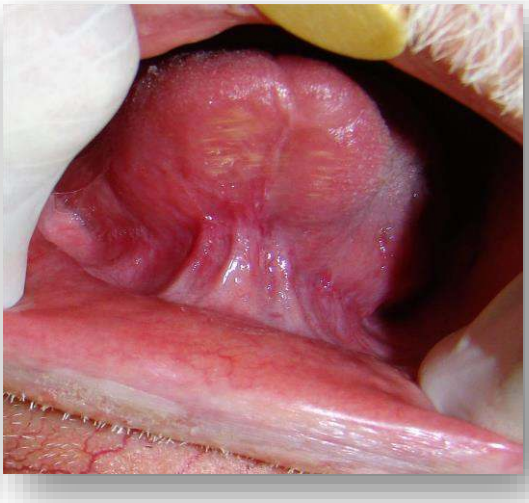


Figure 7 – Panoramic radiographic appearance of the patient three months after surgical removal of the lesion. Bone close to the region is preserved and no signs of infiltration



DISCUSSION

Bell 2017, reports that squamous cell carcinoma of the tongue corresponds to about 50% of cases of carcinoma in the oral cavity and that this type of malignant tumor often occurs on the posterior lateral border of the tongue and on its ventral surface[9].

According to Martorell, 2009 the lateral border of the tongue together with the floor of the mouth corresponds to the two sites of greatest risk for carcinogenesis, which can be explained by two reasons: any carcinogenic agent mixes with the saliva that is deposited on the floor of the mouth and that is in constant contact with the tongue; and these locations are covered by a thin, non-keratinized mucosa. Keratin works as a protective barrier that, once absent, makes these sites more vulnerable to the action of the carcinogenic agent[2].

Squamous cell carcinoma in an initial/intermediate phase is usually asymptomatic, with a subtle, non-alarming aspect, in which the patient only reports the presence of an ulcer that does not heal. At an advanced stage, it presents symptoms, namely: pain, hemorrhage, tooth loss, dysphagia, odynophagia, development of palpable nodes and bone invasion[8].

Gandolfo, 2011 reports that squamous cell carcinoma can present in several forms: exophytic masses, endophytic, leukoplastic, erythroplastic or erythroleukoplastic lesions. The endophytic lesion presents as a central area characterized by a depression, irregularly shaped, ulcerated and surrounded by a white or red mucosa with raised borders[4].

The examples of leukoplastic, erythroplastic and erythroleukoplastic squamous cell carcinomas correspond to the earliest cases in which neither an exophytic nor ulcerated mass has yet been produced, and these are therefore examples of neoplasms resulting from the corresponding premalignant lesions[5].

According to Zini, Czerninski and Sgan-Cohen, with regard to the distribution of this neoplasm on the tongue, 75% of the cases are located on the posterior lateral edges of the tongue, 20% on the anterior lateral borders and ventral surface, and about 5% occur on the dorsal aspect of the tongue[3].

In the global context, the prevalence proportion of squamous cell carcinoma of the tongue between men and women has been decreasing, with a visible increase in new cases of this neoplasm among females since the end of the 80s. According to Neville and Day (2011), this situation is explained by the fact that women have come to associate alcohol habits with smoking habits more abundantly[3].

Patients with squamous cell carcinoma of the tongue are predominantly white and over 55 years of age[7].

CONCLUSION

Squamous cell carcinoma of the tongue floor sometimes assumes significant extensions, and incisional biopsy followed by histopathological examination is essential to refer the patient to appropriate treatment. Attention is also drawn to the examination of possible lymph node infarction of the patient. It is concluded that careful clinical oral examination is important in all consultations, even if the main complaint is not concentrated in this topography. In individuals at higher risk, the examination should be systematic and individuals with suspicious lesions should be referred to a specialized consultation. The dentist has an enormous responsibility in recognizing disorders with malignant potential, in the elimination of local traumatic factors, as well as in providing guidance for reducing exposure to environmental carcinogenic factors.

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