Oral squamous cell carcinoma: An epidemiological and descriptive study of 29 cases

Marcelo Rodrigues Azenha^{*}, Luis Guilherme Brentegani^{*}, Giovani Antonio Rodrigues^{*}, Suzie Aparecida de Lacerda^{*}

SUMMARY

Background. Oral cancer is one of the diseases with the highest morbidity and mortality worldwide and knowledge of diagnostic techniques, treatment modalities in different populations and preventive measures are extremely important. The use of tobacco and alcoholic beverages increases the risk for development of this neoplasm.

Objective. This retrospective study was done evaluating the cases of squamous cell carcinoma diagnosed at an oral diagnosis specialized care center (CAEDO) during 2 years.

Material and methods. The records of 29 patients diagnosed with oral squamous cell carcinoma were analyzed considering the age, patient's gender, lesion site in oral cavity, the use of tobacco and alcohol, the characteristics of the lesions and treatment performed.

Results. A higher incidence of oral squamous cell carcinoma was observed in males in the proportion of 2:1. The mean age was 64 years and most patients were tobacco and / or alcohol users. Third four lesion sites were detected and the tongue was the most affected site, corresponding to 51.7% of all cases.

Conclusion. The dental surgeon must be able to recognize a neoplasm and attention should be made to male patients aged over 40, especially those with tobacco and alcohol use.

Keywords: squamous cell carcinoma, oral cancer, tobacco.

INTRODUCTION

Oral cancer is one of the diseases with the highest morbidity and mortality worldwide, with its incidence varying according to the region studied and presenting different characteristics when analyzing patient's age, gender, ethnicity, affected area and treatments performed. In the last decades, there has been an increase in cases of cancer in the head and neck region when data from different continents are analyzed, including Europe, the Americas and the African continent (1-4). The main factors of this increase are tobacco's use and the ingestion of alcoholic drinks. Some studies have shown an increase in oral cancer cases even in young patients, regardless of the gender, demonstrating the importance of preventive measures and emphasizing the need for knowledge of diagnostic techniques.

Malignant lesions of the oral cavity are the sixth most common malignancy in the world, and when added to pharynx lesions, they are classified as the third most common malignant lesion in developing countries (5).

*Department of Stomatology, Public Health and Forensic Dentistry, Ribeirão Preto School of Dentistry, University of São Paulo, Ribeirão Preto, SP, Brazil

Address correspondence to Marcelo Rodrigues Azenha, Department of Stomatology, Public Health and Forensic Dentistry, Ribeirão Preto School of Dentistry, University of São Paulo, Av. do Café, s/n, CEP: 14040-904, Ribeirão Preto, SP, Brazil. E-mail address: marceloazenha@usp.br

Stomatologija, Baltic Dental and Maxillofacial Journal, 2024. Vol. 26, No. 3

The incidence of these lesions varies according to the age, gender and ethnicity of the individuals, with 75% of malignant lesions of the oral cavity being found in developing countries, where oral tissues are the first or second site of greater predilection for cancer. These data can be attributed to the increase in the use of tobacco and the consumption of alcoholic beverages by younger individuals (6, 7).

Malignant lesions of the mouth correspond to 2 to 4% of all malignant lesions diagnosed in the United States, whereas in South Africa this figure reaches 1.8% in women and 5% in men (8, 9). Robin *et al.* evaluated the incidence of oral cancer in Nova Scotia and found 1155 cases of lesions in the oral cavity, corresponding to 2% of all cancers. Men were more affected than women, with lip and tongue being the most prevalent sites (10).

Tarvainen *et al.* (11) through an epidemiological study in Finland found 17,383 cases of oral cancer, 83% of which were classified as Oral Squamous Cell Carcinoma (OSCC) with a higher prevalence in males with historic of alcohol consumption. Chidzonga and Mahomva (12) in another epidemiological study analyzed the incidence of oral cancer in a population on the African continent. They found that oral cancer classified as OSCC is the most common malignant lesion, representing 90% of the cases and with higher prevalence in male patients between 41

and 60 years old. Effiom *et al.*(13) reviewed 233 cases of OSCC in the oral cavity between 1995 and 2005. Among all biopsy procedures performed (5124 cases), OSCC corresponded to 10.8%, with an average age of 45 years and a higher incidence in male population. A very interesting fact was the detection that the majority of cases were found in individuals under the age of 40 years. They also found that the poorly differentiated types of OSCC were the most common, followed by well-differentiated OSCC and those with moderate differentiation. The mandibular gingival region was the most affected site, followed by maxillary gingival region and the tongue.

Epidemiological studies of oral cancer are extremely important to verify the extent of the problem, thereby determining the group that presents the highest and lowest risks of being affected. The early detection of malignant lesions is extremely important to address the patient to adequate and early treatment, minimizing patient's morbidity. The objective of this study is to evaluate, through a retrospective study the cases of OSCC diagnosed in an oral pathology center (CAEDO) considering patient's age, gender, lesion site, the use of tobacco and alcohol, lesion characteristics, and the treatment performed.

MATERIAL AND METHODS

Through a retrospective study, the medical records of patients with a definitive diagnosis of OSCC were evaluated during 2 years and all patients included in the study were seen at a specialized care center (CAEDO). The data of the patients was recorded including gender, age, use of tobacco or alcoholic beverages, site of the lesion in oral cavity, characteristics of each lesion, and the treatment performed. Also, the lesions were classified after histopathological findings in well differentiated, little differentiated or moderately differentiated. Medical records with incomplete data or lesions located in the nasopharynx or palatine tonsils were excluded from the study. All lesions were classified according to specific characteristics, such as fundamental injury (plaque, ulceration, erosion, nodule, tumor, papule or hyperplasia); shape (rounded, oval, elongated or irregular); size (in centimeters); consistency (hard, soft, elastic, firm, friable); characteristics of the superficial tissue (smooth, rough or ulcerated); color (white, yellow, red, black or pink); and its base (hardened, sessile or pediculated).

RESULTS

Through the analysis of medical records, 29 patients were selected, with a higher incidence of OSCC in males (20 patients or 69%) than in females (9 patients / 31%) in the proportion of 2: 1. The mean age was 64 years (42 to 95) and most patients were tobacco and / or alcohol users. Of the 29 patients, 23 (79%) were smokers and 18

(62%) were alcohol users. Only 1 (5%) of male patients (20 individuals) denied tobacco use. 34 lesion sites were detected and the tongue was the most affected site (15 or 51.7%), followed by the lower lip (5 cases or 17%) (Figures 1 and 2). Jugal mucosa, palate, alveolar ridge and oropharynx demonstrated three cases of OSCC each (10% each) (Figures 3 and 4), and the floor of the mouth two lesions (7%). It is important to note that in three patients more than one lesion was detected, justifying a number of affected sites higher than the number of patients.

An ulcerative lesion was detected in 21 or 61% of the patients, 8 or 23.5% of the patients presented a nodular lesion, in 4 patients (11.75%) a tumoral site was observed, and 1 patient (2.5%) presented a papule. Most of the lesions were classified as irregular, with undefined borders (25 cases or 73.5%) and the remained were defined as rounded (9 cases or 26.5%). The sizes of the lesions varied between 0.5 and 7 centimeters (mean of \pm 3 cm) and the consistency of the OSCCs were defined as firm in 15 lesions (44%), elastic in 11 (32%), friable in 4 (12%), hard in 2 lesions (or 6%) and soft in another 2 (6%). Ulcerated superficial tissue was found in most cases representing 15 lesions (44%), followed by rough (12 lesions, 35%) and smooth (7 lesions, 20.5%). OSCC presented as red in 14 of the cases (41%) and purple in 13 situations (38%). White lesions (6 cases / 17%) and yellow lesions $(1 \operatorname{case} / 3\%)$ were also seen. Most of the lesions had a sessile base (30 findings or 88%), with 3 lesions (9%) presenting infiltrative / hardened bases and 1 (3%) site presenting a pediculate OSCC.

Among the 29 patients studied, 18 (62%) were submitted to incisional biopsy of and were referred to oncology treatment after histopathological confirmation of OSCC. Seven patients (24.1%) were immediately referred to specialized head and neck medical group for treatment due to the severity of the condition and one patient (3.5%) refused any treatment or follow-up and was discharged. Three patients (10%) presented small lesions $(\leq 1 \text{ cm})$ and underwent excisional biopsy during the consultation and were also referred to to oncology follow-up after the confirmation of OSCC. These 3 patients were evaluated by the oncology team after the biopsy and were considered free of disease at the moment. It is important to highlight that the objective of our specialized oral care center (CAEDO) is to diagnose malignant lesions through clinical and histopathological exams associating biopsy techniques and laboratory tests, and then refer the patient to specialized treatment if necessary.

DISCUSSION

Malignant lesions of the oral cavity are the sixth most common malignancy in the world, and when added to pharynx lesions, they are classified as the third most common malignant lesion in developing countries



Fig. 1. Extensive inferior lip OSCC that was partially removed to confirm the diagnostic of oral cancer



Fig. 3. Alveolar ridge OSCC with several months of evolution in a heavy smoker patient

(5). Among these injuries, OSCC is the most common, representing 70 to 90% of the total.(3). The vast majority of oral malignant lesions affects the population in developing countries, a fact that may be linked to the higher incidence of predisposing factors in these countries, such as the use of tobacco and alcohol, nutritional deficiencies, virus infections, pollution, ingestion of smoked foods and exposure to ultraviolet rays.(1, 6).

In the USA, France and Italy, 75% of oral carcinomas are associated with tobacco use and excessive alcohol consumption (14). In the present study, 62% of the patients diagnosed with OSCC were tobacco users, and 79% of the studied were alcohol users, been in accordance to previous studies (2, 4-6). OSCC appears more frequently in elderly patients due to the longer exposure to risk factors. It is common for lesions to appear during and after the fifth decade of life, and rarely affects young patients (12, 13, 15). However, in a review of 233 cases in Nigeria, there were a significant number of cases of OSCC in patients under the age of 40, a characteristic attributed to low life expectancy and early exposure to risk factors in African countries (13). In this study, the age of the patients ranged



Fig. 2. Histological image of inferior lip OSCC after its biopsy



Fig. 4. Histological image of the lesion detected at alveolar ridge region

from 42 to 95, with an average age of 64 years. The proportion of men to women diagnosed with OSCC in our study was 2:1, similar to countries like Zimbabwe, Nigeria, Kuwait and Turkey (12, 16) considered to be developing economically countries. In agreement with other studies (9, 12) the tongue is the most affected site of OSCC lesions, followed by the lower lip. This result might be explained due to tongue's constant trauma during mastication or its exposure to tobacco and alcohol, and lower lip exposure to sun for prolonged time. Patients included in this study were all residents of the same city where sun's incidence is considered high and present most part of the year.

OSCC has different clinical characteristics and can present itself in an exophytic manner, characterized by the formation of a mass with an irregular surface and a variable color, which may be red, white or normal depending on the amount of keratin produced and its vascularization, with an ulcerated and hardened palpation surface. They may also present with an endophytic pattern, characterized by an ulcerated central area, irregularly and depressed. When there is destruction of the underlying bone by OSCC, radiographically, a bone structure with a "moth-gnawed" aspect can be seen, which can be painless and imperceptible or even painful. In our study, most of the cases presented an endophytic manner, with characteristics of an ulcerated surface, irregular shape, varying from 0.5 to 7 centimeters, undefined edges, firm

consistency, red in color and a sessile base (17-19). The differential diagnosis of OSCC can be made with other types of malignant neoplasms, such as basal cell carcinoma and mucoepidermoid carcinoma. Precancerous lesions (leukoplasia, erythroplasia, actinic cheilitis, lichen planus) and fungal or bacterial infections (blastomycosis and syphilis) may present similarity during clinical examination and an accurate exam/diagnosis is recommended (5, 18, 19). There is an agreement among the professionals and the literature (8, 10, 11) that suspicious lesions must be partially or totally removed and sent to histological analysis, emphasizing the importance of training in oral diagnosis and surgical procedures to correctly do the biopsy procedure.

The prognosis of oral cancer varies according to the location of the lesion and the degree of metastasis. The 5-year survival rate for intraoral carcinoma is approximately 75%. Usually tumors located on the lower lip have

a good prognosis. The lower (cervical) the involvement of the lymph nodes, the worse the prognosis and the lower the 5-year survival rate. The treatment of OSCC is determined by the staging of the lesion, and a radical surgical excision, radiotherapy or a combination of these can be performed, associated or not with chemotherapy (17, 18). All assisted patients with diagnosis of OSCC were referred to the oncology service for lesion staging and treatment by a multidisciplinary team.

CONCLUSION

OSCC is the most common malignancy among those that affect the oral cavity. The dental surgeon must be able to recognize this neoplasm in order to recommend its surgical removal or refer it to an appropriate service. Attention should be made to male patients aged over 40, especially those who use tobacco and alcohol and a strictly long-term follow-up is recommended.

Conflicts of interest None

REFERENCES

- La Vecchia C, Boyle P. Trends in the tobacco-related cancer epidemic in Europe. Cancer Detect Prev 1993;17:495-506.
- 2. Swango PA. Cancers of the oral cavity and pharynx in the United States: an epidemiologic overview. J Public Health Dent 1996; 56:309-18.
- 3. Hille JJ, Shear M, Sitas F. Age standardized incidence rates of oral cancer in South Africa, 1988-1991. J Dent Assoc S Afr 1996;51:771-6.
- Mork J. Forty years of monitoring head and neck cancer in Norway—no good news. Anticancer Res 1998;18:3705-8.
- Parkin DM, Pisni P, Ferlay J. Estimates of the worldwide incidence of sixteen major cancers. Int J Cancer 1993; 54:594–606.
- Newcomb PA, Carbone PP. The health consequences of smoking: cancer. Med Clin North Am 1992;76:305-31.
- Negri E, La Vecchia C, Levi F, Franceschi S, Serra-Majem L, Boyle P. Comparative descriptive epidemiology of oral and oesophageal cancers in Euope. Eur J Cancer Prev 1996;5:267-79.
- Krutchkoff DJ, Chen J, Eisenberg E, Katz RV. Oral cancer: a survey of 566 cases from the University of Connecticut oral pathology biopsy service, 1975–1986. Oral Surg Oral Med Oral Pathol 1990;70:192–8.
- 9. Hille JJ, Shear M. Epidemiology of oral cancer in South Africa 1988–1995. Oral Oncol 2001;17:7–12.
- 10. Robin E, Howell RE, Wright BA, Dewar R. Trends in the incidence of oral cancer in Nova Scotia from 1983 to 1997 Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;95:205-12.
- Tarvainen L, Suuronen R, Lindqvist C, Malila N. Is the incidence of oral and pharyngeal cancer increasing in Finland? An epidemiological study of 17 383 cases in 1953–1999. Oral Diseases 2004;10:167–72.

- Chidzonga MM, Mahomva L. Squamous cell carcinoma of the oral cavity, maxillary antrum and lip in a Zimbabwean population: A descriptive epidemiological study. Oral Oncology 2006;42:184–9.
- Effiom OA, Adeyemo WL, Omitola OG, Ajayi OF, Emmanuel MM, Gbotolorun OM. Oral Squamous Cell Carcinoma: A Clinicopathologic Review of 233 Cases in Lagos, Nigeria. J Oral Maxillofac Surg 2008;66:1595-99.
- Canto MT, Devesa SS. Oral cavity and pharynx cancer incidence rates in the United States, 1975–1988. Oral Oncol 2002;38:610–7.
- Zini A, Czerninski R, Sgan-Cohen HD. Oral cancer over four decades: epidemiology, trends, histology, and survival by anatomical sites. J Oral Pathol Med 2010;39: 299–305.
- Morris RE, Al Mahmeed VE, Gjogov AN, Al Jazaff HG, Al Rashi B. The epidemiology of lip, oral cavity and pharyngeal cancers in Kuwait 1970–1988. J Oral Maxillofac Surg 2000; 38:316–9.
- Oliveira LL, Bergmann A, Melo AC, Thuler LCS. Prognostic factors associated with overall survival in patients with oral cavity squamous cell carcinoma. Med Oral Patol Oral Cir Bucal 2020;25(4):e523-31.
- Capote-Moreno A, Brabyn P, Muñoz-Guerra MF, Sastre-Pérez J, Escorial-Hernandez V, Rodríguez-Campo FJ, García T, Naval-Gías L. Oral squamous cell carcinoma: epidemiological study and risk factor assessment based on a 39-year series. Int J Oral Maxillofac Surg. 2019. doi.org/10.1016/j. ijom.2020.03.009.
- Chamoli A, Gosavi AS, Shirwadkar UP, Wangdale KV, Behera SK, Kurrey NK, Kalia K, Mandoli A. Overview of oral cavity squamous cell carcinoma: Risk factors, mechanisms, and diagnostics. Oral Oncol. 2021;121:105451. doi: 10.1016/j.oraloncology.2021.105451.

Received: 09 09 2021 Accepted for publishing: 23 09 2024