

Oral squamous cell carcinoma: clinicopathological features from 346 cases from a single Oral Pathology service during an 8-year period

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Submitted: April 25, 2013 - Modification: June 23, 2013 - Accepted: August 12, 2013

ABSTRACT

Epidemiological data from oral squamous cell carcinoma (OSCC) is mostly derived from North American, European and East Asian populations. Objective: The aim of this study was to report the demographic and clinicopathological features from OSCC diagnosed in an Oral Pathology service in southeastern Brazil in an 8-year period. Material and Methods: All OSCC diagnosed from 2005 to 2012 were reviewed, including histological analysis of all hematoxylin and eosin stained slides and review of all demographic and clinical information from the laboratory records. Results: A total of 346 OSCC was retrieved and males represented 67% of the sample. Mean age of the patients was 62.3 years-old and females were affected a decade older than males ($p < 0.001$). Mean time of complaint with the tumors was 10 months and site distribution showed that the border of the tongue (37%), alveolar mucosa/gingiva (20%) and floor of mouth/ventral tongue (19%) were the most common affected sites. Mean size of the tumors was 3.4 cm, with no differences for males and females ($p = 0.091$) and males reported both tobacco and alcohol consumption more frequently than females. Histological grade of the tumors revealed that 27%, 40% and 21% of the tumors were, respectively, classified as well-, moderately- and poorly-differentiated OSCC, 26 cases (7.5%) were microinvasive OSCC and 17 cases were OSCC variants. OSCC in males mostly affected the border of tongue, floor of mouth/ventral tongue and alveolar mucosa/gingival, while they were more frequent on the border of tongue, alveolar mucosa/gingival and buccal mucosa/buccal sulcus in females ($p = 0.004$). Conclusions: The present data reflect the epidemiological characteristics of OSCC diagnosed in a public Oral Pathology laboratory in southeastern Brazil and have highlighted several differences in clinicopathological features when comparing male and female OSCC-affected patients.

Keywords: Squamous cell carcinoma. Oral cancer. Mouth. South America. Epidemiology.

INTRODUCTION

Oral squamous cell carcinoma (OSCC) is the most common oral malignancy, representing up to 80–90% of all malignant neoplasms of the oral cavity¹¹. Although oral cancer incidence is highly variable worldwide, it is accepted that oral cavity ranks from the 6th to the 9th most common anatomical location for cancer, depending mostly on the country (and even specific region in some countries) and gender of the patients¹¹. Despite this mean incidence, it can represent the most common

location for cancer in some specific regions, especially in southeastern Asia¹¹. Major etiological and predisposing factors for OSCC include mostly smoking and drinking habits, and ultraviolet radiation (specifically for lip cancer), but several other factors such as human papillomavirus (HPV) and *Candida* infections, nutritional deficiencies and genetic predisposition have been also associated^{11,18}. OSCC is a disease of adults and elderly and its most common clinical aspect is an ulcerated lesion with necrotic central area surrounded by elevated rolled borders²⁰.

Although the main demographic and clinicopathological information on OSCC can be similar in most studies, it is accepted that some features can be quite variable from country to country and even from different regions in the same country^{5,23}. As there are few studies presenting OSCC clinical and pathological profile in Brazilian populations^{8,16}, the aim of this study is to report the demographic and clinicopathological features from a series of OSCC diagnosed in an Oral Pathology service in Brazil in an 8-year period.

MATERIAL AND METHODS

The files of the Oral Pathology service, School of Dentistry, State University of Rio de Janeiro, Brazil, were reviewed from 2005 to 2012 and all registries diagnosed as OSCC were retrieved. After individual analysis of all registries, the cases diagnosed through cytological methods (smears and fine-needle aspiration biopsies), originated from maxillofacial areas apart from the oral cavity and presenting inadequate material for histological

review and classification were excluded. When more than one biopsy was performed in the same patient for the same lesion, all registries were reviewed, but only the most representative histological section was included. Demographic and clinical information from all cases were obtained through review of all forms submitted with the specimens, and included gender, age, time interval before diagnosis (in months), clinical aspect, location and size (in centimeters) of the tumors and risk factors (tobacco and alcohol use). Clinical aspect of the lesions was divided in three groups: ulcers (including plain ulcers, and exophytic ulcerated masses), leukoerythroplakias and tumors presenting both ulcers and leukoerythroplakias. Location of the tumors included the following regions: border of tongue; floor of mouth (with extension to ventral tongue); alveolar mucosa and gingiva (including retromolar area); buccal mucosa (including buccal sulcus/mucobuccal fold); soft palate and tonsil area; lower lip; and others (in cases with no precise information about the primary location).

All hematoxylin and eosin (HE)-stained

Table 1- Demographic and clinical features from the oral squamous cell carcinomas from the studied sample (number of cases for each parameter includes the number of registries with precise available information)

Parameter	Number of cases	%
Gender (n=346)		
Males	232	67
Females	114	33
Age (n=337)		
<41 years	11	3
41 to 60 years	154	46
61 to 80 years	137	41
>80 years	35	10
Time of complaint (n=233)		
0 to 6 months	169	73
7 to 12 months	33	14
>12 months	31	13
Location of the tumors (n=340)		
Border of tongue	123	37
Alveolar mucosa/gingiva/retromolar area	69	20
Floor of mouth/ventral tongue	65	19
Soft palate/tonsil area	24	7
Buccal mucosa/buccal sulcus	23	7
Lower lip	21	6
Others	15	4
Clinical aspect (n=322)		
Ulcer	201	62
Leukoerythroplakia	54	17
Ulcer + leukoerythroplakia	67	21
Size of the tumors (n=197)		
<2.1 cm	69	35
2.1 to 4.0 cm	80	41
4.1 to 6.0 cm	35	18
>6.0 cm	13	6

histological slides were reviewed for diagnosis confirmation and for classification of the tumors as well-differentiated (WD), moderately differentiated (MD) and poorly differentiated (PD) tumors and in OSCC variants, according to recently published accepted criteria^{4,28}.

All information were descriptively analyzed and statistical analysis was performed using a standard program (Statistical Package for Social Sciences, SPSS version 17.0, Chicago, IL, US), with statistical significance level of 5% ($p < 0.05$). Distribution of group variables was compared in crosstabs by Pearson Chi-square and comparison of means was performed with T test. This study was approved by the Ethics Committee, State University of Rio de Janeiro (protocol number 044.3.2010).

RESULTS

A total of 346 OSCC were selected for the study after using the inclusion and exclusion criteria. This total represented about 65% of all oral malignancies diagnosed in the laboratory on the selected period. Males represented two thirds of the affected patients (232 cases, 67%) with a male:female ratio of 2:1. Mean age of all patients was 62.3 years (standard deviation - $SD \pm 13.2$, ranging from 30 to 102 years); mean age of the males (59.9 years, $SD \pm 10.9$, ranging from 30 to 87 years) was almost a decade lower than mean age of females (67 years, $SD \pm 15.9$, ranging from 32 to 102 years) ($p < 0.001$). More than 80% of the patients were diagnosed in their forties to seventies and 3% of the patients were younger than 41 years (Table 1 - demographic and clinical features are included according to the number of cases for each parameter for which precise information was available).

Mean time of complaint with the lesions reported by the patients before diagnosis was 10 months

($SD \pm 20.8$, ranging from 1 to 123 months) and most patients reported to have noticed the lesions up to 6 months before diagnosis (169 cases, 73%). Mean time of complaint was longer for females (14.9 months, $SD \pm 26.5$, ranging from 1 to 120 months) than for males (7.6 months, $SD \pm 16.9$, ranging from 1 to 123 months) ($p = 0.03$). Site distribution showed that the most common location of the tumors was the border of the tongue (37%), followed by the alveolar mucosa and gingiva (20%) and floor of the mouth and ventral tongue (19%). Clinical aspect of the tumors revealed that ulcers, ulcers associated to leukoerythroplakias and leukoerythroplakias represented, respectively, 62%, 21% and 17% of the sample. Mean size of the tumors showed that most OSCC were diagnosed with up to 4 cm in their greater diameter (76%), showing a mean of 3.4 cm ($SD \pm 1.9$, ranging from 0.2 to 12 cm). There was no difference on the mean size of the tumors when comparing affected males (3.6 cm, $SD \pm 1.9$, ranging from 0.2 to 12 months) and females (3.1 cm, $SD \pm 1.9$, ranging from 0.3 to 10 months) ($p = 0.091$) (Table 1). Information about tobacco use was available for 281 patients and showed that 225 patients (80%) were present or past tobacco users. For alcohol use, information was available for 208 patients and showed that 146 patients (70%) were present or past alcohol users (Table 3).

Histological diagnosis and grade of the tumors rendered after analysis of the HE-stained slides revealed that, from 303 cases of conventional invasive OSCC, 93 cases (30.7%) were classified as WD OSCC, 138 cases (45.5%) as MD tumors and 72 (23.8%) as PD tumors. Although there were some differences on the histological grade of the tumors when comparing each location, these results were not statistically significant ($p = 0.381$) (Table 2). From the remaining 43 OSCC samples, 26 cases

Table 2- Distribution of the histological grade of the tumors according to the site of the lesions*

Site of the tumors	Histological grade **			Total ***
	WD	MD	PD	
Border of tongue	33 (31.7%)	44 (42.3%)	27 (26%)	104 (34.9%)
Floor of mouth/ventral tongue	14 (21.9%)	30 (46.9%)	20 (31.3%)	64 (21.5%)
Alveolar mucosa/gingiva/ retromolar area	19 (30.6%)	32 (51.6%)	11 (17.7%)	62 (20.8%)
Soft palate/tonsil area	5 (23.8%)	10 (47.6%)	6 (28.6%)	21 (7%)
Buccal mucosa/buccal sulcus	8 (47.1%)	7 (41.2%)	2 (11.8%)	17 (5.7%)
Lower lip	9 (52.9%)	6 (35.3%)	2 (11.8%)	17 (5.7%)
Others	3 (23.1%)	6 (46.2%)	4 (30.8%)	13 (4.4%)
Total	91 (30.5%)	135 (45.3%)	72 (24.2%)	298 (100%)

*Total number of cases reflect the number of conventional invasive OSCC with precise anatomical location; ** WD - well differentiated; MD - moderately differentiated; PD - poorly differentiated; *** P value=0.381 (Pearson Chi-square)

(7.5%) were diagnosed as microinvasive OSCC and the remaining 17 cases were diagnosed as OSCC variants, including 9 verrucous carcinomas (2.6%), 5 spindle cell carcinomas (1.4%), 2 basaloid OSCC (0.6%) and 1 papillary OSCC (0.3%).

Clinical aspect of the tumors from the whole sample showed that the presence of ulcers was more common in males ($p=0.017$) while leukoerythroplakias were more frequently found in females ($p=0.001$). Distribution of the site of the tumors revealed that OSCC in males mostly affected the border of tongue, floor of the mouth/ventral tongue and alveolar mucosa/gingiva, while they were more frequent on the border of tongue, alveolar mucosa/gingiva and buccal mucosa/buccal sulcus in females ($p=0.004$). Past

and present tobacco and alcohol use were more common in males than in females ($p<0.0001$, both). Distribution of the histological grade of the conventional invasive OSCC ($n=303$) was also different when comparing the gender of the patients, as males were predominantly affected by MD and PD tumors, while females presented mostly with MD and WD tumors ($p=0.004$) (Table 3).

Microinvasive carcinoma equally affected males and females with a mean age of 67.2 years ($SD\pm 13.05$, ranging from 42 to 87 years). Mean time of complaint was 18.4 months ($SD\pm 22.7$, ranging from 1 to 72 months) and most lesions showed leukoerythroplakic areas (73.1%), while ulcerated areas were found in 50% of the cases. The tumors affected mostly the border of tongue

Table 3- Distribution of the clinical aspect of all OSCC, site of the lesions, history of tobacco and alcohol use and histological grade of the tumors according to the gender of the affected patients

Parameter	Males	Females	Total	P value **
Ulcers				0.017
Yes	144 (67%)	57 (53.3%)	201 (62.4%)	
No	71 (33%)	50 (46.7%)	121 (37.6%)	
Ulcers + leukoerythroplakia				0.939
Yes	45 (20.9%)	22 (20.6%)	67 (20.8%)	
No	170 (79.1%)	85 (79.4%)	255 (79.2%)	
Leukoerythroplakia				0.001
Yes	26 (12.1%)	28 (26.2%)	54 (16.8%)	
No	189 (87.9%)	79 (73.8%)	268 (83.2%)	
Site of the lesions				0.004
Border of tongue	77 (33.9%)	46 (40.7%)	123 (36.2%)	
Alveolar mucosa/gingiva/ retromolar area	40 (17.6%)	29 (25.7%)	69 (20.3%)	
Floor of mouth/ventral tongue	54 (23.8%)	11 (9.7%)	65 (19.1%)	
Soft palate/tonsil area	20 (8.8%)	4 (3.5%)	24 (7.1%)	
Buccal mucosa/buccal sulcus	11 (4.8%)	12 (10.6%)	23 (6.8%)	
Lower lip	16 (7%)	5 (4.4%)	21 (6.2%)	
Others	9 (4%)	6 (5.3%)	15 (4.4%)	
Tobacco use				<0.001
Yes (present or past)	178 (90.4%)	47 (56%)	225 (80.1%)	
No	19 (9.6%)	37 (44%)	56 (19.9%)	
Alcohol use				<0.001
Yes (present or past)	122 (84.7%)	24 (37.5%)	146 (70.2%)	
No	22 (15.3%)	40 (62.5%)	62 (29.8%)	
Histological grade*				0.004
Well differentiated	55 (26.3%)	38 (40.4%)	93 (30.7%)	
Moderately differentiated	94 (45%)	44 (46.8%)	138 (45.5%)	
Poorly differentiated	60 (28.7%)	12 (12.8%)	72 (23.8%)	

*Including solely well, moderately and poorly differentiated tumors **Pearson Chi-square

(56%) and lower lip (16%). Size of the tumors showed a mean of 1.9 cm (SD±1.6, ranging from 0.2 to 6 cm) and most patients reported no tobacco (52.6%) and alcohol (53.3%) use. Verrucous carcinoma mostly affected the elderly with a mean age of 73.2 years (SD±14.3, ranging from 48 to 95 years), with predilection for females (66.7%). Lesions showed leukoerythroplakic and ulcerated areas, respectively, in 78% and 56% of the cases, and tumors were mostly located on the alveolar mucosa/gingiva (44.4%) and buccal mucosa/buccal sulcus (33.3%). Mean time of complaint was 24 months (SD±41.9, ranging from 1 to 120 months). Size of the tumors showed a mean of 3.8 cm (SD±1.3, ranging from 2 to 5 cm), and most patients reported tobacco use (60%) but not alcohol use (66.7%). Spindle cell carcinoma was diagnosed in 5 male adults (mean age of 57 years, SD±10.4, ranging from 48 to 74 years). Mean time of complaint was 6 months (SD±5.3, ranging from 2 to 12 months) and ulcerated areas were found in 80% of the cases while leukoerythroplakic areas were present in only 20%. The tumors affected the border of tongue (40%), alveolar mucosa/gingiva (20%), soft palate (20%) and other sites (20%). Mean size of the tumors was 4.3 cm (SD±1.5, ranging from 3 to 6 cm) and the 5 patients reported both tobacco and alcohol use. Basaloid OSCC affected the buccal mucosa of a 62 year-old male, with 123 months of evolution and an ulcerated and leukoerythroplakic clinical aspect with 10 cm in size; and the border of tongue of a 63 year-old female, with 24 months of evolution and also with an ulcerated and leukoerythroplakic clinical aspect with 2.5 cm in size. One of the patients reported tobacco use. The papillary OSCC affected the buccal mucosa of a non-tobacco and non-alcohol user 64 year-old male as an ulcerated lesion measuring 5 cm.

DISCUSSION

Although many studies have emphasized that OSCC represent 80 to 90% of all oral malignant tumors¹¹, the present study has shown that about one third of all oral malignant tumors diagnosed in the Oral Pathology Laboratory, State University of Rio de Janeiro, were not OSCC. As this service is a local reference center for Oral Pathology in a metropolitan area, it is supposed that the additional referral of more complex and challenging malignant cases can be responsible for this bias in OSCC frequency.

OSCC predominantly affects males with variable male:female ratios ranging in recent studies from 6:1 to 2:1^{1,8,9,16}, in accordance with the present results. Several other recent studies have shown an increase in the number of affected females,

with a mean male:female ratio lower than 2:1, probably due to changes in social and daily activities associated to modern women social profile and way of living, leading to higher exposure to carcinogenic agents, such as tobacco and alcohol consumption and exposure to biological agents, such as high-risk HPV subtypes^{3,6,7,10,11,13,17,25}.

Most studies have reinforced that OSCC is mostly diagnosed in adults with mean ages in their fifties to seventies^{1,3,8,9,11,16,17}, a finding also corroborated by the present results. Only 3% of the patients reported in the present study were under 41 years of age, similarly to the results presented by Jankittivong, et al.¹⁰ (2009) (4,7%) and the means reported by the literature, usually ranging from 4 to 6%¹¹. It seems that there are geographical and populational differences in the mean age of the affected patients, as demonstrated by Effiom, et al.⁶ (2008) in Nigeria, which revealed a mean age of 45.3 years-old and 40% of the patients with ages below 40 years-old. Similarly to the results of the present study, other authors have also demonstrated that the mean age of males affected by OSCC is lower than the mean age for females^{6,13}.

Present and past tobacco and alcohol consumption are considered the most important risk factors for OSCC¹¹. The present results showed that both deleterious habits were frequently reported by OSCC-affected patients and that both were more common in males than in females, similarly to other studies^{2,13,19}. This pattern can be responsible for the differences in the male:female ratio of OSCC-affected patients. Younger patients affected by OSCC sometimes do not report tobacco and alcohol use as possible risk factors or the interval of use is not long enough to support a definite carcinogenic effect. Other possible risk factors have been suggested in this specific group, such as dietary/nutritional factors and genetic predisposition, and high-risk HPV types (especially HPV type 16) have been demonstrated in OSCC in youngsters more frequently than in control adult/elderly groups^{11,12,18}.

Oral potentially malignant disorders (OPMD) are relatively common, showing a global prevalence from 1 to 5% and a gender, age and site predilection similar to OSCC¹¹. Although the exact malignant transformation rate for OPMD is unknown, it is expectable that leukoerythroplakic areas can be encountered in association with OSCC. This pattern was found in 35% of the patients included in the present study. As the mean size of the tumors, independent of affected gender, was lower than 4 cm (cT1 and cT2 tumors) and more than two thirds of the patients complained of the lesions within less than 6 months, it is acceptable to consider that surveillance directed to OPMD could have been important in early diagnosis of OSCC in the present population. Additionally, these results reinforce the

importance of considering the possibility of OSCC when dealing with leukoplakias and erythroplakias, and the need of obtaining biopsy specimens from all lesions from this group.

OSCC can affect any site of the oral mucosa and large lesions can invade several continuous areas. The present results showed that the border of tongue, gingiva/alveolar mucosa and floor of mouth/ventral tongue were the most commonly affected locations. Although the border of tongue is considered the most common site for OSCC in America and Europe^{14,17}, the buccal mucosa is the most common site for OSCC in southeastern Asia, due to habits of areca nut- and tobacco-chewing¹¹. Jainkittivong, et al.¹⁰ (2009) have additionally reported that 50% of their OSCC affected the gingiva and alveolar ridge, which could be justified by the different etiological factors associated with the development of OSCC in their specific population. Similarly, Effiom, et al.⁶ (2008) have shown, in Nigeria, that the lower and upper gingiva were the most common affected sites in their sample, followed by the tongue. Most studies focusing on Brazilian and other occidental populations have shown that the border of tongue and floor of mouth are the most common OSCC-affected regions^{8,9,16}. It is important to call attention to the fact that, when considered together with intraoral locations, the lower lip is the most common site for OSCC¹. Andisheh-Tadmir, Mehrabani and Heydari³ (2008) have demonstrated that the tongue and the buccal mucosa were the two most common locations for OSCC in Iran, and Nemes, et al.¹⁹ (2008) have shown that, in Hungary, the floor of mouth, lips and the tongue were the most commonly affected areas. As demonstrated by the present results, location of the tumors can be different when comparing males (border of tongue, floor of mouth/ventral tongue and gingiva/alveolar mucosa) and females (border of tongue, gingiva/alveolar mucosa, buccal mucosa/buccal sulcus). This gender-specific pattern was also reported by Kruse, Bredell and Grätz¹³ (2011), who have reported that females were more affected by OSCC located on the palate and alveolar mucosa. The exact reasons for this differential site predilection for OSCC in males and females are unknown.

Although delay in diagnosis is a major problem in early detection of OSCC, the exact reasons for these difficulties, including social and health-related behavior and tumor characteristics, are not well-understood²⁷. Most tumors included in the present series (76%) were diagnosed as cT1 or cT2 tumors, but mean interval of complaints prior to professional assistance was 10 months. In contrast, Gervásio, et al.⁸ (2001), reviewing 740 OSCC patients in the state of Minas Gerais, also located in southeastern Brazil, revealed that almost 50% of their patients

with OSCC were diagnosed as T4 tumors. Although this former study was published a decade ago and it seems that tumors are being diagnosed in earlier stages in recent years, some biases could justify these differences. The present study has presented data derived from an Oral Pathology public service responsible for diagnosis of OSCC mostly in patients of low socioeconomic status. After diagnosis, these patients are referred to public cancer treatment centers and some additional delay is expected, both due to patient and institutional difficulties and limitations, before starting treatment.

Most OSCC are histologically diagnosed as MD or WD tumors^{1,3,10,14,19,22,28}, as was also shown by the present results. In contrast, Effiom, et al.⁶ (2008) have shown that 47.6% of their cases were histologically classified as PD tumors, while WD tumors represented 32.6% of their sample. When analyzing the present results, it was also observed that males were predominantly affected by MD and PD OSCC, while females were mainly affected by WD and MD tumors. It was also shown that histological grade can also be possibly associated with the site of the tumors, as OSCC affecting the buccal mucosa/buccal sulcus and lower lip were predominantly WD, while tumors affecting the border of tongue, floor of mouth/ventral tongue and alveolar mucosa/gingiva were predominantly MD, although the differences were not statistically significant.

Several OSCC variants have been reported in the literature and the establishment of the specific appropriate histological diagnosis is essential, as some histological subtypes and distinct clinicopathological entities are managed with different treatment protocols and present variable prognosis^{22,28}. Microinvasive OSCC was diagnosed in 7.5% of the present cases and, in this specific pattern, careful evaluation of serial sections and careful analysis of the basal lamina were performed in all cases, in order to confirm early invasion and restriction of the tumor cells to the papillary lamina propria. Verrucous carcinoma was diagnosed in 9 cases (2.6%) in the present sample and the mean time of complaint was much longer than the mean time of complaint of the whole sample, which can be justified by the indolent and painless course of this subtype. Rekha and Angadi²⁴ (2010) have recently reported a series of 133 verrucous carcinomas, representing 16% of all SCC diagnosed in their files from India. Their cases have affected mostly males in their fifties with predilection for the buccal mucosa. Oliveira, et al.²¹ (2006) reported on 20 cases of verrucous carcinoma from a Brazilian population, reinforcing that elderly males were predominantly affected with site predilection for the lower lip and hard palate. The present results have shown that elderly

females were the most affected group and that the tumors showed a predilection for the alveolar mucosa/gingiva and buccal mucosa/buccal sulcus, but the few cases included in the present series avoid any conclusive distinct pattern of distribution of the disease in the studied population. Although it has been reported in a recent review²² that some studies have named verrucous carcinomas with minor foci of invasion as "hybrid verrucous carcinoma – WD OSCC", we have considered these "hybrid" tumors as WD OSCC in the present series. Basaloid OSCC is a rare aggressive variant with predilection for male adults, usually tobacco and alcohol users, which is predominantly seen as an ulcerated exophytic mass²². Both cases diagnosed in the present series affected adults in their sixties and tumors were located on the tongue and buccal mucosa. Spindle cell carcinoma was diagnosed in 5 cases in the present series and these cases have been comparatively evaluated elsewhere²⁶.

The most representative limitations on the methods and results from the present study are associated with the retrieval of clinical and histological information from, respectively, laboratory records and incisional biopsies. On the other hand, the sample represents the profile of OSCC submitted to diagnosis in the studied population, including both patients that are going to be submitted to curative and palliative OSCC treatment and patients who are not going to be submitted to any treatment due to advanced disease. These data would properly reflect the epidemiological profile of OSCC in a public Oral Pathology diagnostic service in southeastern Brazil.

OSCC age and gender profile, as well as site predilection, shows a heterogeneous pattern of distribution in different countries, in different regions from the same country and in different ethnic groups from the same region, which can be associated with both genetic factors and cultural habits/behavior¹⁵. Studies focusing on specific regions are welcome as they show the demographic and clinical profile of OSCC in restricted geographic locations, offering an enhanced comprehension of these tumors and the possibility of planning specific strategies of prevention, diagnosis and treatment.

CONCLUSION

Demographic and clinical profile of OSCC-affected patients in the studied population revealed that females were affected about a decade older than males, that males reported both tobacco and alcohol consumption more frequently than females and that the tumors in males mostly affected the border of tongue, floor of mouth/ventral tongue and alveolar mucosa/gingiva, while they were more frequent on the border of tongue, alveolar

mucosa/gingiva and buccal mucosa/buccal sulcus in females. OSCC in males were predominantly poorly and moderately differentiated tumors while they were mostly well and moderately differentiated tumors in females. There were several differences when comparing the clinicopathological data from OSCC-affected male and female patients in the studied population and other studies focusing on different Brazilian and foreign populations are encouraged to confirm these features.

ACKNOWLEDGEMENTS

This study was supported by FAPERJ, Rio de Janeiro, Brazil.

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