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Demographic and Clinicopathological Characteristics of Oral Squamous Cell Carcinomas: Insights from Histological Examination and Clinic Records

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Keywords:	Abstract
Oral Squamous Cell Carcinoma (OSCC), Demographics, Clinicopathological, Characteristics, Tobacco and Alcohol Consumption, Epidemiology	The aim of this study was to investigate the demographics and clinicopathological characteristics of oral squamous cell carcinomas (OSCCs). Histological examination was conducted on all OSCC slides stained with hematoxylin-eosin, and clinic records were thoroughly reviewed. The study comprised 173 cases of OSCC, with 66% of the patients being male. The average age of the patients was a decade older. The most common sites of OSCC occurrence were the tongue border (36%), alveolar mucosa/gingiva (19%), and the tongue floor or ventral tongue (18%). Males exhibited a higher frequency of tobacco and alcohol consumption compared to females. The average tumor size was 3.4 cm. OSCCs were categorized as well-differentiated, moderately differentiated, and poorly differentiated in 26%, 39%, and 20% of cases, respectively. Additionally, microinvasive OSCC was identified in 26 cases, and OSCC variants were observed in 17 cases. Females showed a predilection for developing OSCC in the buccal mucosa/buccal sulcus and alveolar mucosa/gingival regions. Overall, this study provides comprehensive epidemiological insights into OSCC characteristics within a public dental laboratory, emphasizing notable differences and families.
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INTRODUCTION

The most common type of oral cancer was oral squamous cell carcinoma (OSCC), which accounts for 80-90% of all oral malignancies. The prevalence of oral cancer was highly variable worldwide, but oral cavity cancer rates range from 6th to 9th in terms of anatomical location, mostly depending on patient country and gender. The highest incidence of cancer can be found in Southeast Asia [1]. Smoking, drinking, and UV radiation are the primary etiological and predisposing factors, but others include HPV [2], candida infections, and nutritional deficiencies. Most commonly, OSCC develops as an ulcerated lesion with a necrotic central area and elevated rolled borders in adults and the elderly [3]. In most studies, OSCC demographics and clinicopathological characteristics are similar; however, some features can differ from country to country and even within the same country

[4]. Based on OSCC diagnoses from an oral pathology service, study report demographic and clinicopathological features because there are few studies on OSCC.

MATERIAL AND METHODS

Registries were analyzed individually; cytologically diagnosed cases, originating outside of the buccal cavity, and lacking sufficient histological information for classification and assessment were excluded. An only representative histological section was taken when multiple biopsy procedures were carried out on the same patient. By reviewing all forms submitted with specimens, demographic and clinical information was collected, including gender, age, time interval before diagnosis, clinical aspect, tumor location and size, and risk factors. Three types of lesions were identified: ulcers, leukoerythroplakias and tumors with both ulcers

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and leukoerythroplakias. The tumors were located in the following areas: lower lip, tongue border, tongue floor, alveolar mucosa, gingiva, buccal mucosa, tonsils, and alveolar mucosa. As a result of newly published criteria, all histological slides with hematoxylin and eosin (HE) staining were analyzed for diagnosis confirmation and classification as well-differentiated (WD), moderately differentiated (MD) and poorly differentiated (PD) tumors.

Parameter	Number of cases	%
Gender (n=173)		
Males	116	66
Females	57	32
Age (n=168.5)		
<41 years	5.5	2
41 to 60 years	77	45
61 to 80 years	68.5	40
>80 years	17.5	9
Time of complaint (n=116.5)		
0 to 6 months	84.5	72
7 to 12 months	16.5	13
>12 months	15.5	12
Location of the tumors (n=170)		
Border of tongue	61.5	36
Alveolar mucosa/gingiva/retromolar	34.5	19
area		
Floor of mouth/ventral tongue	32.5	18
Soft palate/tonsil area	12	6
Buccal mucosa/buccal sulcus	11.5	6
Lower lip	10.5	5
Others	7.5	3
Clinical aspect (n=161)		
Ulcer	100.5	61
Leukoerythroplakia	27	16
Ulcer + leukoerythroplakia	33.5	20
Size of the tumors (n=98.5)		
<2.1 cm	34.5	34
2.1 to 4.0 cm	40	40
4.1 to 6.0 cm	17.5	17
>6.0 cm	6.5	5

Table 1: Demographics and	clinical features of ora	ll squamous cell carcinomas
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All data were analyzed descriptively and statistically, with a significance level of 5%. Crosstabs were calculated by Pearson Chi-square, and means were compared by T tests.

RESULTS

Using inclusion and exclusion criteria, 173 oral cancers were selected for the study. This represents 65% of all oral cancers diagnosed. All patients were 62.3 years old; the average age of males was about 10 years lower than the average age of females, with a mean age of 59.9 years, SD 10.9 years. In the table, demographic and clinical characteristics according to the number of cases are presented. Patients reported lesions an average of 10 months prior to diagnosis and most patients noticed the lesions before diagnosis. Males complained for 7.6 months compared to females 14.9 months. Most tumors were found on the tongue border (36%), alveolar mucosa and gingiva (19%), and the floor of the mouth (18%). 61%, 20%, and 16% of the sample were tumors with ulcers, ulcers associated with

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leukoerythroplakias, and both. There were 76% of OSCCs with a diameter greater than 4 cm. Tumor size was not different between males and females (Table 1).

A total of 112.5 patients were either current or past smokers. 104 patients reported their use of alcohol (Table 2).

Site of the tumors		Histological grade **		Total ***
	WD	MD	PD	
Tongue border	16.5(31.7%)	22 (42.3%)	13.5 (26%)	52 (34.9%)
Tongue ventral/floor of mouth	7(21.9%)	15 (46.9%)	10(31.3%)	32 (21.5%)
Mucosa of alveolar, gingiva and retromolar regions	9.5 (30.6%)	16 (51.6%)	5.5 (17.7%)	31 (20.8%)
Tonsil/soft palate	2.5 (23.8%)	5 (47.6%)	3 (28.6%)	10.5 (7%)
Buccal sulcus/buccal mucosa	4 (47.1%)	3.5(41.2%)	1 (11.8%)	8.5 (5.7%)
The lower lip	4.5 (52.9%)	3 (35.3%)	1 (11.8%)	8.5 (5.7%)
Others	1.5(23.1%)	3(46.2%)	2 (30.8%)	6.5 (4.4%)
Total	45.5 (30.5%)	67.5 (45.3%)	36 (24.2%)	149 (100%)

Table 2: The histological grade of tumors according to their location

The tumor grades derived from HE-stained slides revealed 93 WD tumors, 138 MD tumors ,and 72 PD tumors of the 303 classical invasive OSCC cases. However, when comparing each location, there were no statistically significant differences in the histological grade of the tumors. There were 43 OSCC samples in total, 26 of which were micro-invasive OSCCs, and the remainder were other types of OSCCs, namely verrucous carcinomas ,spindle cell carcinomas, basaloid carcinomas, and papillary carcinomas. Males had a higher incidence of ulcers than females. It was reported that OSCC mostly affected the tongue border, alveolar mucosa/gingiva, and buccal mucosa/buccalsulcus in men, whereas they were more common in females. Males were more likely to use tobacco and alcohol in the past and present. MD and PD tumors mainly affect males, whereas MD and WD tumors primarily affect females in conventional invasive OSCC.

The mean age of microinvasive carcinoma was 67.2 years. In 73.13% of lesions, leukoerythroplakic areas were found, while ulcerations were found in 50%. Most

tumors are found on the tongue border. On average, tumors measured between 0.2 and 6 cm in size and 52.6 percent did not use tobacco or alcohol. There was a predilection for females with verrucous carcinoma most prevalent in the elderly. The majority of lesions were leukoerythroplakic and ulcerated, with most tumors occurring on the gingiva and alveolar mucosa. Complaints averaged 24 months. Tumors were 3.8 cm in size, and most patients reported smoking but not drinking. An adult male diagnosed with spindle cell carcinoma. 80% of the cases had ulcerated areas, while 20% had leukoerythroplakic areas. Tumors affected the tongue border, the alveolar mucosa/gingival, the soft palate, and other sites. Smoking and alcohol use were both reported in addition to 4.3 cm tumors. An ulcerated and leukoerythroplakic mucosa of a 62-yearold male, after 123 months of evolution, is 10 cm in size ulcerated and leukoerythroplakic. Tobacco use was reported by one patient. A 64-year-old who did not use tobacco or alcohol was affected by a papillary OSCC in his buccal mucosa.

Parameter	Males	Females	Total	P value **
Ulcers				0.017
Yes	72 (67%)	28.5 (53.3%)	100.5 (62.4%)	
No	35.5 (33%)	25 (46.7%)	60.5 (37.6%)	
Leukoerythroplakia + ulcers				0.939
Yes	22.5 (20.9%)	11 (20.6%)	33.5 (20.8%)	

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No	85 (79.1%)	42.5 (79.4%)	127.5 (79.2%)	
Leukoerythroplakia				0.001
Yes	13 (12.1%)	14(26.2%)	27 (16.8%)	
No	94.5(87.9%)	39.5 (73.8%)	134 (83.2%)	
The location of the lesions				0.004
Tongue border	38.5(33.9%)	23 (40.7%)	61.5 (36.2%)	
Areas of the alveolar mucosa, gingiva, and retromolar teeth	20 (17.6%)	14.5 (25.7%)	34.5 (20.3%)	
Tongue ventral/floor of mouth	27 (23.8%)	5.5 (9.7%)	32.5 (19.1%)	
Tonsil/soft palate	10 (8.8%)	2 (3.5%)	12 (7.1%)	
The buccal mucosa and buccal sulcus	5.5 (4.8%)	6(10.6%)	11.5 (6.8%)	
Lips at the bottom	8 (7%)	2.5 (4.4%)	10.5 (6.2%)	
Others	4.5 (4%)	3 (5.3%)	7.5 (4.4%)	
Use of tobacco				< 0.001
Yes (past or present)	89 (90.4%)	23.5 (56%)	112.5 (80.1%)	
No	9.5 (9.6%)	18.5 (44%)	28 (19.9%)	
Use of alcohol				< 0.001
Yes (past or present)	61 (84.7%)	12 (37.5%)	73 (70.2%)	
No	11 (15.3%)	20 (62.5%)	31 (29.8%)	
The histological grade*				0.004
Differentiated well	27.5 (26.3%)	19 (40.4%)	46.5 (30.7%)	
Differentiated moderately	47 (45%)	22 (46.8%)	69 (45.5%)	
Differentiated poorly	30 (28.7%)	6 (12.8%)	36 (23.8%)	

DISCUSSION

Based on recent studies, OSCC predominantly affects men, with a male:female ratio of 6:1. Several recent studies suggest that women with lower male-to-female ratios are more common due to changes in their social profiles and lifestyles [4], especially tobacco consumption and alcohol consumption. In most studies [5], OSCC is most commonly diagnosed in adults between the ages of 50 and 70, a finding also confirmed by the present study. In the present study, only 3% of the patients were under 41 years of age, consistent with previous study (4,7%) and literature means ranging from 4 to 6% [6,7]. In a study showed that the average age of patients was 45.3 years old and 40% of patients were under 40 years of age [8], suggesting that there is a geographic and populational difference in mean age. According to other authors [9], men affected by OSCC are older than that of women. Smoking and alcohol consumption are major risk factors. These findings confirm other studies that deleterious habits are more prevalent in males than females with OSCC. OSCC

patients' male:female ratio may be affected by this pattern. Many young patients with OSCC do not report tobacco or alcohol use as a risk factor, or their use was not long enough to cause cancer [10]. OSCC patients have more high-risk HPV types than control adults and elderly groups suggesting dietary/nutritional factors as well as genetic predispositions may play a role. There is a close association between OSCC11 and OPMD in terms of gender, age, and site preferences. A leukoerythroplastic area is expected with OPMD, regardless of the malignant transformation rate [11]. A third of the patients we studied showed this pattern. It is reasonable to conclude that early diagnosis of OSCC could have been achieved by focusing surveillance on OPMD since the mean tumor size (cT1 and cT2) was less than 4 cm (cT1 and cT2) and more than two-thirds complained within 6 months [12]. These results illustrate the importance of considering OSCC when dealing with leukoplakias and erythroplakias, and the need for biopsy specimens from all these lesions. There are several continuous areas of oral mucosa that may be

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affected by OSCC. Most commonly affected areas are the tongue border, gingiva, and alveolar mucosa. According to the study [13], 50% of their OSCC affected gingiva and alveolar ridge, indicating specific etiological factors for OSCC development. In Nigeria, the tongue and lower and upper gingiva were most commonly affected, according to study [14]. It was most common to find OSCC1 on the lower lip intraorally. It appears that OSCC most commonly affects the tongue, lips, and buccal mucosa in Iran, according to previous findings. Females have different tumor locations.

Delay in diagnosis of OSCC is caused by a variety of factors, such as social and health-related behaviors27. (76%) of the tumors were cT1 or cT2, but the mean delay before seeking professional assistance was 10 months. There is an increase in early cancer diagnoses, and this study was published a decade ago, but some biases may explain these differences. Low-income patients who undergo public oral pathology are more likely to develop OSCC. It was expected that some additional delay will occur, both for patients and institutions. The present results also indicate that most OSCC are MDs or WDs. Additionally, it was observed that WD and MD tumors were more common in females than MD and PD tumors in males. Additionally, OSCC that affected lower lip, buccal mucosa, and floor of mouth were predominantly WD in histological grade, whereas tongue border, floor of mouth, ventral tongue, and alveolar mucosa/gingiva were predominantly MD. Some histological subtypes and distinct clinicopathological entities require different treatment protocols and have different outcomes. In all cases with microinvasive OSCC [15], serial sections and careful analysis of the basal lamina were performed to confirm early invasion and the lack of tumor cells in the papillary lamina propria. The present sample had 9 cases of verrucous carcinoma (2.6%), which may be explained by its indolent and painless nature. The disease predominantly affects men in their fifties. A population study found a predilection for the lower lip and hard palate in elderly patients with verrucous carcinoma [16]. Although the tumors preferred the alveolar mucosa/gingiva and buccal mucosa/buccal sulcus, the few cases included in this study do not reveal any distinct pattern. Men who smoke or drink alcohol are more likely to develop this aggressive variant of OSCC2. In the present series, tongue and buccal mucosa tumors were found. The present series compares 5 cases of spindle cell carcinoma elsewhere. Incisional biopsies and laboratory records are not accessible, which is a major limitation of this study. Therefore, the sample includes all OSCC patients diagnosed in the studied population, including those receiving curative and palliative treatment as well as those not receiving treatment due to advanced disease. Oralpathology diagnostic services would provide an accurate picture of OSCC's epidemiology. Genetic factors and cultural habits/behaviors in different countries, regions, and ethnic groups within a country can influence OSCC age and gender profiles. The study of OSCC in specific regions will provide a better understanding of these tumors and allow for more tailored prevention, diagnosis, and treatment strategies for those tumors.

CONCLUSION

Among OSCC patients in the study population, males were more likely to consume tobacco and alcohol, and tumors mostly affected males' tongue borders, floor of mouth/ventral tongue, and alveolar mucosa/gingiva. On the female side, the buccal mucosa and alveolar mucosa were more prevalent. The differentiation of OSSC was mostly moderate and poorly developed in males, whereas females were well and moderately differentiated. It would be useful to confirm these findings in studies comparing data of male and female OSCC patients.

REFERENCES

- Al-Rawi NH, Talabani NG. Squamous cell carcinoma of the oral cavity: a case series analysis of clinical presentation and histological grading of 1425 cases from Iraq. Clin Oral Invest. 2008;12:15-8.
- Albuquerque R, López-López J, Marí-Roig A, Jané-Salas E, Roselló-Llabrés X, Santos JR. Oral tongue squamous cell carcinoma (OTSCC): alcohol and tobacco consumption versus nonconsumption. A study in a Portuguese population. Braz Dent J. 2011;22:517-21.
- Andisheh-Tadbir A, Mehrabani D, Heydari ST. Epidemiology of squamous cell carcinoma of the oral cavity in Iran. J Craniofac Surg. 2008;19:1699-702.
- Barnes L, Eveson JW, Reichart P, Sidransky D. World Health Organization classification of tumors - pathology & genetics - head and neck tumors. Lyon: IARC Press; 2005.
- Carvalho AL, Singh B, Spiro RH, Kowalski LP, Shah JP. Cancer of the oral cavity: a comparison between institutions in a developing and a developed nation. Head Neck. 2004;26:31-8.

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- Effiom OA, Adeyemo WL, Omitola OG, Ajayi OF, Emmanuel MM, Gbotolorun OM. Oral squamous cell carcinoma: a clinical and pathologic review of 233 cases in Lagos, Nigeria. J Oral Maxillofac Surg. 2008;66:1595-9.
- Gaitán-Cepeda LA, Peniche-Becerra AG, Quezada-Rivera DQ. Trends in frequency and prevalence of oral cancer and oral squamous cell carcinoma in Mexicans. A 20 years retrospective study. Med Oral Patol Oral Cir Bucal. 2011;16:e1-5.
- Gervásio OL, Dutra RA, Tartaglia SM, Vasconcellos WA, Barbosa AA, Aguiar MC. Oral squamous cell carcinoma: a retrospective study of 740 cases in a Brazilian population. Braz Dent J. 2001;12:57-61.
- Grimm M. Prognostic value of clinicopathological parameters and outcome in 484 patients with oral squamous cell carcinoma: microvascular invasion (V+) is an independent prognostic factor for OSCC. Clin Transl Oncol. 2012;14:870-80.
- Jainkittivong A, Swasdison S, Thangpisityotin M, Langlais RP. Oral squamous cell carcinoma: a clinicopathological study of 342 Thai cases. J Contemp Dent Pract. 2009;10:E033-40.
- Johnson NW, Jayasekara P, Amarasinghe AA. Squamous cell carcinoma and precursor lesions of the oral cavity: epidemiology and etiology. Periodontol 2000. 2011;57:19-37.
- Kaminagakura E, Villa LL, Andreoli MA, Sobrinho JS, Vartanian JG, Soares FA, et al. High-risk human papillomavirus in oral squamous cell carcinoma on young patients. Int J Cancer. 2012;130:1726-32.
- 13. Kruse AL, Bredell M, Grätz KW. Oral cancer in men and women: are there differences? Oral Maxillofac Surg. 2011;15:51-5.
- Larsen SR, Johansen J, Sørensen JA, Krogdahl A. The prognostic significance of histological features in oral squamous cell carcinoma. J Oral Pathol Med. 2009;38:657-62.
- Liu L, Kumar SK, Sedghizadeh PP, Jayakar AN, Shuler CF. Oral squamous cell carcinoma incidence sectioned by sublocations among diverse racial and ethnic populations in California. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2008;105:470-80.
- Losi-Guembarovski R, Menezes RP, Poliseli F, Chaves VN, Kuasne H, Leichsenring A, et al. Oral carcinoma epidemiology in Paraná State, Southern Brazil. Cad Saude Publica. 2009;25:393-400.