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The demographics and histopathological features of oral cavity cancers in Turkey*

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Background/aim: This study aimed to examine the demographics and histopathological features of oral cavity cancers (OCCs) managed in our clinic.

Materials and methods: Patients who were diagnosed with OCCs in the Gazi University Otorhinolaryngology Department between the years 1993 and 2013 were retrospectively enrolled in the study. Surgical archive charts and pathology records were reviewed in detail regarding the anatomical and histopathological profiles of the tumors, as well as the demographic data of the patients.

Results: Out of 230 patients with OCCs, the most common anatomic location and histopathological diagnosis were found to be the oral tongue (41.4%) and squamous cell carcinoma (SCC) (84.3%), respectively. A marked predominance of SCC was observed in all subsites of the oral cavity except the hard palate location. The mean age at presentation was 55.5 ± 13.4 years (±SD). The male:female ratio was found to be 2.2:1. A male predominance was also present in all subsites except the retromolar trigon.

Conclusion: OCCs particularly concern the elderly population with a male predominance. The most common location and histopathological type are the oral tongue and SCC, respectively.

Key words: Oral cavity cancer, squamous cell carcinoma, oral tongue

1. Introduction

Oral cavity malignancy is the 11th most common cancer worldwide (1). It accounts for nearly 30% of all head and neck cancers (2). Squamous cell carcinoma (SCC) is responsible for a majority of the cases (90%) while the remaining 10% represent rare malignancies as unusual forms of SCC, minor salivary gland tumors, lymphoma, sarcoma, and melanoma (2).

The most common preventable etiologic risk factors are tobacco and alcohol consumption, for which a synergistic relationship is also present (3). The most common well-known carcinogenic chemicals in tobacco smoke associated with oral cavity carcinogenesis are N-nitrosonornicotine, 4-(methyl-nitrosamino)-1-(3-pyridyl)-1-butanone, and polycyclic aromatic hydrocarbons (4). In particular ultraviolet radiation is the main predisposing factor for lip cancers (5). In addition, the incidence of HPV-related oral cancers has increased in the last decade (6).

Excluding skin and thyroid cancers, oral cavity cancers (OCCs) are supposed to be the second most common head and neck malignancy in Turkey after larynx carcinoma (7). However, there are very limited data in the literature concerning the profile of OCCs in Turkey (7–9). Therefore, in this study, we aimed to report the demographics and histopathological features of oral cavity malignancies managed in our clinic over a 20-year period to give an idea about the profile of OCCs in Turkey.

2. Materials and methods

This study was conducted in the Otorhinolaryngology Department of the Gazi University Faculty of Medicine in Ankara, Turkey. Approval was received from the local ethics committee. The surgical archive charts between the years 1993 and 2013 were retrospectively reviewed. The patients undergoing operation or biopsy procedure with the diagnosis or suspicion of malignancy in the oral cavity were enrolled in the study. All malignant tumors arising

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in oral cavity sublocations such as the lip, oral tongue, buccal mucosa, alveolar ridge, hard palate, floor of mouth, and retromolar trigone were included in the study after confirming the histopathological diagnosis of malignancy. Patients lacking definitive histopathological records in the internal computer network were excluded from the study. The demographics and histopathological features of the patients were examined with regard to oral cavity sublocation in detail.

3. Results

Overall histopathological analysis is shown in the Table. Oral tongue cancers were the most common among 230 cases of OCCs. It was diagnosed in 95 of the patients (41.3%). Lip tumors were the second most common malignancy and were diagnosed in 37 patients (16.1%). Incidences of tumors in the other subsites of the oral cavity were as follows: 25 in the alveolar arch (10.9%), 25 in the floor of mouth (10.9%), 22 in the hard palate (9.6%), and 13 in both the retromolar trigon and the buccal mucosa (5.7%) (Figure 1). When considering the diversity of the histopathological diagnoses, the most homogeneous group was the oral tongue with a rate of 100% diagnosis of SCC. A marked dominance of SCC was observed in all subsites except the hard palate location. Nearly half of the patients were diagnosed with minor salivary gland malignancies in the hard palate (n: 10, 45.4%). Among all OCCs there were 194 (84.3%) diagnosed cases of SCC, 20 (8.7%) cases of minor salivary gland malignancy, 6 cases of malign melanoma (2.6%) and three (1.3%) cases of soft tissue carcinoma as represented in Figure 2. One hundred and fifty-eight males and 72 females were affected by oral cavity cancer and the male:female ratio was found to be 2.2:1. A male predominance was also present in all subsites except the retromolar trigon tumors, as shown in Figure 3. The mean age (±SD) at presentation was 55.5 ± 13.4 years. Most of the patients were in the fifth and sixth decades (median: 56, range: 15–85). There were 48 patients (20.8%) under 45 years old.

The demographics and histopathological features of the patients are given in detail below with regards to oral cavity sublocation.

3.1. Lip

Thirty-seven (16.1%) patients met the criteria for inclusion. Almost all patients (34 cases, 91.9%) were diagnosed with SCC. In one case upper lip basal cell carcinoma was observed. The remaining histopathological types are listed in the Table. The male:female ratio and the mean age were

Table. Histopathological analysis of oral cavity cancers.

	Lip	Oral tongue	Buccal mucosa	Alveolar arch	Floor of mouth	Hard palate	Retromolar trigone	Total
Squamous cell carcinoma	34	95	11	21	18	4	11	194
Verrucous carcinoma	-	-	1	-	-	-	-	1
Basaloid carcinoma	-	-	-	1	-	-	-	1
Basal cell carcinoma	1	-	-	-	-	-	-	1
Basosquamous cell carcinoma	1	-	-	-	-	-	-	1
Adenocarcinoma	1	-	1	-	-	3	1	6
Adenoid cystic carcinoma	-	-	-	-	3	4	-	7
Adenosquamous carcinoma	-	-	-	-	1	-	-	1
Mucoepidermoid carcinoma	-	-	-	-	1	3	1	5
Malign melanoma	-	-	-	1	1	4	-	6
Lymphoma	-	-	-	1	-	1	-	2
Myoepithelial carcinoma	-	-	-	-	-	2	-	2
Oncocytic carcinoma	-	-	-	-	-	1	-	1
Chondroid myxosarcoma	-	-	-	1	-	-	-	1
Undifferentiated carcinoma	-	-	-	-	1	-	-	1
Total	37	95	13	25	25	22	13	230

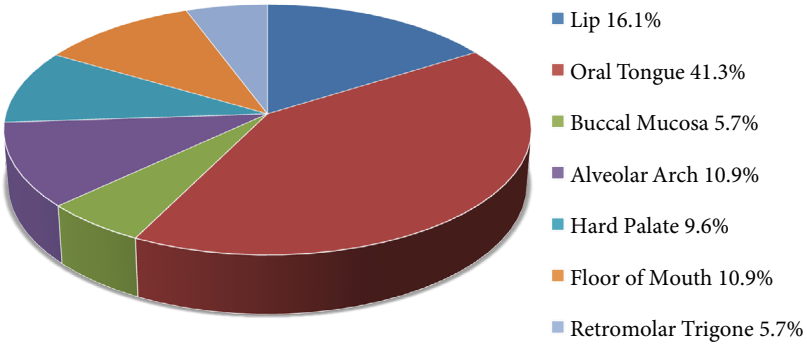


Figure 1. Locations of oral cavity cancers (n = 230).

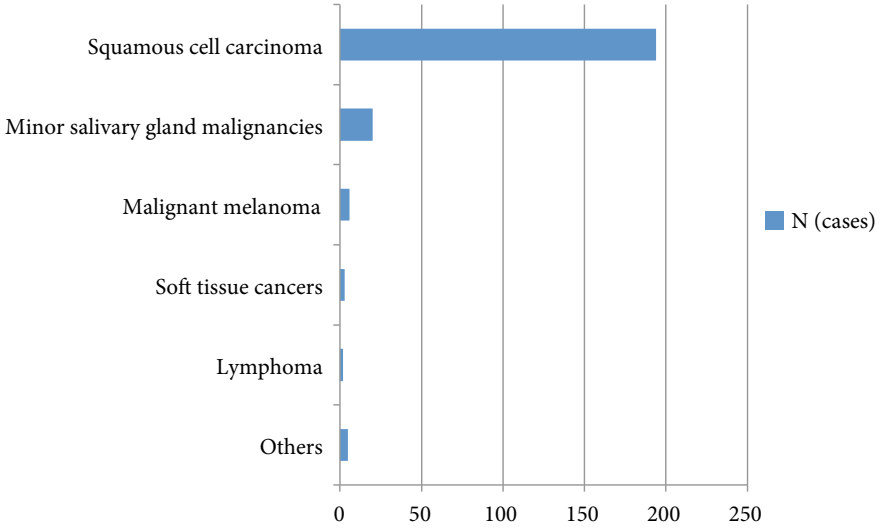


Figure 2. Comparison of histopathological diagnoses.

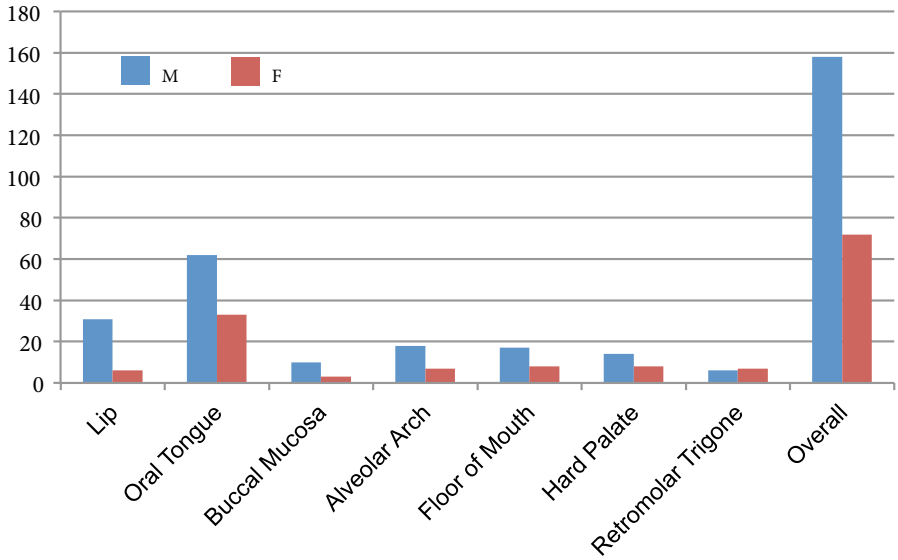


Figure 3. Sex distribution of oral cavity cancers (M: male, F: female).

5.2:1 (31/6) and 58.3 years (range: 30–85). Only in three cases was the tumor origin the upper lip, whereas in the remaining 34 cases it was the lower lip.

3.2. Oral tongue

There were 95 patients (41.3%) with oral tongue carcinoma and all of them were diagnosed with SCC. We did not

observe any other histopathological type of malignancy in this region. The male:female ratio was 1.9:1 (62/33). Most of the patients were in the fifth and sixth decades (mean: 54.3, range: 18–83).

3.3. Floor of the mouth

There were 25 (10.9%) patients undergoing operation due to the malignancy in the floor of mouth while meeting the inclusion criteria. The majority (18, 72%) of the patients were operated on with the diagnosis of SCC. The second leading pathology was adenoid cystic carcinoma (3, 12%). The male:female ratio was 2.1:1 (17/8) and the mean age at presentation was 58.4 years (range: 35–80).

3.4. Buccal mucosa

Thirteen patients (5.7%) met the criteria for inclusion. Almost all patients (11, 84.6%) were diagnosed with SCC, whereas two had adenoid cystic carcinoma and SCC variant verrucous carcinoma. The male:female ratio and the mean age were 3.3:1 (10/3) and 64.3 years (range: 38–80).

3.5. Retromolar trigone

Thirteen (5.7%) patients underwent operation due to a malignancy located in the retromolar trigone. Seven of these originated from the right side whereas 6 of them arose in the left retromolar trigone. The final pathologic diagnosis was SCC in the majority (11, 84.6%) of the cases. The remaining two patients were operated on due to minor salivary gland malignancies: mucoepidermoid carcinoma and adenocarcinoma. The male:female ratio was 0.9:1 (6/7). Most of the patients were in the fifth decade (mean: 54.3, range: 40–68).

3.6. Alveolar arch

Twenty-five (10.9%) patients were met criteria for inclusion. Twenty-one of them were diagnosed with SCC (84%). Only four cases were diagnosed as something other than SCC. The male:female ratio and the mean age were 2.6/1 (18/7) and 56.4 years (range: 39-79), respectively. The inferior alveolar arch was the most common site (20 cases, 80%) for tumor origin in this location.

3.7. Hard palate

There were 22 (9.6%) cases with hard palate localization. Nearly half of the patients were diagnosed with minor salivary gland malignancies (10 cases, 45.4%). The other histopathological types are represented in the Table. The male:female ratio was 1.8/1 (14/8). Most of the patients were in the fifth and sixth decades (mean: 55.8, range: 37–74).

4. Discussion

In this study the anatomical and the histopathological profiles as well as the demographic data of OCCs from a single center in Turkey were reviewed in detail. SCC was observed to be the most common (84.3%) histopathological type among all oral cavity malignancies managed in our clinic. This finding is compatible with previous reports (10). SCC was also found to be the most common histopathological type among all oral cavity subsites except the hard palate. In the hard palate location, 10 (45.4%) cases were diagnosed as minor salivary gland malignancy, whereas 4 (18.2%) patients had SCC. Likewise, in the previous study of Tian et al., mucoepidermoid and adenoid cystic carcinomas were reported to be equally the most common malignant tumors arising in this region, compatible with our findings (11).

In the study there were a total of 230 malignancies that originated from the oral cavity during a 20-year time period. With regard to our literature review, this is one of the largest samples from Turkey regarding OCCs (7–9). Midilli et al. reported a series of 231 patients with oral cavity and oropharynx carcinomas from Turkey. In their study the oral tongue was found to be the most common location with a male predominance, compatible with our findings (8). Uğurluer et al. reported the survival rates of a sample of 32 patients from their clinic in Turkey. They stated that the oral tongue (15 cases, 46.9%) and lip (13 cases, 40.6%) locations were the most common subsites (9).

OCCs are known to be more common in males with a male:female ratio ranging from 6:1 to 2:1 (12). In the current study the male:female ratio was found to be 2.2:1 (158/72). An increase is reported in the number of affected females, especially in recent studies (13). This may be due to increased carcinogen exposure, such as tobacco and alcohol consumption, as a result of increased social and economic status of females in communities. However, there was a female predominance in the retromolar trigone location as opposed to other sites of the oral cavity.

The average age at presentation is reported to be in the fifth and sixth decades in the literature (14,15). Likewise, in our study, the mean age at presentation was 56.2 years (range: 15–85), compatible with previous reports. The prevalence of OCCs has increased among young patients in the past years (16). In the study of Santos et al., 76 patients (3%) diagnosed with oral cavity SCC out of 2311 cases were under 45 years (16). Falaki et al. found that 21 patients out of 158 cases of OSCC were under 40 years old (13.2%) (17). Likewise, in our study, 48 patients (20.8%) were under 45 years old among 230 cases of OCCs.

In general lip tumors are the most common cancers among all oral cavity malignancies. They account for nearly 30% of cases (18). However, there are also many reports showing that the majority of OCCs involve the oral tongue (19,20). Likewise, the oral tongue was found to be the most common location in our institution, which is a tertiary reference center. In our opinion, this may also be due to the easy management of early-stage tumors in

secondary reference centers and/or due to the referral of lip cancer cases to the Plastic and Reconstructive Surgery Department. In addition, there may also be some regional variations in the epidemiology of oral cancers. For instance, the buccal mucosa is the most common site for oral cancers in India, where betel quid and tobacco chewing is common (21,22).

The main limitation of this study is the lack of information regarding smoking and alcohol consumption among the patients, which is attributed to the retrospective design of the study. With such data we would be able to expand on the differences revealed between male/female ratios based on those etiologic factors.

In conclusion, this is one of the largest sample reports regarding oral cavity malignancies in Turkey. With the findings of our study, oral cavity malignancies particularly concern the elderly population with a male predominance. The most common location and histopathological type are the oral tongue and SCC, respectively. However, a more comprehensive study with a multiinstitutional design is needed to ascertain the demographics and histopathological profile of OCCs in Turkey.

References

1. Bray F, Ren JS, Masuyer E, and Ferlay J. Estimates of global cancer prevalence for 27 sites in the adult population in 2008. Int J Cancer 2013; 132: 1133-1145.
2. Genden EM, Ferlito A, Silver CE, Takes RP, Suárez C, Owen RP, Haigentz M Jr, Stoeckli SJ, Shaha AR, Rapidis AD et al. Contemporary management of cancer of the oral cavity. Eur Arch Otorhinolaryngol 2010; 267: 1001-1117.
3. Blot WJ, McLaughlin JK, Winn DM, Austin DF, Greenberg RS, Preston-Martin S, Bernstein L, Schoenberg JB, Stemhagen A, Fraumeni JF Jr. Smoking and drinking in relation to oral and pharyngeal cancer. Cancer Res 1988; 48: 3282-3287.
4. Frydrych AM, Slack-Smith LM, Parsons R, Threlfall T. Oral cavity squamous cell carcinoma - characteristics and survival in aboriginal and non-aboriginal Western Australians. Open Dent J 2014; 29: 168-174.
5. Gallagher RP, Lee TK, Bajdik CD, Borugian M. Ultraviolet radiation. Chronic Dis Can 2010; 29: 51-68.
6. Chaturvedi AK, Engels EA, Anderson WF, Gillison ML. Incidence trends for human papillomavirus-related and -unrelated oral squamous cell carcinomas in the United States. J Clin Oncol 2008; 26: 612-619.
7. Başak K, Sağlam Y, Yıldız AG, Başar M, Köse Hİ, Kayıpmaz Ş, Karadayı N. Profile of head and neck cancers in Dr. Lütfi Kırdar Kartal Educational and Research Hospital. Turk Patoloji Derg 2015; 31: 119-125 (in Turkish with abstract in English).
8. Midilli R, Akyıldız S, Yavuzer A, Aydemir B, Öğüt F. A retrospective analysis of epidemiological charecteristics of 231 patients with oral cancers. Kbb-Forum 2005; 4: e4-7 (in Turkish with abstract in English).
9. Uğurluer G, Ozyurt SC, Aksaray F, Aslan N, Habiboğlu R, Tümöz M. Prognostic factors and survival rates in oral cavity cancers. Kulak Burun Bogaz Ihtis Derg 2006; 16: 64-71 (in Turkish with abstract in English).
10. 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.
11. Tian Z, Li L, Wang L, Hu Y, Li J. Salivary gland neoplasms in oral and maxillofacial regions: a 23-year retrospective study of 6982 cases in an eastern Chinese population. Int J Oral Maxillofac Surg 2010; 39: 235-242.
12. Pires FR, Ramos AB, Oliveira JB, Tavares AS, Luz PS, Santos TC. Oral squamous cell carcinoma: clinicopathological features from 346 cases from a single oral pathology service during an 8-year period. J Appl Oral Sci 2013; 21: 460-467.
13. Rich AM, Radden BG. Squamous cell carcinoma of the oral mucosa: a review of 244 cases in Australia. J Oral Pathol 1984; 13: 459-471.
14. MacFarlane GJ, McCredie M, Coates M. Patterns of oral and pharyngeal cancer incidence in New South Wales, Australia. J Oral Pathol Med 1994; 23: 241-245.
15. Santos HB, Dos Santos TK, Paz AR, Cavalcanti YW, Nonaka CF, Godoy GP, Alves PM. Clinical findings and risk factors to oral squamous cell carcinoma in young patients: a 12-year retrospective analysis. Med Oral Patol Oral Cir Bucal 2016; 21: e151-156.
16. Falaki F, Dalirsani Z, Pakfetrat A, Falaki A, Saghravanian N, Nosratzehi T, Pazouki M. Clinical and histopathological analysis of oral squamous cell carcinoma of young patients in Mashhad, Iran: a retrospective study and review of literature. Med Oral Patol Oral Cir Bucal 2011; 16: e473-477.
17. Hasson O. Squamous cell carcinoma of the lower lip. J Oral Maxillofac Surg 2008; 66: 1259-1262.
18. Fowler G, Reade PC, Radden BG. Intraoral cancer in Victoria. Med J Aust 1980; 2: 20-22.
19. Sugerman PB, Savage NW. Current concepts in oral cancer. Aust Dent J 1999; 44: 147-156.
20. Krishna Rao SV, Mejia G, Roberts-Thomson K, Logan R. Epidemiology of oral cancer in Asia in the past decade--an update (2000-2012). Asian Pac J Cancer Prev 2013; 14: 5567-5577.
21. Jacob BJ, Straif K, Thomas G, Ramadas K, Mathew B, Zhang ZF, Sankaranarayanan R, Hashibe M. Betel quid without tobacco as a risk factor for oral precancers. Oral Oncol 2004; 40: 697-704.
22. Lambert R, Sauvaget C, de Camargo Cancela M, Sankaranarayanan R. Epidemiology of cancer from the oral cavity and oropharynx. Eur J Gastroenterol Hepatol 2011; 23: 633-641.