A 5 year Epidemiological Study on Oral and Pharyngeal Cancers from Cancer Registration Centers in Tehran

Shamsoulmolouk Najafi [1,2], Ahmad Jafari Ghavamabad [3], Farshad Moradi [4], Seyed Dvood Bafrouii [4] and Mina Khayamzadeh [2*]

1. Dental Research Center, Dentistry Research Institute, Tehran University of Medical Sciences, Tehran, Iran

2. Department of Oral and Maxillofacial Medicine, Faculty of Dentistry, Tehran University of Medical Sciences, Tehran, Iran

3. Department of Community Oral Health, Faculty of Dentistry, Tehran University of Medical Sciences, Tehran, Iran

4. Dentist

Abstract

Background: Oral and pharyngeal cancers are among the life threatening medical conditions that cause death and disability, and have variable prevalence in different geographic regions. It is the thirteenth and seventeenth most common cancer among men and women in Iran, respectively. The aim of this study was to investigate the epidemiologic factors related to oral and pharyngeal cancers, within a period of 5 years from 2001 to 2006 in clinical and medical educational centers of Tehran.

Methods: In this retrospective descriptive cross-sectional study, 256 cases were selected from 5 cancer centers. The forms were filled up by two methods including information collection from completed medical records and completion of incomplete information via calling patients on the phone using ICDO-Coding system to determine the type of malignant lesions. The SPSS software was used for data statistical analysis.

Results: Among 256 cases of this study, Squamous Cell Carcinoma (SCC) was the most common lesion (70.3 %) followed by Mucoepidermoid Carcinoma (MEC). The most common site of cancer was the tongue (25.8 %) followed by larynx (15.2 %). The ratio of men to women was 1.8 over 1. The mean age of patients was 40 to 70 years. SCC and MEC had the most recurrence rates and in 23 cases (11.3 %) metastasis were reported, of which 14 cases were SCC.

Conclusion: This study found that the most common malignancy in oral cavity and pharynx was SCC similar to the literature and men were almost involved two times more than women. We suggest that medical authorities should be aware of improving the health system in terms of immediate referral to third level health care when oral cavity malignancies are suspected.

Keywords: Mouth, Pharyngeal neoplasms, Retrospective studies, Squamous cell carcinoma, Throat

***Corresponding author**

Mina Khayamzadeh, DDS
Department of Oral and Maxillofacial Disease, Faculty of Dentistry, Tehran University of Medical Sciences, International Campus, Tehran, Iran
Tel: +98 21 8889 6692
Fax: +98 21 8889 6696
Email: mkhayamzadeh@yahoo.com

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Introduction

Oral cancer plays an important role in all populations around the world, especially in the South and Central Asia [1]. World Health Organization (WHO) has published its global goals which is planned to be achieved by 2020, and WHO expects that there must be a reduction in the death rate of oral cancers [1].

Cancer is the third leading cause of death in Iran and more than 30,000 people die each year from cancer [2]. 264 new female cases of oral and lacrimal cancers, with an incidence of 1 in 100,000 (the 17th most common cancer in women) and 386 male cases, with an incidence of 1.3 cases per 100,000 (the 13th most common cancer in men) were registered in Iran in 2004. Deaths from oral cavity cancer in Iran were 171 cases based on the death report in 23 provinces of which 98 and 73 cases were men and women, respectively. It was the fifth most common cancer in Iranian deaths [2].

Head and neck cancer is the sixth common cancer in the world, of which the oral cavity is the most common one. Epidemiological studies show that oral cavity cancers are among the top ten causes of men's mortality in the worldwide. More than 90% of the oral cavity cancers are Squamous Cell Carcinoma (SCC) of tongue, floor of mouth and lips. Laryngeal cancer is the second most common cancer in the upper aero digestive tracts [3]. Gneep [4] reported that the most common type of pharyngeal malignancy (about 95%) was SCC and tonsils were the most common source of tumor.

Sargeran [5] conducted a study on the malignant features of the mouth and lip cancers in 1042 patients from Tehran between years 1993 and 2003. He reported that SCC was the most common oral and lip malignancy with a five-year survival rate of 30%, which is 60% lower than the global mean while the mean time of delay in diagnosis was 7.2 months.

In a study by Maleki *et al*, the male/female ratio for oral cancer was 1.91. Tongue with average percentage of 29.9 was the most involved site. Regarding microscopic grade, 65.7% of cases were grade 1. SCCs accounted for an average of 70.0% of cases, making it the most common type of oral cancer [6].

Meanwhile, Antoniades [7] claim that lips are the most common site of SCC in the mouth (59.4%); other studies claimed that tongue was the most common affected organ in oral cavity. Kowalski [8] studied the metastasis rate of patients with oral malignancies after the initial treatment and found that 3.8% of patients showed distant metastasis.

Health statistics from Iran show that more than 70,000 new cases of cancer occur yearly and also due to an increase in life expectancy, the percentage of the elderly in the country is quickly growing which in turn increases the incidence of cancer in the next decades [2]. Therefore it is necessary to have accurate statistics of cancer prevalence and incidence in different geographical areas. This study has been carried out in order to achieve the prevalence of oral and throat malignancies in a 5-year period from information obtained from some of the cancer treatment centers of Tehran.

Moreover, this retrospective study reports some clinical characteristics of oral cancers such as age, gender, location, and type of lesion.

Patients and Methods

This research is a descriptive-analytic cross-sectional study. Of 100 hospitals in Tehran, 30 hospitals are involved in the treatment of oral cancers [5] and in this research, the main centers for oral and thoracic cancers were introduced by medical universities of capital city of Tehran including Shahid Beheshti University, Iran University, and Shahed University. These universities allowed their cancer centers contribute to this research including Imam Khomeini Educational Hospital, Institute of Cancer and Amiralam Hospital from Tehran University of Medical Sciences, Imam Hossein and Taleghani Hospitals from Shahid Beheshti University of Medical Sciences, and Hazrate Rasool Akram Hospital and Physiotherapy Hospitals of Iran University of Medical Sciences.

The selection of centers was based on the following criteria: the archival system of the centers, their specialties in treatment of oral cancers and their tension of using a supervising professor who was expert in that regard. The selected centers are Shohada-e-Tajrish Hospital from Shahid Beheshti University of Medical Sciences, Firoozgar Hospital from Tehran University of Medical Sciences

and Taleghani Hospital from Shahid Beheshti University of Medical Sciences. It should be noted that due to lack of suitable hospital from Shahed University to meet our criteria, this university was excluded from the study. Then all records of patients with oral cancer from the included centers were studied in in a period of 5 months from 2001 to 2005. Clinical characteristics of patients and malignant tumors of the oral cavity and pharynx were extracted from patients' medical files including age at onset, gender, locations, and type of the lesion.

Of a total 260 cases, 256 were selected to be included in this study. We used two methods to collect the required data. The first method was to fill out prepared forms from the patients' files and the second method was to fill in the incomplete records by phoning the patients. Another goal of contacting patients was to examine the health status of patients after treatment. Forms for importing data were designed and some of the variables were coded to facilitate data collection procedures. An ICDO-coding system was used to enter data of malignant lesions. After completing the forms, final data were entered into the SPSS computer software for statistical analysis. A frequency table was prepared for each variable under study. In addition to the general frequency of each variable, the specific frequency of that variable for each lesion was also determined and included separately.

Results

Of the 260, 4 cases were excluded due to information defects or repeatability. 159 (62.1%) were male and 97 (37.9%) were female. In the case of SCC, 62.8% were male and 37.2% were female. In terms of age distribution, most of them were between their fifth and eighth decades of life (Table 1). The mean age at onset for SCC was 62 years and 36 years for Mucoepidermoid Carcinoma (MEC) (Table 2).

Table 1. The prevalence of oral and pharyngeal cancers in each decade

Decade	Percentage
5th decade	11
6th decade	20.1
7th decade	25.2
8th decade	22.4

The most common site of SCC was tongue (25.8%) and larynx (15.2%), respectively. In the case of MEC, the most common sites were palate (42.9%) and gum (21.4%). Out of all SCC cases, 25% recurred. The most common site of recurrence was the tongue (9.7%). Of the 23 metastatic cases (11.3%), 14 cases were originally SCC (Table 3).

The occupations of patients were: 31 farmers, 81 housewives, 2 military personnel, 5 students,

Table 2. The prevalence of malignant lesions in terms of age of onset

Lesion	Number	Minimum age (yr)	Maximum age (yr)	Age average (yr)
Squamous Cell Carcinoma (SCC)	178	17	90	62.85
Basal Cell Carcinoma (BCC)	3	22	53	37.33
Mucoepidermoid carcinoma (MEC)	14	3	67	36.92
Adenocarcinoma	11	29	90	54.90
Thalamic lymphatic carcinoma	1	49	49	49
Lymphoma	11	2	90	47.72
Osteosarcoma	2	50	53	51.50
Melanoma	9	24	76	51.33
Soft tissue sarcoma	4	18	65	36.75
Other malignancies, or unknown	21	10	73	46.85

12 employees, 36 retired, 18 workers, 10 unemployed, 3 drivers, 15 self-employed, and 3 others (Table 4). Jobs of the rest were not mentioned. In terms of the overall prevalence of lesions, 70.3% of cases were SCC, followed by MEC, lymphoma and adenocarcinoma, which were 5.5, 4.3 and 4.3%, respectively (Table 5).

Table 3. Frequency of malignant oral lesions based on the location

		Lower lip	Tongue	Gum	Mouth	Cavity	Other parts of the mucus	Parotid gland	Other major glands	Tonsils	Pharynx	Larynx	Face bone	Face skin	Connective tissue	Cranial nerves	Total
SCC	Number	6	46	15	17	4	38	0	0	2	14	27	2	6	1	0	178
	Total percentages (%)	3.4	25.8	8.4	9.6	2.2	21.3	0	0	1.1	7.9	15.2	1.1	3.4	0.6	0	100
BCC	Number	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
	Total percentages (%)	0	33.3	0	0	0	33.3	0	0	0	0	0	0	33.3	0	0	100
MEC	Number	0	0	3	0	6	1	2	1	0	0	0	0	1	0	0	14
	Total percentages (%)	0	0	21.4	0	42.9	7.1	14.3	7.1	0	0	0	0	7.1	0	0	100
Adenocarcinoma	Number	0	0	0	0	2	3	0	2	0	2	0	1	1	0	0	11
	Total percentages (%)	0	0	0	0	18.2	27.3	0	18.2	0	18.2	0	9.1	9.1	0	0	100
Thalamic lymphatic carcinoma	Number	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	Total percentages (%)	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	100
Lymphoma	Number	0	0	0	0	0	0	0	0	2	4	0	5	0	0	0	11
	Total percentages (%)	0	0	0	0	0	0	0	0	18.2	36.4	0	45.5	0	0	0	100
Osteosarcoma	Number	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2
	Total percentages (%)	0	0	0	0	0	50	0	0	0	0	0	50	0	0	0	100
Melanoma	Number	0	0	2	0	4	2	0	0	0	0	0	1	0	0	0	9
	Total percentages (%)	0	0	22.2	0	44.4	22.2	0	0	0	0	0	11.1	0	0	0	100
Soft tissue sarcoma	Number	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	4
	Total percentages (%)	0	25	0	0	0	25	0	25	0	25	0	0	0	0	0	100
Other malignancies, or unknown	Number	0	2	0	0	1	1	0	0	0	15	1	0	0	0	1	21
	Total percentages (%)	0	9.5	0	0	4.8	4.8	0	0	0	71.4	4.8	0	0	0	4/8	100
Total	Number	6	50	20	17	17	48	2	4	4	37	28	10	9	1	1	254
	Total percentages (%)	2.4	19.7	7.9	6.7	6.7	18.9	0.8	1.6	1.6	14.6	11	3.9	3.5	0.4	0.4	100

Table 4. The occupation of patients

Occupation	No.	Occupation	No.
Farmer	31	Worker	18
House wife	81	Unemployed	10
Military personnel	2	Driver	3
Student	5	Self employed	15
Employer	12	Other	3
Retired	36		

Table 5. Overall prevalence of lesions

Squamous Cell Carcinoma (SCC)	70.3%
Muccoepidermoid carcinoma (MEC)	5.5%
Lymphoma	4.3%
Adenoma	4.3%

Discussion

Data from 256 cases were statistically analyzed and SCC was the most common oral-pharyngeal malignancy (73%), however Sargeran [5] reported this figure as 87%. Meanwhile, Hoffman [9] reported it as less than 55.8%. He also reported a prevalence of 19.4% for MEC as the second common malignancy. MEC is the most common malignancy of salivary glands and the second most common malignancy in our study, too. In our study it shown to consist more than half of the cases of salivary malignancies, which is similar to the findings of Sargeran *et al* [5] that worked on malignant oral tumors in Iran and Vargas *et al* [10] who worked on salivary gland tumors in Brazilian population.

We showed that most of the patients were male (62.1%) which is in concordance with two previous studies carried out by Moore [11] and Silverman [12] where they cited oral cancer as a male-dominated cancer. Parkin [13] also reported that two third of the cases of oral cancers were in men.

In the present study, 74% of malignancies were seen in people over 40 years of age. Literature also shows that most of these patients are over the age of 40 years [13-15]. Generally, SCC is known as malignancy in elderly and usually happens after the fifth decade of life [7,16]. The mean age at onset of SCC in this study was 62 years, which is similar to other Iranian studies [5].

The mean age for two other common malignancies including MEC and lymphoma were 36 and 47 years, respectively. In a study by Vargas *et al* [10], the mean age at onset for MEC and lymphoma were 37 and 52 years, respectively.

The most common site of malignancy in our study is tongue (19.7%), of which 25.8% were SCC. This finding is in agreement with other studies from other parts of the world [6,17]. We reported recurrence of malignancy in 25 cases of SCC, one case of MEC and 5 patients with adenocarcinoma. The most frequent site of SCC recurrence was the tongue. The high incidence of recurrence in adenocarcinoma is consistent with Weing *et al* [18] report who claimed a recurrence rate of more than 30%.

Out of 203 cases in our study, 23 cases of metastasis occurred accounting for 11.3% of all cases. This rate is more than 8.3% that Kowalski [8] claimed in his report. The cause of the higher incidence of metastasis in the present study might be due to a higher stage of malignant tumors at the time of initial diagnosis. Moreover, due to the delayed referral and treatment, the likelihood of failure in treatment is higher which is associated with higher incidence of distant metastasis.

One of the important factors for oral cancer is type of the occupations. Some occupations are associated with longer exposure to sunlight, especially no sheltered occupations [19,20]. We found that farmers, drivers, open-space workers and military people were at higher risk because 54 (24%) of the subjects were in the above-mentioned high risk jobs.

Conclusion

We believe that knowing the epidemiologic status of these cancers may help removing the barriers and problems present in the health system in order to minimize the delay in diagnosis and treatment of oral cavity cancers. This also improves the quality of the life of affected patient.

To improve the status of cancer registry systems, we suggest that: 1) Medical staff should be more careful in filling and recording the initial symptoms of patients and their risk factors, 2) More attention must be paid by medical and dental practitioners in identifying the potential

lesions and such staff must receive sufficient training in terms of knowing the symptoms and risk of oral and pharyngeal cancers and 3) Cancer registry officials should pay more attention to oral and thoracic cancers as major cancer burden with high economic and social burdens.

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