

Epidemiologic and Clinicopathologic Characteristics of Tongue Cancer in Iranian Patients

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Abstract- Oral cancer is considered a great threat to public health. Tongue cancer accounts for nearly 30% of all oral cancers and usually seen in 50 to 60 year old men. Oropharyngeal cancers account for 3% of all cancers in Iran; as reported in 2003. The present study was designed to assess the epidemiologic and clinicopathologic characteristics of tongue cancer patients in two Tehran's referral university hospital between the years 2003 and 2008. In a retrospective study 87 files of patients, diagnosed with tongue cancer who were referred to Imam Khomeini and Loghman Hospitals and Iranian Cancer Institute in Tehran-Iran from 2003 to 2008 were reviewed. Participants were selected from all the patients who had a record of their specimens in the pathology ward registry and their tongue cancer diagnosis was confirmed by a expert pathologist. Patients characteristics (age, gender and presence of risk factors) and chief complain at the time of diagnosis and their tumor related data (type of cancer, staging, grading, morphology and location of tumor) were recorded. Tongue cancer was most frequently seen in the eighth decade of life among both men and women, but had the lowest frequency among patients with less than 40 years of age. Squamous cell carcinoma had the highest prevalence in our patients. Tongue cancer was the most common cancer of oral cavity among Iranian patients and similar epidemiologic and clinicopathological characteristics of the disease were found in our patients. Assessing variables such as socioeconomic levels and religious believe require further studies with large sample sizes.

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Introduction

High mortality and morbidity rate of oral cancers makes them great threats to public health. It is estimated that nearly 485000 patients worldwide are diagnosed with oral cancer annually and there are more than 260000 deaths due to this disease (1). Some factors such as age, tobacco use, and alcohol consumption, and human papilloma virus infection are reported as risk factors for oral cancer (2-3).

Surgery, radiation and chemotherapy are known as treatment modalities for oral cancer and they are used as single or combined therapy based on the clinical presentation and stage of the cancer (4-5). Among malignancies of the oral cavity, squamous cell carcinoma (SCC) is the most common lesion (6). Other

malignancies such as sarcomas or melanoma are called as non-squamous cell carcinoma. Cancer of tongue accounts for nearly 30% of all oral cancers and is usually seen in 50 to 60 years old men(7-9). Same as other oral cavity cancers, major risk factors of tongue cancers are smoking and alcohol consumption but they are not common risk factors among younger patients (10-11).

Oropharyngeal cancers account for 3% of all cancers in Iran as reported in 2003 (12). In Iran our data on tongue and oral cancer are limited to some areas. The aim of the present study was to assess the epidemiologic and clinicopathologic characteristics of tongue cancers in patients who were referred to Imam Khomeini Hospital and Loghman Hospitals and Cancer Institute between the years 2003 and 2008.

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Patients and Methods

A retrospective study was done, using 87 medical files of patients diagnosed with tongue cancer (squamous cell carcinoma and other types) who were referred to Imam Khomeini Hospital and Loghman Hospitals and Iranian Cancer Institute in Tehran, Iran between the years 2003 and 2008. Participants were selected from all the patients who had a record of their specimens in the pathology ward registry and their tongue cancer diagnosis was confirmed by a expert pathologist. Patients characteristics (age, gender and presence of risk factors) and chief complain at the time of diagnosis and their tumor related data (type of cancer, staging, grading, morphology and location of tumor) were recorded.

Patients were classified into three groups, based on their ages: less than 40 years, 40-60 years and more than 60 years of age. Tumor types were divided into two groups, SCC and non-SCC type. Staging of the tumors was based on the patients' physical examination. Tumor stages were stage I (T1 and N0) and stage II (T2 and N0), stage III-IV (T3, T4 or N>0).

Statistical analysis

Data were analyzed using SPSS version 16 for Windows. Quantitative variables were presented by mean and standard error of mean and qualitative variables were presented by frequency tables. Chi-square test was used to assess the relation between qualitative variables and a (two-tailed) p-value of less than 0.05 was considered statistically significant.

Results

According to our findings, the highest frequency of tongue cancer was seen in the seventh and eighth decade of life in both women and men. These tumors had the lowest prevalence in patients younger than 40 years old. According to chi-square test, tongue tumor frequency was no significantly different between two genders based on their age groups ($P=0.49$) (Table 1).

Most of our patients (all but one) had SCC. Most of the tumors were located in middle part of the tongue. Fixed tongue ulcer (54 cases, 62.1%) and mass (21 cases, 24.2%) were found to be the highest chief complaints at the time of diagnosis. Most of the tumors fit in the category of "well" grading class (Table 2).

Table 1. The frequency of tongue tumors according to genders of patients

Age group	Sex	Male		Female	
		n	%	n	%
0-39 years		3/6	5.4	3/6	6.9
40-49 years		7/10	12.7	3/16	11.5
50-59 years		9/12	16.3	3/12	13.7
60-69 years		17/27	30.9	10/27	31
70-79 years		16/26	29	10/26	29.8
More than 80 years		3/6	5.4	3/6	6.9
Total		55/88	100	32/89	100

Table 2. Tumor characters of included patients

Tumor characters		n	%
Tumor type	SCC	55	63.2
	Other type	32	36.8
Tumor place	Anterior	6	6.9
	Middle	50	57.5
	Posterior	18	20.7
	Sublingual	6	6.9
	Diffuse	7	8
Chief complain	Fixed ulcer	54	62.1
	Pain	6	6.9
	Mass	22	24.2
	Lymph node	1	1.1
	Itching	2	2.3
	Ulcer and itching	1	1.1
	Mass and pain	1	1.1
Tumor grading	Well	40	46
	Moderate	19	21.8
	Poor	4	4.6
	Unclear	24	27.6

Table 3. Grading of the tumors with respect to the tumor places and age of patients

Tumor grading		Well		Moderate		Poor		Total	
		n	%	n	%	n	%	n	%
Tumor place	Anterior	4	11.1	1	5.5	-	-	5	8.6
	Middle	21	58.3	13	72.2	2	50	36	62
	Posterior	8	22.2	4	22.2	1	25	13	22.5
	Sublingual	3	8.3	-	-	1	25	4	6.9
Age	0-39 years	3	7.5	1	5.3	-	-	4	6.3
	40-59 years	9	22.5	5	26.3	-	-	14	22.2
	More than 60 years	28	70	13	68.4	4	100	45	71.4
Gender	Male	25	62.5	11	57.9	3	75	39	62
	Female	15	37.5	8	42.1	1	25	24	38

To assess the relation between grading classes and tumor location, we divided the tumor location into posterior (base of tongue and middle part) and anterior (oral tongue) groups. Grading classes were also categorized into two groups (well and moderate or poorly differentiated classes). Tumor location had no significant association with its grading class ($P=0.96$). Compared with other tumor morphologies, ulcerative and infiltrative lesions had the highest prevalence in our patients (56 cases, 69.1%). Only 75 patients had risk factors and in 12 patients no risk factors were founded in the review of their medical history. Cigarette smoking (40%), denture (13.4%) and leukoplakia (9.3%) were the most common risk factors in our patients. Tobacco use ($P=0.24$) and gender ($P=0.89$) of our patients had no significant impact on tumor grading. No significant association was found between tumor morphology and the patients age ($P=0.59$) (Table 3, 4).

Discussion

Our study showed that among patients with tongue cancer those in the eighth decade of their life have the highest frequency compared to other age groups. Tongue tumors were rarely seen in patients with less than 40 years of age. In a study on Iranian patients with various cancers of the oral cavity, the mean reported

age at the time of diagnosis was 61 years (13). Previous studies show that tongue cancer is generally seen in patients over the age of 50 (9, 14). These studies along with others, supporting our result show that occurrence of tongue cancer is highest around the age of 60 (15-16). Most authors from other parts around the world believe that few tongue cancer patients are 40 years old and younger (9, 17). Some factors might contribute to this phenomenon; it is doubtful that we can see the real impact of carcinogenic factors such as alcohol and tobacco in this age group. Some studies show that these factors are recognized as risk factors only in older patients (9, 18). Many patients with less than 40 years of age never smoked or drank alcoholic beverages, or the duration of exposure to these agents is too short to induce malignant transformation (19-20). Assessment of the risk factors and characteristics of tongue cancer in young patients requires further studies in this age group.

We found that there is no significant difference in the prevalence of tongue cancer between male and female patients. Previous reports showed that malignancies of the oral cavity predominantly occurred in men (15, 21-23). These reports suggested that the higher prevalence of oral cancers in men might be their higher rate of tobacco and alcohol use in comparison to women (15, 22).

Table 4. Tumor morphology of tongue tumors according to age range of our patients

Tumor presentation	Ulcer		Mass		Other		Total	
	n	%	n	%	n	%	n	%
Age group								
0-39 years	3	5.5	2	9	1	9	6	6.9
40-59 years	12	22.2	5	22.7	5	45.5	22	25.5
More than 60 years	39	72.2	15	68.1	5	45.5	59	59
Total	54	100	22	100	11	100	87	100

The national report of Iranian Health Ministry demonstrated a higher rate nearly 12 times of smokers among men in comparison to females (24). Some studies confirmed the male dominant prevalence of oral cavity cancer in Iranian patients as a result of the noted fact (13). Factors such as socioeconomic state and religious believes might have an effect on the level of exposure to risk factors such as smoking and alcohol consumption to assess the role of these factors further studies with larger samples are required. In conclusion, patients with tongue cancer often complain of a fix ulcer or a mass in the middle part of the tongue at the time of diagnosis and most of them have SCC.

Early diagnosis is of great importance in these patients and improves their outcome; which shows the importance of early detection of any related symptoms. Risk factors such as smoking and alcohol consumption also play an important role and patients must be strongly advised to avoid them.

References

- Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin* 2005;55(2):74-108.
- Laronde DM, Hislop TG, Elwood JM, Rosin MP. Oral cancer: just the facts. *J Can Dent Assoc* 2008;74(3):269-72.
- Schwartz SM, Daling JR, Doody DR, Wipf GC, Carter JJ, Madeleine MM, Mao EJ, Fitzgibbons ED, Huang S, Beckmann AM, McDougall JK, Galloway DA. Oral cancer risk in relation to sexual history and evidence of human papillomavirus infection. *J Natl Cancer Inst* 1998;90(21):1626-36.
- Hollows P, McAndrew PG, Perini MG. Delays in the referral and treatment of oral squamous cell carcinoma. *Br Dent J* 2000;188(5):262-5.
- British Columbia Oral Cancer Prevention Program, BC Cancer Agency; College of Dental Surgeons of British Columbia. Guideline for the early detection of oral cancer in British Columbia 2008. *J Can Dent Assoc* 2008;74(3):245.
- Johnson NW. Orofacial neoplasms: global epidemiology, risk factors and recommendations for research. *Int Dent J* 1991;41(6):365-75.
- Byers RM. Squamous cell carcinoma of the oral tongue in patients less than thirty years of age. *Am J Surg* 1975;130(4):475-8.
- Jones JB, Lampe HB, Cheung HW. Carcinoma of the tongue in young patients. *J Otolaryngol* 1989;18(3):105-8.
- Llewellyn CD, Johnson NW, Warnakulasuriya KA. Risk factors for squamous cell carcinoma of the oral cavity in young people: a comprehensive literature review. *Oral Oncol* 2001;37(5):401-18.
- Mashberg A, Boffetta P, Winkelmann R, Garfinkel L. Tobacco smoking, alcohol drinking, and cancer of the oral cavity and oropharynx among U.S. veterans. *Cancer* 1993;72(4):1369-75.
- Boffetta P, Mashberg A, Winkelmann R, Garfinkel L. Carcinogenic effect of tobacco smoking and alcohol drinking on anatomic sites of the oral cavity and oropharynx. *Int J Cancer* 1992;52(4):530-3.
- A Report of Cancer Situation in Iran. Tehran: Iranian Ministry of Health and Medical Education, Department of Cancer, 2003. [Persian]
- Sargeran K, Murtomaa H, Safavi SM, Vehkalahti M, Teronen O. Malignant oral tumors in iran: ten-year analysis on patient and tumor characteristics of 1042 patients in Tehran. *J Craniofac Surg* 2006;17(6):1230-3.
- Friedlander PL, Schantz SP, Shaha AR, Yu G, Shah JP. Squamous cell carcinoma of the tongue in young patients: a matched-pair analysis. *Head Neck* 1998;20(5):363-8.
- Moore SR, Johnson NW, Pierce AM, Wilson DF. The epidemiology of mouth cancer: a review of global incidence. *Oral Dis* 2000;6(2):65-74.
- Silverman S Jr. Demographics and occurrence of oral and pharyngeal cancers. The outcomes, the trends, the challenge. *J Am Dent Assoc* 2001;132 Suppl:7S-11S.
- 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(2):205-12.
- Oliver RJ, Dearing J, Hindle I. Oral cancer in young adults: report of three cases and review of the literature. *Br Dent J* 2000;188(7):362-5.
- Sankaranarayanan R, Mohideen MN, Nair MK, Padmanabhan TK. Aetiology of oral cancer in patients less than or equal to 30 years of age. *Br J Cancer* 1989;59(3):439-40.
- Burzynski NJ, Flynn MB, Faller NM, Ragsdale TL. Squamous cell carcinoma of the upper aerodigestive tract in patients 40 years of age and younger. *Oral Surg Oral Med Oral Pathol* 1992;74(3):404-8.
- Nair U, Bartsch H, Nair J. Alert for an epidemic of oral cancer due to use of the betel quid substitutes gutkha and pan masala: a review of agents and causative mechanisms. *Mutagenesis* 2004;19(4):251-62.
- Morris RE, Mahmeed BE, Gjorgov AN, Jazzaf HG, Rashid BA. The epidemiology of lip, oral cavity and pharyngeal cancers in Kuwait 1979-1988. *Br J Oral Maxillofac Surg* 2000;38(4):316-9.

23. Moore S, Johnson N, Pierce A, Wilson D. The epidemiology of lip cancer: a review of global incidence and aetiology. *Oral Dis* 1999;5(3):185-95.
24. World Health Organization (WHO). A Report on Smoking Advertising and Promotion Bans in The Islamic Republic of Iran. Ministry of Health and Medical Education Deputy of Health Occupational and Environmental Health Management Centre Secretariat of the National Tobacco Control Committee Islamic Republic of Iran. Available from:
URL:http://www.who.int/tobacco/training/success_stories/en/best_practices_iran_report_bans.pdf

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