Clin Oral Invest (2008) 12:15–18
DOI 10.1007/s00784-007-0141-0

ORIGINAL ARTICLE

Squamous cell carcinoma of the oral cavity: a case series analysis of clinical presentation and histological grading of 1,425 cases from Iraq

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Received: 9 March 2007 / Accepted: 16 July 2007 / Published online: 16 August 2007

Abstract Peoples in Iraq face a mixture of health hazards associated with poverty. Oral cancer is a major public health issue worldwide; it remains a highly lethal and disfiguring disease. It is primarily a disease of epithelial origin. A total of 1,425 cases of histologically diagnosed squamous cell carcinoma collected from the main centers of pathology in Iraq were analyzed according to age, sex, site, patient complaints at the time of presentation, and histological grading. Patients at their fifth decade of life were the most commonly affected with a male-to-female ratio of 2:1. The lower lip was the most commonly affected site followed by the tongue. The most common clinical complain was ulceration and swelling. More than 70% of the cases were well-differentiated squamous cell carcinoma. Oral cancer is increasingly seen as a major health problem—In line with general trend in the region, the need for interprofessional health care delivery approaches for reducing oral cancer mortality and improving patient's quality of life.

Keywords Oral cancer · Oral squamous cell carcinoma · Cancer

Introduction

Oral cancer is a major public health issue worldwide; it remains a highly lethal and disfiguring disease. It makes the whole dental team with important obligations, challenges, and a real opportunity to save lives [7].

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Oral cancer can be defined as a neoplasm involving the oral cavity, which begins at the lip and ends at the anterior pillar of the fauces [13]. The most common intraoral malignancy is squamous cell carcinoma [8]. Complications often occur in the mouth either as a direct result of the malignancy or an unwanted effect of treatment.

A great challenge is that oral cancers are not detected early enough for successful treatment, despite the fact that oral cancer is practically a visible lesion most dentists or general medical practitioners misdiagnose for more innocent lesions that clinically show a similar appearance. Dentists already play a pivotal role in the prevention and early detection of oral cancer. A dentist's duty of care includes an obligation to examine the whole mouth and should have enough knowledge about risk factors and the medical, social, and dental histories.

Although, visual and digital examination has to be the basis of oral screening. Warnakulasuriya and Johnson [21] used toludine blue mouth rinse as an additional aid for early diagnosis of oral cancer when examining high-risk patients; it stains malignant lesions dark blue but does not stain normal mucosa, and dye is absorbed by the malignant cells with increased deoxyribonucleic acid synthesis. Oral and maxillofacial surgeons, clinicians, and histopathologists are the frontier for the detection of early oral lesions. Cancer control programs are based on the premise that the earlier cancer is diagnosed the better the outcome in terms of increased survival and reduced mortality [21].

There is good evidence that tobacco in all forms and alcohol use with aging are the major risk factors in the development of oral cancer [10, 14]. The risk of oral cancer is additive and is 15 times greater than those who neither smoke nor drink. Although smoking tobacco offers a more pronounced risk of oral cancer, combining tobacco and alcohol results in an increased cancer incidence many

times greater than the additive effect because of their synergistic action [5].

Epidemiological studies showed that the incidence of oral cancer varies considerably between different parts of the world with the highest levels in the Indian subcontinent and the lower ones in Western Europe and North America [4, 12]. The most frequently affected sites of oral cancer in Western countries are the ventro-lateral aspects of the tongue and the floor of the mouth, which account for more than 50% of the cases [3]. Other sites affected are the buccal, retromolar, gingiva, and soft palate mucosa, and the least commonly involved sites are the dorsum of the tongue and the hard palate [11]. The lip is the most commonly affected site in some communities [12, 18]. In the southeastern part of the Asian continent, oral cancer is significantly high mostly on the buccal and commissural mucosa and is considered as one of the most common ten cancers; this is attributed directly to the use of "especially" unrefined topical tobacco, which are kept in the mouth for long periods [6, 11, 19].

According to the report of the World Health Organization [19], oral cancer is the sixth most common cancer worldwide.

The present study provides overall collective retrospective information on squamous cell carcinoma in 1,425 Iraqi patients.

Materials and methods

The cases included in this study were all histologically confirmed squamous cell carcinoma collected from the main centers of pathology in Iraq. These centers usually receive the majority of biopsies taken from different parts of the country.

A total of 1,425 cases (948 men and 477 women) were identified and included in the study. The cases were analyzed according to age, sex, site, patient complaints at the time of presentation, and histological grading.

A special case sheet form including the abovementioned criteria was used.

The total sample was grouped into eight age groups from 11 years to more than 80 years. The clinical sites were categorized into ten sites, and undefined sites were included as a separate entity as seen in Table 2. The clinical presentation was categorized into nine presentations at time of observation, and the histological grading was applied on each case using ordinary hematoxylin and eosin stain and based on Broder's classification according to the state of differentiation (well, moderately well, poorly differentiated, and undifferentiated carcinomas). The histological grading was made by two expert histopathologists for 1,323 cases included in this study.

Table 1 Age and sex distribution of 1,425 oral squamous cell carcinoma

Age group	Male	Percent from total	Female	Percent from total	Total	Percent from total
11–20	12	0.85	8	0.56	20	1.4
21–30	47	3.29	21	1.47	68	4.77
31–40	70	4.92	56	3.92	126	8.84
41–50	182	12.78	105	7.36	387	20.14
51–60	291	20.44	163	11.43	454	29.82
61–70	244	17.14	82	5.75	326	22.87
71–80	88	6.17	36	2.52	124	8.7
81 and more	14	0.98	6	0.42	20	1.4
Total	948	66.57	477	33.43	1,425	

Table 2 Site and sex distribution of 1,425 oral squamous cell carcinoma

Site	Male	Percent from total	Female	Percent from total	Total	Percent from total
Lower lip	279	19.57	87	6.1	366	25.6
Tongue	169	11.85	122	8.56	291	20.42
Alveolar ridge (lower)	100	7.01	65	4.56	165	11.57
Buccal mucosa	92	6.45	49	3.43	141	9.89
Floor of mouth	76	5.33	18	1.26	94	6.59
Retromolar area	61	4.28	28	1.96	89	6.24
Alveolar ridge (upper)	53	3.71	36	2.52	89	6.24
Upper lip	37	2.59	28	1.96	65	4.56
Hard palate	40	2.8	23	1.61	63	4.42
Soft palate	12	0.84	2	0.14	14	0.98
Undefined	29	2.03	19	1.33	48	3.36

Results

The total number of cases diagnosed histologically as squamous cell carcinoma was 1,425. Age and sex distribution is shown in Table 1. The highest affected age groups were those between 41 and 70 years; patients at their fifth decade of life were most commonly affected (29.32%). Male-to-female ratio were 2:1, that is, 66.57 vs 33.43%. Most male patients (about 90% of cases) were heavy smokers (more than 20 cigarettes/day) for more than 10 years, especially in the fourth, fifth, and sixth age group.

In regard to site distribution (Table 2), the lower lip was the most commonly affected site (25.6%) followed by the tongue (20.42%) and the lower alveolar ridge, buccal mucosa, floor of the mouth, and upper alveolar ridge, respectively.

Chronic ulceration and swelling for more than 6 months duration were the most common clinical features of patients at the time of presentation (Table 3).

The histological grading of 1,323 cases (Table 4) revealed that the majority of the cases were well-differentiated squamous cell carcinoma (70.37%). The remaining 102 cases were not provided by histological slides from the referred centers and hence not included in histological classification.

Table 4 Histological grading of 1,323 cases according to Broder's classification

State of differentiation	Number	Percent
Well-differentiated	931	70.73
Moderately well-differentiated	171	12.92
Poorly differentiated	122	9.22
Undifferentiated	99	7.48
Total	1,323	100

Discussion

This study represents a retrospective chart review of a large patient cohort.

Oral cancer in Iraq has been studied in the form of retrospective studies by a number of investigators [1, 2, 16, 17]. The Iraqi National Cancer Registry (INCR) has listed the most common ten cancers for different periods depending on the International Coding system for malignancies. The lip, tongue, salivary glands, and mouth were listed as separate entities making them out of the range of ten most common cancers. However, considering these regions as part of the oral cavity, oral cancer fall within or close to the most common cancers in Iraq following breast, bronchi and lung, urinary bladder, Non-Hodgkin's lymphoma, and larynx.

Age and sex distribution of squamous cell carcinoma was similar to that reported from most parts of the world particularly in Western countries [4, 9]. The preponderance of male cases as compared to female cases (2:1 ratio) and the age range from 41 to 70 years were consistent with other oropharyngeal cancer demographic reports in general [9].The majority of patients had at least one symptom associated with their tumor at the time of diagnosis. Ulceration and swelling were the most common complaint of the patients at the time of first presentation in the clinic because of delay in the diagnosis and referral to specialized centers. Undefined clinical presentation accounts for about 13.8% of the studied cases, which reflects patient and health care neglect of this essential category in the patient's records. Therefore, the health education of the patients and elevation of the diagnostic standards of the general practitioners play an important role in the early detection of oral cancer particularly in the developing countries. This "of course" means less radical treatment modalities and higher survival rate of the patients.

Table 3 Clinical presentation

Clinical presentation	Number of cases
Ulceration	485
Swelling	324
Pain	74
White lesion	65
Erythroplasia	19
Bleeding	11
Tongue fixation	5
Dyspahgia	2
Parasthesia	2
Undefined in patient records	197

The most commonly affected site was the lower lip. The high incidence of squamous cell carcinoma in this site is due to the inclusion of a number of cases in which the skin part of the lip is affected and extended to vermilion border or inner part of the lower lip as proposed by Jovanovic et al. [12]. However, most surgeons and clinicians do not specify the part of the lip when they describe the location of the lesion. On the other hand, in case of extensive lesions, it is not possible to know from which part of the lip had the lesion started. Generally speaking, carcinoma of the lip is one of the most common malignancies of the head and neck region. Excluding nonmelanoma skin cancer, carcinoma of the lip account for roughly 12% of all head and neck malignancies as well as 25% of oral cancer [21]. Lip cancer frequently involves both skin and oral mucosa in the majority of the cases.

Histological diagnosis and assessment of the degree of the differentiation or grading of the lesion is the duty of the pathologist. Unfortunately, a number of lesions are reported in the present study and in others as squamous cell carcinoma without the reference to the degree of differentiation because of defect and neglect in data collection from some surgical centers, which were collected by inexperienced personals. However, the majority of lesions in this investigation were of the well-differentiated type.

Large numbers of oral cancer patients seek treatment when the condition was at its advanced stages. Accordingly, two problems arose because of this situation. First, there was a delay in treatment, and second, the treatment will be more radical, and therefore the rehabilitation of the patients will be more difficult making postoperative life of the patient harder and leading eventually to a higher mortality rate.

It can be concluded from this study that the data regarding oral cancer in Iraq are more comparable to the data reported from Western part of the world [4, 12] rather than those reported from Southern and Eastern parts of Asia [15, 19]

and some Arab countries [6, 11]. This is due to the absence of abnormal tobacco habits that act as one of the most common etiological factors of oral cancer in the countries with incidence of oral cancer. The early diagnosis of asymptomatic oral squamous cell carcinoma requires a high index of clinical suspicion. Early oral malignant lesions may not be identified because of the clinician's failure to pay attention on possible intraoral anatomic changes.

Improving patients' and health care providers' attention about the value of the clinical presentation of oral cancer may help in improving the quality of data obtained through INCR; once it improves, more precise information on cancer trends will become available.

Acknowledgment Special thanks are directed to the Iraqi National Cancer Registry (INCR) for supplying us the necessary information concerning cancers of oral and maxillofacial regions.

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