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ORIGINAL ARTICLE

Frequency and Pattern of presentation of Oral Squamous Cell Carcinoma and its predisposing Factors in patients presented to Nishtar Institute of Dentistry

TAUSEEF ZAHRA[1], ZEHRA JAWA[2], TEHZEEB ZAHRA[3], ASIF NAZEER[4], HASSAN RAZA[5], UZMA BATOOL[6]
[1,2]Post Graduate Resident Oral & Maxillofacial Surgery, Nishtar Hospital Multan
[3]House Officer, Rawalpindi Medical College
[4]Post Graduate Resident Oral & Maxillofacial Surgery, Nishtar Hospital Multan
[5]Director Administration, Allama Iqbal Medical College , Lahore
[6]PhD Student, Punjab University, Lahore
Correspondence to Dr. Tauseef Zahra, Email: dr.tauseefzahra@gmail.com, Cell: 92332-4774330

ABSTRACT

Aim: To determine the Frequency and Pattern of Presentation of Oral Squamous Cell Carcinoma and its Predisposing Factors in Patients Presented to Nishtar Institute of Dentistry**.**
Study design: Cross sectional study.
Place and Duration of Study: Study was conducted from Aug 2021 to Jan 2022 at Nishtar Institute of Dentistry**.**
Methodology: A total of 100 patients were included. Patients aged between18-80 years males and females were included whom were presented with oral squamous cell carcinoma. Detailed history and biopsy was taken along with CT scan or MRI. Radiological findings and TNM staging was observed of the patients.
Results: Among those 100 patients 60 (60%) males and 40 (40%) females, 67 % of patients were in between 41-60 years. 35 patients (35%) had a lesion in buccal mucosa, 24 patients (24%) were presented with eythroplakia while histopathological reports of 100 showed 44 patients (44%) had grade 1 (well differentiated squamous cell carcinoma. TNM showed 49 patients (49%) were placed in T1, 42 patients (42%) were in N2b and 13 patients (13%) had metastatic disease on presentation.
Conclusion: Result shows that OSCC was present more in male population. Smoking was recorded as common risk factor. Buccal mucosa was common site of involvement followed by tongue. Ulceration was the frequent presenting feature while majority cases had moderately differentiated squamous cell carcinoma.
Key words: oral squamous cell carcinoma, smoking, TNM

INTRODUCTION

Oral cancer is a public health issue and is the 6th most common cancer worldwide[1]. The incidence of oral cancers is increasing day by day and its poor survival rate makes its potentially fatal disease**.** Oral squamous cell carcinoma is one the most common variant accounting for > 90% of oral cancers[2]. It is the 2nd most common malignancy in Pakistan accounting for 15% new cancer cases reported each year[2]. Oral premalignant lesions are those who involves oral mucosa and has potential to turn into malignant lesions. Oral premalignant lesions include leukoplakia, verrucous leukoplekia, erythroplakia, oral lichen planus and oral sub mucous fibrosis[3]. Oral squamous cell carcinoma may present as lump , fungating mass, ulcer or cervical lymphadenopathy with fixed nodes[4]. Oral squamous cell carcinoma mainly involves tongue, palate , gums , floor of mouth and oral mucosa[1].

In Asian population buccal cancer is more common[1] and in Pakistan buccal cancer is common in males due to betel nuts use and tobacco smoking[5]. The risk factors include tobacco chewing, alcohol consumption, betel nuts usage and viral infections like human papilloma virus[6]. Oral squamous cell carcinoma has got very high mortality due to high degree of invasiveness and 5 years survival rate is 50 % with half of patients dyeing in first 2-3 years of diagnosis[7,8].

We have conducted this study to find out the incidence and prevalence of oral squamous cell carcinoma , its trend in gender, anatomical zone involved, pattern of presentation, type of lesion, histological type and cancer stage in patients presenting to Nishtar hospital of Dentistry.

METHODOLOGY

This Cross-sectional survey was carried out at dental unit, Nishtar Institute of Dentistry from January 2021 to January 2022 after getting approved from Institutional Review Board committee. Sample size of about 100 patients was observed by 5% margin of error and 95% confidence level employing WHO calculator as reference[2]. The inclusion criteria for this study included any patient those were aged between 18-80 years both male and females diagnosed as patients of oral squamous cell carcinoma on history, examination and histopathology. Patients were included by using non-probability consecutive sampling methodology followed by informed approval for those fulfilling the eligibility criteria. The patients were inquired for age, gender, duration of onset of symptoms, pattern of presentation, type of lesion and addiction (cigarette smoking, betel nut consumption, alcohol usage, pan and ghutka usage) and biopsy was taken and sent to Histopathology department of Nishtar hospital of dentistry. Also CT scan or MRI was done and radiological findings were noted and TNM staging was done. Data was entered and examined using SPSS version 25.0. Mean ± SD or median was calculated for all the quantitative variables like age, duration of symptoms etc. one sample T test was applied . P-value $\leq$ 0.05 was considered significant.

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RESULTS

Out of 100 patients, 60(60%) were male and 40(40%) were female. Mean age of patients was 51.90±1.24 years. When age wise distribution was seen 67% of patients who presented to our opd of oral squamous cell carcinoma lie in between 41-60 years which was statistically significant (p value 0.001)

Thirty five patients (35%) presented with a lesion in buccal mucosa followed by lesions on tongue and oral mucosa i-e 21 patients (21%). 21 patients (21%) presented with lesion in maxilla and hard palate region. 24 patients (24%) presented with eythroplakia followed by exophytic clinical presentation i-e 20 patients (20%). When radiological pattern was seen 53 patients (53%) on presentation have ill-defined margins. When histopathological reports of patients were seen 44 patients (44%) on presentation had grade 1 (well differentiated squamous cell carcinoma) while 38 patients (38%) presented with Grade II (moderately differentiated squamous cell carcinoma). When TNM staging was done 49 patients (49%) were placed in T1 and 44 patients (44%) were in T2 stage. 42 patients (42%) were in N2b on

presentation and 13 patients (13%) have metastatic disease on presentation.

Table 1: Demographics of patients

Variable		Oral squamous cell carcinoma	P value
AGE (YEARS)		51.90±1.24	
Gender	Males	60 (60%)	0.00
	Females	40 (40%)	
Group wise age distribution	18 – 40	15 (15%)	0.001
	41 - 60	67 (67%)	
	61 - 80	18 (18%)	
Socioeconomic status	Middle class	23 (23%)	0.000
	Poor class	77 (77%)	
Predisposing factors	Tobacco smoking	42 (42%)	0.001
	Chewing smokeless tobacco(snuff & betel quid)	27 (27%)	
	Alcohol	1(1%)	
	Chronic trauma	1 (1%)	
	Genetics	29 (29%)	

Table-2: Clinical presentation and pattern of presentation of patients

Variable	Presentation	n (%)
Pattern of presentation	Oral/tongue	21 (21%)
	Lip mucosa	2 (2%)
	Buccal mucosa	35 (35%)
	Alveolar ridge	9 (9%)
	Retromolar mucosa	5 (5%)
	Floor of mouth	7 (7%)
	Maxilla and hard palate	21 (21%)
Clinical presentation	Exophytic(Mass forming, Fungating, papillary & Verruciform)	20 (20%)
	Endophytic (invasive, Burrowing, Ulcerative)	37 (37%)
	Leukoplakia	1 (1%)
	Erythroplakia	24 (24%)
	Erythroleukoplakia	18 (18%)
Radiological presentation	Moth eaten	24 (24%)
	Ill defined	53 (53%)
	Ragged margins	23 (23%)

Table 3: Histopathology and TNM classification of tumor

Variable	Presentation	n (%)
Histopathology	Grade I (well differentiated SCC)	44 (44%)
	Grade II (Moderatly differentiated SCC)	38 (38%)
	Grade III (poorly differentiated SCC)	14 (14%)
	Grade IV (undifferentiated SCC)	4 (4%)
Tumor (T)	T1	49 (49%)
	T2	44 (44%)
	T3	2 (2%)
	T4a	2 (2%)
	T4b	2 (2%)
Nodal involvement (N)	No	34 (34%)
	N1	14 (14%)
	N2a	1 (1%)
	N2b	42 (42%)
	N2c	9 (9%)
Metastasis (M)	Mo	87 (87%)
	M1	13 (13%)

DISCUSSION

Oral squamous cell carcinoma is more seen in alcohol and tobacco consumers and got high chances for early involvement of lymph nodes[9]. Prevalence of OSCC varies in different world populations being highest in Indo-Pak subcontinent[2]. In Pakistan its incidence is high in people who are using pan, ghutka and tobacco[3]. Survival among OSCC patients depends on early proper diagnosis of primary tumor and its involvement of surrounding in organs. The clinical diagnosis must be confirmed by histopathology. The relevant histological features includes loss of basement membrane, invasion of surrounding connective tissue and cytological abnormalities[1]. One of the key factor affecting overall survival rate among oral squamous cell carcinoma patients is involvement of neck lymph nodes. The risk of occult neck nodal metastasis on presentation is about 40% as reported in literature[6]. Elective neck dissection to remove involved lymph nodes is necessary once more than 15% lymph nodes involvement is present[6]. Also prognostic factor which affect the overall survival rate are depth of invasion, lymphovascular invasion and perineural invasion. For early OSCC surgery is the mainstay of treatment and in advance cases it may be followed by adjuvant radiotherapy or chemotherapy depending upon positive tumor margins and nodal involvement with extra nodal tissue extension. Loco regional lymph node involvement decreases survival rate by 50%[10]. Identifying the trends of OSCC in age , gender , ethnicity , pattern of presentation and clinical presentation is important in making treatment decisions.

In our study female to male ratio was 1:1.5 showing male being more prone to OSCC which are quite similar to study conducted by Khalil ME et al in Pakistan in which they reported a male to female ratio as 1.3:1[12]. Similarly a study by hernandez et al shows a male to female ratio of 1.4:1 in a study conducted in mexico city[1]. In our study mean age of presentation was 51.90±1.24 with maximum cases (67% patients) reported in their 5th and 6th decade of life. These findings are more relevant to results reported by Akram S et al in their study which was conducted in Karachi in which 40% patients presented in their 5th decade of life[13]. Similarly study by Sahaf R et al reported that maximum cases reported in 5th and 6th decade of life with mean age of 53.13±4.82 years[2].

In our study 38 patients (38%) presented with a lesion on buccal mucosa followed by tongue and hard palate (21% each). A study by burgari Y et al in Karachi showed buccal mucosa as most common site of involvement and (55.6% patients)[14]. A study by Hernandez et al showed tongue (44.7% patients) as predominant site of involvement[1]. Similarly a study sahaf a et al showed that 27 patients (30.33%) of OSCC patients had lesion at buccal mucosa[2]. When clinical presentation was seen it was inferred in present study that 37 patients (37%) on presentation had endophytic lesions i-e ulceration, burrowing etc followed by erythrolplakia and exophytic lesions. These findings are consistent with results shown by sahaf et al in which ulceration was the predominant feature (50.6% patients)on presentation in OSCC patients[2]. Khaleel ME et al also reported in their study that ulceration was most common feature seen in OSCC patients[12]. Falaki et al also reported that ulcer in exophytic lesions was most common presenting feature[15]. In our study 42 patients (42%) presented with OSCC has smoking as main causative agent . These results are similar to studies done by schmid et al who reported who reported that 41% patients has smoking as main reason for OSCC[16]. They also reported that smokers have 6-8 times more chance of developing OSCC[16] . a study by Huang YT et al also stated smoking as major cause of OSCC followed by betel squid chewing which are consistent with our findings[17,18]. In our study 44 patients (44%) presented with grade 1 tumor while 38 patients (38%) on presentation were in grade 2 tumor. These findings are consistent with the study by Hernández-Guerrero JC et al that 61.2% patients on histopathology were in grade 2 on presentation[1]. Oral mouth self-

examination is declared as one of the easy method to determine premalignant mouth lesions as stated in Ghani MA et al[19].
The limitation of this study is that it is done in population of one city so it cannot be generalized on whole population of whole country.

CONCLUSION

We conclude that most common OSCC is present in male population with maximum presentation in 5th and 6th decade of life. Smoking was seen as most common cause of OSCC and buccal mucosa was the most common site of involvement followed by tongue. Ulceration was the most common presenting feature and most cases on presentation was having moderately differentiated squamous cell carcinoma.

Conflict of Interest: This survey has no conflict of interest.
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