Original Article

Oral Carcinoma

Histological Pattern of Oral Carcinoma and its Association with Different addictive Risk Factors

Munawar Ali Baloch[1], Zainab Khatoon[2] and Mushtaque Ali Memon[3]

ABSTRACT

Objective: Objective of this study was to find out association between histopathology of oral carcinomas and addictive risk factors.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at Dental OPD, Liaquat University Medical Hospital and department of Pathology LUMHS Jamshoro/ Hyderabad from 2015 to 2016.

Materials and Methods: Total60 patients were included in the study having oral carcinomas. Careful clinical assessment following by complete medical history along with clinical examination was carried out. All the addictive cases were selected. All the information of various parameters like age, gender of patient, relevant clinical history, tobacco habit, other addictive associated risk factor, and microscopic histopathological findings of tissue specimen were carried out. All the addictive risk factor's association was noted with types of oral carcinoma.

Results: Out of these 60 patients, maximum number of patients i.e. 29 (48.33%) were from > 50 years of age group. Majority of patients 35(58.33%) were illiterate while only 6(10%) were graduate. Majority of patients 21(35%) had carcinoma in buccal mucosa. Majority of the cases 46.66% multiple addictive habits, while only tobacco chewing, betal nut/manpuri, gutka, naswar and tobacco smoking habits were found with percentage of 8.34%, 10%, 8.34%, 6.66% and 20% respectively. According to histopathological findings squamous cell carcinoma was the most common in 85% of the cases, following by verrucous carcinoma in 6.67%, Micro-invasive SCC was only in 1 patient and other non-squamous cell carcinomas were found in 6.67% of the cases.On the association between histological findings and addictive risk factors no significant difference was found between squamous cell carcinoma and addictive risk factors p value 0.112, while VC, MISCC and other non-squamous cell carcinoma were significantly associated with patients having multiple addictive habits p value 0.02.

Conclusion: We concluded that multiple mix addictions of tobacco chewing and smoking, gutka, naswar andbetal nuts are significantly associated with oral carcinomaand potentially increases the chances of oral malignancy in certain pre malignant conditions.

Key Words: Oral carcinoma, histopathology, addictive risk factors

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INTRODUCTION

Oral cancer is the 6thmost important cancer throughout the world. [1] It is a much common malignancy among Indian, Srilankan as well as certain Eastern nations. It is most likely correlated with practice of chewing of tobacco & Areca-nut in addition to revered smoking.[2] Chewing habit of the Areca nut is extensively practiced in several regions of Asia and its migratory populations worldwide. Customary in addition to industrially marketed products are at present accessible among European & North American nations as well it is projected that worldwide, a number of hundreds of millions of individuals contribute in this addiction.[3] Actually, betel-nut is the 4th commonest consumed psychoactive element worldwide, after nicotine, alcohol and caffeine.[3] Betel-nut is being consumed since the distant past in addition it has assumed most important cultural, social and even religious contributions. [4] Consumers frequently believe it a risk-free entity and account as a perception of euphoria, health, a warm feeling of body, a sensitive attentiveness as well as an escalated ability for performance.[5] It is a factor of vast anxiety globally as well as a leading risk to community health in Pakistani nation, however an extensive geographical difference in prevalence & death rate is seen. It is the 8th commonest disease worldwide however among Pakistani population it is the 2nd most common according to current data of a proven as well as well-retained cancer records of Shaukat Khanum Memorial Hospital.[6] It

[1.] Department of Oral Pathology / Pathology[2] / ENT[3], Liaquat University of Medical and Health sciences Jamshoro.

Correspondence: Dr. Munawar Ali Baloch,
Senior lecturer of Oral Pathology, Institute of Dentistry
Liaquat University of Medical and Health sciences Jamshoro
Contact No: 0333-2700192
Email: Dr.saeedarain786@gmail.com,
munawar.ali@lumhs.edu.pk

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constitute to 15% of every fresh cancer patients in this area in contrast to 3% found globally.[7] In case the present inclinations are not examined, a projected 500,000,000 individuals alive nowadays might be slayed due to the tobacco-associated factors.[8] The development of fresher, chewable spiced tobacco forms accompanied by numerous additional ingredients, termed as gutka has altered the tendencies in the tobacco marketplace.[9] Gutka comprises condiments, betel-nut, catechu, slaked lime, and fine tobacco. Betel-nut consumption is common among some region worldwide including Sri Lanka, Pakistan, Papua New Guinea, Malaysia, Thailand, India, China, Cambodia, Indonesia, and Bangladesh.[3] The betel-nut is a product of Areca catechu. Cases can possibly call it "betel nut", however this expression is not correct, as it is not obtained via betel plant. Paan, as well termed as Betel quid (BQ), comprises betel leaf obtained from Piper betel, enfolded around a blend of areca catechu, and (calcium hydroxide) slaked lime. The tobacco is frequently supplemented, and a range of flavoring ingredients, to age spices (cardamom, peppermint and cloves) accompanied by sweeteners that vary as per local inclinations and routines.[10,11]These chewing routines are correlated with numerous oral manifestations for example leukoplakia, submucous fibrosis, erythroleukoplakia, erythroplakia, SCC and chewer's mucosa. Early diagnosis of oral cancer is rather unproblematic for a clinical professional as orifice has direct contact for clinical as well as visual investigation. Though, because of neglecting the oral lesions as well as ignorance of malignancy, cases seek protracted therapy. Oral cancer is a leading factor of mortality & morbidity with invasive ability and metastasis. [12] Also it is found that oral cancer has a high risk of producing 2nd primary malignancies.[13]In many studies different addictive risk factors were concluded as frequencyin patients having oral cancer but no such research available in literature regarding association between addictive risk factors and histopathology of oral cancer. Therefore the aim of our study to find out histopathological correlation with addictive risk factors of oral cancer.

MATERIALS AND METHODS

This descriptive, prospective study was conducted at the Pathology department of Liaquat University of Medical and Health science Hospital Hyderabad from 2015 up to 2016, and mostly cases were referred from dental and ENT department. Total60 patients were included in the study having oral carcinomas. Both genders with the age more than 18 years were selected. Careful clinical assessment following by complete medical history along with clinical examination was carried out. All the addictive cases were selected. All the information of various parameters like age, gender, clinical history, tobacco habit, other addictive associated risk factors were carried out. After clinical examination and provisional diagnosis all patients were underwent biopsy: taken from the lesions and tissues and microscopic histopathological findings of tissue specimen were carried out at pathology department of Liaquat University of Medical and Health science for histological confirmation. All the addictive risk factor's associations were noted with types of oral carcinoma. All the information was documented in the Performa and data was entered and analyzed in SPSS program version 16.0.

RESULTS

Total number of patients in this study was 60. Out of these 60 patients, maximum number of patients i.e. 29 (48.33%) were from > 50 years of age group. While 14(23.33%) belonged to age group of 41-50 years. Majority of patients i.e. 35(58.33%) were illiterate while only 6(10%) were graduate.29(48.33%) belonged to lower class socioeconomically, while 18(30%) belonged to middle class and 11(18.33%) belonged to upper class. Table 1

In this study 50(83.33%) males had oral carcinoma as compare to10(16.66%) of females.Table 1

Majority of patients 21(35%) had carcinoma in buccal mucosa, while19 (31.66%) patients had carcinoma on lateral surface of tongue and 08(13.33%) patients had carcinoma of gingiva. Table 3

In this study majority of the cases 46.66%multiple addictive habits, while only tobacco chewing, betalnut/ manpuri, gutka, naswar and tobacco smoking habits were found with percentage of 8.34%, 10%, 8.34%, 6.66% and 20% respectively. Table 2

Table No.1: Basic characteristics of patients (N= 60)

Characteristics	Frequency	Percentages
Age		
20-30 year	08	13.34%
31-40 year	09	15.00%
41-50 ear	14	23.33%
<50 year	29	48.33%
Educational status		
Illiterate	35	58.34%
Primary	10	16.66%
Secondary	09	15.00%
Graduation	06	10.00%
Gender		
Male	50	83.34%
Female	10	16.66%
Socioeconomic		
status	29	48.34%
low class	18	30.00%
Middle class	13	21.66%
Upper class		

According to histopathological findings squamous cell carcinoma was commonest in 85% of the cases,

following by verrucous carcinoma in 6.67%, Micro-invasive SCC was only in 1 patient and other non-squamous cell carcinomas were found in 6.67% of the cases.Table 3

On the association between histological findings and addictive risk factors no significant difference was found between squamous cell carcinoma and addictive risk factors p value 0.112, while VC, MISCC and other non-squamous cell carcinoma were significantly associated with patients having multiple addictive habits p value 0.02. Table 4.

Table No. 2: Risk factors of oral carcinoma n=60

Risk factors	frequency	percentages
Tobacco chewing	05	08.34%
Betal nuts	06	10.0%
Gutka	05	08.34%
Naswar	04	06.66%
Tobacco smoking	12	20.00%
Multiple addiction	28	46.66%

Table No.3: Histological types of oral carcinomas n=60

Types of carcinoma	Frequency	Percentages
Squamous cell carcinoma	51	85.0%
Verrucous Carcinoma	04	6.67%
Micro-invasive SCC	01	1.66%
Others	04	6.67%

Table No.4: Association between histopathology and addictiveRisk factors of oral carcinoma n=60

Risk factors	Types of carcinoma			
	SCC	VC	MISCC	Others
Tobacco-chewingn=05	03	01	00	01
Betal nutsn=06	06	00	00	00
Gutkan=05	05	00	00	00
Naswarn=04	03	00	00	01
Tobacco smokingn=12	11	01	00	00
Multiple addictionn=28	23	02	01	02
P= value	0.112	0.002		

DISCUSSION

In this study the maximum number of patients 48.33% was from > 50 years of age group. Similar results were mentioned by Jagtap SV et al[14]. The study by Mehrotraet al[15] in 2006 showed that the maximum number of patients were in sixth decade. In this study 83.33% males had oral carcinoma as compare to 16.66% of females. Similar is seen in the study conducted by JagtapSVet al[14]in which male to female ratio was 2.6:1. The study by Khandekar SP et al[16] showed majority of the patients were male.[16]

In this study, 48.33% patients belonged to lower classsocioeconomically; similar results are seen in the study conducted by AkramSetal[17]in which majority of patients belonged to lower class.

In present study, majority of patients I.e. 35% had carcinoma in buccal mucosa, while 31.66% patients had carcinoma on lateral surface of tongue and 13.33% patients had carcinoma of gingiva. Same is seen in the study by jagtapsvet al[14] whose results also showed that majority of patients had carcinoma of buccal mucosa followed by lateral aspect of tongue and gingiva. A study done by Ahluwalia et al in 2001 showed buccal mucosa was the commonest site in 55.26% of cases. 21 While study done by Shankarnarayana R et al[18] in 2005 also mentioned that commonest site was buccal mucosa in 50.4% of cases. A study done by Bhattacharjeeet al[19] in 2006 showed 32.67% of cases involved tongue.

In this study tobacco smoking was found in 12(20%) patients and betal nut/manpuri habits were in 8(10%) of the cases. SimilarlyakramSet al[17]reported that 10 patients had habit of tobacco smoking, 27 patients had habit of eating betal nuts while 5 patients were not addictive of anything.

In present study 8.34% of patients had habit of tobacco chewing and majority of the cases 46.66%multiple addictive habits like tobacco chewing+ smoking+alchohol+betal-quid+betal-nut and naswar.In the study of Mathur PT et al,[20] where he reported that majority of the patients were multiple addictive habits. Tobacco chewing has emerged as a stronger risk factor of oral carcinoma than smoking, since there is direct exposure of tobacco chewing on the mucosa for longer period, while smoking has more contact with pharynx, larynx and lungs. Smoking, tobacco chewing along with alcohol is thought to serve as promoter which causes synergistic effect for development of oral cancer.[21]In a study done by Khandekar SP et al,[16] 71.3% of patients were habituated to tobacco. Another study done by Iypeet al[22] showed 56.4% were habituated to tobacco chewingandalcohol. Smokeless tobacco consumption used in different ways, as well as placement of tobacco quid in the gingival buccal sulcus region is the dangerous risk fororal carcinoma development.

In this study on histopathological findings squamous cell carcinoma was the most common in 85% of the cases, following by verrucous carcinoma in 6.67%, Micro-invasive SCC was only in 1 patient and other non-squamous cell carcinomas were found in 6.67% of the cases. Similar results are seen in the study by jagtap SV et al,[14]whose results show that majority of the cases had squamous cell carcinoma while 8 cases had verrucous carcinoma. As well as Bhattacharya et al[19]also found most common oral malignant lesion was squamous cell carcinoma (85.12%). In other studies of Dias et al[23]2007 and Brandizzi et al[24]mentioned similar findings as the squamous cell carcinoma is commonest oral malignant lesion in 93.9% and 91% patients respectively.

On the association between histological findings and addictive risk factors no significant difference was found between squamous cell carcinoma and addictive risk factors p value 0.112, while VC, MISCC and other non-squamous cell carcinoma were significantly associated with patients having multiple addictive habits p value 0.02. On other hand Mathur PT et al,[20]reported that the no significant difference between squamous cell carcinoma and risk factors. No such studies available regarding association of the histopathology of oral carcinoma and addictive risk factors. Further much research is required to evaluate the association between histopathological pattern of oral carcinoma and addictive risk factors.

CONCLUSION

We concluded that multiple mix addictions of tobacco chewing and smoking, gutka, naswar andbetal nuts are very dangerous risk factors of oral carcinoma. Male gender, un-education and low socioeconomic status also strongly associated with these habits. Biggersample size studies are needed to assess the association between different histological findings and addictive risk factors.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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