

HISTOLOGICAL GRADING OF SQUAMOUS CELL CARCINOMA OF TONGUE IN RELATION TO SITE DISTRIBUTION

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ABSTRACT

Tongue is an important anatomical site or organ because of its role in deglutition, mastication and speech that is why pathologies / tumours of tongue affect the patient's quality of life those affected. The most common malignant epithelial neoplasm of the oral cavity is the Oral squamous cell carcinoma of the tongue. The Commonest sites for oral cancers (Scc) arising in the mouth are on the Tongue ,vestibule, Floor of mouth, and lip .Oral squamous cell carcinoma is the 3th commonest tumour in India and Pakistan of which the other tumours are bronchogenic carcinoma in males and breast cancer in females. This descriptive study was took place in oral and maxillofacial surgery department of Khyber College of dentistry Peshawar on a total of 31 patients. The objective of the present study was to determine the histopathological grading of carcinoma of the tongue in relation to the site distribution. The most common affected gender was males and the most common age group was between 3rd and 5th decade with mean age of 49.54% SD +13.41. Most of the tongue tumours were moderately to poorly differentiated 25.8% and 45.1% respectively on histopathology. Early diagnosis of tongue cancer is important in overall management of these grave tumours.

Key Words: Oral squamous cell Carcinoma, Tongue cancer, broader, Khyber College of dentistry

INTRODUCTION

Oral carcinomas are the most highly malignant neoplasm in the oral cavity which accounts for 95% of all the malignant lesions in oral cavity. The tongue, floor of mouth and lip are the commonest site which are affected.¹ The origin of the affected sites of tumours in oral cavity is the stratified squamous epithelium. Oral squamous cell Carcinoma are more common in males and more frequently occurring in patients above 45 years of age.² Oral Squamous cell carcinoma is the 6th common malignant tumour in the Indian subcontinent which include India, Pakistan and Bangladesh.³

Squamous cell carcinoma of the tongue has a poor prognosis due to its aggressive behaviour and tendency to metastasize in the lymph nodes which accounts for 15-75%.⁴ many studies reported that advanced stage carcinoma of tongue has poor prognosis⁵. And the growth rate and way it spreads have no relation with clinical presentation.⁶ The carcinoma of tongue is difficult to treat because of its complex anatomical functions which include swallowing, speech and taste which can affect the form and function of the tongue.⁷

There are multiple factors associated with the SCC of tongue. In the Asian subcontinent there are various factors which include poor oral hygiene, Smoking, Chewing betel nuts, alcohol, Malnutrition, Infections like Syphilis, Candida, OSF, Lichen Planus and other dysplastic changes. According to previous literature it has been estimated that in the Indian subcontinent one of the cause of oral & tongue cancer is malnutrition associated with betel chewing and that contributes to increased incidence of OSCC of tongue. Chronic abuse of pan which contain its ingredients areca nut an alkaloid called Arecoline and flavonoid cause conditions like submucous fibrosis and leukoplakia which are pre-cancerous conditions. Betel quid generate reactive oxygen species which cause damage to the DNA due to the oxidative stress to nearby tissues.⁸ Alkaloid in combination with malnutrition are also a contributing factor for suppressing the immune system and is responsible for cancer.⁹ Tobacco contains slaked lime which induce carcinogenic alkaloid from tobacco which is another factor for SCC of tongue and oral cavity.¹⁰

Histopathological grading is used to assess the extent and types of tumours that help in diagnosis and treatment planning. It is used to assess the biological activity and the way the tumours grows then basic histopathological differentiation. There are various systems of grading used to foresee the clinical behaviour of the carcinoma of tongue. This grading system in practice helps in connection between the scores of malignancy and prognosis of tumour¹¹ Grading system is categorized as highly, moderately and poorly differentiated. Broders classification 1920 a quantitative grading system for

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cancer.¹²

The purpose of current study were to determine most common histological grading and its relation to site distribution which will help us in formulating treatment plan of tongue cancer patients.

Histopathological grading has got a great bearing on the overall prognosis of the disease. According to literature, well differentiated tumours have got a good prognosis then the moderately and poorly differentiated ones. This present study will help to find out the most common types of histopathological grading of tongue prevailing in that region. This study will further help the oral & maxillofacial surgeons in management of these life threatening tumours.

METHODOLOGY

This descriptive study was done in oral and maxillofacial surgery department after the approval from the Department/Hospital review board. The study duration was of 3 years i.e., from 2015 to 2017. The outpatient department records of the patients were reviewed from the record room of the department of the period mentioned after taking approval from ethical review board. The objective of the study was to conclude the histopathological grading of oral carcinoma of tongue. The age, gender, site of the patient along with the histopathological grading were recorded. The data so collected was entered in the SPSS version 20 and was presented in the form of tables and figures.

RESULTS

In this study 31 patients were recruited. Hospital maxillofacial surgery Department outpatient department records were reviewed. The age, gender, site distribution and histopathological variants of oral SCC of tongue were evaluated. The most common

age group was 3rd and 5th decade of life i.e., (table 1). Males were more commonly affected then female's i-e 20 males and 11 females (figure 1). The age range of the patient were 31-70. The targeted site of the tongue was posteriolateral border of the tongue (table1). The commonest grading were moderately differentiated SCC and poorly differentiated which was 25.8% and 45.1% respectively (Table 2). And the histopathological pictures are shown in (figure 2, 3 and 4).

DISCUSSION

The most frequently occurring malignant neoplasm of the oral cavity which is characterized by disordered cell proliferation, these cells express a lot of similar characteristics with the cells of origin in the squamous epithelial layer of SCC tongue. Oral carcinoma of tongue is the few common and greatly malignant tumour with poor prognosis and a difficult site to treat due to its important functions of speech, taste swallowing. It's both motor and sensory functions are lost due to its aggressive treatment options which include surgical resections.¹³

The grading of tongue is done histologically on basis of its differentiation which is categorized into well differentiated SCC, moderately differentiated SCC and poorly differentiated SCC account of the degree of differentiation, nuclear and cellular pleomorphic, invasion and mitosis. Jacobson (1973) introduced a multifunctional system of malignancy which helped in finding of the tumour host relationship and analysing cell population carcinomas. Which is a more accurate evaluation of morphology of growth malignant tumours in head & neck area.¹⁴ Henson & Anneroth have reformed the histological system of grading which was established by Jacobsson et al for the use of carcinomas of tongue and mouth.¹⁵ Squamous cell carcinoma is graded as. G₀ -Grade cannot be assessed G₁ -grade well

TABLE 1: AGE AND SITE DISTRIBUTION OF SQUAMOUS CELL CARCINOMA OF THE TONGUE.

S no	Patients age	Patients no	%	Anatomical site	No of patients	%
1	31-40	11	35.4%	Posteriolateral border	16	51.6%
2	41-50	6	19.3%	Anteriolateral border	9	29%
3	51-60	9	29%	Tip of tongue	5	16.1%
4	61-70	5	16%	Ventral surface	1	3.2%
Total		31	100%		31	100%

TABLE 2: HISTOPATHOLOGICAL GRADING OF ORAL SCC OF TONGUE

S No	Grading by histopathology	Patients no	Percentage %
1	G0	0	0%
2	G1	4	12.9%
3	G2	8	25.8%
4	G3	14	45.1%
5	G4	5	16.1%
	Total	31	100%

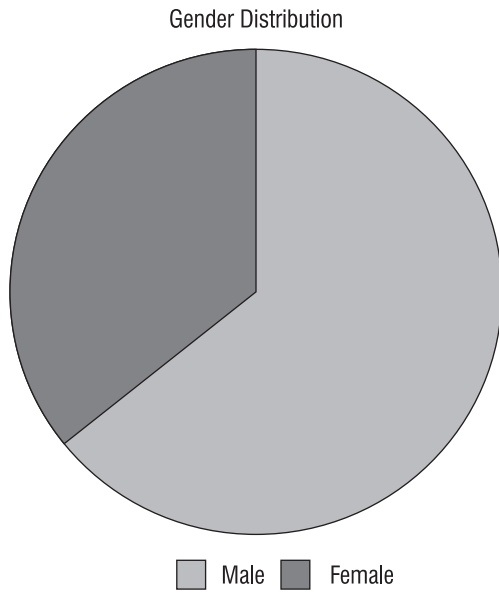


Fig 1: Gender percentage of patients with oral SCC tongue

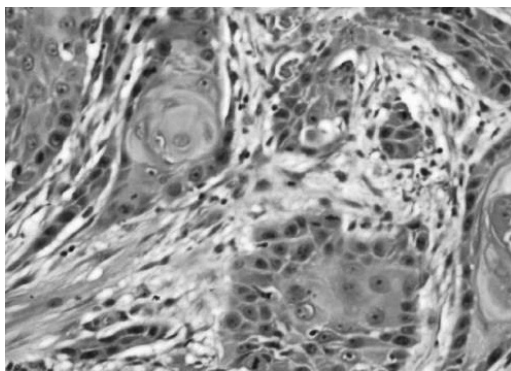


Fig 2: Well differentiated carcinoma tongue



Fig 3: moderately differentiated carcinoma tongue
differentiated carcinoma G2-moderate differentiated oral cancer, G3-poorly diff, G₄-undifferentiated oral squamous cell CA

It is the point to which the tumours bear a resemblance to the normal tissue or their parent tissue which is the squamous epithelium and keratin also known as keratin pearls which are concentric rings of keratin, and is called grading. In the well differentiated squa-

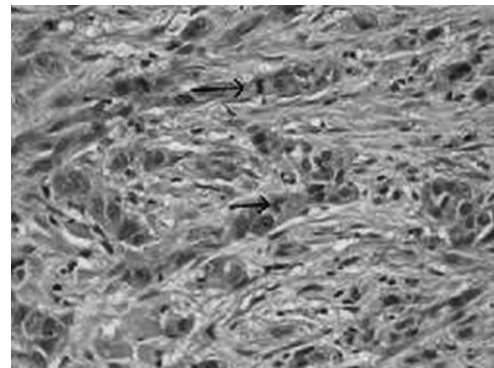


Fig 4: Poorly differentiated SCC of tongue

mous cell carcinomas there are few mitotic figures, atypical mitosis or multinucleate epithelial cells are rare. Nuclear and cellular pleomorphism is minimal as compare to the moderately differentiated tumours where there is less keratinization and more nuclear to cellular pleomorphism. Abnormal mitotic figures and the intercellular bridges are less conspicuous. poorly differentiated Carcinoma, there is very little resemblance to the normal tissue and cells, intercellular bridges are scarce, keratinization is rare, cellular and nuclear pleomorphism are prominent. This grading system is important for the oral oncologists and the pathologists because then they can better diagnose and treat them and get a better prognosis.¹⁶

The prediction of poorly differentiated and moderately differentiated ones are not good in comparison to the well differentiate tumours. local studies done by khan et al the histopathological grading of oral cancers 67.5% of the total tumours were well differentiated, also grading of tongue tumours show 73.2% of the tumours were well differentiated¹⁷ In the study 45.1% of the tumours were in the G3 grade with a poor prognosis and were poorly differentiated squamous carcinoma of tongue.

Oral squamous cell carcinoma is common tumour in Indo-Pak region. Mortality rate of 50-70%. Previous studies done in United States on histopathological grading of tongue show that this tumour was more common in men 0.8% and 0.4% in females.¹⁸ A study conducted by S P Khandekar et al showed that the prevalence of oral cancer males .25%¹⁹, Yazdi et al in his study squamous cell carcinomas of the tongue males which accounts to 60.4% respectively.²⁰ In the present study on 31 patients males also affected more than females ratio 1.8:1. This increase incidence on males is due to life style of males which includes tobacco smoking, alcohol intake as compared to females which is less common in our society.

The incidence of carcinoma tongue younger, middle age group which is between (30-50) is increasing and it is very alarming due to its aggressive behaviour poor prognosis.²¹ Previous studies show that 29.6% of patients below age 40 years, mean age 46.2 years.²² Present study 35.4% patients between the age of 30-40

years. This percentage of patients below age of 40 years afflicted with oral SCC of the tongue is quite alarming.

Selvamani et al that the tongues lateral border and the posterior 2/3 was the site involved (43 cases 82.7 %), the mean age of patients affected was 55.7 years and the male to female ration is 1.7:1.²³

The frequently occurring site of the tongue tumour is the posterior 2/3 followed by anterior 2/3 and then the ventral and dorsal surface in a study it has been shown that the most common site for tongue cancer was the ventral, lateral surface anterior tongue while 1/3 on the posterior 3rd.²⁴ In the existing study the posteriolateral border was 51.6%, and anterolateral border was 29%. In this respect the study is steady with the previous studies on tongue cancer with respect to site distribution.

CONCLUSION AND RECOMMENDATIONS

The present study shows us Oral SCC is commonest in the 40 years and above, the grade of the tumour here in our set of population is moderate to poorly differentiated. Liaison between pathologist, oncologist and Oral and maxillofacial and reconstructive surgeons is of paramount importance. Public awareness, training of the dental surgeons involved in health care delivery in peripheries, regarding key features of malignancy like ulceration fungation fixation induration and bleeding on manipulation is important in early diagnosis of these grave tumours. Tongue cancer not only effects the quality of life of the patients they are potentially very fatal. Management of oral tumours is not a herculean job it requires a team approach the pathologist has a pivotal rule in the diagnosis, grading of tongue carcinoma.

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| 2 Muslim Khan: | Idea, patient operated, abstaact conclusion and recommendations. |
| 3 Sana Wazir: | Literature Search. |
| 4 Ammara: | Data collection. |