

A CLINICOPATHOLOGICAL STUDY OF OROFACIAL SQUAMOUS CELL CARCINOMA IN LOCAL POPULATION

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ABSTRACT

Background: Oral squamous cell carcinoma is one of the most common and devastating oral cancer. It is the sixth most common tumour worldwide with almost 90,000 cases reported annually. Its incidence is alarmingly increasing in many South Asian countries owing to the increase in areca nut, betel quid and tobacco chewing habits among vast population of this region.

Objective: To see the clinical and histopathological pattern of oral squamous cell carcinoma in a tertiary care hospitals of Pakistan.

Materials and Methods: This was a descriptive study. 39 patients of primary oral squamous cell carcinoma were studied from two tertiary care hospitals of Punjab namely Mayo Hospital Lahore and Allied Hospital Faisalabad. Detailed clinical histories of the patients were recorded. The histopathologic examination on the specimens removed was performed using haematoxylin and eosin (H&E) stain. Clinical data included age, sex of the patient and intraoral site of cancer. Histopathological data included the grade of Squamous cell carcinoma. The grading was done using Anneroth grading system. The data was analysed on SPSS 18.

Results: In our study the patients with squamous cell carcinoma had a mean age of 50.36 ± 1.98 years with equal prevalence in both genders. It was observed that SCC was most commonly arising from tongue (23.1%) followed by lip mucosa (20.5%) and buccal mucosa (12.8%). Most of the cases were moderately differentiated (51.3%), whereas the remaining were well and poorly differentiated. A very strong association ($p = 0.001$) was found between the site and grade of tumour using Fisher's exact test. Almost all the tumours on sublingual mucosa especially those arising from floor of the mouth were poorly differentiated.

INTRODUCTION

Squamous cell carcinoma (SCC) is a malignant neoplasm of epithelial cells exhibiting squamous differentiation as characterised by the formation of keratin and the presence of intercellular bridges.¹ These squamous cells form the lining epithelium of skin, oral cavity, oesophagus, rectum, vagina etc.

Oral squamous cell carcinoma may occur as a primary lesion originating in any of the oral tissues, by metastasis from a distant site of origin or by extension from a neighbouring anatomical structure such as the nasal cavity or the maxillary sinuses. Most oral cancers begin in the tongue and buccal mucosa. Oral SCC is a tumour of middle and old age. Most of the cases are reported after the age of 40 years.

Evidence of orofacial carcinomas has been found in ancient skulls as well. The oldest being found from the fossils dated back to 500,000 in South Africa by Louis Leaky.²

Oral squamous cell carcinoma is among the ten commonest cancers of the world.³ Worldwide around 300,000 patients are estimated to have oral cancer annually. OSCC shows geographical variation

with respect to the age, sex, site and habits of the population.⁴ Its incidence is even higher in Pakistan and other South East Asian countries.⁵ This high incidence can be attributed to smoking, betel quid and tobacco chewing habits among a vast population in this region.

Most of the cases of SCC are preceded by some premalignant lesions, the commonest being the leukoplakia and erythroleukoplakia. Oral submucous fibrosis, erosive lichen planus, angular cheilitis, solar keratosis and nicotinus stomatitis are a few other premalignant lesions of the oral cavity.⁶ Accordingly it has various clinical presentations like a non-healing ulcer with indurated margins, a lump, an exophytic verrucous growth or simply a white / erythroplakic patch. Diagnosis is confirmed on H/E stained sections of specimens obtained by incisional biopsy of the suspected site.

MATERIALS AND METHODS

It was a descriptive study conducted in the Department of Morbid Anatomy and Histopathology University of Health Sciences Lahore in collaboration with the Department of Maxillofacial Surgery, Mayo

Hospital, Lahore. The study was completed in eight months (January – August 2012). Patients from both the genders and all the age groups with histologically diagnosed squamous cell carcinoma arising as primary tumour were included in this study. Patients on radiotherapy or chemotherapy were excluded from this study.

Formaline fixed specimens were brought from Mayo Hospital to the Histopathology Department of University of Health Sciences. After standardized processing into paraffin embedded sections, haematoxyline and eosin stained slides were prepared for diagnosis under light microscopy. The cases confirmed as squamous cell carcinoma were graded from well differentiated to undifferentiated tumours according to Anneroth grading system as follows.⁷

Grade 1

- > 50% of the cells show keratinization.
- > 75% of the cells have prominent intercellular bridges.
- > 75% are mature cells (little nuclear pleomorphism).
- Well delineated pushing or infiltrating borders.
- Marked inflammatory infiltrate.

Grade 2

- 20 – 50% of the cells show keratinization.
- < 50% of the cells have visible intercellular bridges.
- Moderate nuclear pleomorphism (50 – 75% mature cells).
- Infiltrating bands, strands and / or solid cords.
- Moderate inflammatory infiltrate.

Grade 3

- 5 – 20% of the cells show keratinization.
- < 25% of the cells have barely visible intercellular bridges.
- Abundant nuclear pleomorphism (20 – 50% mature cells).
- Groups and cords of infiltrating cells.
- Mild inflammatory infiltrate.

Grade 4

- 0 – 5% of the cells show keratinization.
- Intercellular bridges are absent.
- Extreme nuclear pleomorphism (0 – 25% mature cells).
- Single cells or small groups of cells.
- Inflammatory infiltrate is absent.

Clinical data included the age, gender of patients and intra-oral site of cancer. Histopathological data included grade of tumour. The inference was drawn from this record. Data was analysed using SPSS ver-

sion 18. Frequencies and percentages were computed for all categorical variables and age was presented as mean ± standard deviation.

RESULT

Study population of squamous cell carcinoma had a mean age of 50.36 ± 1.98 years. The age was normally distributed among the study population. The male to female ratio was approximately 1.2:1. Among the 39 patients of SCC, 21 were males and 18 were females. Mean age for female patients was 48.44 ± 2.5 and for male patients was 52 ± 3.02.

In the present study, it was observed that SCC was most commonly arising from tongue (23.1%) followed by lip mucosa (20.5%) and buccal mucosa (12.8%) as shown in Table 1.

The histological grading of SCC was performed according to ANNEROTH classification into four grades i.e., mild, moderate, poor and undifferenti-

Table 1: *Distribution of squamous cell carcinoma on orofacial region at the time of presentation.*

Site	Frequency	Percentage
Tongue	9	23.1
Lip mucosa	8	20.5
Buccal mucosa	5	12.8
Face	5	12.8
Sublingual mucosa	3	7.7
Hard palate	2	5.1
Alveolar ridge	2	5.1
Retromolar area	2	5.1
Floor of mouth	1	2.6
Angle of mouth	1	2.6
Soft palate	1	2.6
Total	39	100.0

Table 2: *Histological grading in the cases of squamous cell carcinoma.*

Grade	Frequency	Percentage
Well	10	25.6
Moderate	20	51.3
Poor	9	23.1
Undifferentiated	0	0
Total	39	100

ated. Most of the cases were moderately differentiated (20= 51.3%). The remaining were mild to poorly differentiated and no case of undifferentiated tumour was found as shown in Table 2.

A very strong association ($p = 0.001$) was found between the site and grade of tumour using Fisher's Exact test. Almost all the tumours on sublingual mucosa especially those associated with floor of the mouth were poorly differentiated. On the other hand the tumours on the lip mucosa were mild to moderate in grade. Most of the tumours on buccal mucosa were moderately differentiated as shown in Table 3.

DISCUSSION

In our study mean age of study population for SCC was 50.36 ± 1.98 years. This finding is in consonance with other studies carried out both nationally and internationally.⁸⁻¹⁰ Male to female ratio in this study was found to be 1.2:1 which is comparable with the studies from Pakistan⁸ reporting M:F ratio of 1.6:1 and from Mexico with 1:1 male to female ratio. However two studies carried out in India^{4,10} reported a higher M:F ratio of 2.2:1 and 4.2:1 respectively.

Regarding the site distribution in the orofacial region, the most commonly involved sites in descending order were tongue, lip mucosa, buccal mucosa, face, sublingual mucosa, hard palate, alveolar ridge, retromolar area, soft palate, angle of mouth and floor of the mouth.

This is consistent with another study from Lahore demonstrating the tongue to be the most commonly involved site for orofacial SCC followed by buccal mucosa.¹² Similar finding was seen in a study from Japan where 58% cases of oral SCC were located on tongue.⁹ A large study on 1425 patients of SCC in Iraq¹³ revealed lower lip (25.6%) was the most common site followed by tongue (20.42%) and alveolar ridge (11.57%).

The histological grading of SCC was performed according to ANNEROTH's classification into four grades i.e. well, moderate, poorly differentiated and undifferentiated tumour. Most of the cases were moderately differentiated (51.3%) followed by well (25.6%) and poorly (23.1%) differentiated tumours.

This finding is discordant with another study from Pakistan- where most of the cases of SCC were poorly differentiated (38.98%) followed by moderately differentiated (33.9%) and well differentiated

Table 3: Association between site and grade of tumours.

Site	Grade			Undifferentiated	Total No. of Cases
	Mild	Moderate	Poor		
Tongue	0	9	0	0	9
Lip mucosa	6	2	0	0	8
Buccal mucosa	1	3	1	0	5
Face	2	2	1	0	5
Sublingual mucosa	0	0	1	0	3
Hard palate	0	2	0	0	2
Alveolar ridge	0	0	1	0	2
Retromolar area	0	1	1	0	2
Floor of mouth	0	0	4	0	1
Angle of mouth	1	0	0	0	1
Soft palate	0	1	0	0	1
Total	10	20	9	0	39

ones (27.12%).

The findings in our study are in line with the reports from an Indian⁴ study based on Anneroth's classification of orofacial SCC revealing well differentiated tumours to be the commonest (52.6%) followed by moderate (26.3%) and poorly differentiated tumours (3.5%) respectively.

A very strong association was found between the site and grade of the tumour. Almost all of the tumours on floor of the mouth and sublingual mucosa were poorly differentiated. This finding is consistent with other observations.¹

With above findings it is **concluded** that in our region most cases of oral squamous cell carcinoma are reported at the stage of moderate differentiation with tongue being the most common site.

Whenever a dentist or a physician suspects any ulcer, growth or a white patch in the oral cavity to be malignant, lesion should be immediately biopsied to confirm the diagnosis.

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