

Presentation of Histological Types and Common Sites of Oral Cancers in Lower Sindh

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ABSTRACT

OBJECTIVES: To determine the frequency of histological types and common sites of oral cancer in our population of lower Sindh.

STUDY DESIGN: Descriptive study.

SETTING: Patients reporting at Liaquat University Hospital, Dental Out-patient Department, Jamshoro and Hyderabad Sindh Pakistan, over a period of one year from January 2007 to December 2007.

SUBJECTS AND METHODS: Biopsy specimens were obtained from patients who were suspected for oral cancer on clinical grounds. All specimens were processed routinely and stained by Hematoxylin and Eosin method.

MAIN OUTCOME MEASURES: Histopathological analysis was carried out to confirm the diagnosis and to evaluate the histological types.

RESULTS: Mean age of oral cancer patients was 46.28 years. It was more common in males. Most common site was cheek mucosa. Histopathological analysis showed 47 (44.3%) patients having well-differentiated invasive squamous cell carcinoma while 24 (22.6%) patients had moderately differentiated squamous cell carcinoma. Twelve (11.4%) patients had microinvasive carcinoma and 11 (10.5%) specimen revealed mucoepidermoid carcinoma. Verrucous carcinoma was observed in 06 (5.7%) patients and 03 (2.8%) patients showed poorly differentiated anaplastic carcinoma. The frequency of carcinoma in situ, neuroendocrine tumor and carcinosarcoma was 1 (0.9%) each.

CONCLUSION: This study gives a detailed account of the histological types of oral cancer along with their frequency and reports two rare malignant tumors occurring in oral cavity. Oral cancer occurred at a younger age with male preponderance. A higher frequency of mucoepidermoid carcinoma was observed.

KEY WORDS: Oral Cancer, Histological Types, Clinical Features.

INTRODUCTION

Oral cancer accounts for 3% of all cancers in the United States¹. Although they arise at a site easily accessible to self examination and biopsy, majority is diagnosed at a late stage²; 50% have metastasized at the time of diagnosis and 5-years survival is 50%³. The major risk factors reported in the literature include leukoplakia, erythroplakia, tobacco use, HPV type 16, 18 and alcohol abuse; chronic irritation and nutritional deficiency being weakly associated with its causation⁴⁻⁸.

Oral cancers are most common in late life between 60-69 years of age and are rare before the age of 40 years⁹. Clinically these lesions are asymptomatic because of painless nature. Rarely the patients complain of local pain and difficulty in chewing².

Most common sites of oral cancer reported in the literature include lower lip, floor of the mouth and tongue in order of frequency¹⁰. Grossly the lesion starts as a white patch followed by exophytic, fungating, nodular mass or ulcerated area¹¹. Early lesions include epithelial atypia, dysplasia, carcinoma in situ

or microinvasive cancer¹⁰.

Although squamous cell carcinoma is the most common histological type of oral cancer many other varieties have been reported in the literature. These include malignant tumors arising from salivary glands, muscle and lymphoid tissue, tumors of neuroendocrine origin and metastatic tumors.^{9,10}

Purpose of study:

The clinical features of oral cancer may be different in our set up due to various environmental factors like use of tobacco and betel nuts. This study was carried out to analyze various histological types of oral cancer in our set up and to determine its clinical features as regards the relative frequency, anatomic sites, age and sex distribution. Also to look for and report any rare types of malignant tumors encountered in the oral cavity.

MATERIALS & METHODS

This descriptive study was conducted at Liaquat University Hospital, Jamshoro and Hyderabad campus over a period of one year from January 2007 to December 2007. History was recorded on a printed

proforma. An incisional/excisional biopsy was carried out in all cases who were provisionally diagnosed as case of oral cancer on clinical examination. All biopsy specimens were processed routinely, stained by Hematoxylin and eosin stain, and a histopathological analysis was made for diagnosis. All consecutive biopsy proven cancers were included in the study irrespective of sex and age. Those reported benign or inflammatory lesions were excluded from this study. Frequencies and proportions were calculated for age, sex, site and histological type.

RESULTS

During the study period 106 patients were confirmed as cases of oral cancer.

The youngest patient was 12 years old, oldest 75 years and mean age for oral cancer was 46.28 years. Maximum number of patients were in 41-50 year age group while very few patients were above 70 years of age. A total of 15% of cancers were present in patients below 30 years of age (Table I).

Out of 106 cases 66 (62.3%) were males and 40 (37.7%) were females. Male-female ratio was 1.65:1 Majority (68.2%) of the cancers were found on tongue and cheek. Most common site was cheek mucosa (34.9%), Buccal mucosa showed 15 (14.2 %) cases while 06 (5.7 %) were on palate. The floor of the mouth, lips and angle of the mouth all had frequency of 03 (2.8%) each (Table II).

Most common histological type was well differentiated, keratinizing squamous cell carcinoma accounting for 47 (44.3%) cases . They showed well-formed keratin pearls and downward epithelial columns. Moderately differentiated squamous cell carcinoma was the second most common type. It was observed in 12 (22.6%) cases. It showed small amount of intracellular keratin production and keratin pearl formation was not present. Twelve (11.3%) were microinvasive cancers which showed histological evidence of disruption of basement membranes with tumour cells seen invading the lamina propria. Eleven (10.4%) were mucoepidermoid carcinoma which showed malignant squamous epithelial cells along with mucous secreting glandular epithelial cells having vacuolated cytoplasm. Six (5.7%) were verrucous carcinoma and showed papillomatosis with hyperkeratosis and acanthosis showing numerous epithelial pearls. Three (2.8%) were poorly differentiated, anaplastic carcinoma. These did not show any intracellular or extracellular keratin production and revealed bizarre cells with numerous normal and abnormal mitotic figures. Only 1 (0.9%) was an early cancer limited to the epithelium with intact basement membrane and was labeled carcinoma in situ. One was reported neuroendocrine tumor after immunohistochemical studies. It was positive for Vimentin,

EMA, MIC-2, BCL-2 and S-100 protein. It revealed a uniform population of small anaplastic cells with scanty cytoplasm and showed numerous mitotic figures. One was labeled carcinosarcoma showing both epithelial and stromal malignancy. The epithelial cells were positive for cytokeratin while mesenchymal cells were positive for vimentin. This tumour was composed of malignant epithelial cells with spindle cell stroma. Mitotic activity was present in both cell types (Table III).

**TABLE I:
AGE DISTRIBUTION (n=106)**

Age in years	No. of Cases	%
10-20	02	1.9
21-30	14	13.2
31-40	28	26.4
41-50	31	29.3
51-60	20	18.9
61-70	10	9.4
71-80	01	0.9
	106	100.0

**TABLE II:
DISTRIBUTION ACCORDING TO SITE (n=106)**

Site	No. of Cases	%
Cheek	37	34.9
Tongue	35	33.0
Buccal mucosa	15	14.2
Palate	06	5.7
Gum	04	3.8
Floor of the mouth	03	2.8
Lips	03	2.8
Angle of the mouth	03	2.8

DISCUSSION

The most common type of cancer in oral cavity is squamous cell carcinoma but many other histological types have been reported in the literature.^{9,22,23.}

The age group most commonly affected by oral cancer as reported in the literature is 60-69 years¹² and 50-59 years⁹ while in our study most of the cancers were present in a younger age group of 41-50 years. The reason could be the use of Tobacco, Pan, Betel nuts, which is very common in our population of lower

TABLE III: HISTOLOGICAL TYPES OF ORAL CANCER (n=106)

Histological types	No. of Cases	%
Squamous cell carcinoma	83	78.3
a. well differentiated	47	44.3
b. moderately differentiated	24	22.6
c. Microinvasive Carcinoma	12	11.4
Mucoepidermoid Carcinoma	11	10.5
Verrucous carcinoma	06	5.7
Poorly differentiated Anaplastic carcinoma	03	2.8
Carcinoma in situ	01	0.9
Neuroendocrine tumor (Figure-I)	01	0.9
Carcinosarcoma (Figure-II)	01	0.9

Sindh. Youngest patient reported in the literature is a 6 month old baby suffering from Kaposi's sarcoma⁹ while in our study youngest patient was a 12 years old boy having a neuroendocrine tumour situated at the anterior part of the tongue. The diagnosis was confirmed by marker studies.

Oral cancer in our study was more common in males (66%) while in the literature some reports show that it is more common in females^{9,10,12} still other studies indicate a very high ratio in males (80%)¹⁰.

Most common site for cancer in the oral cavity in our study was cheek mucosa (37%) followed by tongue (35%). In the literature the most common sites show a wide range of variation. Some studies report most common site as tongue (38%) followed by floor of the mouth (30%)¹² while another study indicates tongue (20%) and palate (17%)⁹ and still another study shows tongue (43%) and floor of mouth (18.9%)¹⁰. This difference may be due to the environmental factors in different parts of the world and can be attributed to betel nut chewing and smokeless tobacco chewing habits.

Most common histological type in all studies in the literature is squamous cell carcinoma, well-differentiated keratinizing type,¹²⁻¹⁸ followed by moderately differentiated squamous cell carcinoma.¹⁵⁻¹⁸ In our study 44.3% were well-differentiated keratinizing squamous cell carcinoma while 22.6 % were moderately differentiated squamous cell carcinoma collectively accounting for 77% of all malignant tumors in oral cavity in our study while in other studies frequency of oral squamous cell carcinoma varies between 57.6% to 84.6%^{9,10}.

Microinvasive carcinoma in our study was noted in 12

(11.4%) of cases while very few studies report cancer at such an early stage. Many methods are available in the literature for its early detection². Early diagnosis and early treatment can save lives and reduce the mortality rates.⁶

We observed that 11 (10.5%) cases showed mucoepidermoid carcinoma while in the literature very low percentage has been reported.²¹⁻²³

Verrucous carcinoma in our study was present in 06 (5.76%) patients while in the literature a very low percentage (0.5%) has been reported¹⁰. Some of the studies do not place it as a separate entity and include these tumors with squamous cell carcinoma. It is worthwhile to report it as a separate entity because of its low malignant potential, protracted course and a better prognosis following excision.

In our study only one patient had carcinoma in situ. Since early detection and early treatment saves life, efforts are being made to detect and diagnose oral cancer at an early asymptomatic stage.² In the literature also carcinoma in situ has been reported in very few cases 0.7%⁹ and 0.5%¹⁰

Neuroendocrine tumour is extremely rare in oral cavity. We report one (0.94%) case in our study appearing as a nodule near the tip of the tongue. Another study reports this in 0.2% cases¹⁰.

We have also reported a case of carcinosarcoma occurring in oral cavity (0.94%). It was present near the midline on the anterior alveolar ridge in a 45 year old male patient.

CONCLUSION

Oral cancer occurred at a younger age with male preponderance. Most common sites being cheek and tongue. In our study higher frequency of mucoepidermoid carcinoma was observed with two rare malignant tumors occurring in oral cavity.

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