ORIGINAL RESEARCH PAPER

Pathology

CLINICO PATHOLOGICAL STUDY OF ORAL CAVITY LESIONS IN A TERTIARY CARE HOSPITAL

KEY WORDS: Squamous cell carcinoma, oral dysplasia

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ABSTRACT

BACKGROUND: Oral cancer or mouth cancer deals with any cancerous tissue growth in pertaining to the oral cavity. They are predominantly squamous type. However, incidence among women and younger patients is in increasing trends in south East Asian countries.

AIM: To determine the incidence of oral cavity lesions in various sites of oral cavity, age, gender distribution and analysis of distribution of various histopathological lesions.

MATERIALS AND METHODS: 90 histopathologically reported cases were taken and its age, site, sex incidence and histological type were analysed.

CONCLUSION: In our study group, males were found to be predominant (76%), the age group was 61-70 yrs (34.44%) and most common site was tongue(42.22%)

INTRODUCTION:

Oral malignancies belong to the group of head and neck cancers and constitute about 85% of this category.[1] These includes malignancies arising in lips, oral cavity, gingiva, floor of mouth, buccal mucosa, lower and upper alveolar ridges, anterior two third of tongue, hard palate and retro molar trigone. Oral squamous cell carcinoma occurs commonly during 5th to 6th decades of life. Most of the cases occur in men over 50 years of ag e. The global incidence rate is 5.3% in men and 2.3% in women.[1,2]

The incidence of oral cancer is increasing (8.2 times higher) among those people with the habit of tobacco chewing and alcohol consumption. Tobacco seems to be the most important cause for these malignancies accounting to 57% men and 11% of women in the age group 15-49 years.[3]

Alcohol drinking has also proved to be an important risk factor for the development of oral cancers. Increasing risk is found to be associated with the number of drinks consumed in a week. It has its highest association with men than women. Poor oral hygiene is also a risk factor for oral cancers. It attributes to a risk of 32% among men and 64% among women. Patients wearing dentures for more than fifteen years and also not visiting the dentist regularly are more prone to oral cancers.[4]Positive family history of oral cancers, viral infections like HPV 16 are other causes for oral cancers.[4]

Historically, the death rate with oral cancers is particularly high, due to the cancer being routinely discovered late in its development. It can be prevented by self-mouth examination and increasing the awareness among the high risk community. Early detection will enable better curing rate and also reduces the cost of treatment.[5]People less than forty years with the habit of alcohol consumption, tobacco smoking and betel quid chewing should undergo regular oral mucosal screening for early detection.[5]Oral cancers are thought to result from genetic damage, leading to unrestrained proliferation of damaged cells. There are multiple steps involved in the tumor progression.[6]

METHODS:

Detailed history regarding the patient's age, gender, site, and the type of biopsy done were collected from the surgical pathology records from December 2015 to January 2015.

Sections of 4um thickness were taken from the corresponding paraffin blocks by using semi-automated microtome with disposable blades and followed by staining with hematoxylin and eosin stain. The stained sections were then reviewed.

Sections showing normal mucosa, features of dysplasia and features of carcinoma were named accordingly. Specimens labelled as Submucous fibrosis, Erythroplakia and Leukoplakia with dysplasia of grades mild, moderate and severe were collectively grouped under dysplasia. Malignant cases were further categorized into three grades.

OBSERVATION AND RESULTS:

Total number of incisional biopsy specimens received during the year was 5947 cases. Out of which, 178 cases were from the oral cavity. Among these oral cavity cases, 91 cases have been reported as malignant (oral SCC), 47 cases fall under pre malignant lesions and the remaining 39 cases were of normal mucosa. Of these, 90 cases were selected by simple randomization which includes all types of histopathology report(normal mucosa, dysplasia, carcinoma). these cases are further broadly classified into three groups such as normal mucosa, dysplasia and carcinoma.

OBSERVATION AND RESULTS:

Among premalignant lesions (30 cases), mild dysplasia was observed in 19 (63.33%) cases, moderate dysplasia in 3 (10%) cases, severe dysplasia in 6 (20%) cases and submucosal fibrosis in 2 (6.66%) cases. while, in Marwah et al study 23% belongs to mild dysplasia, 59% belongs to moderate dysplasia and 18% in severe dysplasia.[15]

Among malignant lesions (30 cases), 14 cases (46.66%) were diagnosed as well differentiated carcinoma, 13 cases (43.33%) were reported as moderately differentiated carcinoma and the remaining 3 (10%) cases were put under poorly differentiated carcinoma

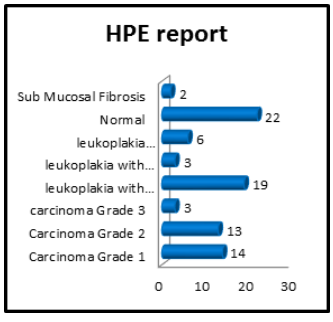

Figure 1: bar chart showing statistical analysis of histopathology report

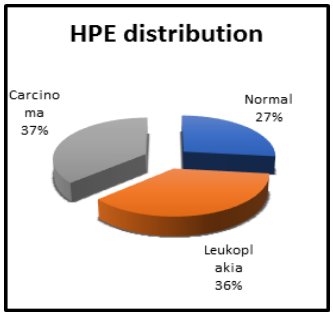

Figure 2:pie chart showing statistical analysis of three groups of histopathology report

This study includes age group range from second to eighth decade and the highest incidence was observed in sixth decade (61-70 years) contributing to 34.4%. This was in concurrence to CL. Margaritescu et al study which showed the highest incidence with the patients over 65 years (53%). The mean age distribution among normal mucosa was 48 years, among dysplasia cases it was 54 years and among carcinoma cases it was 54 years.[13]

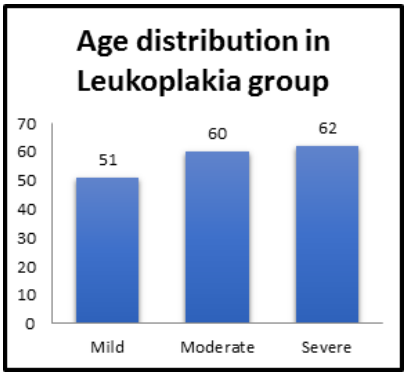

Figure 3: showing age distribution among dysplasia groups

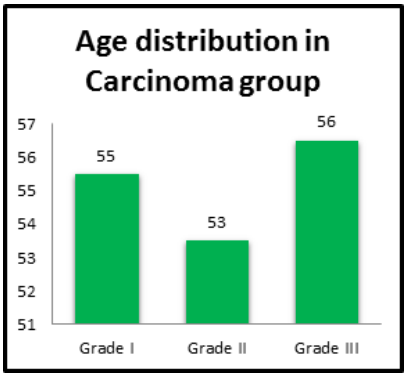

Figure 4: Bar chart showing age distribution in every grade of carcinoma

In this study population, the proportion of males was 74.4% and females was 25.6% which was similar to CL. Margaritescu et al, Patel M M et al and Marwah et al study, who also observed the similar results with males and females contributing to 75% and 25% respectively. This was in concurrence with the results of the study conducted by oral cancer foundation of United States.[13,15]

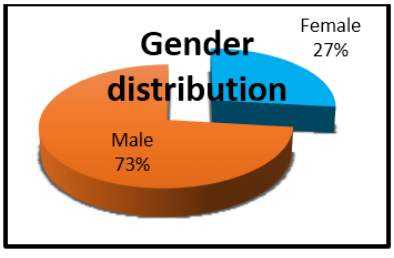

Figure no:5 showing gender distribution among selected cases

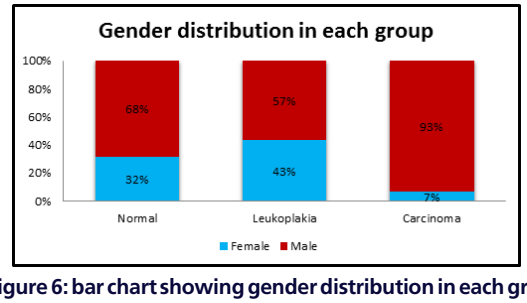

Figure 6: bar chart showing gender distribution in each group

In this study, the most common site of biopsy was observed in the tongue (42.22%), followed by buccal mucosa (34.44%). This was in concurrence in study by Subhabhat et al and CA Fischer et al who observed the same statistical value. This fact, had also been putforth in the study conducted by oral cancer foundation of America.[15]

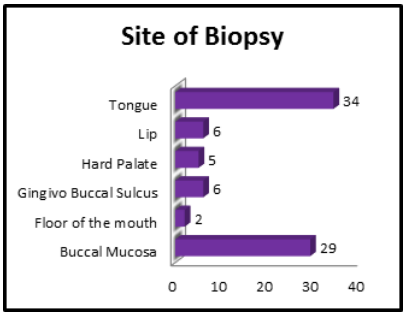

FIGURE 7: bar chart showing site distribution among study groups

DISCUSSION:

Oral cancer is an important global health concern accounting for 1, 28,000 deaths annually. Cancers of the oral cavity ranks sixth in the world. Two-thirds of all cancers are found to be from the developing countries. In India, the oral cancers contribute 30-50% of the entire malignancies.[1,14]

Oral cancers are particularly dangerous because, it is not noticed by the patient in its early stages, as it could frequently progress without producing pain or other symptoms. In more than 50% of the patients, the disease presents in an advanced stage and the expected survival rate for five years was found to be around 10-40% (Gold berg et al 1994).[14]

This decreased survival rate is due to persistent uncontrollable disease and poor understanding of the pathogenesis at the molecular level and lack of knowledge regarding the significance of angiogenesis in the tumor progression.[9]

The etiology of cancerous lesions in the oral cavity is multifactorial. The major risk factors include tobacco chewing, alcohol, smoking and betel quid. The fore mentioned risk factors are synergistic to each other. Tobacco and alcohol alone, have shown an attributable risk of about 80%.[3]

In India, most of the oral cancers arise in areas of leukoplakia. But in developed countries, oral cancers are found to arise in areas of Erythroplakia.[9]

Premalignant lesions of the oral cavity are conditions of the epithelial part of the oral mucosal lining, that carry an increased risk for the development of oral squamous cell carcinoma (oscc) in that area".[10] Potentially malignant lesions of the oral mucosa are leukoplakia (homogenous, non-homogenous, proliferative verrucous), erythroplakia, smokeless tobacco keratosis, oral submucosalfibrosis, lichenplanus, condyloma acuminatum, inverted schneiderian papilloma,actinic keratosis.[10]

Squamous cell carcinoma is defined by who "as an invasive epithelial neoplasm associated with varying degrees of squamous differentiation and increased propensity for lymph node metastasis extensively".

The synonym of this tumor is keratinizing scc. The gross appearance of this tumor may be variable. it may present as a exophytic, endophytic, ulcerated and fungating masses. cut surface is grey tan and white. Histopathologically, it is composed of nests, sheets of cells with squamous differentiation. the cells are polygonal with moderate amount of eosinophilic cytoplasm having round to oval nuclei and a prominent nucleolus.[16]

WHO grading of squamous cell carcinoma:

GRADE 1:
Well differentiated carcinoma (see Figure 8) possesses malignant squamous cells with distinct cell borders, interconnecting desmosomes and prominent keratin pearl formation.

GRADE 2:
Moderately differentiated tumors (See Figure 9) are composed of cells showing increased pleomorphism and increased nuclear cytoplasmic ratio.

GRADE 3:
Poorly differentiated tumors (See Figure 10) contain singly scattered cells with high mitotic activity and scant cytoplasm.[1]

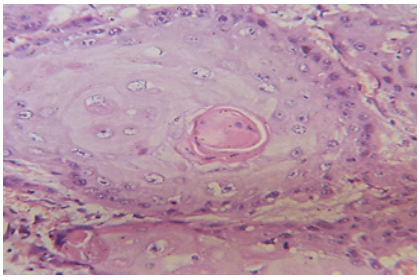

Figure 8: Histopathological View of Well Differentiated Carcinoma

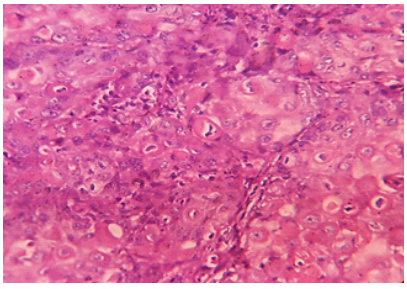

Figure 9: Histopathological View of Moderately Differentiated Carcinoma

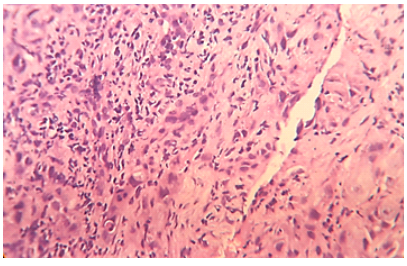

Figure 10: Histopathological View of Poorly Differentiated Carcinoma

The various prognostic factors are tumor size, thickness, location , the presence or absence of nodal metastasis, Desmoplastic reaction, DNA Ploidy, HPV 16, stage and grade of the tumor. Among the above factors, tumor thickness is found to be an independent prognostic variable. Tumor thickness more than 6mm and the presence of cervical node metastasis indicates bad prognosis.[11]

Primary radiation therapy and wide local resection would be the treatment of choice.[12]

CONCLUSION:
In our study group, **males (76%) were predominant population than those of females (24%). The most common age group was around 61-70 years (34.44%).**

The most common site of lesion among the total 178 cases and among study groups was found to be tongue (42.22%) followed by buccal mucosa (34.44%).

Among dysplasia, **mild dysplasia contributes the most (63.33%) while in carcinoma, well differentiated carcinoma (46.66%) was the most commonly reported type of oral SCC**.

LIMITATIONS:
Small histopathological sections taken from the archives at one single point of time would not be the real representation of the incidence of the tumor.

The validity of this study could be improved, if accompanied with the personal history like tobacco chewing, betel quid, smoking and alcoholism.

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