Correlation of Clinical Patterns of Oral Squamous Cell Carcinoma with Age, Site, Sex and Habits

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ABSTRACT

Oral cancer is one of the 10 most common cancers of world. The histological type referred to is squamous cell carcinoma. The present study is conducted to find out if there is any correlation between clinical patterns of squamous cell carcinoma (papillary, ulcerative and deeply infiltrative) with age, site, sex and habits. The present study derived a positive correlation of clinical patterns of squamous cell carcinoma with site, more studies should be done to validate this fact.

Keywords: Squamous cell carcinoma, Papillary, Ulcerative.

INTRODUCTION

Oral cancer can be defined as a neoplasm involving the oral cavity, which begins at the lip and ends at the anterior pillar of the fauces. The histological type referred to is squamous cell carcinoma as it constitutes 90-95% to 98.72% of all oral cancers. According to the report of the World Health Organization, oral cancer is the sixth most common cancer worldwide. The incidence of premalignant lesions has increased in the last decade from 0.15 to 0.53, presenting usually in the fourth decade of life. Sex ratio reveals a 2:1 preponderance of male patient. Mean age of diagnosis varies from 57.1 years in males to 52.5 years in females with the highest number of cases in both sexes occur in sixth decade of life. In the southeastern part of the Asian subcontinent, oral cancer is significantly high mostly on the buccal and commissural mucosa and is considered as one of the most common ten cancers; this is attributed directly to the use of especially unrefined topical tobacco, which are kept in the mouth for long periods. Although smoking tobacco offers a more pronounced risk of oral cancer, combining tobacco and alcohol results in an increased cancer incidence many times greater than the additive effect because of their synergistic action. The intraoral distributions reveal that buccal mucosa is the most common site followed by anterior 2/3rd of tongue, lower gum, lip, hard palate, floor of mouth and upper gum. There is a strong association between a history of smoking and carcinoma involving the posterolateral tongue and floor of the mouth. Clinically, squamous cell carcinoma is grossly categorized as papillary or verrucous type, ulcerative and infiltrative, and combination of these characteristics.

Papillary or verrucous type (Fig. 1): This type of lesion is seen as a papillary mass of varying size with a broad base or relatively narrow pedicle. In carcinoma, the base tends to be broad and the margins of lesion somewhat indurated. The papillary mass appears pink or red and may have some surface ulceration in larger lesions. The surface texture of the raised mass may be pebbled, verrucous or relatively smooth.

Ulcerative type (Fig. 2): This type of lesion appears as a discrete ulcer with a raised indurated margin or as a 54% relatively large area of ulceration with firm indurated tissue at the periphery.

Deeply infiltrative or schirrhous type (Fig. 3): This type of lesion invades deeply into the underlying tissues but has relatively few surface manifestations. The area is firm and hard to palpation. There may be some surface ulceration or tissue...
proliferation. This type of oral carcinoma is fortunately uncommon.

Ishiyama et al (1994) conducted a study on papillary squamous neoplasms of head and neck and reported that papillary squamous neoplasms of head and neck were highest in age group of 50 to 59 years and 60 to 69 years, males (54%) were more affected than females (46%). Alveolar ridge was the most common site involved followed by buccal mucosa and tobacco use being the most common habit (52%).

In this backdrop, the present study was conducted to find a correlation of clinical patterns of squamous cell carcinoma with factors like age, sex, site and habits.

AIM AND OBJECTIVE

A study was done among 102 patients of squamous cell carcinoma. The aim and objective of the present study was to find a correlation between the clinical patterns of oral squamous cell carcinoma with age, sex, site and habits.

MATERIALS AND METHODS

The present study included 102 patients of oral cancer. The patients visiting Department of Oral Medicine and Radiology, College of Dental Surgery, Manipal and Mangalore, Kasturba Medical College Hospital, Attavar, Mangalore, Government Wenlock Hospital, Mangalore and Shirdi Sai Baba Cancer Hospital, Manipal were included in the study. Following criteria were followed for the selection of patients.

Inclusion Criteria

1. Histologically proven cases of squamous cell carcinoma were included
2. Only patients more than 35 years of age were included in the study
3. Lesions that were clinically visible in oral cavity were included in the study
4. Only patients with habits were included in the study.

Exclusion Criteria

1. Cases that were not proved to be squamous cell carcinoma histologically were excluded
2. Patients less than 35 years were not included
3. Patients without habits were excluded
4. Lesions that were not clinically visible in oral cavity were excluded
5. Those patients who had taken treatment of oral cancer were excluded.

Principles of Study

After the selection of patients, further information was recorded with a specialized proforma. The proforma included name of patient, age of patient (patients above 30 years of age were included), gender, occupation and address of patient was recorded. Dietary history was taken to assess whether patient was a vegetarian or had a mixed diet. Detailed history with regards to the abuse habits was taken. The type of habit (smoking tobacco, chewing tobacco, alcohol, quid chewing); duration of habit and frequency of habit was noted. A thorough clinical examination was carried under good light conditions with mouth mirrors and tongue depressors (to check for the base of tongue) by a single examiner to reduce interexaminer variability. Oral cavity was divided into various anatomical areas—buccal mucosa (right and left), alveolar ridge (upper and lower), tongue anterior 2/3rd floor of the mouth, hard palate, commissures (right and left), retromolar trigone, oropharynx (including base of tongue and soft palate). These sites were examined for any clinically suspicious malignancies depending on their clinical presentations and grouped broadly as ulcerative, papillar and deeply infiltrative. Investigations included biopsy of the clinically suspicious lesion to confirm for malignancy and radiographic evaluation with intraoral and extraoral radiographs for signs of bony involvement (Fig. 4).

Analysis

The present study consisted of 102 patients diagnosed with oral squamous cell carcinoma. Subjects were selected on the basis...
of inclusion and exclusion criteria. The data available from the study was tabulated into tables and analyzed statistically to assess the correlation between clinical patterns of oral squamous cell carcinoma with age, site, sex and habits.

DISCUSSION

The present study was done to find out the correlation of clinical patterns of squamous cell carcinoma with factors, like age, sex, site and habits. The study was conducted on 102 patients who were diagnosed with squamous cell carcinoma.

On the basis of data available from the present study, it appears that the maximum cases of oral squamous cell carcinoma in both males and females occur in older age group that could possibly be the reason for lower incidence of oral squamous cell carcinoma among younger patients.2

Buccal mucosa (36 patients) was the most common site affected by oral squamous cell carcinoma in both males and females. The high prevalence of cancer of buccal mucosa may be accounted for by the fact that betel quid is habitually compressed against it, providing direct access for carcinogens from the quid. Tobacco is thought to be the principal source of carcinogens in pan, but other constituents (such as lime) may also have carcinogenic potential.12 The greater susceptibility of buccal mucosa to cancer in tobacco users leads one to think of the possibility of this mucous membrane being more vulnerable to the possible carcinogenic effect of tobacco, pure or mixed with other ingredients. In chewers, it is understandable that this may be due to its maximum contact with raw tobacco and its other ingredients. The other possible explanation could be that when tobacco is smoked or chewed, its noxious agent get dissolved in saliva. Normally, some saliva remains constantly in the vestibule of the mouth and may facilitate greater and prolonged contact of tobacco with buccal mucosa.13 In the present study, the habit of quid chewing 51% (52 patients) was found to be the most common. Other researchers4,5,7,11 also found that the habit of quid chewing was more prevalent in squamous cell carcinoma cases. The risk of squamous cell carcinoma developing in oral cavity is increased by combining habits of alcohol drinking, tobacco smoking and pan use.8,9

When the age was correlated with the clinical patterns of oral squamous cell carcinoma (Graph 1), it was found that among all age groups, ulcerative pattern was the most common 52.9% (54 cases). Papillary pattern of oral squamous cell carcinoma was more common in the age group of 50 to 60 years, similar findings were suggested by Ishiyama et al,3 the infiltrative lesions (papillary with infiltration and ulcerative with infiltration) tend to occur more in the age group of 50 to 60 years. Ulcerative with infiltration pattern is more prevalent than papillary with infiltration pattern. Also, as the age increases (more than 60 years), ulcerative appears to be the dominant type, 57.6% (19 cases), of all the clinical patterns presented. According to Wahi et al13 most tumors of the oral cavity ulcerate, this could be due to the friction of the mucous membrane during eating.

In the present study also the ulcerative pattern was the most common type among both males and females. Papillary pattern did not show much difference among females, 15.8% (6 cases) and males, 15.6% (10 cases). This is supported by Ishiyama et al.3 However, the infiltrative lesions (papillary with infiltration and ulcerative with infiltration) was seen to be more common in males 37.5% (24 cases) than females 21.1% (8 cases) (Graph 2).
It was found from the present study that ulcerative pattern was the common presentation of buccal mucosa cancers 58.3% (21 cases) whereas for the papillary pattern alveolar bone 32.0% (8 cases) was most prevalent site followed by buccal mucosa 11.1% (4 cases), floor of mouth 16.7% (1 case), tongue 8.3% (1 case), retromolar trigone 33.3% (Graph 3). These findings are consistent with Ishiyama et al.\(^3\) Infiltration into bone was common in cases of oral squamous cell carcinoma occurring on the alveolar bone 40% (10 cases). This could be explained on the basis of proximity of bone to the tumor. Similar findings were inferred by Bahadur.\(^9\) There is statistically significant correlation between site of occurrence and clinical pattern of oral squamous cell carcinoma, and it thus can be concluded from the present study that lesions of buccal mucosa generally ulcerate and alveolar bone show papillary pattern.

It was seen that habit of quid chewing was most prevalent among patients of present study and was associated with all clinical patterns (Graph 4). However, ulcerative lesions were the most common presentation of the group, irrespective of the habit, the patients indulged in. Usage of quid was associated with more infiltrative lesions (16 cases) than with the combined habit of quid and smoking (6 cases). Alcohol use alone was not
seen among any of the patients, although alcohol and tobacco when used in synergy augments each other's ill effects.\textsuperscript{1}

The correlation of lymph node involvement with clinical patterns was analyzed. It was found that ulcerative lesions had a increased tendency for lymph node involvement 50\% (30 cases), followed by ulcerative with infiltration pattern 28.3\% (17 cases). Papillary pattern 13.3\% (8 cases) had less tendency to involve lymph nodes. These results are consistent with the observations of Jacobson and Martinson,\textsuperscript{10} who suggested that the ulcerating form produces early metastasis than papillary form. The observation that nodal disease was not a common finding in papillary squamous neoplasms is documented by Ishiyama et al.\textsuperscript{3} These observations can help the clinician in determining the prognosis of the disease and thereby ulcerative lesions should be treated more aggressively and promptly.

Thus, we can come to a conclusion that there is no statistically significant correlation between clinical patterns of oral squamous cell carcinoma and age, sex and habits, but there is statistically significant correlation of the clinical patterns with the site. However, further studies are needed to substantiate this fact. The limitation of the present study was a small sample size of 102 patients over a limited time span. Further studies with a large sample size (more than 1000 cases) could provide more useful information on these correlations.

**SUMMARY AND CONCLUSIONS**

The present study was undertaken on 102 patients, who were diagnosed with oral squamous cell carcinoma. The clinical pattern of oral squamous cell carcinoma was studied. The study was conducted to find out the correlation between the clinical patterns of squamous cell carcinoma with age, sex, site and habits.

The following conclusions can be drawn from the present study:

1. There is no statistically significant correlation between the patterns of oral squamous cell carcinoma with age, sex and habits. However, in the present study, ulcerative pattern was the most common in males 46.9\% (30 cases), in the age group of more than 60 years, 57.6\% (19 cases) with the habit of quid chewing 51.9\% (27 cases).
2. There is statistically significant correlation between the clinical patterns of oral squamous cell carcinoma with site.
3. Buccal mucosa (36 cases) was the most common site affected with clinical presentation of ulceration 58.3\% (21 cases).
4. It is suggested that further studies should be undertaken involving a large sample size to refute or accept the above conclusions from the present study.

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