

Demographic, Habits and Clinical Presentation of Oral Cancer in Trichy's Population

U. Punitha Gnana Selvi¹, D. Kamatchi², R. Tharani³, S. Anusuya³

ABSTRACT

Introduction: Oral cancer is one of the 10 leading cancers in the world. In India, it is one of the most common cancer and accounts for over 30% of all cancers, which also constitutes a major public health problem. So far, no study has been conducted to evaluate the prevalence of oral cancer in a regional basis within the state of Tamil Nadu. Study aimed to assess the demographic profile of the patients with oral cancer in Trichy district and to evaluate if any correlation exist between the habits, primary site and clinical presentation of oral cancer.

Material and methods: Demographic data, clinical and histopathological details concerning oral cancer patients are collected from the centre's MGMGH and two other Institutes of Oncology in Trichy during the period Jan 2014-Dec 2016 and tabulated for statistical analysis.

Results: A total of 960 oral malignancy patients were reported, in which the male to female ratio was 2.5:1. Mean age was 52.6 years. The most common site of oral malignancy was in tongue followed by buccal mucosa. Palate was common primary site of lesion for smokers. No significant correlation found between habits and primary site of oral malignancy. Statistically significant correlation is found between the site and male-female ratio in chi square test ($p < 0.001$).

Conclusion: Through our study we have tried to depict the demographic datas of oral carcinoma patients in the district of Trichy, Tamil Nadu.

Keywords: Demographic Habits, Clinical Presentation, Oral Cancer

Tobacco use and excessive alcohol consumption have been estimated to account for about 90% of cancer in the oral cavity, the oral malignancy risk increases when tobacco is used in combination with alcohol or areca nut.⁷ The risk for developing oral malignancy is three times higher in smokers compared with non smokers.⁸

Oral cancers not only affect the cosmesis of the patients, but also the patient's lifestyle, life expectancy, patient's ability to communicate, major functions such as swallowing and chewing. In developing countries, the survival rate in patients with oral carcinoma is poor because of advanced clinical stages and advanced age at which the disease is diagnosed due to low socioeconomic status and awareness among the people. The majority of people present with locally advanced disease (stage III and IV) have the survival rate of 20-50%. Hence with this background, a study was conducted to assess the demographic profile of oral cancer and the correlation among habits, primary site and clinical presentation in patients with oral malignancy in the district of Trichy, Tamil Nadu.

MATERIAL AND METHODS

This was a retrospective study carried out in MGMGH and the data concerning oral cancer patients were obtained from the Department of Dental Surgery and cancer clinic in MGMGH and two other Institutes of Oncology in Trichy between Jan 2014 and Dec 2016. All the patients had a confirmatory diagnosis of carcinoma based on diagnostic biopsy.

The demographic profile of the patients such as age, gender, etiology and socioeconomic status was noted. Based on etiology, patients were categorized into three, as patients using smoke tobacco, smokeless tobacco and nontobacco users wherein the other etiology is attributed to sharp tooth, ill fitting dentures, passive smoking and other causative factors such as iron and vitamin A deficiency, syphilis, candidial infection, oncogenes viruses, oncogenes and tumor suppressor genes, immuno suppression.

The clinical presentation was given under the Primary site and Nature of its growth. Primary site of lesion were classified as lip, buccal mucosa, alveolobuccal complex, cheek, tongue, palate, floor of the mouth and retromolar region (Figure-1a,b,c). On the basis of nature of growth, the lesion were grouped as

INTRODUCTION

Carcinoma is defined as the uncontrollable growth of cells that invade and cause damage to the surrounding tissues.¹ Globally, oral carcinoma is the sixth most common cancer.² Among the modern epidemics, oral cancer is the commonest cause of morbidity and mortality in developing countries.

Oral cancer is a malignant neoplasm which is found on the lip, floor of the mouth, cheek lining, gingiva, palate or in the tongue.³ Types of oral malignancy are carcinoma, sarcoma, salivary gland tumors, odontogenic and non-odontogenic tumors. Among the different types of malignancy, oral carcinoma is the most common type. In India, 90-95% of oral carcinoma is squamous cell carcinoma⁴, because of its predominance seen in oral cavity. Oral cancer ranks the top three of all cancers in India and accounts for over 30% of all cancers reported in the country.⁴ As estimated by WHO, 90% of oral cancers in Indian men are attributed to tobacco consumption. Other etiological factors include sharp tooth, ill fitting dentures, passive smoking. The population-attributable risks of smoking and alcohol consumption have been estimated to 80% for males, 61% for females and 74% overall.⁵ Oral malignancy is two to three times more prevalent in men than women in most ethnic groups.⁶

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1. Ulcerative, 2. Exophytic- outward growth proliferating from the epithelial surface, 3. Endophytic- inward growth, burrowing or invasive in nature, 4. Leucoplakic- white patch, 5. Erythroplakic- red patch (Figure-2a,b,c).

STATISTICAL ANALYSIS

Data were collected, tabulated and analysed using chi square test and the significance level were confirmed on the p-value 0.05

RESULTS

Age distribution of oral carcinoma patients has been listed in Figure-3. The maximum number of patients in this study were in the age group of above 50 years (68.75%), followed by 40-50 years (21.25%). Least number of patients were in the age between 20-40 years (9.58%). The mean age of patients of oral cancer was 52.6. The proportion of male patients with oral carcinoma was greater in the age group above 50years.

Gender distribution has been listed in Figure-4. There were 960 cases of oral carcinoma from January 2014 – December 2016. 692 (72.08%) patients were males and 268 (27.91%) were females. The Male : Female ratio is 2.5:1.

Site distribution of lesions in oral cavity has been listed in Figure-5. The commonly affected sites are tongue (44.16%), followed by buccal mucosa (22.08%), palate (12.08%),

alveolobuccal complex (9.58%) and cheek (7.91%). The least affected sites are lip (2.5%) followed by floor of the mouth (1.25%) and retromolar pad (0.41%). No statistically significant

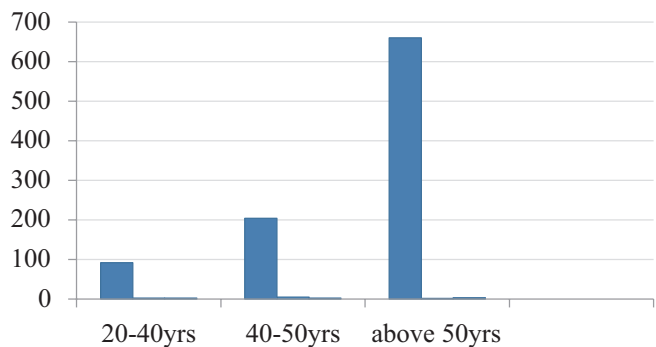


Figure-3: Age distribution

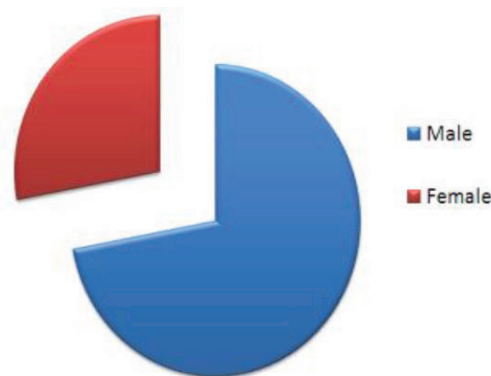


Figure-4: Gender distribution



Figure-1: (a) Carcinoma palate; (b) CA buccal mucosa; (c) Carcinoma tongue

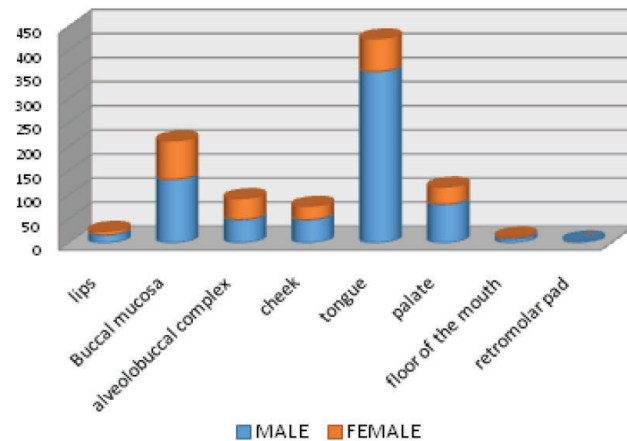


Figure-5: Site distribution



Figure-2: (a) Ulcerative; (b) Proliferative; (c) Invasive

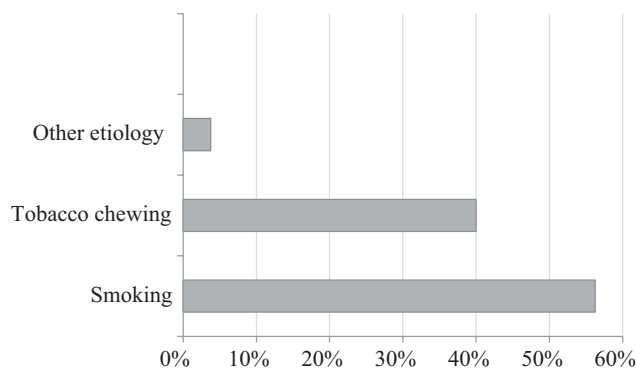


Figure-6: Distribution of etiological factors

correlation is found between the site and age group in chi-square test ($p > 0.05$). However, statistically significant correlation is found between the site and male- female ratio in chi-square test ($p < 0.001$).

Considering the distribution of etiology (Figure-6) 56.25% of patients had the habit of smoking. 40% of patients were tobacco chewers and a small group of patients 3.75% did not have any of the habits but affected by chronic trauma, HPV virus, immune deficiency, etc. No significant correlation found between habits and primary site of lesion ($p > 0.05$).

Among the total population of 960 patients, the nature of lesion occurring commonly is proliferative type (47.3%) followed by ulcerative type (41.9%). The burrowing or invasive is the least common type (10.6%) (Figure-7). Figure -8 shows the correlation between age and lesion.

DISCUSSION

Oral cancer is one of the 10 leading cancers in the world.⁹ In India, it is one of the most common cancer and accounts for over 30% of all cancers, which also constitutes a major public health problem.¹⁰ India has one of the highest rates of oral malignancy in the world, with 90% of the patients being tobacco chewers.¹¹ This study is carried out to evaluate the epidemiology, etiology and sex predilection of oral carcinoma patients in the district of Trichy, Tamil Nadu. This would be helpful for early diagnosis and prompt treatment of patients, ultimately leading to a better prognosis.

In this study, most of the patients reporting with oral cancer belong to the age group above 50 years. 68.75% oral carcinoma occur in people older than 50 years with the average age at diagnosis 60 years. The incidence of oral cancer is age related, which may reflect the time accumulation for genetic changes, duration of exposure to the initiator and immune system competence diminishes with age.¹⁰

In our study the prevalence of oral cancer is mostly seen in males when compared to females with the ratio of 2.5:1. This was also in accordance with the study by Khandekar et al.¹² Notably 72.8% were males who had consumed mostly smoke form predominantly cigarettes followed by smokeless forms like pan masala and gutka. The remaining 27.91% were females who have used dry tobacco leaves, few started for the purpose of tooth ache. However the male to female ratio in prior studies documented by Shenoy et al⁹ was 1:1.35 and much in accordance with the study by Pinholt et al¹³ where the ratio was 1:1.2.

Oral cancer mainly caused by deleterious habits like tobacco usage, which can be categorized into smoke tobacco and smokeless tobacco. In our study, among 960 patients, 540 (56.25%) were smokers, 384 (40%) were smokeless tobacco users and the remaining 36 (3.75%) with other etiological factors. Smoke tobacco such as cigarettes, bidi, cigars, gutka are commonly used. Among the different smoking habits, the cigarette or cigar increase the risk of cancer by 6 times and bidi smoking by 36 times as compared to non smokers. Tobacco contains more than 4000 chemicals, the most dangerous compounds are tar, carbon monoxide, nitrogen oxide, hydrogen cyanide, metals, ammonia, etc. One major ingredient is Nicotine, which is an addictive drug which makes the smokers to continue to smoke.¹⁵

Smokeless tobacco is a tobacco that is not burnt, the two main

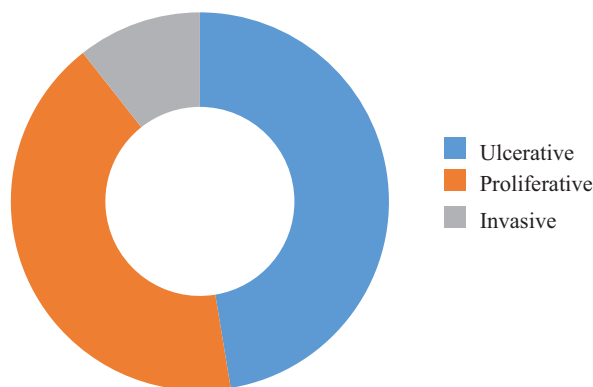


Figure-7: Nature of growth

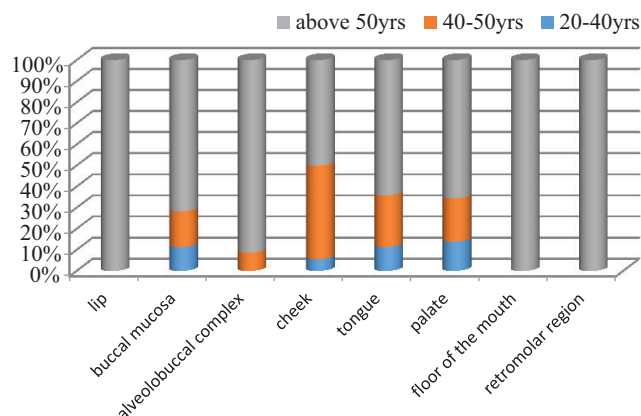


Figure-8: Correlation between age group and site

types are chewing tobacco and snuff. Chewing tobaccos available as plug, loose leaves, twists or roll, arecanut, betal quids. Snuff is a finely cut or powdered tobacco. Snuff consumption expose the oral epithelium to free radicals of oxygen and nitrogen that can affect antioxidant defence mechanisms. Elevated levels of these free radicals are found in oral carcinoma.¹⁶

Smokeless tobacco are placed in contact with buccal mucosa or gingiva. Atleast 28 chemicals in smokeless tobacco have been found to cause cancer. Most harmful chemicals is nitrosamines and other cancer-causing substances include polonium-210, a radioactive element and polynuclear aromatic hydrocarbons. Nicotine is absorbed continuously through the lining of oral tissues into the bloodstream even after its removal from the mouth. Also, the nicotine stays in blood longer for users of smokeless tobacco than for smokers.

In this study, among 36 patients with other etiological factors, 9 patients were affected with chronic trauma from sharp tooth, 3 were due to recurrent sores by ill-fitting dentures, 3 were immunodeficiency disorders, 24 patients reported with unknown cause and the remaining 4 were due to Human papillomavirus (HPV) mainly associated with carcinoma of the oropharynx.¹⁷ The IARC classifies Human papilloma virus 16 (HPV16) as a cause for carcinoma of oral cavity and HPV18 as a possible cause.¹⁸ The most common sites of HPV related head and neck squamous cell carcinoma (HNSCC) are tonsils and base of tongue within the oropharynx.

Tongue and buccal mucosa are the most common sites among the males in Trichy population. Lype et al.¹⁰ in his study documented the tongue is most common site in males. Buccal mucosa followed by tongue are common sites among the

females.

Most of our study subjects belonged to low socioeconomic status. It may be a risk factor for oral cancer because of their poor oral hygiene and poor educational qualification. Hence, the patients are unaware about the consequences of deleterious habits. Therefore the risk of oral cancer is inversely proportional to increasing level of education, occupation and income.

Future scope of the study

This study could be further continued in prospective basis to include histopathological evaluation and categorizing the patients based on the type of malignancy.

CONCLUSION

Through this study we have depicted the demographic profile of Trichy district population with oral cancer visiting MGMGH and the other Cancer Institutes. Widespread educational campaigns against determinant factors should be initiated. Programs should be developed emphasizing the early diagnosis and its impact on survival rate, treatment cost and quality of life.

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