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Unravelling the Nexus: A Comprehensive Clinicopathological Study of Oral Cancer in A Tertiary Care Centre of Western Odisha

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A B S T R A C T

Cancer of the oral cavity is one of the most common malignancy worldwide. The oral cavity cancer is a major public health problem in the Indian subcontinent, where it ranks among the top three cancer types in both incidence and mortality. The substantial risk factor includes tobacco products, alcohol, poor oral hygiene, nutrition, viral and dentition. There is high prevalence of oral cancer in western Odisha due to rampant use of tobacco. Oral cancer generally refers to squamous cell carcinoma of oral mucosal origin, which accounts for more than 90 percent of all malignancies. Early detection is easy and associated with improvement in survival whereas late detection results in significant morbidity and mortality. Well differentiated carcinomas have minimal pleomorphism and few mitosis. Surgery and radiotherapy being the main modality of treatment. In our study the focus is to determine risk factors associated with oral cancer, to determine the commonest site of presentation, to find out the gender and age group with highest incidence, to find the presenting stage at the time of hospital visit.

Keywords: Oral cancer, Oral pathology, Squamous cell carcinoma.

INTRODUCTION

The World Health Organization's International Agency for Research on Cancer (IARC) has identified more than 100 types of chemical, physical, and biological carcinogens that cause cancer. Cancer research is focused on discovering new carcinogens, explaining how they cause cancer and providing insights into ways to prevent cancer. Peyton Rous discovered cancer, and the virus causing cancer came to be known as Rous sarcoma virus. Peyton Rous was awarded the Nobel Prize in 1966 for his discovery [1]. In addition to viruses, chemicals and radiations also cause cancer and sometimes cancer is found to run in families [2].

Oral cancer is any malignant neoplasm which is found on the lip, floor of the mouth, cheek lining, gingiva, palate or in the tongue. Oral cancer is among the top three types of cancers in India [3]. Severe alcoholism, use of tobacco like cigarettes, smokeless tobacco, betel nut chewing and human papilloma virus (HPV) are the most common risk factors for oral cancer [4, 5]. Oral cancer may also occur due to poor dental care and poor diet [6]. The incidence of oral cancer is highest in India, south and Southeast Asian countries. In India, 90 -95% of the oral cancers is squamous cell carcinoma [7]. The international agency for research on cancer has predicted that India's incidence of cancer will increase from 1 million in 2012 to more than 1.7 million in 2035. This indicates that the death rate because of cancer will also increase from 680000 to 1- 2 million in the same period. A case control study from India demonstrates that oral cancer is interrelated with low income. Low social economic class is interrelated with factors like nutrition, health care, living condition and risk behaviors which contribute to the development of oral cancer [8]. In many low-income and middle-income countries, including India, most of the population does not have access to a well organized and well regulated cancer care system. A diagnosis of cancer often leads to high personal health expenditures. Such expenditures can push entire families below the poverty line and may threaten social stability [9]. No significant advancement in the treatment of oral cancer has been found in recent years, though the present treatments improve the quality of life of oral cancer patients but the overall survival rate of years has not improved in the past decades.

Cancer research is growing rapidly as evidenced by the increasing research publication output. Bibliometric analysis helps in studying the various facets of publication productivity in different research areas. Several bibliometric studies have reported analysis of cancer literature. There are bibliometric studies on cancer of specific organs such as cervical cancer, breast cancer and oral cancer, while other bibliometric studies are on cancer in specific countries including a study on global perspectives. Specific country based cancer studies include Arab countries, Brazil, France, Iran, Mexico and Nigeria. From the review of literature, it is seen that there are minimum number of bibliometric studies on oral cancer research from India so far. So, this paper attempts to fill this gap by presenting a Bibliometric report on oral cancer research in Western Odisha (India).

Objectives of the study

- To determine risk factors associated with oral cancer.
- To determine the commonest site of presentation.
- To find out the gender and age group with highest incidence.
- To find the presenting stage at the time of hospital visit.

METHODOLOGY

All patientswho areattendingENT outpatient department of our hospital, Odisha with growth and ulcer in oral cavity, who arehistopathologically confirmed of oral cancer were included in our study. Period of study was from June 2023 to March 2024. Sample size is taken as 130. It is a cross sectional. Data was analysed using chi-square and t-test. Statistical significance was set at $p<0.05$.

- **Inclusion criteria-**
  - Patients with growth and ulcer in oral cavity, who are histopathologically confirmed of oral cancer.

- **Exclusion criteria -**
  - Patients who do not give consent.

- **Study variables -**
  - Age
  - Sex
  - Socio economic status
  - Geographic location
  - Symptoms at presentation

Material and Methods

The biopsy records of the Department of Pathology of our hospital were reviewed for oral cancer cases diagnosed from June 2023 to March 2024. Demographic data and site of the lesion were also collected. Sites of the lesion were subdivided into buccal mucosa, tongue, labial, palate and floor of mouth. Various agegroups were considered i.e, ≥70 years60-69 years, 50-59 years, 40-49 years and <40years. Risk factors were categorized into those consuming tobacco, alcohol, poor oral hygiene, dentition, nutrition and viral. Oral cancer was subdivided into 3 categories based on the stage at presentation: well differentiated squamous cell carcinoma, moderately differentiated squamous cell carcinoma, poorly differentiated squamous cell carcinoma. Data collected were analyzed by appropriate statistics using SPSS Statistics for Windows, Version 26.0. A P value less than 0.05 was considered to be statistically significant.

RESULTS

Of the 130 accessioned cases, most of the cases are in the age group of <40years years. In our study in 47.7% of the cases lesions where found in the buccal mucosa because in this region tobacco chewing is most common habit and they frequently keep tobacco quid at the vestibule against buccal mucosa. The next frequent site is the tongue in our study. We found a strong association between the site and grade of tumor in our study like previous studies (Sharma *et al*., 2010; Ayesha *et al*., 2013; Md. Aktar *et al*., 2014). The disease had male preponderance in our study. Incidence of poorly differentiated SCC was very less in female patients. The most important risk factors are use of tobacco and the regular drinking of alcoholic beverages.

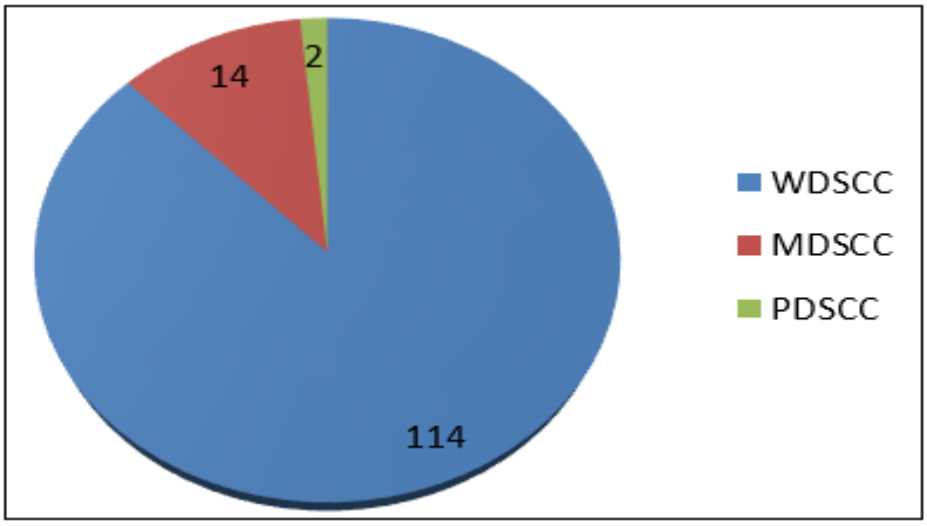

Fig 1: Presenting stage at the time of hospital visit

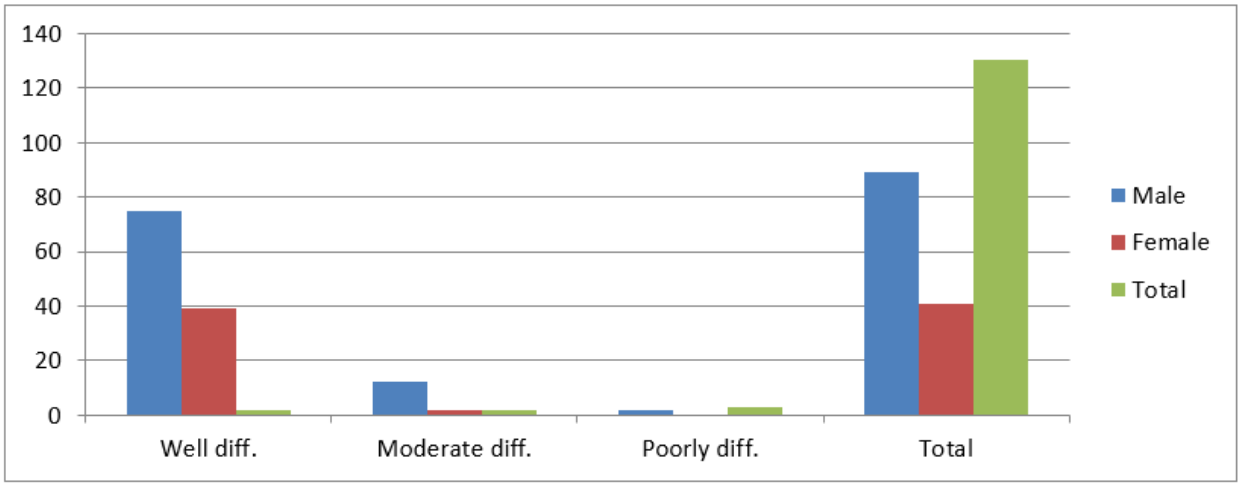

Fig 2: Gender wise distribution of patients (68.4% cases are male and 31.53% are female)

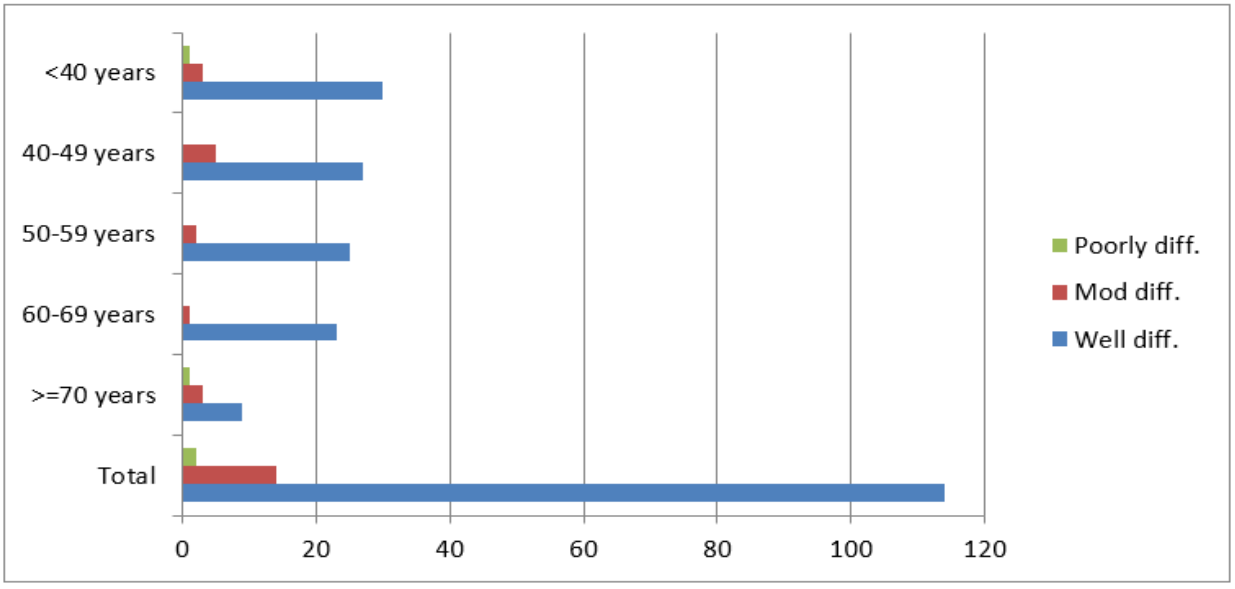

Fig 3: Age wise distribution of patients. (20.7% cases are in age group of 50-59 years, 18.46% are in age group of 60-69 years and 10% are in age group of >=70years)

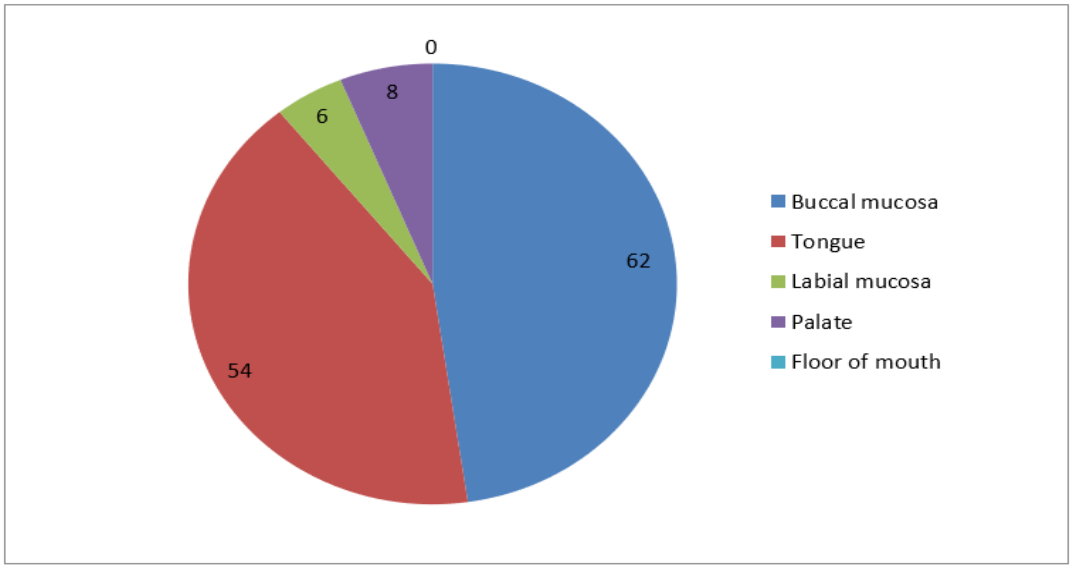

Fig 4: Site wise distribution of cases

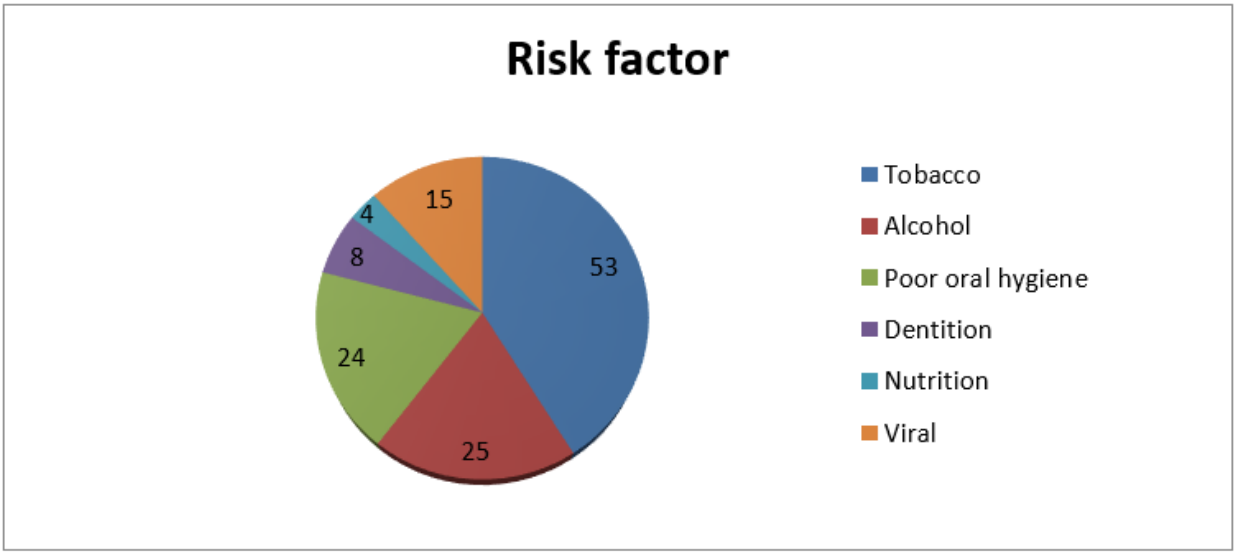

Fig 5: Risk factors of cases

Data analysis and discussion

According to the study by Farnaz *et al*., 2011out of 158 cases 21 patients are younger than 40 years. Oral squamous cell carcinoma was most commonly found in 5th to 7th decades of life. In our study in 47.7% of the cases lesions where found in the buccal mucosa unlike the tongue is the most frequent site in most of the previous studies (Doshi *et al*., Liviu and Johan, 2012). Incidence of high grade PDSCC was more in male patients. In Western Odisha tobacco chewing is most common habit and frequently keeping tobacco quid at the vestibule against buccal mucosa, so the buccal mucosa is the most common site. Majority cases of the buccal mucosa are WDSCC whereas in tongue, floor of the mouth and palate PDSCC are common. We found a strong association between the site and grade of tumor in our study like previous studies (Sharma *et al*., 2010; Ayesha *et al*., 2013; Md. Aktar *et al*., 2014).

CONCLUSION

The multi-perspective approach including health education, control of smoking and alcohol intake and application of treatment in the first stage of illness is necessary. The improvement of population screening methods and endowment of units with proper equipment are mandatory measures that need implementation as soon as possible.

DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal.

The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of Interest: There are no conflicts of interest.

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