Analysis of Tumour Size When Presented to Dental College: A Retrospective Institutional Study

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Abstract

Objective: Evaluation of presentable tumor size in oral squamous cell carcinoma was the objective of the study.

Patients and Method: The study sample comprised of ninety-eight biopsies diagnosed as oral squamous cell carcinoma presented to dental college from 2015 to 2020. Result and analysis of presentable tumor size when reported.

Results: Male to female ratio was 2.5:1. Among the 295 diagnosed OSCC cases presentable tumor sizes when reported, most of the cases were T2 (42.37%) followed by T1 (18.3%), T3 (11.86%), and T4 (6.1%).

Conclusions: Oral squamous cell carcinoma is one of the major health problems in India. Strategies must be made to improve the present scenario of health care service, where Government-run health care centres are burdened with ever-increasing patient pool, and to avail treatment in such centres is always a compromise with time and health. Oral health and cancer awareness programs should be undertaken for prevention, early diagnosis, and management of the affected population. Regular long-term follow-up is also necessary for these cases to avoid the recurrence of the disease and a better quality of life.

Keywords: *Tumor Size, Squamous Cell Carcinoma (SCC), Oral cavity, TNM Staging.*

Introduction

Oral cancer is considered to be one of the ten most common cancers in the world and is grouped with pharyngeal cancer.[1] An estimated 378,500 new intraoral cancer cases are diagnosed worldwide per year. Oral cancer is less common in developed countries, but is the eighth most common form of cancer in general; however, the ranking varies widely between countries. In some areas of northern France, oral cancer is most common among the male population. For many countries, especially younger people, the prevalence of intraoral cancer appears to be growing.[2] The global incidence of lip, oral, and pharyngeal cancers comprises around 3.8% of all carcinomas, is expected to increase by 62% within the year 2035 due to changes in demography.[3]

In Asian countries, oral and hypopharyngeal carcinomas are quite common.[3] One-third of global cases and one-half of oral cancer-related deaths are reported from Southeast Asia.[4] In countries of the Indian subcontinent (India, Bangladesh, Pakistan, and Sri Lanka) oral carcinomas are most prevalent.[2] Different studies revealed that in various part of India more than 50% of all carcinoma is oral squamous cell carcinoma

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(OSCC) and it is the mostcommon cancer among males and the third most common among the female population, which is related to the deleteriousoral habits such as tobacco chewing, betel-quid chewing,tobacco smoking, reverse smoking as well as other causes such as alcohol intake, low socio-economic status, poor grooming, poor diet, and viral infections, persistent dental pain, rough or broken teeth[2,5] Squamous cell carcinoma of the oral cavity most commonly involve tongue and buccal mucosa.[6]

Oral cancer affects males more often than females, although the proportion is equal, and in recent times,an increased number of cases is being reported in elderlyfemales as well as young females.[2,7,8] It predominantly affects middle-aged and older persons.[2] However, the incidence of OSCC in persons under the age of 45 is increasing.[9,10] Etiology of oral carcinomais multifactorial and cigarette smoking, excess alcohol intake, and betel-quid use are the common risk factor for oral carcinomas.[11] However, several recent studies have identified a startling rise in oral cancer in patients who had no history of tobacco or alcohol consumption[8,12]. This retrospective institutional research includes patients who were reported in our department for over 66 months. The goal of the study was to assess the presentable tumor size of oral SCC in these patients to determine the enormity and pattern of oral SCC in the population of the eastern Indian state of Odisha.

Material and Method

In this retrospective study (January 2015 to June 2020), data of 295 OSCC biopsies were retrieved from laboratory records. It included age, gender, presentable tumor size,and histopathological diagnosis. No identifying patient information was disclosed in the study. Approval obtained from the Ethical Committee of our institution for this study.

Results

A total of 295 cases of histopathologically confirmed OSCC, which were reported during the study period was included in the study. Among them 210 (71.2%) patients were male and 85 (28.8%) patients were female [Table 1]. The age range of these patients was 24 to 85 years and most of them were in their sixth decade of life. Presentable tumor sizes, when reported, were T1-54, T2-125, T3-35, and T4-18.

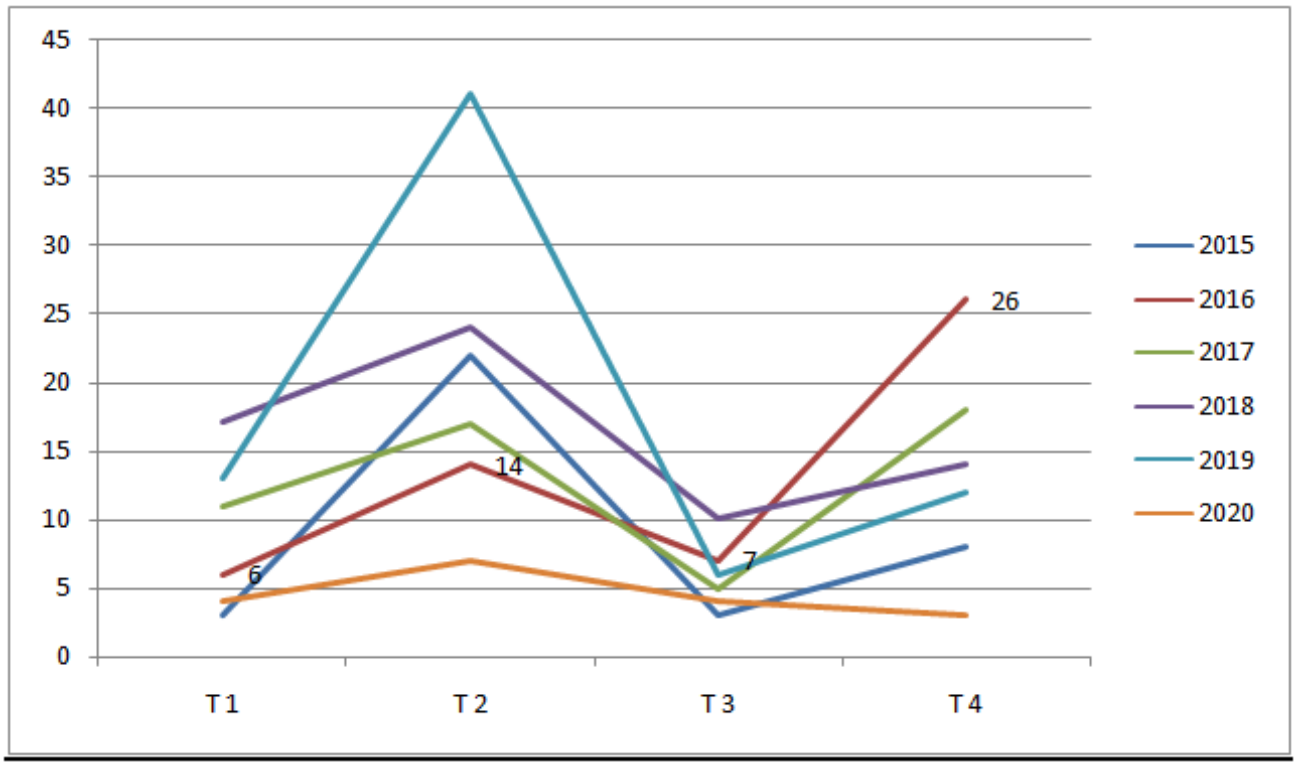

Figure 1. Year wise representation.

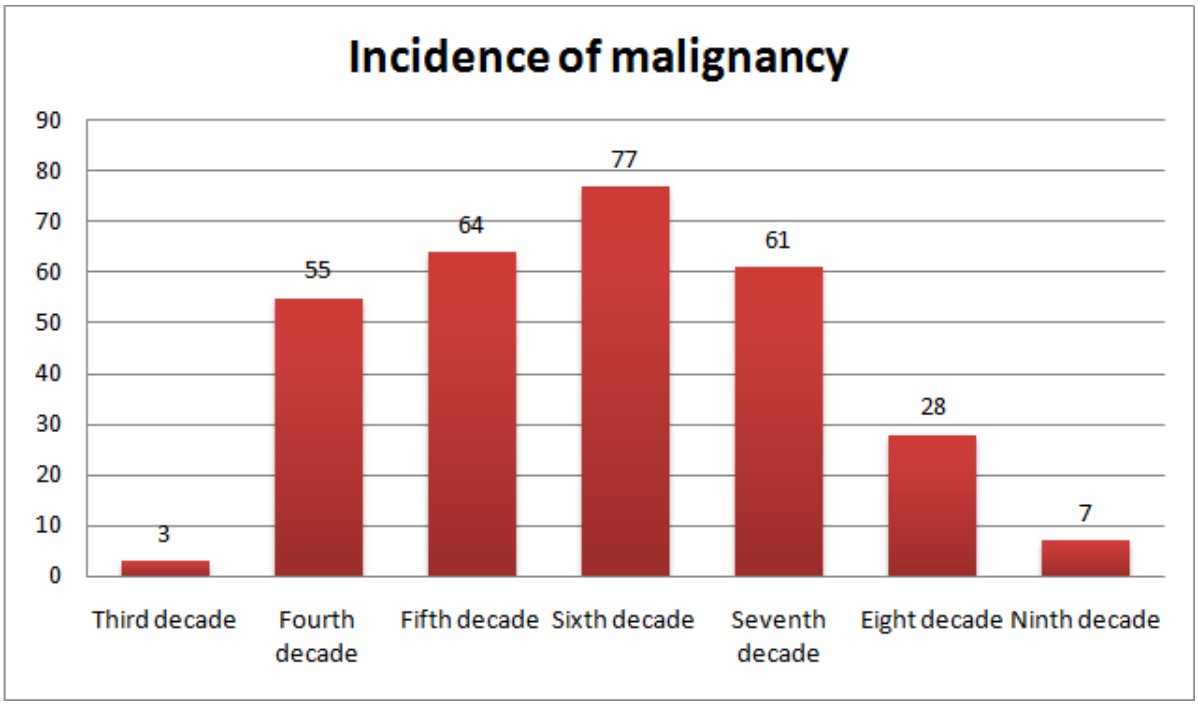

Figure 2. Incidence of malignancy

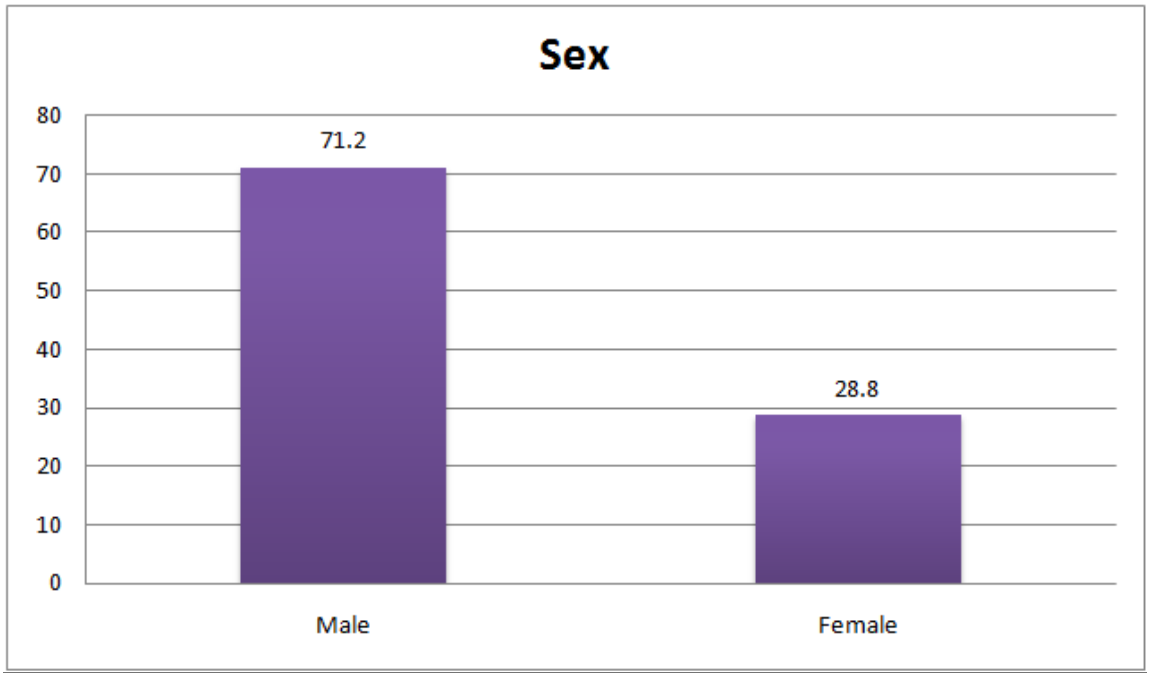

Figure 3. Gender wise representation

Discussion

Among all oral malignant lesions of oral squamous cell carcinoma accounts for nearly 90%. SCC is the prevalent carcinoma of the oral cavity with a high mortality rate and has a 5 years of survivalrate for 50% of the affected patient.[13][14]

In this study, there was an increased incidence of OSCC in males than females with a male to female ratio (M: F) of 2.5:1 which is equivalent to data of different studies which were conducted in the northern part of India. The male predilection of OSCC found in both developed (M : F=2.5:1) and developing (M: F = 3:1) countries which are attributed to increased incidence of

different oral habit in males than females[15] Recently, however, this gender distribution difference has been decreasing in developed countries because more women adopt tobacco-related habits including smoking.[15]

Most of the patients were in the age range of 40–60 years, which is consistent with other studies conducted in north India.[14,16] Most often OSCC appears after the 5th decade of life but a consistently increased incidence of involvement of patients younger than 40 years had been observed.[18] For Asian populations, the average age of presentation is 50 to 70 years of age. [17].In the present study, OSCC was diagnosed in 19.66% of patients younger than 40 years.

Tobacco consumption is a major risk factor for oral and oropharyngeal SCC.[19]Smokeless tobacco has a strong relationship with the development of oral carcinomas.[20] In Asian countries use various form of tobacco, areca nut chewing and alcohol consumption is prevalent and they play an important role in the development of oral squamous cell carcinoma.[21] Socio-cultural standards and beliefs are also in support of simple tobacco product availability. The introduction of tobacco products ready to use and aggressive ads target not just young people but also children.[14] In India, the efforts of the Government for deterrence of tobacco products' use prove to be inadequate when looked at the easy availability of the products and their rampant use.

The prevalent sites of oral SCC were buccal mucosa including gingivobuccal sulcus followed by alveolus and tongue. The findings were consistent with other studies.[14,22,23] The language is considered to be the most common site of primary OSCCs in developed countries, but in developing countries, betel quid and/or tobacco chewing results more commonly in buccal mucosal cancer.[19,24] This is mainly due to the prolonged positioning of the betel quid in the buccal pouch to achieve maximum benefit as betel quid constituents create a sense of well-being and increased ability to work by stimulating the parasympathetic nervous system.[24] Similarly, smokeless tobacco tends to incite malignant degeneration at the site of tobacco placement.[18] Tobacco contains carcinogens (chemicals that cause cancer) such as different nitrosamines (like N'-nitrosoanatabine, N-nitrosonornicotine, N-nitrosoanabasine, nicotine-derived nitrosamine ketone, etc.) and various free radicals likeglutathione reductase, S-transferase glutathione, catalase, glutathione peroxidase, superoxide dismutase, etc. They are capable of impeding antioxidant enzymes.[11] Reactive oxygen species are generated in substantial amounts in the oral cavity during chewing.[25]

According to the AJCC Cancer Staging Manual, Eighth Edition TNM staging can be classified as "clinical TNM" and "pathological TNM". They are designated as "cTNM" and "pTNM". The clinical classification should be determined before the commencement of the primary treatment based on data that are gathered through clinical examinations and different diagnostic procedures. The "cTNM" is crucial for proper treatment planning. The UICC classification suggested that for each site the specific method of investigations available for TNM classification should be listed. They are:

1. Gathering of history of the case.
2. Sign and symptoms of the condition.
3. Examination of the lesion along with the examination of the other systems.
4. Histopathological study of the primary lesion, sentinel lymph node of the regional lymph node.
5. Different imaging like CT scan, contrast-enhanced CT scan, MRI, endoscopy, plain radiographs to determine the surrounding tissue, and nodal involvement as well for the assessment of distant metastases.
6. Surgical exploration without resection and biopsy of the site of distant metastases if possible and other investigation which is necessary to establish the TNM staging.

In this study among the 295 diagnosed OSCC cases presentable tumor sizes when reported,most of the cases were T2 (42.37%) followed by T1 (18.3%), T3 (11.86%), and T4 (6.1%). In the year 2016 and 2017 presentable tumor sizes were mostly T4 (26 cases out of 53 and 18 out of 51 respectively). However, in recent years there is a reduction of presentable tumor size reported in recent years.

Most of the time there is a delay in diagnosis of OSCC can be attributed to various factors such as, but not limited to, patients' negligence due to lack of knowledge and awareness, illiteracy, poverty, and possible resort to home remedies.[22] Professional delay in making a confirmatory diagnosis can also be another factor. Multiple factors like the nature of the patient, symptoms as well as the course of the disease,

proficiency of the health service play an important role in the commencement of the treatment after the diagnosis of oral squamous cell carcinoma.[28]

Conclusion

Demographic data like age, sex, presentable tumor size in the patient of the eastern part of India which was identified previously was confirmed by this research. It is found that oral SCC is more common in the middle-aged male patient. For most Asian countries, especially India, the burden of oral cancer has increased; hence, increasing national level public awareness programs all over the country is a demand of the time for prevention, early detection, and diagnosis, and to support a tobacco-free environment. When measures are taken by Government so far could not deter people from using the tobacco products, whether a blanket ban on their production and sale is possible must be a subject of debate and discussion and utmost importance to reconsider.

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Conflicts of Interests: None

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