Original research article

Clinical Study on Etiopathology of Oral Cavity Malignancies among Adults in Telangana

Dr. Karuna. N [1], Dr. Sushmitha [2], Dr. L. Sudarshan Reddy [3]

[1]Associate Professor (ENT), Govt ENT Hospital, Osmania Medical College, Hyderabad, Telangana.

[2]PG, Department of ENT, Govt ENT Hospital, Osmania Medical College, Hyderabad, Telangana.

[3]Prof and HOD Govt ENT Hospital, Osmania Medical College, Hyderabad, Telangana.

Corresponding Author: Dr. L. Sudarshan Reddy

Abstract

Background: The incidence of oral cancers is increasing every year across the globe. India is of the countries which shares a high burden of oral malignancies owing to habits such as beetle chewing, smokeless tobacco use, smoking, and alcoholism. the current study aimed to describe the spectrum of clinical features in patients with oral malignancies along with the determination of etiological factors for oral malignancies reporting to our hospital.

Methods: this cross-sectional study was conducted in the Department of ENT, Govt. ENT Hospital, Osmania Medical College, Koti, Hyderabad, Telangana. All the suspected cases with oral lesions were subjected to detailed history, clinical examination, and under local anesthesia with 10% xylocaine spray using Luc's forceps biopsy was taken from edge of lesion and sent for histopathological examination.

Results: Highest frequency of malignancy was observed in the 31 – 50 years age group with 54% of all cases. Squamous cell carcinoma was diagnosed by histopathology in 97% cases, adenocystic carcinoma in 2% cases, and myoepithelial carcinoma in 1%. Tobacco chewing was the commonest etiological factor in all the cases. The common site of involvement was tongue in 39% of cases, buccal mucosa in 28% cases, retromolar trigone in 14% cases.

Conclusion: Reduction in the burden of oral cancers can be achieved by reduction of risk factors, tobacco consumption, health education, and improvement of lifestyle. Additionally, recognizing and controlling precancerous lesions and early diagnosis of oral lesions, and initiation of appropriate therapy at initial stages will reduce morbidity and mortality associated with oral cancers.

Keywords: Oral Malignancies, Etiopathology, Squamous Cell Carcinoma, Tobacco chewing

Introduction

Oral cancers have increasingly become a major public health problem across the world. The term oral cancer includes any malignant neoplasm found on the lip, the floor of the mouth, cheek lining, gingiva, palate, and tongue. It has been estimated that 3.5 – 4.0 Lakh new cases are diagnosed every year. Oral cancers are rated as the 8th most common malignancy. [1] The incidence of oral cancers is particularly higher in South East Asian countries and some Eastern European countries. In the Indian scenario, the age-adjusted rates of oral cancers are high at the rates of 20 per 100,000 population and it accounts for 30% of all cancers detected in the country. [2] There are also wide variations in the incidence of oral cancers reported within India. It could be due to the combined effects of aging of the population and regional

differences in the existence of disease-specific risk factors. [3] One of the important concerns of oral cancer in India is because a significantly higher number 70% of the cases are reported in the advanced stages III and IV. Because of the late detection, the chances of cure of these are very low and the five-year survival rates have been at a dismal 20%. [4] Among the etiological factors in India lifestyle habits and exposure to specific risk factors such as poor oral hygiene, tobacco chewing, use of alcohol, cigarette smoking, beedi smoking, socioeconomic factors, genetics, and ethnicity play an important role. Apart from tobacco chewing, paan containing leaves of piper betel with areca nut, lime, catechu, cinnamon, etc are considered as the leading source of oral malignancies such habits commonly exist in north-eastern parts of India and contributes to the highest incidence of all reported cases of oral cancers in India. [5] Of all the oral cancers detected across the world oral squamous cell carcinoma (OSCC) is the major entity detected in 84 to 97% of all the cases. OSCC arises from the normal epithelium or pre-cancerous inflammatory lesions such as oral submucous fibrosis, erythroplakia, leukoplakia, dyskeratosis congenital, and lichen planus. [6] Certain viral infections such as human papillomavirus have been linked with the incidence of oral cancers. Chronic inflammations of the bacterial origin or viral origin or mechanical irritation play an important role in tumorigenesis. The diagnosis of oral cancers in the early stage is an important aspect both from the point of view of treatment and physical, psychological, and financial loss to the patients. It has been reported that early diagnosis and treatment have improved survival rates to > 90%. Several clinical techniques, physical examination, radiological evaluation, staining, biopsy, and histopathological examination are important aspects in routine detection of oral cancers. With this background, we in the current study tried to evaluate the spectrum of clinical features in patients with oral malignancies. To determine the etiological factors for oral malignancy and describe the histopathological pattern of malignancy detected in cases of our study.

Material and Methods

This cross-sectional study was conducted in the Department of ENT, Govt ENT Hospital, Osmania Medical College, Koti Hyderabad, Telangana from November 2018 to October 2019. Institutional Ethical committee permission was obtained the study. Written consent was obtained from all the cases of study after explaining the purpose of study in the local language. All the suspected cases with oral lesions such as non-healing oral ulcers, precancerous lesions detected clinically, painless swellings in patients visiting the OPD were selected and analyzed based on the inclusion and exclusion criteria.

Inclusion criteria
1. All suspected cases of oral malignancy and confirmed by histopathology
2. Aged 18 years and above
3. Males and females
4. Willing to participate in the study voluntarily

Exclusion criteria
1. History of oral malignancy and treatment
2. Relapse of the oral malignancy
3. Patients with autoimmune diseases
4. Those not fitting as per the inclusion criteria

Based on the inclusion and exclusion criteria n=100 cases of oral malignancies were included in the study. A detailed general examination along with the examination of the oral cavity was

done. A complete record of history which included the habits of tobacco smoking, chewing, occupational risk factors for oral cavity malignancy is noted. Any non-healing ulcers, site size, shape, edges, floor, induration are examined. Palpated for lymph nodes, their size, shape, multiplicity, consistency, fixity, skin over the node is done under aseptic conditions. Under local anesthesia, 10% xylocaine spray is done locally. With Luc`s forceps biopsy is taken from the edge of the ulcer and sent for Histopathological examination. Necessary antibiotics and analgesics were given. *Statistical analysis:* All the data was entered in MS Excel spreadsheet and subjected to statistical analysis. Qualitative data was measured in terms of Proportions and Percentages.

Figure 1: Biopsy of the lesion being taken for examination

Results

Out of the n=100 cases with oral malignancies. The demographic profile of the cases as depicted in table 1. A critical analysis of table 1 reveals that n=8 in the age group 18 - 30 years. N=27 each in the age groups of 31 – 50. N= 24 cases in age group of 51- 60 years, n=14 diagnosed malignancy of oral cavity. The mean age at the time of diagnosis was 42.5 ± 4.5 years. The total number of male cases was 82% and female cases were 18%.

Table 1: Demographic profile of the cases included in the study

Age in Years	Male	Female	Frequency (%)
18-30	7	1	08
31-40	20	7	27
41-50	23	4	27
51-60	21	3	24
61-70	10	4	14
71-80	1	0	01
Total	82	18	100

The analysis of risk factors and etiological factors for the oral malignancies as depicted in table 2 reveals that smoking tobacco caused malignancy in 12%, chewing tobacco in 42%, chewing tobacco and alcohol in 14%, smoking tobacco and alcohol in 14%, smoking, chewing tobacco along with alcohol in 3%, smoking alcohol and chewing tobacco in 6%, alcohol alone in 2% and 7% in patients who have no risk factors.

Table 2: Distribution of risk factors for the oral malignancies

Risk factors	Male	Female	Frequency (%)
Tobacco smoking	12	0	12
Tobacco chewing	35	7	42
Tobacco chewing + alcohol	13	1	14
Smoking + Alcohol	12	2	14
Smoking + Tobacco chewing + Alcohol	3	0	3
Smoking + Tobacco chewing	6	0	6
Alcohol	1	1	2
No risk factors	0	7	7

In this study 67% patients were low socio-economic status and 33% were with moderate socioeconomic status. In 21% of cases one of the family members were with history of cancers other than oral cancer. Out of all the cases 95% were married and 5% were unmarried. 25% were educated up to Graduation and 20% were educated up to 10 standard and 55% were uneducated or school dropouts. 81% were residents of Hyderabad city and 19% were from surrounding towns and villages.

Table 3: Anatomical location of the lesion in the cases of study

Sub Site	Frequency	Percentage
Tongue	39	39%
Buccal Mucosa	28	28%
Retromolar Trigone	14	14%
Floor of Mouth	3	3%
Hard Palate	11	11%
Gingiva/Alveolus	3	3%
Lip	2	2%

In the n=100 cases tongue is involved in 39% of cases, buccal mucosa in 28% of cases, Retro molar Trigone in 14% cases, hard palate in 11%, floor of the mouth in 3%, gingiva in 3% cases, and lip in 2% cases. In the sex wise anatomical location of the cases revealed in females' tongue was involved in 8% cases, buccal mucosa was in 4% cases retromolar trigone was 6% cases. The most diagnosed malignancy in out cases is depicted in table 4, Squamous Cell Carcinoma of oral cavity is present in 97% of patients. 2% in Adenocystic Carcinoma in 2% and Myoepithelial Carcinoma in 1% of patients.

Table 4: Showing The Diagnosis Of Malignancies In The Cases Of The Study

Histopathology	Frequency	Percentage
Squamous Cell Carcinoma	97	97%
Adenocystic Carcinoma	2	2%
Myoepithelial Carcinoma	1	1%

Discussion

In the current study, we found most of the patients belonging to 31 – 50 years and the mean age at the time of diagnosis was 42.5 ± 4.5 years. Most of the oral cancers were found in males at 82% compared with females at 18%. Studies conducted in this field across various South Asian countries and India have shown the mean age of the patients with oral cancers was 41 –

50 years. [7-9] In agreement with the observations of the present study. The Indian Global Adult Tobacco Survey (GATS 2009-2010) found one-third of the Indian population ≥15 years use some form of tobacco. [10] The percentage of the population using tobacco in some form was found to be higher in age groups 15 – 49 years. At least 32.9% of males and 18.4% were using smokeless tobacco. [11] The South and East Asia collaborative study found 10.7% to 43.6% of men in Taiwan, Mainland China, Nepal, and Sri Lanka chewing of tobacco were found. Interestingly the rates were higher in women in Malaysia and Indonesia 29.5–46.8%. [10] In our study, nearly 49% of all cases were found with tobacco chewing habits of greater than 5 years duration. The epidemiological studies across various states in India have found the lowest incidence of oral cancer in Kerala and the highest incidence in the state of West Bengal. In the western regions of Maharashtra highest occurrences of oral malignancy have been reported due to the habit of gutka chewing. [6] Case-control studies based on age, education, and socio-economic status to assess risk factors and prevalence of premalignant lesions and oral cancers have found the age group commonly involved with PMD is 31 to 50 years. A study conducted in Dist. Hospital in Telangana by Khan MI et al., [12] has found the existence of oral submucous fibrosis in 6.1 of dental OPD visitors. In this study, the anatomical location of lesions was 39% cases, buccal mucosa in 28% cases, retromolar trigone in 14%, hard palate in 11%, the floor of the mouth. In recent years the occurrence of oral cancers of tone and buccal mucosa has been increased in India with a greater number of cases with buccal lesions. [13] A study in Chennai reported the prevalence of oral cancer at the base of the tongue and floor of the mouth which also increases the chances of metastasis. [14] In this study, the commonest histopathological diagnosis was Oral Squamous cell carcinoma (OSCC) in 97% of cases, Adenocystic carcinoma in 2% cases, and Myoepithelial carcinoma in 1% cases. The behavior of OSCC is varying from indolent tumors to very aggressive tumors with high invasive potential. Therefore, histopathological analysis is essential to verify the proliferation of cells and maturation abnormalities, and cellular atypia including the alteration of deep tissue cytoarchitecture which is an ominous sign of higher aggressive nature of the lesion. [15] The management of the lesions depends on the type and stage of the lesion. Most of them are surgically resected and few are amenable to radiation therapy and in some cases, a combination of both may be used.

Conclusion

Oral cavity malignancies are steadily increasing in the population owing to the effects of habits such as tobacco chewing, gutka chewing, pan chewing, and alcohol consumption. Although complete prevention of oral cancers may not be possible, however, reduction in the burden of oral cancers can be achieved by reduction of risk factors, tobacco consumption, health education, and improvement of lifestyle. Additionally, recognizing and controlling precancerous lesions and early diagnosis of oral lesions, and initiation of appropriate therapy at initial stages will reduce morbidity and mortality associated with oral cancers.

References

1. J Ferlay, I Soerjomataram, R Dikshit, S Eser, et al. cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer 2015;136(5): E359-86.
2. R. Sankaranarayanan, K. Ramadas, G. Thomas et al. Effect of screening on oral cancer mortality in Kerala, India: a cluster randomized controlled trial. The Lancet 2005; 365(9475):1927-33.

3. N. Manoharan, B. B. Tyagi, and V. Raina. Cancer incidences in rural Delhi—2004–05. Asian Pacific Journal of Cancer Prevention 2010; 11(1):73–78.
4. A. Veluthattil, S. Sudha, S. Kandasamy, S. Chakkalakkoombil. Effect of hypofractionated, palliative radiotherapy on quality of life in late-stage oral cavity cancer: a prospective clinical trial. Indian J. Palliat. Care 25 2019; 383.
5. M. Singh, C.P. Prasad, T.D. Singh, L. Kumar. Cancer research in India: challenges & opportunities. Indian J Med Res 2018; 148 (2018):362–365,
6. P. Ajay, S. Ashwinirani, A. Nayak, G. Suragimath, K. Kamala, A. Sande, R. Naik, Oral cancer prevalence in Western population of Maharashtra, India, for a period of 5 years. J Oral Res Rev 2018;10(1): 11-14.
7. Akram S, Mirza T, Mirza MA, Qureshi M. Emerging patterns in a clinicopathological spectrum of oral cancers. Pak J Med Sci. 2013; 29(3):783.
8. Krishna A, Singh R, Singh S, Verma P, Pal U, Tiwari S. Demographic risk factors, affected anatomical sites and clinicopathological profile for oral squamous cell carcinoma in a north Indian population. Asian Pac J Cancer Prev. 2014; 15(16):6755–60.
9. Siddiqui IA, Khan H, Siddiqui R, Hafeez M, Dogar MR, Shahid W, et al. Oral Cancer Frequency at Different Sub-Sites Presenting at a Tertiary Care Hospital in Karachi Pakistan. Global Journal of Otolaryngology. 2017;6(3):49-53.
10. Bhawna G. Burden of smoked and smokeless tobacco consumption in India-results from the global adult tobacco survey India (GATS-India)-2009-2010. Asian Pac J Cancer Prev. 2013; 14(5):3323–29.
11. Mummudi N, Agarwal J, Chatterjee S, Mallick I, Ghosh-Laskar S. Oral cavity cancer in the Indian subcontinent–challenges and opportunities. J Clin Oncol. 2019; 31(8):520–528.
12. Khan MI, A N Yasin. Epidemiology of Oral Submucous Fibrosis in District Hospital Peddapalli, Telangana state. J Cont Med A Dent 2018; 6(3): 18-22.
13. A. Malik, A. Mishra, A. Garg, R. Shetty, M. Mair, S. Chakrabarti, D. Nair, G. Balasubramaniam, P. Chaturvedi, Trends of oral cancer with regard to age, gender, and subsite over 16 years at a tertiary cancer center in India. Indian J Med Paediatr Oncol 2018; 39(03): 297-300.
14. A. Murugesan, Sabarinath, Sivapathasundharam. Awareness of oral cancer among medical students in Chennai. J Med Radiol Pathol Surg 2016; 2:18–22.
15. Bunget AM, Dascălu IT, Coleș E, Țîrcă T, Stan M, et al. Histopathological aspects in oral squamous cell carcinoma. Open Access J Dent Sci 2018; 3 (2):000173.