

Epidemiology and Pathological Spectrum in Head and Neck Squamous Cell Carcinoma at a Tertiary Care Center from Western India

Sarjana^{1*}, Jayanti Mehta², Ajay Yadav³

¹PG Resident (IIIrd Year), ²Professor, ³Professor & Head,
Department of Pathology, SMS Medical College and Hospital, Jaipur, Rajasthan, India.

ABSTRACT

Background: Addiction to tobacco and its various forms contributes to majority of head and neck squamous cell carcinomas. In India it is the most common malignancy and its incidence has shown a persistently rising trend.

Aim: Present study was undertaken to review the epidemiology and spectrum of head and neck cancers presenting at a tertiary care centre in Western India.

Methods: It was a retrospective study reviewing records of biopsies of squamous cell carcinomas (head and neck) submitted to our centre. Features analysed were age, sex, site and histology.

Results: Tongue was the most common site involved followed by buccal mucosa. The most common age group involved was sixth decade. Moderately differentiated histology was the most common type found overall. Buccal mucosa the predominant site among young patients (<40 years).

Conclusion: This is one of the largest hospital based data from western India. This properly structured site & histology

specific data analysis can help understand the magnitude and pattern of head and neck cancer and will strengthen national cancer registry programme in India.


Key words: Cancer, Squamous, Tongue.

*Correspondence to:

Dr. Sarjana,
Room-304, Girls' Hostel,
SMS Medical College & Hospital,
Jaipur, Rajasthan, India.

Article History:

Received: 22-03-2017, Revised: 18-04-2017, Accepted: 02-05-2017

Access this article online	
Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2017.3.3.070	

INTRODUCTION

Head and Neck Cancer is the most common cancer in India (including lip, oral cavity and larynx) (GLOBOCAN - 2012).¹ It is the most common malignancy in males and the fifth most common malignancy in females in India. It is the third most common cause of cancer related mortality among males. Tobacco in its different forms is the causative agent in around one third of the whole burden of cancer in India. Estimates indicate 57% of men and 11% of women between 15- 49 years of age use some form of tobacco. At present population based cancer registries and hospital-based registries contributing to the National Cancer Registry Programme (NCRP) represent only 7 % of our population. There is paucity of data from western India. Present study was undertaken to analyze the spectrum and epidemiology of head and neck squamous cell carcinoma cases presenting at one of the largest tertiary care centers in western India.

METHODS

This was a retrospective study conducted at the Department of Pathology, SMS Medical College & Hospital, Jaipur. Study period was from January 2012 till August, 2016. The records of all

biopsies submitted during this period were screened and details of non-nasopharyngeal Head and Neck squamous cell carcinomas were extracted. The data was analyzed for age, sex, sites and histological types.

RESULTS

A total of 64333 biopsies submitted in the Department of Pathology were screened and 1989 biopsies were found to be of squamous cell carcinoma, head and neck (non-nasopharyngeal/non esophageal). The number of cases showed a consistently increasing trend since 2012 and rose upto five times in 2016. Overall the mean age was 52 yrs (20 yrs – 90yrs). The most common age group affected was 50 – 59yrs, closely followed by 6th decade. Younger patients (≤39 years) comprised 16.7% of cases. Male patients outnumbered female cases (M:F = 4.7 : 1).

Pattern of malignancies at various sites

Overall tongue was the most common site (28.2 %). Buccal mucosa was the second most common (22.3%) site after tongue. Among males 5th decade was the most affected age group and most common malignancy was tongue (26.4%) followed by buccal

mucosa (22%). Among females a higher percentage (36.5%) of tongue malignancy was seen.

Younger age group i.e. 20years to 39 years, comprised of 16.7% of the whole cohort. Among younger age group i.e. 20-39 yrs overall buccal mucosa was the most common site (43.1%) followed by tongue (33.7%).

Among younger males buccal mucosa was again the most common site (43.8%) and moderately differentiated tumors were slightly more common than well differentiated ones , i.e. 50% vs 48% respectively. Among younger females both tongue and buccal mucosa topped the list i.e. 40.8% vs 38.8 % cases, respectively.

However, well differentiated were tumors were much more commonly found in this subgroup, i.e. 65.3%. Overall among males in all age groups, tongue followed by buccal mucosa was

the most commonly involved site. Tonsils were the third most common site.

Amongs patients presenting with tongue as the primary site, median age was 51years (20yrs – 90yrs). A male to female ratio of 3.5 : 1 was present and most common age group involved was fifth decade. Moderately differentiated tumors were more common than well differentiated tumors, 61.3% nd 34.7%, respectively.

Histological grades

Overall moderately differentiated carcinoma was the most common histology (60%) followed by well-differentiated grade (36%). Among females well-differentiated histology was more common than that among males (46% vs 33%).

Among younger patients (20-39years), moderately differentiated tumors were the common (50%) and were closely followed by well differentiated tumors (48%).

Fig 1: Time trends

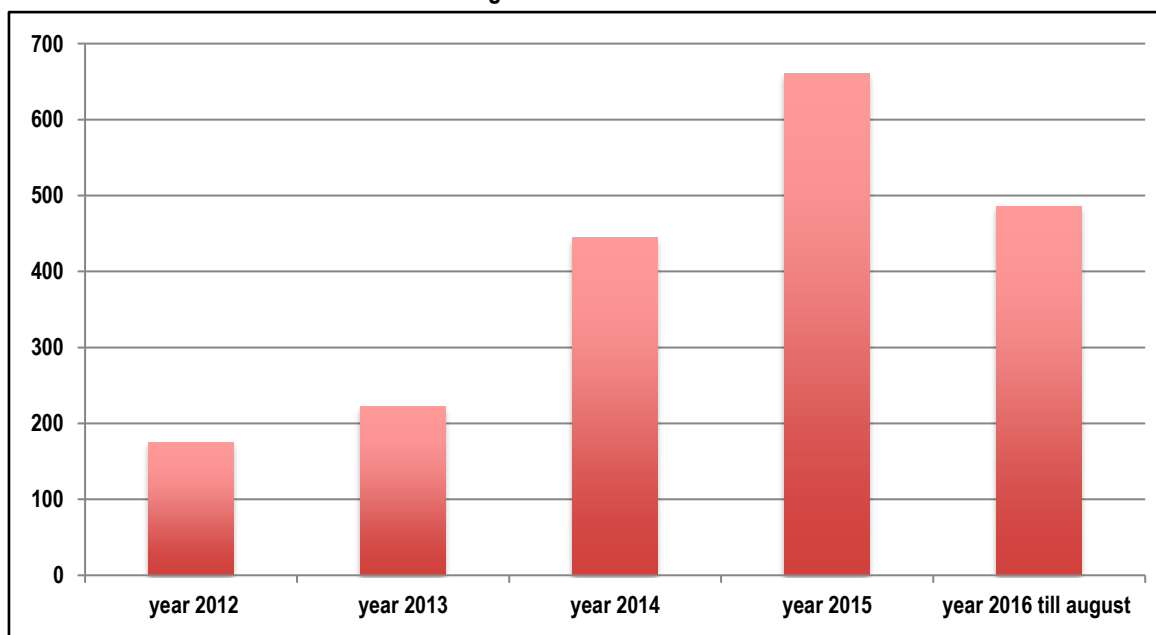


Fig 2: Age groups

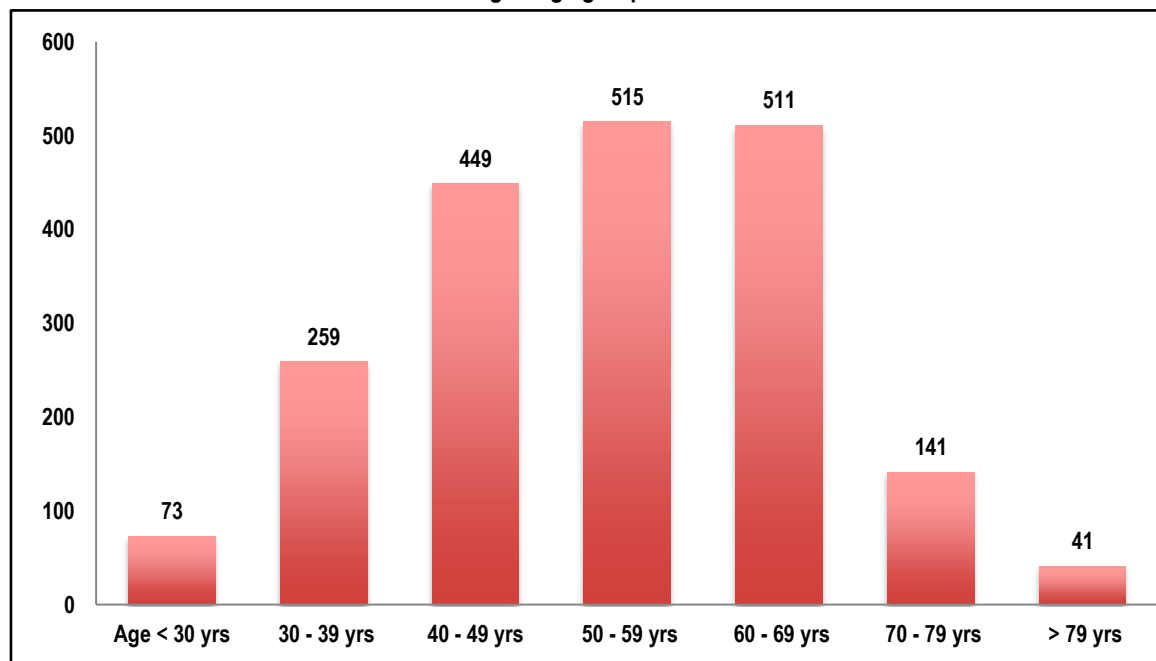


Table 1: Distribution of study population according to site of oral cancer and gender

Site	Male (%)	Female (%)	Total
Lip	30 (65.2)	16 (34.8%)	46 (2.3%)
Buccal mucosa	363 (81.7)	81 (18.3%)	444 (22.3%)
Tongue	435 (77.5%)	126 (22.5%)	561 (28.2%)
Oral cavity	237 (82.8%)	49 (17.2%)	286 (14.4%)
Oropharynx	306 (87.4%)	44 (12.6%)	350 (17.6%)
Larynx	206 (88.0%)	28 (12%)	234 (11.7%)
Hypopharynx	67 (94.3%)	4 (5.7%)	71 (3.5%)
Total	1644 (82.6%)	345 (17.4%)	1989 (100%)

DISCUSSION

Over the years the number diagnosed cases of head and neck squamous cell cancers have been increasing at our centre, possibly because of improved diagnostic facilities and an early recognition. Government run national programmes and improving health facilities have helped improve the situation in this part of the country.

The male: female ratio in our study was 4.8: 1 similar to study by Gervasio et al², however this was little higher than other reported incidence^{3,4} done in other parts of the country. The possible reason could be a higher prevalence of tobacco abuse among men and underreporting among females due to skewed social structure in this part of country. The most common age group in affected our study was 5th and 6th decade, similar to other published studies.⁵⁻⁹

We found tongue to be the most common site (28%). Similar studies from different parts of our country has shown tongue to be the predominant type.^{3,10} It has also been found to be the commonest site in multiple studies from Europe and other developing countries.¹¹⁻¹⁴

Moderately differentiated histology was the most commonly observed type overall, similar to previous studies by Bhat et al⁶ & Fabio et al⁸. Other studies from other parts of the country has shown well differentiated tumors to be more common.^{3,4}

Among young patients (20 - 39yrs) buccal mucosa was the most common site followed by tongue, similar to data from Sasaki et al.¹⁵ This is in contrast to an earlier report by Iype et al.¹⁴ where tongue outnumbered buccal mucosa in this age group. Moderately differentiated (50%) and well differentiated tumors (48.2%) were almost equally distributed. Previous studies^{14,15} have earlier showed a higher percentage of well differentiated tumors in younger patients. A predominance of moderately differentiated tumors and well differentiated tumors in young males and females respectively has earlier been shown by Malhotra et al.¹⁶

There are several limitations in this study such as being a retrospective analysis from a hospital based records, it might not be a true indicator of the burden of disease in the wider population. The data regarding history of consumption of tobacco in its various forms is lacking.

However, this study represents spectrum of head and neck cancers attending one of the largest tertiary care centres in western India. It also depicts the variability of site and histology in relation to sex and different age groups. Similar studies from other parts of the country will strengthen National Cancer Registry Programme and will also help formulate more efficient government policies.

REFERENCES

1. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. GLOBOCAN 2008 v2.0, Cancer incidence and mortality worldwide: IARC Cancer Base No. 10 [Internet]. Lyon, France: International Agency for Research on Cancer; 2010.
2. Gervásio OL, Dutra RA, Tartaglia SM, Vasconcelos WA, Barbosa AA, Aguiar MC. Oral squamous cell carcinoma: a retrospective study of 740 cases in a Brazilian population. *Braz Dent J.* 2001;12:57-61.
3. Patel MM, Pandya AN. Relationship of oral cancer with age, sex, site distribution and habits. *Indian J Pathol Microbiol* 2004; 47 (2):195-197.
4. Bhat SP, Ramesh NCN, Swetadri GK, D'souza H, Jayaprakash CS, Bhat V. Clinicopathological spectrum of malignancies of oral cavity and oropharynx – our experience in a referral hospital. *World articles in Ear, Nose and Throat.* 2010;3(2).
5. Abhinandan B, Chakraborty A, Purkaystha P. Prevalence of head and neck cancers in the North East-An institutional study. *Indian J Otolaryngol Head Neck Surg* 2006; 58:15-19.
6. Bhat Shubha P, Bhat Vadisha, Permi Harish, Shetty K Jayaprakash, Aroor Rajeshwari, Bhandary B Satheesh Kumar. Oral and oropharyngeal malignancy: A clinicopathological study. *IJPLM.* 2016;2(1):OA3
7. Purushottam A. Giri, Kailash K. Singh, Deepak B. Phalke. Pattern of oral cancer registered at a tertiary care teaching hospital in rural Western Maharashtra *Int J Res Med Sci.* 2013; 1(3): 233-236.
8. Fábio Ramoã Pires, Amanda Barreto Ramos, Jade Bittencourt Coutinho de Oliveira, Amanda Serra Tavares, Priscilla Silva Ribeiro da LUZ et al. Oral squamous cell carcinoma: clinicopathological features from 346 cases from a single oral pathology service during an 8 year period. *J Appl Oral Sci* 2013 Sep-Oct;21(5):460-7.
9. Ahluwalia H, Gupta SC, Singh M, Gupta SC, Mishra V, Singh PA, et al. Spectrum of Head -Neck cancers at Allahabad. *Indian J Otolaryngol Head Neck Surg* 2001;53(1):16-21
10. Mehrotra Ravi, Pandya Shruti, Choudhary Ajay Kumar, Kumar Mahendra, Singh Mamta. Prevalence of oral pre-malignant and malignant lesions at a Tertiary Level Hospital in Allahabad, India. *Asian Pacific Journal of Cancer Prevention.* 9:263-266, 2008.
11. Durazzo MD, Araujo CEN, Neto JSB, Potenza AS, Costa Pedro, Takeda F et al. clinical and epidemiological features of oral cancer ina medical school teaching hospital from 1994 to 2002: increasing incidence in women, predominance of advanced local disease, and low incidence of neck metastases. *CLINICS* 2005;60(4)293-298.

12. Brandizzi D, Gandolfo M, Velazco ML, Cabrini RL, Lanfranchi HE. Clinical features and evolution of oral cancer: A study of 274 cases in Buenos Aires, Argentina. *Med Oral Patol Oral Cir Bucal*.2008;13(9):544-548.
13. Moore SR, Johnson NW, Pierce AM, Wilson DF. The epidemiology of tongue cancer: a review of global incidence. *Oral Dis* 2000;6:75–84.
14. Iype EM, Pandey M, Mathew A, Thomas G, Sebastian P, Nair MK. Oral cancer among patients under the age of 35 years. *J Postgrad Med* 2001;47(3):171-176.
15. Sasaki T, Moles DR, Imai Y, et al. Clinico-pathological features of squamous cell carcinoma of the oral cavity in patients <40 years of age. *J Oral Pathol Med*. 2005;34:129-133.
16. Mehrotra Ravi, Singh Mamta ,Gupta Raj Kishore, Singh Manish, Kapoor Anil K. Trends of prevalence and pathological spectrum of head and neck cancers in North India, *Indian Journal of Cancer*, 42(2), 2005,89-93.

Source of Support: Nil.

Conflict of Interest: None Declared.

Copyright: © the author(s) and publisher. IJMRP is an official publication of Ibn Sina Academy of Medieval Medicine & Sciences, registered in 2001 under Indian Trusts Act, 1882.

This is an open access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Cite this article as: Sarjana, Jayanti Mehta, Ajay Yadav. Epidemiology and Pathological Spectrum in Head and Neck Squamous Cell Carcinoma at a Tertiary Care Center from Western India. *Int J Med Res Prof*. 2017; 3(3):344-47. DOI:10.21276/ijmrp.2017.3.3.070