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Incidence of Head and Neck Cancers in an Urban Cancer Centre in Western Odisha- A Retrospective Analysis

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Abstract:*Aim- Oral Cavity Cancer is the most common among all the head and neck cancer in India. Our study evaluates the incidence & the demographic profile of head and neck cancer cases in a urban cancer centre in Eastern part of India.Methods:-This retrospective study was done in Radiotherapy Department of Veer Surendra Sai Institute of Medical Sciences (VIMSAR), Burla of Sambalpur district, Odisha, India, for a period of three year, from 1st April 2014 to 31st March 2017. Total 368 head and neck cancer cases were reported during this period.Results:-The incidence of Head and Neck cancer was found to be 16.15%. The Male were affected more than the female.The median age of occurrence was 53 years. The most commonly affected age group was 41-60 years (52.45%). Among all the head and neck cancer, Tongue cancer was the most common (28.26%) followed by Buccal Mucosa (19.02%).We found a strong association between the use of tobacco (bhang) and Head & neck cancer. Conclusion:Oral cavity cancers are the most common head and neck cancer and the incidence among the male are more and are associated with tobacco chewing habit. Knowing the etiology, there is a need to intervene by the Government and NGOs at this level which can help to decrease the incidence and prevent early mortality.*

Keywords:*Head and Neck Cancers, Tongue cancer, Incidence.*

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I. Introduction

Information is strength and this is the era of information. One can always have uncorroborated individual perceptions and impression-estimated views on any context, but this may depart so widely from reality that it can hardly serve as a basis of any scientific analysis. When relevant data are collected for a pre-determined purpose and are properly analyzed i.e., placed in relation to each other, it leads to unbiased and realistic conclusions. Information brings necessary amendment and elasticity in the driving policies.

Among the leading causes of death globally cancer stands as the number one[1]. By the year 2030, cancer is estimated to affect 20 million individuals globally[2]. Around 1 million cancer cases are detected and there are 0.63 million cancer deaths yearly in India[1,2]. Also, lung and oral cancers are the commonest cancers for men and breast and cervical cancers are the commonest cancers for women[3]. Although there are some studies highlighting trends in head and neck cancer burden across our country, yet there is paucity of knowledge base regarding its burden in the states of eastern India such as Odisha. Hence the present study was undertaken to assess the incidence of head and neck cancer in an urban cancer centre in Western Odisha perhaps for the first time.

Understanding the socio-territorial dispersion of specific cancer is pre-requisite to earmark cancer control strategy and to stimulate more studies into the roots and reasons of cancer.

II. Material And Methods

A retrospective study was performed at Department of Radiotherapy, Veer Surendra Sai Institute of Medical Sciences (VIMSAR), Burla, an urban cancer centre in Western part of Odisha for a period of three years from 1st April 2014 to 31st March 2017. Data of total 368 head and neck cancer patients were reported in this study.

Study Design: Retrospectiveobservational study

Study Location: This was a tertiary care teaching hospital based study done in Department of Radiotherapy of Veer Surendra Sai Institute of Medical Sciences (VIMSAR), Burla of Sambalpur district, Odisha, India

Study Duration: April 2014 to March 2017

Sample size: All patients presenting with head and neck cancer in the 3 year period.

Subjects & selection method:The study population was drawn from among the patients who presented to VIMSAR with cancer and were diagnosed to have head and neck cancer between April 2014 to March 2017. All the cases included in this study were histopathologicallyproven Squamous Cell Carcinoma.

Procedure methodology
Data was collected from records and registers of Outdoor of Department of Radiotherapy, VIMSAR. Socio-demographic characteristics such as age, gender, nativity were noted. The type of head and neck cancer i.e whether cancer of tongue, buccal mucosa with which the patient had presented was noted down. Along with it history of tobacco intake in any form was noted.

III Result

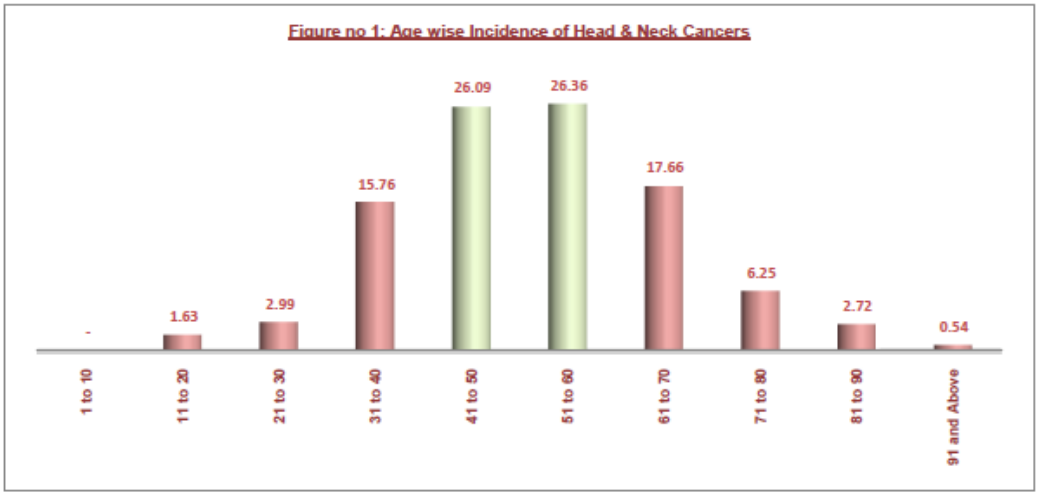
During these three years, 2278 cancer patient had attended our OPD, out of which 368 were head and neck cancer cases. The incidence of Head and Neck cancer cases in our three year study amounts to 16.15% of total malignancies. The incidence of various head and neck cancers classified on the basis of their site is shown in Table no. 1. The incidence of head and neck cancer is more in male than female. The total no. of males with head and neck cancer is 237 and the total no. of females was 131.The ratio of male to female is found to be 1.8:1

Table 1: Year wise incidence of Head & Neck cancers reported at VIMSAR, Burla

Sl. No.	Site	2014-15	2015-16	2016-17	TOTAL	%age
	Oral Cavity					
1	Tongue	29	41	34	**104**	**28.26**
2	Buccal Mucosa	22	26	22	**70**	**19.02**
3	Palate	4	6	9	**19**	**5.16**
4	Alveolus (GBS)	10	4	10	**24**	**6.52**
5	Lip	5	2	6	**13**	**3.53**
6	Carcinoma RetromolarTrigone	1	-	1	**2**	**0.54**
7	Floor of Mouth	2	-	-	**2**	**0.54**
	Larynx					
8	Larynx	14	13	16	43	11.68
	Oropharynx					
9	Tonsils	2	1	-	3	0.82
10	Uvula	1	-	-	1	0.27
	Hypopharynx					
11	Hypopharynx	5	7	5	17	4.62
12	Post Cricoid	4	2	4	10	2.72
	Naso Pharynx					
13	Naso Pharynx	5	5	7	17	4.62
	Salivary Glands					
15	Parotid	4	3	1	8	2.17
14	Pleomorphicadenoma Submandibular Gland	3	1	-	4	1.09
	Others					
16	Thyroid	2	6	4	12	3.26

17	Maxilla	4	1	2	7	1.90
20	Carcinoma Ear	2	2	1	5	1.36
18	Basal cell Carcinoma	1	2	1	4	1.09
19	Adenocystic carcinoma	-	2	-	2	0.54
21	Carcinoma Nostril	-	1	-	1	0.27
TOTAL		**120**	**125**	**123**	**368**	**100.00**

The median age of incidence of head and neck cancer is 53 year. Age wise distribution of new cases of head and neck cancers is depicted in Figure no. 1.



As evident from the above figure no.1, the age wise spread looks very normal and the maximum occurrences tend to concentrate around the middle ages. For Head and Neck cases, the most affected age group was 51-60 with 26.36%, narrowly followed by 41-50 with 26.09%. So the combined age group from 41-60 with 52.45% becomes the most affected group.

This Department of Radiotherapy, though primarily intended for the Western part of Odisha, it also serves patients from neighbouring states like Chhattisgarh and Jharkhand. Table no 2 show the territorial incidence of Head & Neck cancers. Following are major territories of incidence of Head & Neck cancers.

Table no. 2

Geographical Territories of Incidence of Head & Neck Cancers

Sl. No.	District	State	% Incidence
1	Sambalpur	Odisha	27.45
2	Bargarh	Odisha	25.82
3	Balangir	Odisha	10.33
4	Sundargarh	Odisha	8.42
5	Sonepur	Odisha	8.15
6	Jharsuguda	Odisha	7.61
7	Deogarh	Odisha	3.26
8	Nuapada	Odisha	1.90
9	Raigarh	Chhattisgarh	1.63
10	Mahasamund	Chhattisgarh	1.09
11	Angul	Odisha	0.82
12	Baudh	Odisha	0.82
13	Ganjam	Odisha	0.82
14	Jashpur	Chhattisgarh	0.54
15	Gariaband	Chhattisgarh	0.27
16	Kalahandi	Odisha	0.27
17	Keonjhar	Odisha	0.27
18	Medinipur	West Bengal	0.27
19	Nabarangpur	Odisha	0.27
	Total		100.00

Figure no 2 shows incidence of various Head and Neck cancers. Tongue cancer is the largest with 28.26% followed by Bucal Mucosa with 19.02 and Larynx with 11.68%. These three major types account for around than 59% of all Head and Neck cancers.

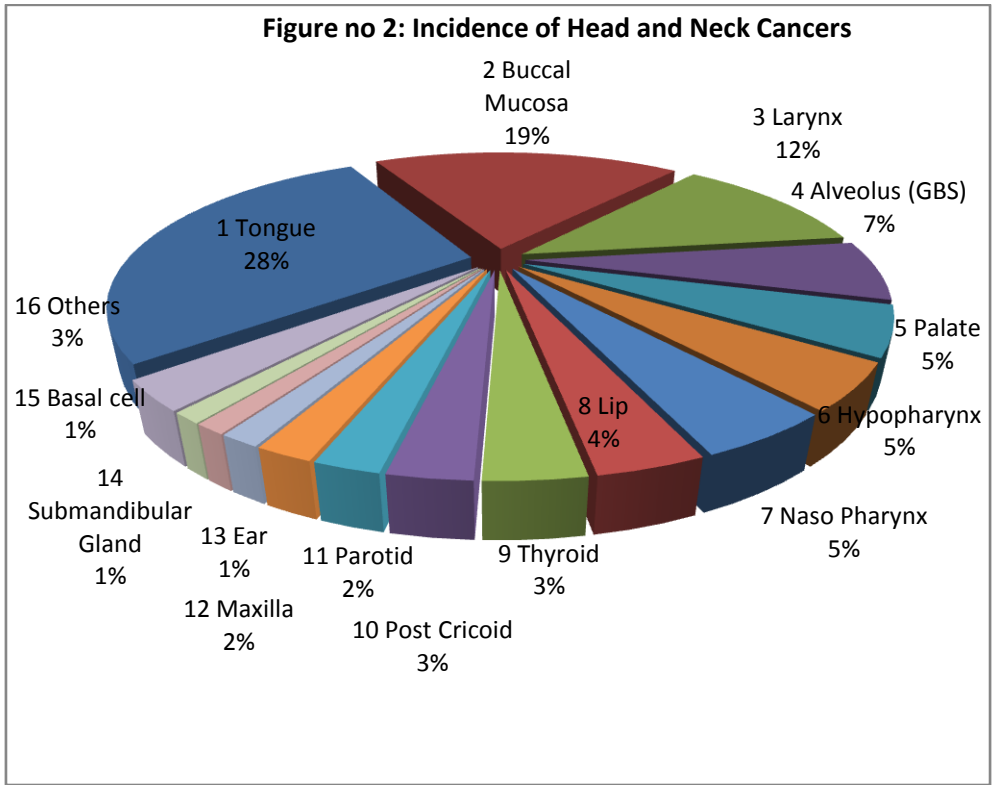
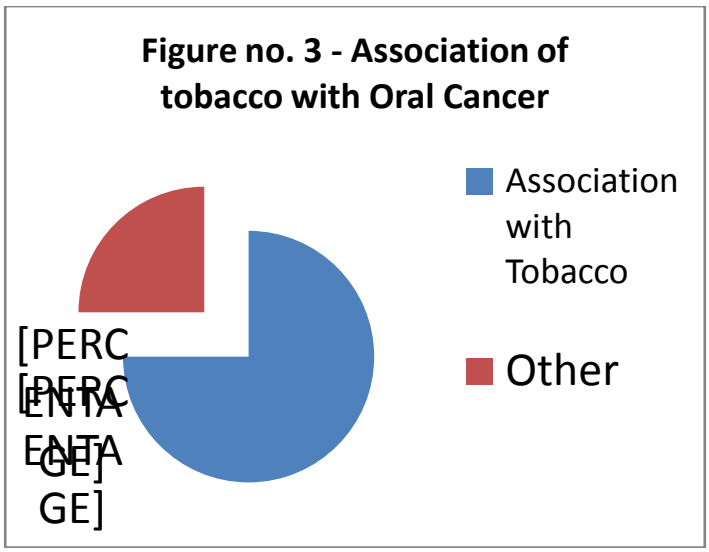


Figure no 3 depicts association of tobacco with oral cancer.



III. Discussion

57% of global head and neck cancer occurs in Asian countries, especially in India. And in India head and neck cancer accounted for 30% of all the cancers in males and 11 to 16% in females [5,6]. Similar results are shown by our study in which new cases of head and neck cancers account for 16.15% of the total cancer burden.

In our study we found that Oral Cavity cancer was the most common among the Head and neck cancer (85.6 %). Amongst it more than one third was cancer of the Tongue (28.26 %) and Buccal mucosa (19.02%). This corroborates with previous studies by Mishra et al where he studied regional trends of head and neck cancer in India. It was found in their study that the incidence of cancer tongue in India is much higher (around

2-3 times) than the other countries such as U.K, Australia, Brazil etc[7]. This can be attributed to increased consumption of tobacco and tobacco related products amongst Indians as tobacco is known to be a risk factor for the development of carcinoma tongue.

Within the country, there is a varied geographical distribution. Bhopal has the highest age standardized incidence of both tongue (10.9) and oral cancers (9.6) in the world[8].Bihar falls into a high risk head and neck cancer geographical zone as per studies done by Rohan and Mundi as the presentation of the patient is late and treatment is not optimal in this region[9]. Also higher rates of cancer tongue have been reported in the western India (Ahmedabad) in males and the female preponderance was seen in the southern parts of the country i.e Pondicherry and Trivandrum. (Pillai et al) [10]. This may be due to better patient awareness and their will to seek medical treatment in the rather developed parts of the country i.e western and southern India, resulting in better reporting of the cases. Even data from the Kolkata registry showed that the overall age adjusted incidence rates of head and neck cancer was 102.1 per 1 lakh males and 114.6 per 1 lakh females among which cancer of the oral cavity was the second commonest with an incidence of 7.1%[11].Considering the microscopic age standardized rates of incidence of cancer the highest rates were shown by the north-eastern states , mainly from the aizwal registry (10.2/100,000) which was higher than previous reports from Bhopal (10/ 100,000) showing the increasing trends of head and neck cancer in north-eastern and eastern states of the country[12].

The males were affected more commonly than females (1.8:1) as per our study. This is in concordance with previous similar studies across the country[7]. Our Department of Radiotherapy though primarily intended for the Western part of Odisha, yet it also serves patients from neighbouringChhatisgarh and Jharkhand. Table 2 shows the territorial incidence of Head & Neck cancers.Sambalpur district has the maximum incidence with 27.45% followed by Bargarh with 25.82% and then by Balangir with 10.33%. These three district along with Sundargarh and Sonepur account for more than 80% of the incidence from where patients came to seek treatment in the hospital because of their better awareness, communication and socio economic status of the patient in these areas.

Most of the Head and Neck cancer cases are associated with tobacco use mainly oral cavity cancer. Cigarette smoke contains more than 60 carcinogens and chewing or smokeless tobacco contains at least 16 carcinogens,There are innumerable types of chewable tobacco and related products manufactured in the country such as pan masala, guttka, pukar, khaini that are easily accessible to the common man which when kept for longer times in the buccogingival sulcus accounts for higher incidences of oral cavity cancer. In our study we found that around 75% of our head and neck cancer patients were tobacco chewer, smoker or both. It is seen that more than 90% of oral cancers were associated with use of tobacco product and the chances of cancer are increased with alcohol consumption [13,14]

IV. Conclusion

Oral cavity cancers are the most common head and neck cancer and the incidence among the male are more and are associated with tobacco chewing habit. Knowing the etiology, there is a need for intervention by the government and NGO's which can help to decrease the incidence and prevent early mortality. Also there is a need to establish cancer registries in states such as Odisha, Bihar, Jharkhand which would help in better record-keeping and implementation of health care policies.

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