

Incidence of Head & Neck Cancers in Western India: A Cancer Center Based Retrospective Analysis

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Abstract: **Aim:** An audit of head and neck cancer cases is a need based study to find its incidence as compared to other total body malignancies. **Material and Methods:** This is an Institutional retrospective analysis which was done at Curie Manavata Cancer Centre in northern Maharashtra, Western part of India from 14th May 2007 to 21st September 2014. Total cases operated at the centre were 14368 out of which 1802 were head and neck cancers. **Results:** Incidence of Head & Neck cancer cases in our 7 years study contributes around 11.1%. Males are more affected for Head & Neck cancer than females contributing for around 82.01% followed by females, which is around 17.9%. Oral cavity malignancies contribute around 76.6% out of all head & neck cancer cases followed by larynx which is around 11.48%. The least affected is cancer of cheek which is around 0.01%. Tongue cancers are more commonly affected which is around 33.4% followed by Buccal mucosa which is 29.77%, Alveolus is 8.71%, Tonsil is 2.9% , Palate is 2.66% and least is RMT which is around 0.1%. The mortality rate is high in buccal mucosa (32.35%) followed by tongue (27.4%) and then alveolus which is around 25.1%. **Conclusion:** This retrospective study hopes to quantify and analyze the spectrum of Head and neck cancer out of the other total body malignancies. A tremendous effort is needed to identify such high prevalence and incidence, generate awareness and establish treatment modalities to meet this challenging statistical analysis.

Keywords: Head and Neck Cancers, Oral Cavity Malignancies, Tongue Cancer, Cheek, Buccal Mucosa.

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I. Introduction

Head and Neck Cancers (HNCA) are emerging as major health problems in India. Overall 57.5% of global head & neck cancers occur in Asia, Out of which around 30-35% occur in India [1,2]. Oral cancers contribute for around 9.4% [3]. HNCA is the sixth most common disease in males and seventh in females. Need based epidemiological studies are important for understanding such threats to the nation from non communicable diseases like cancer and find ways to defy such threats which will assume increasing importance. HNCA in India has a variant demographic profile, etiological factors, food habits, personal and family history. Epidemiological analysis is often necessary to find out all these parameters to implement cancer control activities [4]. The burden of cancer in India is on rise due to increase in longevity of the growing population.

HNCA in advanced stages can often cause varying degrees of structural and functional deformities depending on the site, size and pattern of spread. There is always a decrease in the quality of life which can induce additional mutilation. Over 2,00,000 HNCA occur every year in India [5,6]. Nearly 80,000 are diagnosed every year in the country [7]. Most of the HNCA is caused due to Betel Nut chewing and other tobacco related products. Human Papilloma virus is also one of the cause for HNCA in the present decade [8].

II. Materials & Methods

An Institutional retrospective study was performed in a specialized cancer centre "Curie Manavata Cancer Centre", Nasik, in Northern Maharashtra, demographically Western part of India during a 7 year period from 14th May 2007 to 21st September 2014. The institute has a special setup starting from surgical oncology, medical oncology and radiation oncology with a daily patient flow of 200 out patients and 50 to 60 In patients per day. The institute also has PET scan installed with Liner accelerator (LINAC). This centre is also audited by National accreditation board for health and healthcare professionals (NABH). There were 14368 cases of total body malignancies operated during this period out of which 1802 were HNCA cases. All the cases included in this study were histopathologically confirmed as HNCA. Table 1 gives the list of all HNCA cases treated at this centre.

III. Results

Incidence of HNCA cases in our 7 years study contributed to around 11.1% out all total body malignancies (Graph 1). Such high prevalence is indicative of low socio economic status, Gutka , Betel nut chewers , smoking and drinking habits in Northern Maharashtra.

Graph II shows that Tobacco chewing shows males affliction for HNCA with 37 % , smoking with 7 % , drinking with 27.5% , Viral (HPV) with 0.3%. Most of the males are affected with combination of above predisposing factors with 28.2%. Among females, Tobacco is sole chief factor for HNCA with 94% followed by smoking with 11 % , drinking with 4 % , HPV with 3% and combination of the factors with 0.1% .

Graph III shows males contribute for around 82.01% followed by females which is around 17.9%. This is due to most of the males are exposed to such habits of smoking and drinking alcohol.

Graph IV shows oral cavity malignancies contribute around 76.6% out of all HNCA cases followed by larynx which is around 11.48%. Thyroid cancers are affected with a percentage of 6.4% followed by oropharynx with 3.44%. The least affected is cancer of cheek which is around 0.01%.

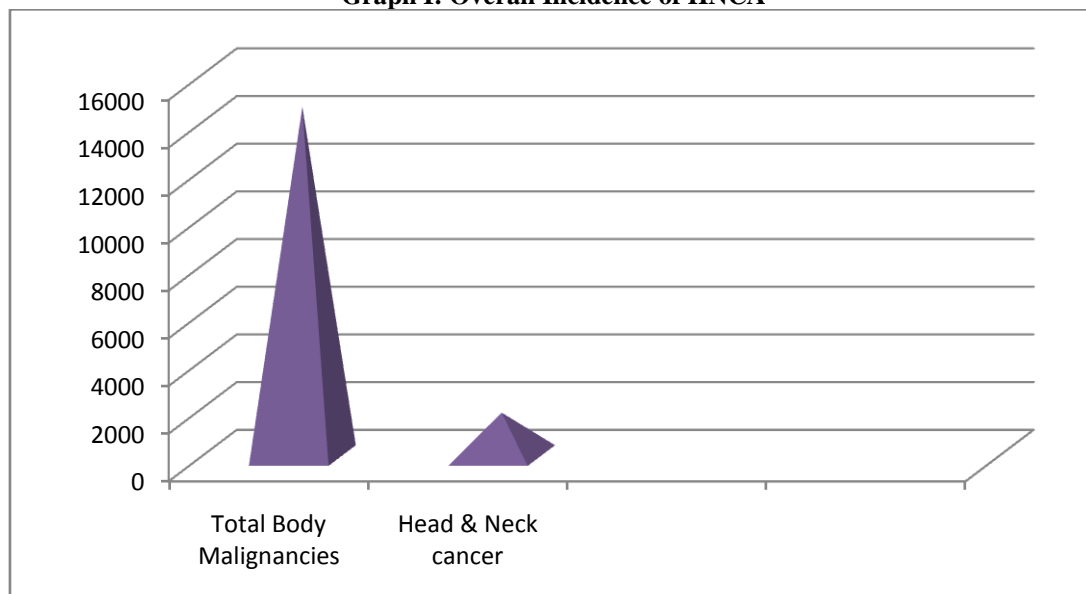
Graph V shows tongue cancers are more commonly affected within oral cavity which is around 33.4% followed by Buccal mucosa which is 29.77%, Alveolus is 8.71%, Tonsil is 2.9 % , Palate is 2.66% and least is RMT which is around 0.1%. Graph VI shows the mortality rate is high in buccal mucosa (32.35%) followed by tongue (27.4%) and then alveolus which is around 25.1%.

IV. Figures And Tables

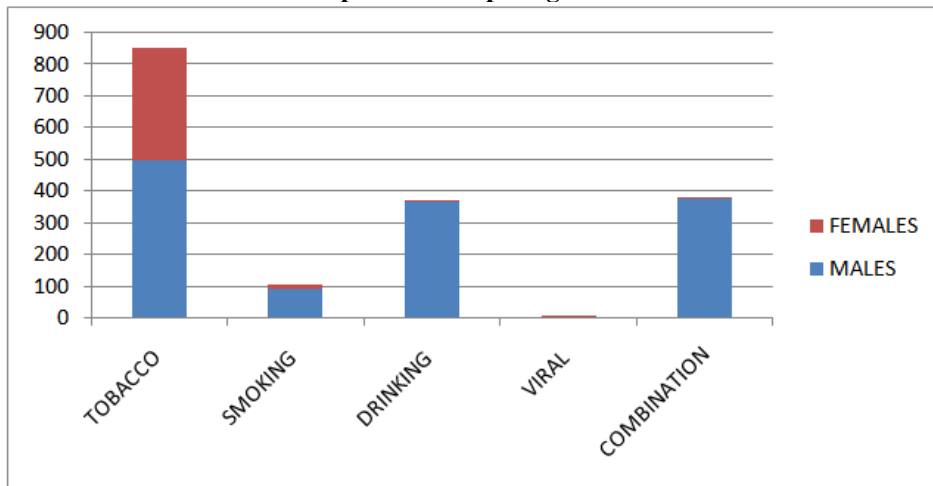
Table 1: Statistics of Various Head and Neck Cancer Cases

S.NO	DIAGNOSIS	TOTAL	MALE	FEMALE
1.	Tongue	546 (30.29%)	428 (78.38%)	117(21.42%)
2.	Buccal Mucosa	502 (27.85%)	427(85.05%)	75(14.94)
3.	Larynx	207 (11.48%)	188 (90.82%)	19 (9.17%)
4.	Alveolus	147(8.15%)	119 (80.95%)	28 (19.04%)
5.	Thyroid	116(6.4%)	38(32.75%)	78 (62.25%)
6.	Oropharynx	62 (3.44%)	57 (91.93%)	5 (8.06)
7.	Maxilla	51 (3.02%)	33 (64.70%)	18 (35.29%)
8.	Tonsils	49 (2.9%)	43 (87.75%)	6 (12.25%)
9.	Palate	45 (2.49%)	34 (75.55%)	11(24.44%)
10.	Hypopharynx	25 (1.38%)	22 (88%)	3 (12%)
11.	Nasopharynx	21 (1.16%)	13 (61.90%)	8 (38.09%)
12.	Salivary Glands	11(0.6%)	7 (63.63%)	4(36.36%)
13.	Lip	8(0.4%)	6 (75%)	2 (25%)
14.	Scalp	5(0.02%)	3 (60%)	2 (40%)
15.	RMT	3 (0.1%)	3 (100%)	0 (0.00%)
16.	Orbit	3 (0.1%)	2 (66.66%)	1 (33.33%)
17.	Cheek	1 (0.01%)	1 (100%)	0

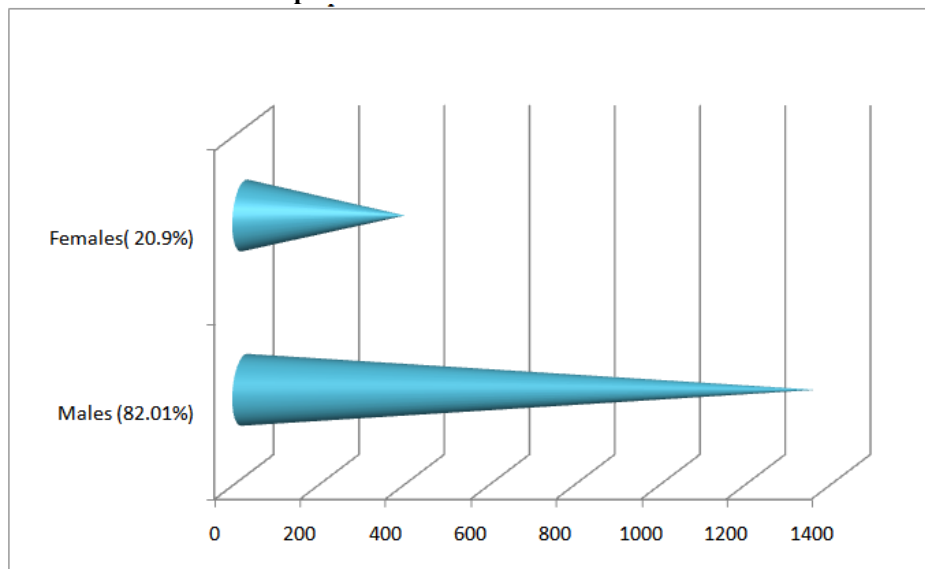
Graph I: Overall Incidence of HNCA



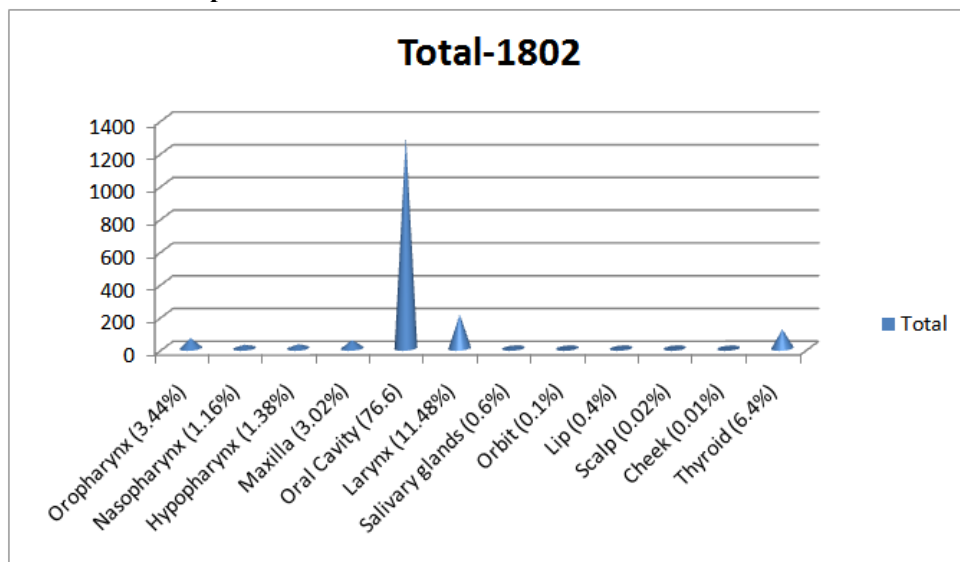
Graph II: Predisposing Factors



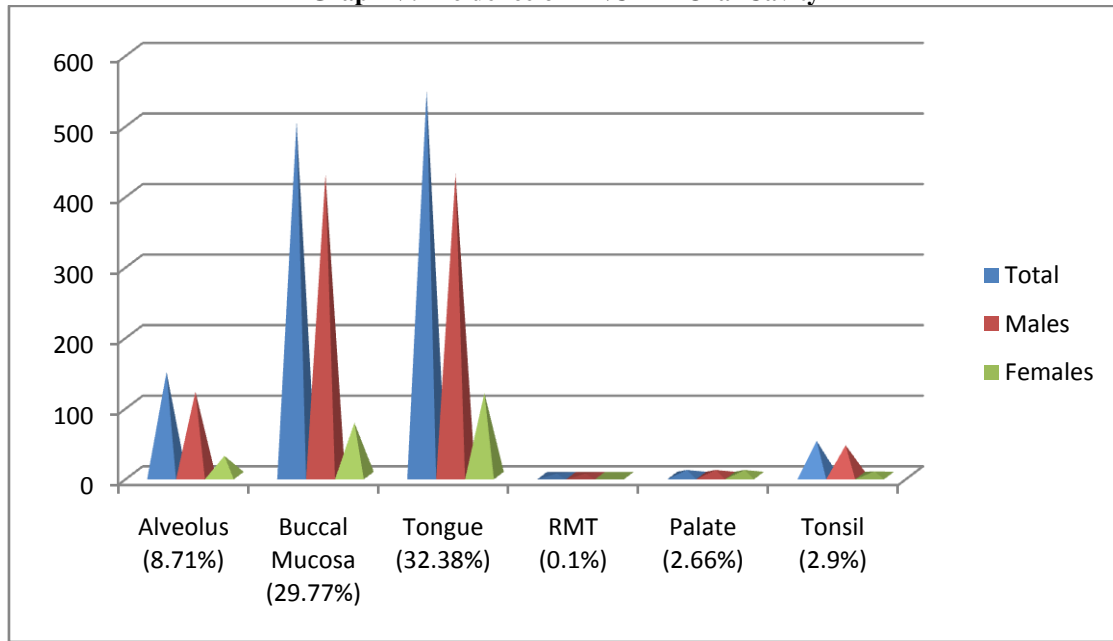
Graph III: Gender Distribution HNCA



Graph IV: Incidence of Various Head and Neck Cancers

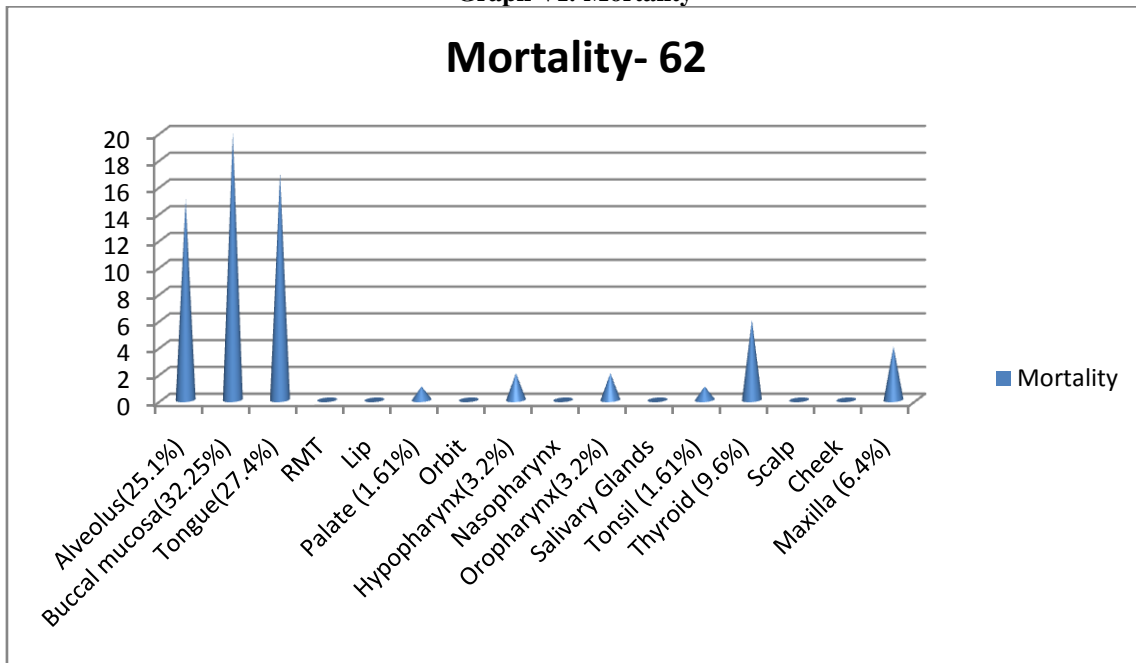


Graph V: Incidence of HNCA in Oral Cavity



Graph VI: Mortality

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V. Discussion

Most of HNCA and mortality is due to predisposition linked to certain genetic mutations and also due to exposure to carcinogenic lifestyle behaviors. Tobacco smoking in the form cigarettes, Bidis, cigars, reverse smoking which are more common in northern Maharashtra is a major contributing factor for the prevalence of HNCA. Studies shows around 57% of all men and 11 % women in India between 15 to 50 years use some form of tobacco[8,9]. Results from world health survey and global youth tobacco survey also reveals that 10 to 20 % of students in 8th to 10th grades currently use tobacco in some form[10].

The strong association of oral cavity and laryngeal cancers with tobacco use are well recognized. Our epidemiological study shows that oral cavity is affected with 76.6% of all HNCA cases followed by larynx with 11.48% cases. Studies also reveal the incidence of developing cancer is 5 to 9 times more in smokers than non smokers[11]. Carcinogenic tobacco is other major factor in HNCA. Most of the females are exposed to it in India. Varied precancerous lesions and conditions are caused due to betel nut/ quid chewing. Regular alcohol

consumption is associated with 2 to 3 fold higher risk in drinkers than amongst non drinkers[12]. Over all 7 to 19 % of the oral cavity cancer were attributed to regular alcohol drinking.

Combination of alcohol and smoking increases the risk of cancers by 11 fold[13]. This can also be combined with bidi or cigarette smoking. Human Papilloma virus (HPV) infection is other viral cause for causing various cancers of the body like HNCA , cervical cancers, genital cancers and skin cancer[14,15,16].

Our statistical analysis conclude that tobacco is one of the chief cause for HNCA in both males and females and combination of predisposing factors are generally seen in males who are exposed to 11 fold higher risk for HNCA. The dominant area which was involved in HNCA was the oral cavity which was 76.6%. Out of all those oral cavity cancers, tongue is the most commonly affected with an incidence of 32.38% followed by buccal mucosa with 29.77%. The other parameter which was evaluated was the mortality rate. It was 3.4 % in HNCA cases.

The increasing number of HCNA cases is a major cause for their mortality and morbidity and change in the quality of life of the patient [17,18,19,20]. Over and above all the predisposing factors, lack of awareness about HNCA and ineffectively running prevention programmes have made the scenario worse. Though the mortality rate in our study analysis was found to be low but the incidence and prevalence of HNCA is still a major problem in India.

VI. Conclusion

This retrospective study hopes to quantify and analyze the spectrum of Head and Neck cancer out of the other total body malignancies. A tremendous effort is needed to identify its incidence and prevalence throughout the country, generate awareness and establish screening, prevention and intervention modalities to meet this challenging statistical analysis

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